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Date
12.04.07

Reference MCK/MS/P21983EP	Application No./Patent No. 97301600.9 - 1246 / 0803987
Applicant/Proprietor UNIVERSAL ELECTRONICS, INC.	

Communication regarding the expiry of the time limit within which notice of opposition may be filed

You are hereby informed that on expiry of the nine-month time limit from the publication of the mention of the grant of European Patent No 0803987 no notice of opposition had reached the files.

The entry in the Register of European Patents will be automatically generated by the electronic data processing system.

Examining Division



EPPU 02: 07.06.06 1246



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Date

11.05.06

Reference MCK/MS/P21983EP	Application No./Patent No. 97301600.9 - 1246 / 0803987
Applicant/Proprietor UNIVERSAL ELECTRONICS, INC.	

Decision to grant a European patent pursuant to article 97(2) EPC

Following examination of European patent application No. 97301600.9 a European patent with the title and the supporting documents indicated in the communication pursuant to Rule 51(4) EPC dated 05.12.05 is hereby granted in respect of the designated Contracting States.

Patent No. : 0803987
 Date of filing : 11.03.97
 Priority claimed : 23.04.96/US 636666

Designated Contracting States
 and Proprietor(s) : BE DE ES FR GB IT NL
 UNIVERSAL ELECTRONICS, INC.
 1864 Enterprise Parkway
 Twinsburg,
 Ohio 44087/US

This decision will take effect on the date on which the European Patent Bulletin mentions the grant (Art. 97(4) and (5) EPC).

The mention of the grant will be published in European Patent Bulletin 06/23 of 07.06.06.

Examining Division

Tzimeas K

Sorrentino A

Lindhardt U



ANMERKUNG ZUR ENTSCHEIDUNG ÜBER DIE ERTEILUNG
EINES EUROPÄISCHEN PATENTS (EPA Form 2006)

1. **EPA Informationsbroschüre "Nationales Recht zum EPÜ"**
Diese Broschüre enthält nützliche Informationen zu den formalen Erfordernissen und den Handlungen, die vor den Patentbehörden der Vertragsstaaten vorzunehmen sind, um Rechte in diesen Staaten zu erlangen. Da diese Handlungen einem ständigen Wandel unterworfen sind, sollte immer nur die neueste Ausgabe der Broschüre benutzt werden. Nachträgliche Informationen werden im Amtsblatt veröffentlicht.
2. **Übersetzung der europäischen Patentschrift nach Artikel 65(1) des Europäischen Patentübereinkommens**
Sie werden erneut darauf hingewiesen, dass bestimmte Vertragsstaaten nach Artikel 65(1) EPÜ eine Übersetzung der europäischen Patentschrift verlangen; hierauf wird in der Mitteilung gemäss Regel 51(6) verwiesen. **Die Nichteinreichung dieser Übersetzung kann zur Folge haben, dass das Patent in dem betreffenden Staat/in den betreffenden Staaten als von Anfang an nicht eingetreten gilt.** Weitere Einzelheiten entnehmen Sie bitte der oben genannten Broschüre.
3. **Zahlung von Jahresgebühren für europäische Patente**
Nach Artikel 141 EPÜ können "nationale" Jahresgebühren für das europäische Patent für die Jahre erhoben werden, die an das Jahr anschliessen, in dem der Hinweis auf die Erteilung des europäischen Patents im "Europäischen Patentblatt" bekanntgemacht wird. Weitere Einzelheiten entnehmen Sie bitte der oben genannten Broschüre.

NOTE RELATING TO THE DECISION TO GRANT A
EUROPEAN PATENT (EPO Form 2006)

1. **EPO Information Brochure "National law relating to the EPC".**
This brochure provides useful information regarding formal requirements and the steps to be taken before the patent authorities of the Contracting States in order to acquire rights in those states. Since the necessary steps are subject to change the latest edition of the brochure should always be used. Subsequent information is published in the Official Journal.
2. **Translation of the European patent specification under Article 65(1) of the European Patent Convention**
Your attention is again drawn to the requirements regarding translation of the European patent specification laid down by a number of Contracting States under Article 65(1) EPC, to which reference is made in the communication under Rule 51(6). **Failure to supply such translation(s) may result in the patent being deemed to be void "ab initio" in the State(s) in question.** For further details you are recommended to consult the above-mentioned brochure.
3. **Payment of renewal fees for European patents**
Under Article 141 EPC "national" renewal fees in respect of a European patent may be imposed for the years which follow that in which the mention of the grant of the European patent is published in the "European Patent Bulletin". For further details you are recommended to consult the above-mentioned brochure.

REMARQUE RELATIVE A LA DECISION DE DELIVRANCE
D'UN BREVET EUROPEEN (OEB Form 2006)

1. **Brochure d'information de l'OEB "Droit national relatif à la CBE"**
Cette brochure fournit d'utiles renseignements sur les conditions de forme requises et sur les actes à accomplir auprès des offices de brevet des Etats contractants aux fins d'obtenir des droits dans les Etats contractants. Etant donné que les actes indispensables sont susceptibles de modifications, il serait bon de toujours consulter la dernière édition de la brochure. Toute information ultérieure est publiée au Journal Officiel.
2. **Traduction du fascicule du brevet européen en vertu de l'article 65(1) de la Convention sur le brevet européen**
Votre attention est de nouveau attirée sur l'obligation faite par certains Etats contractants, en vertu de l'article 65(1) CBE, de fournir une traduction du fascicule du brevet européen, à laquelle il est fait référence dans la notification établie conformément à la règle 51(6). **Si la(les) traduction(s) n'est(ne sont) pas fournie(s), le brevet européen peut, dès l'origine, être réputé sans effet dans cet(ces) Etat(s).** Pour plus de détails, nous vous renvoyons à la brochure susmentionnée.
3. **Paiement des taxes annuelles pour le brevet européen**
Conformément à l'article 141 CBE, les taxes annuelles "nationales" dues au titre du brevet européen peuvent être perçues pour les années suivant celle au cours de laquelle la mention de la délivrance du brevet européen est publiée au "Bulletin européen des brevets". Pour plus de détails, nous vous renvoyons à la brochure susmentionnée.

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FAX TRANSMISSION Page 1 of 1

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Date: 30 March 2006
Subject: **PAYMENT OF FEES**

Number of pages including this page: 1

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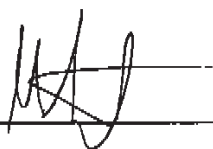
Re: European Patent Application No. 97301600.9

Applicant: Universal Electronics Inc.

Our Ref: P21983EP

Please debit our deposit account number **28050204** with the following fees totalling **755 Euros**, **seven hundred and fifty five Euros** in respect of the above application.

Description	Code	Currency	Amount
Filing fee	001	EURO	
Search fee	002	EURO	
Designation fee(s)	005	EURO	
Claims fee(s) (Rule 51 (7) EPC)	015	EURO	40.00
Additional copy	055	EURO	
Examination fee	006	EURO	
Fee for grant including fee for printing (up to 35 pages)	007	EURO	715.00
Additional fee for printing (more than 35 pages)	008	EURO	
Renewal fee for the 3 rd year	033	EURO	
Renewal fee for the 4 th year	034	EURO	
Extension fee(s) for:		EURO	
		EURO	
TOTAL		EURO	755.00

Signature  Kilburn & Strode Place, Date: London - 30 March 2006

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Celebrating 100 years in 2006

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37
29. März 2006

BY DHL COURIER

Our Ref: AB/P21983EP
Your Ref:

27 March 2006

Dear Sirs,

Re: European Patent Application No. 97301600.9
Applicant: Universal Electronics Inc.

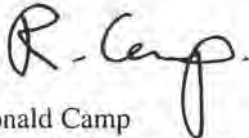
We thank you for your recent letter (EPO Form 2004).

Please find enclosed a copy of the Claims which have been translated into the **French** and **German** languages.

We confirm that the Grant and Printing fees will be paid shortly.

We now look forward to receiving the Form 2006.

Yours faithfully,



Ronald Camp
Authorised Representative
Kilburn & Strode

Enc.

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REVENDEICATIONS

- 1.- Procédé pour sélectionner un ensemble approprié parmi une pluralité d'ensembles de commande stockés dans une télécommande (10) comportant une pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur pour commander un dispositif électronique de commande à distance, caractérisé par les étapes suivantes :
- (a) affecter une commande aux effets observables à partir de chacun de la pluralité d'ensembles de commande à un interrupteur ou une touche respectif(-ve) de la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur, chaque commande aux effets observables devant être transmise lorsque l'interrupteur ou la touche correspondant(e) des interrupteurs ou des touches à affecter actionné(e)s par l'utilisateur est actionnée;
- (b) actionner séquentiellement et individuellement chacun(e) de la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur afin de transmettre individuellement chaque commande aux effets observables affectée jusqu'à ce que l'effet adéquat soit observé;
- (c) interrompre l'actionnement de la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur; et
- (d) régler la télécommande (10) pour transmettre des commandes de télécommande futures à partir de l'ensemble de commande contenant la dernière commande transmise aux effets observables.

2.- Procédé selon la revendication 1, comprenant en outre l'étape de réception de la pluralité d'ensembles de commande à partir d'une source externe avant l'étape d'assignation d'une commande aux effets observables, la source externe communiquant de préférence avec la télécommande par l'intermédiaire d'une transmission de signal sans fil, d'une transmission de signal câblée ou d'un modem magnétique couplé à un combiné téléphonique.

3.- Procédé selon la revendication 1 ou 2, comprenant en outre l'étape de réception d'une entrée de code en provenance de l'utilisateur, et dans lequel l'entrée de code est utilisée pour identifier un sous-ensemble d'ensembles de commande satisfaisant un critère particulier, à partir duquel les commandes aux effets observables sont assignées.

4.- Procédé selon la revendication 3, dans lequel les critères particuliers se réfèrent à des ensembles de commande commandant des dispositifs électroniques fabriqués par un fabricant spécifique ou à l'intérieur d'une période de temps spécifique, ou vendus par l'intermédiaire d'un magasin de détail particulier.

5.- Procédé selon l'une quelconque des revendications précédentes, dans lequel la commande aux effets observables est une commande de coupure.

6.- Procédé selon l'une quelconque des revendications précédentes, dans lequel la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur comprend une touche de mise sous tension (14) et des touches numériques (16).

7.- Procédé selon l'une quelconque des revendications précédentes, dans lequel la télécommande (10) comprend en outre une pluralité de touches de mode (18) actionnée par l'utilisateur pour sélectionner un
5 parmi une pluralité de mode, et le procédé comprend en outre l'étape de sélection d'un parmi une pluralité de modes avant l'étape d'affectation d'une commande aux effets observables, de sorte que le procédé pour sélectionner un ensemble approprié parmi une pluralité
10 d'ensembles de commande peut être exécuté pour établir séparément un ensemble de commande différent pour chaque mode.

8.- Procédé selon l'une quelconque des revendications précédentes, dans lequel la télécommande (10) comprend en outre une touche de bas de page actionnée par l'utilisateur et une touche de haut de page actionnée par l'utilisateur et, lorsque le nombre
15 d'ensembles de commande dépasse le nombre d'interrupteurs ou de touches à affecter actionné(e)s par l'utilisateur, le procédé comprend en outre les étapes d'affectation d'une commande aux effets observables à partir de chacun de la pluralité
20 d'ensembles de commande dans un groupe suivant d'ensembles de commande à un(e) de la pluralité d'interrupteurs ou de touches à affecter (12)
25 actionné(e)s par l'utilisateur lorsqu'une touche de bas de page actionnée par l'utilisateur est actionnée; et affecter une commande aux effets observables à partir de chacun d'une pluralité d'ensembles de commande dans un
30 groupe d'ensembles de commande précédent à un(e) de ladite pluralité d'interrupteurs ou de touches à

affecter (12) actionné(e)s par l'utilisateur lorsqu'une touche de haut de page actionnée par l'utilisateur est actionnée.

5 9.- Procédé selon la revendication 1, dans lequel l'ordre des commandes aux effets observables à partir de la pluralité d'ensembles de commande est affecté à la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur sur la base de la diminution de la popularité de l'utilisation de
10 chacun des ensembles de commande.

10.- Procédé selon la revendication 9, comprenant en outre l'étape de réception d'une entrée de code en provenance de l'utilisateur, et dans lequel l'entrée de code indique un critère particulier et est
15 utilisée pour déterminer en outre l'ordre des commandes aux effets souhaitables affectées à la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur sur la base de la diminution de la popularité de l'utilisation de chacun
20 des ensembles de commande conformément aux critères.

11.- Télécommande (10), comprenant :
des moyens pour assigner une commande aux effets observables à partir de chacun de la pluralité d'ensembles de commande à un(e) de la pluralité
25 d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur;

des moyens pour transmettre la commande aux effets observables lorsque l'interrupteur ou la touche correspondant(e) de la pluralité d'interrupteurs ou de
30 touches à affecter (12) actionné(e)s par l'utilisateur est actionnée;

des moyens pour indiquer l'interruption de l'actionnement de la pluralité d'interrupteurs ou de touches à affecter (12) actionné(e)s par l'utilisateur; et

5 des moyens pour régler la télécommande (10) pour transmettre des commandes de télécommande futures à partir de l'ensemble de commande contenant la dernière commande transmise aux effets observables.

EPA 97 301 600.9

Ansprüche

1. Verfahren zum Auswählen eines geeigneten Satzes aus einer Vielzahl von Befehlssätzen, die in einer Fernbedienung (10) gespeichert sind, welche eine Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12) für die Bedienung eines fernbedienbaren elektronischen Gerätes aufweist, gekennzeichnet durch die Schritte:

(a) Zuweisen eines Befehls mit beobachtbaren Auswirkungen von jedem aus der Vielzahl von Befehlssätzen an je einen aus der Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12), wobei jeder Befehl mit beobachtbaren Auswirkungen übertragen werden soll, wenn der zugehörige von den zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten betätigt wird:

(b) der Reihe nach einzeln Betätigen von jedem aus der Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12), um einzeln jeden Befehl mit beobachtbaren Auswirkungen zu übertragen, bis das dazugehörige Ergebnis beobachtet wird;

(c) Anhalten des Betätigens der Vielzahl an zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12); und

(d) Einstellen der Fernbedienung (10), um in Zukunft Fernbedienungsbefehle aus dem Befehlssatz zu übertragen, der den Befehl mit beobachtbaren Auswirkungen enthält, der zuletzt übertragen wurde.

2. Verfahren nach Anspruch 1, welches weiters den Schritt aufweist, die Vielzahl von Befehlssätzen, vor dem Schritt des Zuweisens eines Befehls mit beobachtbaren Auswirkungen, von einer externen Quelle zu empfangen; wobei die externe Quelle vorzugsweise über eine Kabellose Signalübertragung, eine Kabelgebundene Signalübertragung oder ein magnetisches Modem, welches an einen Telephonhörer gekoppelt ist, mit der Fernbedienung kommuniziert.

3. Verfahren nach Anspruch 1 oder 2, welches weiters den Schritt aufweist, eine Codeeingabe vom Benutzer zu empfangen, wobei die Codeeingabe benutzt wird, um eine Untergruppe von Befehlssätzen zu ermitteln, die ein bestimmtes Kriterium erfüllen, aus welcher die Befehle mit beobachtbaren Auswirkungen zugewiesen werden.

4. Verfahren nach Anspruch 3, wobei das bestimmte Kriterium sich auf Befehlssätze

bezieht, die elektronische Geräte steuern, die von einem bestimmten Hersteller oder innerhalb eines bestimmten Zeitraumes produziert wurden, oder die von einem speziellen Einzelhandelsgeschäft verkauft wurden.

5 5. Verfahren nach einem der vorhergehenden Ansprüche, wobei der Befehl mit beobachtbaren Auswirkungen ein Abschaltbefehl ist.

6. Verfahren nach einem der vorhergehenden Ansprüche, wobei die Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12) eine Ein/Aus-Taste (14)
10 und numerische Tasten (16) beinhaltet.

7. Verfahren nach einem der vorhergehenden Ansprüche, wobei die Fernbedienung (10) weiters eine Vielzahl an vom Benutzer betätigten Betriebsart-Tasten (18) beinhaltet, um eine aus einer Vielzahl an Betriebsarten auszuwählen und das Verfahren weiters den Schritt
15 aufweist, eine von der Vielzahl an Betriebsarten, vor dem Schritt des Zuweisen eines Befehls mit beobachtbaren Auswirkungen, auszuwählen, so dass das Verfahren zum Auswählen eines geeigneten Satzes aus einer Vielzahl von Befehlssätzen ausgeführt werden kann, um für jede Betriebsart gesondert einen unterschiedlichen Befehlssatz einzustellen.

20 8. Verfahren nach einem der vorhergehenden Ansprüche, wobei die Fernbedienung (10) weiters eine vom Benutzer betätigte Taste zum vorwärts Blättern und eine vom Benutzer betätigte Taste zum rückwärts Blättern beinhaltet und, wenn die Anzahl an Befehlssätzen die Anzahl an zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten übersteigt, das Verfahren weiters die Schritte aufweist: Zuweisen eines Befehls mit beobachtbaren
25 Auswirkungen von jedem aus der Vielzahl an Befehlssätzen in einer nachfolgenden Gruppe von Befehlssätzen an einen aus der Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12), wenn eine vom Benutzer betätigte Taste zum vorwärts Blättern betätigt wird; und Zuweisen eines Befehls mit beobachtbaren Auswirkungen von jedem aus der Vielzahl an Befehlssätzen in einer vorhergehenden Gruppe von Befehlssätzen an einen
30 aus der Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12), wenn eine vom Benutzer betätigte Taste zum rückwärts Blättern betätigt wird.

9. Verfahren nach Anspruch 1, wobei die Reihenfolge der Befehle mit beobachtbaren Auswirkungen aus der Vielzahl an Befehlssätzen an die Vielzahl an zuweisbaren, vom

Benutzer betätigten Schaltern oder Tasten (12), basierend auf der abnehmenden allgemeinen Verbreitung der Benutzung von jedem der Befehlssätze zugewiesen wird.

10. Verfahren nach Anspruch 9, welches weiters den Schritt aufweist, eine
5 Codeeingabe vom Benutzer zu empfangen, und wobei die Codeeingabe ein bestimmtes Kriterium anzeigt und benutzt wird, um weiters die Reihenfolge, in der die Befehle mit beobachtbaren Auswirkungen an die Vielzahl von zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12) zugewiesen werden, zu ermitteln, basierend auf der abnehmenden allgemeinen Verbreitung der Nutzung von jedem der Befehlssätze, die dem Kriterium
10 entsprechen.

11. Fernbedienung (10), welche aufweist:

Mittel, um einen Befehl mit beobachtbaren Auswirkungen von jeder aus der Vielzahl an Befehlssätzen an einen aus der Vielzahl an zuweisbaren, vom Benutzer betätigten
15 Schaltern oder Tasten (12) zuzuweisen;

Mittel, um den Befehl mit beobachtbaren Auswirkungen zu übertragen, wenn der zugehörige eine aus den zuweisbaren, vom Benutzer betätigten Schaltern oder Tasten (12) betätigt wird;

Mittel, um das Anhalten des Betätigens der Vielzahl von zuweisbaren, vom
20 Benutzer betätigten Schaltern oder Tasten (12) anzuzeigen; und

Mittel für das Einstellen der Fernbedienung (10), um zukünftige Fernbedienungsbefehle aus dem Befehlssatz zu übertragen, der den Befehl mit beobachtbaren Auswirkungen enthält, der zuletzt übertragen wurde.

Annex to EPO Form 2004, Communication under Rule 51(4) EPC

Bibliographical data of European patent application No. 97 301 600.9

For the intended grant of a European patent, the bibliographical data are set out below, for information:

Title of invention: - Verfahren zur Befehlssatzauswahl für Fernbedienung
 - Method for selecting a remote control command set
 - Procédé de sélection de l'ensemble de commande d'un système de télécommande

Classification: H04B1/20

Date of filing: 11.03.1997

Priority claimed: US / 23.04.1996 / USA636666

Contracting States*
for which fees have
been paid: BE DE ES FR GB IT NL

Extension States*
for which fees have
been paid:

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*) In case the time limits pursuant to Article 79(2) and Rule 85a EPC have not yet expired, **all Contracting States/Extension States** have been mentioned.

**) In case two or more applicants have designated different Contracting States, this is indicated here.



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Application No. 97 301 600.9 - 1246	Ref. MCKMS/ P21983EP	Date 05.12.2005
Applicant UNIVERSAL ELECTRONICS, INC.		

Communication under Rule 51(4) EPC

You are informed that the Examining Division intends to grant a European patent on the basis of the above application with the text and drawings as indicated below:

In the text for the Contracting States:
BE DE ES FR GB IT NL

Description, Pages

1-3, 5-12 as originally filed
 4 received on 19.04.2005 with letter of 18.04.2005

Claims, Numbers

1-11 received on 19.04.2005 with letter of 18.04.2005

Drawings, Sheets

1/6-6/6 as originally filed

With the following amendments to the above-mentioned documents by the examining division

Description, Pages 1**
 Claims, Numbers 11*

Comments

* the last two sentences of the claim, that were omitted obviously by a clerical error, have been added by the examining division



** irrelevant reference deleted.

A copy of relevant documents is enclosed

The title of the invention in the three official languages of the European Patent Office, the international patent classification, the designated Contracting States, the registered name of the applicant and the bibliographic data are shown on the attached EPO Form 2056.

You are requested within a **non-extendable** period of four months of notification of this communication

1.	to file 1 set of translations of the claim(s) in the two other EPO official languages;		EUR
2a.	to pay the fee for grant including the fee for printing up to and including 35 pages; Reference 007		715.00
2b.	to pay the printing fee for the 36th and each additional page; number of pages: 0	Reference 008	0.00
3.	to pay the additional claim fee(s) (Rule 51(7) EPC); number of claims fees payable: 1	Reference 016	40.00
		Total amount	755.00

Concerning the possibility of a request for accelerated grant pursuant to Article 97(6) EPC, reference is made to OJ EPO 2001, 459.

If the grant, printing or claims fees are not paid, or the translations not filed, in due time the European patent application will be deemed to be withdrawn (Rule 51(8) EPC).

For all payments you are requested to use EPO Form 1010 or to refer to the relevant reference number.

After publication, the European patent specification can be downloaded free of charge from the EPO publication server <https://publications.european-patent-office.org> or ordered only from the Vienna sub-office upon payment of a fee (OJ EPO 2005, 126).

Upon request in writing each proprietor will receive the certificate for the European patent **together with one copy** of the patent specification only if the request is filed within the time limit of Rule 51(4) EPC. If such request has been previously filed, it has to be confirmed within the time limit of Rule 51(4) EPC. The requested copy is free of charge. If the request is filed after expiry of the Rule 51(4) EPC time limit, the certificate will be delivered without a copy of the patent specification.

Translation of the priority document(s)

If the translation of the priority document(s), as required by Article 88(1) EPC, or the declaration according to Rule 38(5) EPC has not yet been filed, Form 2530 will be despatched separately. The translation is to be filed within the above mentioned time limit (Rule 38(5) EPC).

Note on payment of renewal fees



If a renewal fee falls due between notification of the present communication and the proposed date of publication of the mention of the grant of the European patent, publication will be effected only after the renewal fee and any additional fee have been paid (Rule 51(9) EPC).

Under Article 86(4) EPC, renewal fees are payable to the European Patent Office until the year in which the mention of the grant of the European patent is published.

Filing of translations in the Contracting States

Pursuant to Article 65(1) EPC the following Contracting States require a translation of the specification of the European patent in their/one of their official language(s) (Rule 51(10) EPC), **insofar** this specification will not be published in their/one of their official language(s)

- within **three** months of publication of the mention of such decision:

BE	BELGIUM	GB	UNITED KINGDOM
DE	GERMANY	IT	ITALY
ES	SPAIN	NL	NETHERLANDS
FR	FRANCE		

The date on which the European Patent Bulletin publishes the mention of the grant of the European patent will be indicated in the decision on the grant of the European patent (EPO Form 2006).

The translation must be filed with the national Patent Offices of the Contracting or Extension States in accordance with the provisions applying thereto in the State concerned. Further details (e.g. appointment of a national representative or indication of an address for service within the country) are given in the EPO information brochure "National law relating to the EPC", and in the supplementary information published in the Official Journal of the EPO, or available on the EPO website.

Failure to supply such translation to the Contracting and Extension States in time and in accordance with the requirements may result in the patent being deemed to be void ab initio in the State concerned.

Note to users of the automatic debiting procedure

Unless the EPO receives prior instructions to the contrary, the fee(s) will be debited on the last day of the period of payment. For further details see the Arrangements for the automatic debiting procedure (see Supplement to OJ EPO 2, 2002).



Date 05.12.2005

Sheet 4

Application No.: 97 301 600.9

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Enclosure(s): Form 2056
21 Copies of the relevant documents



ADDITIONAL SHEET

+++ IMPORTANT INFORMATION +++

1. **For communications under Rule 51(4) EPC issued on or after 01.04.2005 the time limit of four months is not extendable anymore:**

According to Rule 51(4) EPC as amended the time limit set in the communication under Rule 51(4) EPC will be four months in all applications without possibility of extension.

Amended Rule 51(4) EPC applies to all applications for which a communication under Rule 51(4) EPC is issued on or after 01.04.2005.

2. **A copy of the patent specification will only be annexed to the European Patent certificate upon special request within the time limit of the 51(4) EPC communication:**

Under Rule 54 EPC as amended and the decision of the President of the EPO dated 22.12.2004 (OJ EPO 2005, 122) each proprietor will receive the certificate for the European patent together with a copy of the patent specification upon request in writing and only if the request is filed within the time limit of Rule 51(4) EPC. If such request has been previously filed, it has to be confirmed within the time limit of Rule 51(4) EPC. The requested copy is free of charge.

If the request is filed after expiry of the Rule 51(4) EPC time limit, the certificate will be delivered without a copy of the patent specification.

After publication, the European patent specification can be downloaded free of charge from the EPO publication server <https://publications.european-patent-office.org> or ordered from the Vienna sub-office upon payment of a fee (OJ EPO 2005, 126).

As before, upon payment of an administrative fee a duplicate copy of the European patent certificate with the patent specification attached or a certified copy of the patent specification will also be supplied.

~~METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET~~
~~BACKGROUND OF THE INVENTION~~

1. Field of the Invention.

The present invention relates to a method for selecting a
5 remote control command set from a group of multiple command
sets stored in a remote control, for controlling various
remotely controllable electronic devices.

2. Description of the related art ~~including information
disclosed under 37 CFR §§ 1.97-1.99.~~

10 Heretofore, various systems for providing methods of
selecting a remote control command set from a group of multiple
command sets have been proposed. Several examples of analogous
and non-analogous methods are disclosed in the following U.S.
Patents:

15	<u>U.S. Patent No.</u>	<u>Patentee</u>
	4,703,359	Rumbolt et al.
	4,959,810	Darbee et al.
	5,485,149	Takiguchi et al.
	<u>German Patent Publications:</u>	
20	DE 33 13 493 A1	Telefunken

The Rumbolt et al., U.S. Patent No. 4,703,359 discloses a
method for adapting a remote control to generate a remote
command signal having the appropriate signal structure for
controlling a selected one of a plurality of electronic
25 devices. Once the method is initiated, the remote control
automatically cycles through the entire list of different
format command lists stored within the remote control's
internal memory, transmitting a test command to the desired
device to be controlled until the user interrupts the cycle.
30 Interrupting the cycle of test commands causes the remote
control to transmit future commands using the signal structure
of the last test command transmitted prior to interrupting the
cycle.

The Darbee et al., U.S. Patent No. 4,959,810 discloses a
35 universal remote control system that provides for two methods
for selecting a remote control command set.

The first method is a step and set procedure in which the
list of command sets stored in the remote control are stepped
through both forward and backwards allowing a test command from

the currently selected command set to be transmitted. The user observes the effects of the test command to determine if the currently selected command set is compatible with the device the user is wanting to control. When the user finds a command set compatible with the device to be controlled, the user exits the procedure with the remote control set to the compatible command set.

The second method is a direct entry - quick set procedure in which the user looks up the make and model of the of the device to be controlled from a printed list of devices. The user then directly inputs a corresponding code associated with the make and model of the device to be controlled to index the proper command set from the remote control's internal command set library.

The Takiguchi et al., U.S. Patent No. 5,485,149 discloses a method for selecting a set of remote control signals from multiple remote control signal groups, where each group contains multiple sets of remote control signals. Each remote control signal group is assigned to one of the operating keys.

Upon entering a select setting mode, the particular set of remote control signals within one of the signal groups is selected by the number of times the assigned operating key is pressed. A single keypress will select the first set of remote control signals within the remote control signal group assigned to the pressed key. Pressing the same key a second time will select the second set of remote control signals within the assigned remote control signal group. Similarly, subsequent key presses of the same key will select subsequent sets of remote control signals.

The Telefunken, German published patent application DE 33 13 493 A1 discloses a remote control having a table containing multiple columns of control signals each column containing the code signals for operating a particular device and a mechanism for selecting the appropriate column of control signals.

The remote control provides for the selection of the appropriate column of control signals by automatically cycling through the multiple columns of control signals, transmitting a trial command, and observing the effect of the trial command on the device to be remotely operated. When the desired result

3

is observed, the user signals the remote control that a successful command has been transmitted. The remote control then eliminates from consideration all columns of control signals that do not contain the matched successful trial
5 command. If more than one column of control signals match the successful trial command, the remote control repeats the above procedure using a different trial command and cycling through only the remaining columns of control signals until all columns of command signals have been eliminated except one.

<The invention provides a method in accordance with claim 1.>

Druckexemplar

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SUMMARY OF THE INVENTION

<-> According to the present invention there is provided a method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for 5 controlling various remotely controllable electronic devices. The method includes assigning multiple effects observable commands (e.g. a "power off" command) from a group of command sets stored in the remote control to multiple user actuated switches or keys of the remote control.

10 The user then actuates the switches or keys, one at a time, with the corresponding assigned effects observable command being transmitted. The user continues to actuate keys until the user observes the remotely controlled device responding properly to the transmitted command. The user then 15 terminates the selection procedure with the remote control setting the active command set to the command set from which the successful effects observable command was assigned.

By assigning a single command set to a single user actuated key, the negative effects of a user key actuation that 20 results in a double key actuation or not registering due to failure to fully actuate the key is minimized. If the user suspects the key was not fully actuated, the user can repeat that particular key actuation. If the user inadvertently causes the remote to detect a double key actuation, the remote 25 control merely sends the effects observable command from the assigned command set twice. If the user wishes to actuate a particular key several times in order to confirm its effect on the responding device, he may do so at any point during the process without affecting the process.

30 The command sets stored in the remote control can be permanently stored in the remote control at the time of manufacture or downloaded from an external source. The ability to download command sets from an external source allows the remote control to provide remote control functionality with 35 future devices whose particular transmission protocol or commands have not yet been determined.

The method for selecting a remote control command set from a group of multiple command sets stored in a remote control, further provides for inputting a criteria code for limiting or

filtering the list of command sets to be searched through to those command sets that work with devices meeting a particular criteria. In this way, the entire list of command sets do not need to be searched through. Similarly it does not require the user to know all the details about a particular device in order to determine and set the appropriate command set.

Where the number of command sets to be searched through exceeds the number of keys with which the effects observable commands are assigned, the method additionally provides for the ability to page through sub-groups of command sets. Each sub-group being no larger than the number of assignable keys.

Where a remote control provides for multiple modes, each mode providing for the remote operation of a different device (i.e. TV, VCR, cable box, etc.), a different command set can be selected for each of the available modes.

Other objects and advantages of the present application will be apparent from the detailed description and drawings which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the top face of a remote control incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the
5 remote control.

FIG. 2 is a block diagram of the internal circuitry of the remote control shown in FIG. 1.

FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart that together provide instructions for assisting in the control
10 of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

FIG. 4 is schematic layout of a portion of a BRAND TABLE
15 and of a list of DEVICE ID DATA stored in a memory (RAM) of a microprocessor shown in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in greater detail, there is illustrated in FIG. 1 a plan view of the top face of a remote control 10 incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the remote control.

The remote control includes a set of user actuated keys 12, including a power key 14, numeric keys 16, mode keys 18, a magic key 20, and channel up and channel down keys 22. The remote control 10 further includes a visual LED 24 and an infra-red LED (not shown), located at the front 26 of the remote control 10.

FIG. 2 is a block diagram of the internal circuitry 28 of the remote control shown in FIG. 1. The internal circuitry 28 is similar to the circuitry described in Escobosa et al., USSN 08/251,336, filed May 31, 1994, now U.S. Patent No. whose specification is incorporated herein by reference.

The internal circuitry 28 includes a control circuit 30, an oscillator circuit 32, a reset circuit 34, a key pad circuit 36, an external data input circuit 38, and an LED driver circuit 40.

The control circuit 30 monitors and controls the overall functioning of the remote control 10. In a preferred embodiment it incorporates a microprocessor 42, with associated semiconductor memory in the form of ROM 44 and/or RAM 46. The semiconductor memory is used to store both program operating instructions and program data for assisting in the control of the remote control 10.

The oscillator circuit 32 provides a clocking signal to the control circuit 30. The reset circuit 34 provides a reset signal to the control circuit when the internal circuitry 28 is initially powered up. The key pad circuit 36 incorporates the user actuated keys 12 and provides circuitry in conjunction with the control circuit 30 for decoding which one of the user actuated keys 12 has been actuated.

The external data input circuit 38 receives data from a source external to the remote control 10. The particular circuitry can take the form of any one of many traditional forms of communication, whether wired or wireless. In one

preferred embodiment the external data communication is accomplished by a magnetic modem similar to the one described in the Escobosa application, USSN 08/251,336, filed May 31, 1994, referred to above.

5 The LED driver circuit 40 is coupled to the control circuit 30 and incorporates the visual LED 24 and the infra-red LED (not shown) located at the front 26 of the remote control 10 and provides the LEDs with driving power in response to signals received from the control circuit 30. The visual LED
10 24 provides the user with visual feedback concerning the remote control's 10 activity. The infra-red LED provides the signalling capability for sending the remote control signals to the devices to be controlled.

FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart
15 that together provide instructions for assisting in the control of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

20 FIG. 3A shows the starting point of the instructions to be executed by the microprocessor 42 in controlling the remote control 10. The flow chart begins by waiting for an interrupt or an indication that a key or switch 12 has been pressed or actuated. Upon actuation of a key or switch 12, a
25 determination is made as to which key has been pressed.

If a mode key 18 is pressed the remote control 10 sets the current command set from which commands will be transmitted to the command set chosen for the selected mode. The mode keys 18 preferably include separate mode keys 18 for a TV, a VCR, a
30 Cable Box, as well as any other device for which an infra-red remote control transmitter could be used to remotely control the device.

If a command key is pressed, the remote control 10 transmits the particular operating command associated with the
35 pressed command key from the currently selected command set.

If an enter setup key is pressed the remote control 10 enters a setup mode used to configure the remote control 10. In the preferred embodiment the enter setup key is equivalent to the magic key 20, however it can take any one of various

forms including a slider switch or a combination of key presses.

Upon entering the setup mode, the remote control 10 waits until it receives a set up code. If the setup code is a setup
5 function code, the execution of operating instructions of the remote control 10 branches to FIG. 3B to perform instructions to determine which function code has been requested to be performed.

If the setup code is a criteria code, indicating a
10 particular subset of command code sets, the remote control sets the searchable command sets to the command sets meeting the received criteria and branches the execution of instructions to FIG. 3C to perform instructions to select a new command set for the currently active mode.

15 The criteria code allows the remote control to restrict the number of searchable command sets to only those command sets used with devices meeting a particular criteria and/or to determine a different order of assigning the effects observable commands.

20 Preferably the effects observable commands will be assigned to the user actuated keys in order of decreasing popularity. However a command set that is not very popular when one considers the entire list of stored command sets used for operating a television, may be the most popular command set
25 used for operating a television manufactured by a particular manufacturer. The use of a criteria code representing a particular manufacturer by the user can be used to establish a different assignment order based on the popularity of command sets following the indicated criteria.

30 Examples of different possible criteria include codes for different manufacturers, codes for equipment manufactured or purchased between a specified time period, devices sold through a particular retail outlet, etc.

35 Additionally in some embodiments it is possible to allow for the entry of multiple criteria in order to further isolate the proper command set for operating a particular device.

If the setup code is neither a function code nor a setup code, it is assumed the user inadvertently entered the setup mode and the execution of the operating instructions of the

remote control 10 branches to the start of the instructions in FIG. 3A.

FIG. 3B shows the program steps performed when a function code is received after entering the setup mode. First a
5 determination is made to identify which function is being requested to be executed. If the function code is determined to be a download code, the remote control executes a procedure to receive one or more command sets via the external data input. The searchable subset of command sets are defined to
10 include the received command sets and the execution of the operating instructions branches to FIG. 3C.

Similarly, an alternative embodiment can allow the received command sets to supplement the command sets previously stored in the remote control 10.

15 In the embodiment disclosed in FIGS. 3A through 3D the remote control enters a command set selection procedure after downloading the received data, however it is not necessary for the selection procedure to be entered immediately after downloading of the received data, but can be delayed until the
20 user chooses. Similarly, the data received does not necessarily have to be one or more command sets, but can include updates to already stored command sets or other related data.

If the function code is a search code, the searchable set
25 of commands is defined to include the command sets stored in the remote control without first inputting a criteria code or downloading command sets. This allows the user to directly enter the procedure to select the new command set without first entering a criteria code or performing another function.

30 FIGS. 3C and 3D shows the program steps for selecting the new command set from the list of searchable command sets. Initially, as shown in FIG. 3C a determination is made whether the number of searchable command sets exceeds the number of assignable user actuated keys or switches.

35 If the number of searchable command sets is greater than the number of assignable user actuated keys or switches the searchable command sets are broken up into multiple pages of command sets no greater in size than the number of assignable user actuated keys that can be paged through using the channel

up and channel down keys 22. The effects observable commands from the currently selected page, initially the first page, of command sets is assigned to the assignable user actuated keys.

If the number of searchable command sets is equal to or
5 less than the number of assignable user actuated keys or switches, the effects observable commands from the searchable command sets, forming a single page of command sets, are assigned to the assignable user actuated keys.

After the effects observable commands for the currently
10 selected page have been assigned, the remote control 10 waits for a key to be pressed. When a key press has been detected the remote control 10 determines if the key pressed is an assignable user actuated key, a key which has had an effects observable command assigned to it. If it is then the remote
15 control transmits the assigned effects observable command (e.g., a "power off" command) to the device to be remotely controlled and loops back to wait for another key press. The user observes the device to be remotely controlled for a visual indication of a compatible command.

20 In the preferred embodiment the assignable user actuated keys include the power key 14 and the numeric keys 16. The assignable user actuated keys are assigned in the order of the power key 14 first, followed by the numeric keys 16 in order starting with the "one" key and ending with the "zero" key.
25 Additionally the preferred effects observable command is a power off command.

If the key pressed is a page down command (i.e. a channel down key 22), and a subsequent page of command sets is defined. Then the remote control 10 reassigns an effects observable
30 command from each of the command sets from the subsequent page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is a page up command (i.e. a channel up key 22), and a prior page of command sets is defined, then the
35 remote control reassigns an effects observable command from each of the command sets from the prior page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is an exit setup key (i.e. a magic key

20), then the remote control 10 sets the current command set for the currently selected mode to the command set corresponding to the effects observable command assigned to the last pressed assigned key. Typically the user exits the setup
5 procedure when the user observes the desired effect on the device to be controlled by the remote control 10, indicating that a compatible command set has been located.

In this way a method for selecting a compatible command set from a library of multiple command sets can be realized.
10 Similarly different command sets can be selected for each of the different device modes by selecting the mode key 18 corresponding to the desired mode prior to entering the setup procedure.

Often times, a plurality of brands of electronic devices,
15 e.g., television sets may share a device entry code. For example, the Panasonic code, 035, is also the entry code for a private labelled television set sold by Montgomery Wards. This is illustrated in FIG. 4.

Additionally, as shown in FIG. 4, the priority order may
20 be different from brand name to brand name, even though they use the same device entry code. For example the Sony number 1 code is 033, but this device entry code is only the Wards number 2 code.

From the foregoing description, it will be apparent that
25 the method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for controlling various remotely controllable electronic devices of the present invention has a number of advantages, some of which have been described above and others of which are inherent in
30 the method of the invention. Also it will be understood that modifications can be made to the method for selecting a remote control command set described above without departing from the teachings of the invention.

CLAIMS:

1. A method for selecting an appropriate one of a plurality of command sets stored in a remote control (10) having a plurality of assignable user actuated switches or keys (12) for controlling a remotely controllable electronic device, ~~comprising~~ ^{characterised by} the steps of:

(a) assigning an effects observable command from each of the plurality of command sets to ^{a respective} one of the plurality of assignable user actuated switches or keys (12), each assigned effects observable command to be transmitted when the corresponding one of the assignable user actuated switches or keys is actuated;

(b) actuating sequentially and individually each one of the plurality of assignable user actuated switches or keys (12), to individually transmit each assigned effects observable command until the proper effect is observed;

(c) halting the actuating of the plurality of assignable user actuated switches or keys (12); and

(d) setting the remote control (10) to transmit future remote control commands from the command set containing the last transmitted effects observable command.

2. A method as claimed in claim 1, further comprising the step of receiving the plurality of command sets from an external source prior to the step of assigning an effects observable command; the external source preferably communicating with the remote control via a wireless signal transmission, a wired signal transmission or a magnetic modem coupled to a telephone handset.

3. A method as claimed in claim 1 or 2, further comprising the

step of receiving a code input from the user and wherein the code input is used to identify a subset of command sets meeting a particular criteria, from which the effects observable commands are assigned.

4. A method as claimed in claim 3, wherein the particular criteria refer to command sets which control electronic devices manufactured by a specific manufacturer or within a specific time period, or, sold through a particular retail outlet.

5. A method as claimed in any of the preceding claims, wherein the effects observable command is a power off command.

6. A method as claimed in any of the preceding claims, wherein the plurality of assignable user actuated switches or keys (12) include a power key (14) and numeric keys (16).

7. A method as claimed in any of the preceding claims, wherein the remote control (10) further includes a plurality of user actuated mode keys (18) for selecting one of a plurality of modes and the method further includes the step of selecting one of the plurality of modes prior to the step of assigning an effects observable command, such that, the method for selecting an appropriate one of a plurality of command sets can be performed to separately set a different command set for each mode.

8. A method as claimed in any of the preceding claims, wherein the remote control (10) further includes a page down user actuated key and a page up user actuated key and, when the number of command sets exceed the number of assignable user actuated switches or keys, the method further includes the steps of: assigning an effects observable

command from each of the plurality of command sets in a subsequent group of command sets to one of the plurality of assignable user actuated switches or keys (12), when a page down user actuated key is actuated; and assigning an effects observable command from each of the plurality of command sets in a prior group of command sets to one of said plurality of assignable user actuated switches or keys (12), when a page up user actuated key is actuated.

9. A method as claimed in claim 1, wherein the order of the effects observable commands from the plurality of command sets is assigned to the plurality of assignable user actuated switches or keys (12)

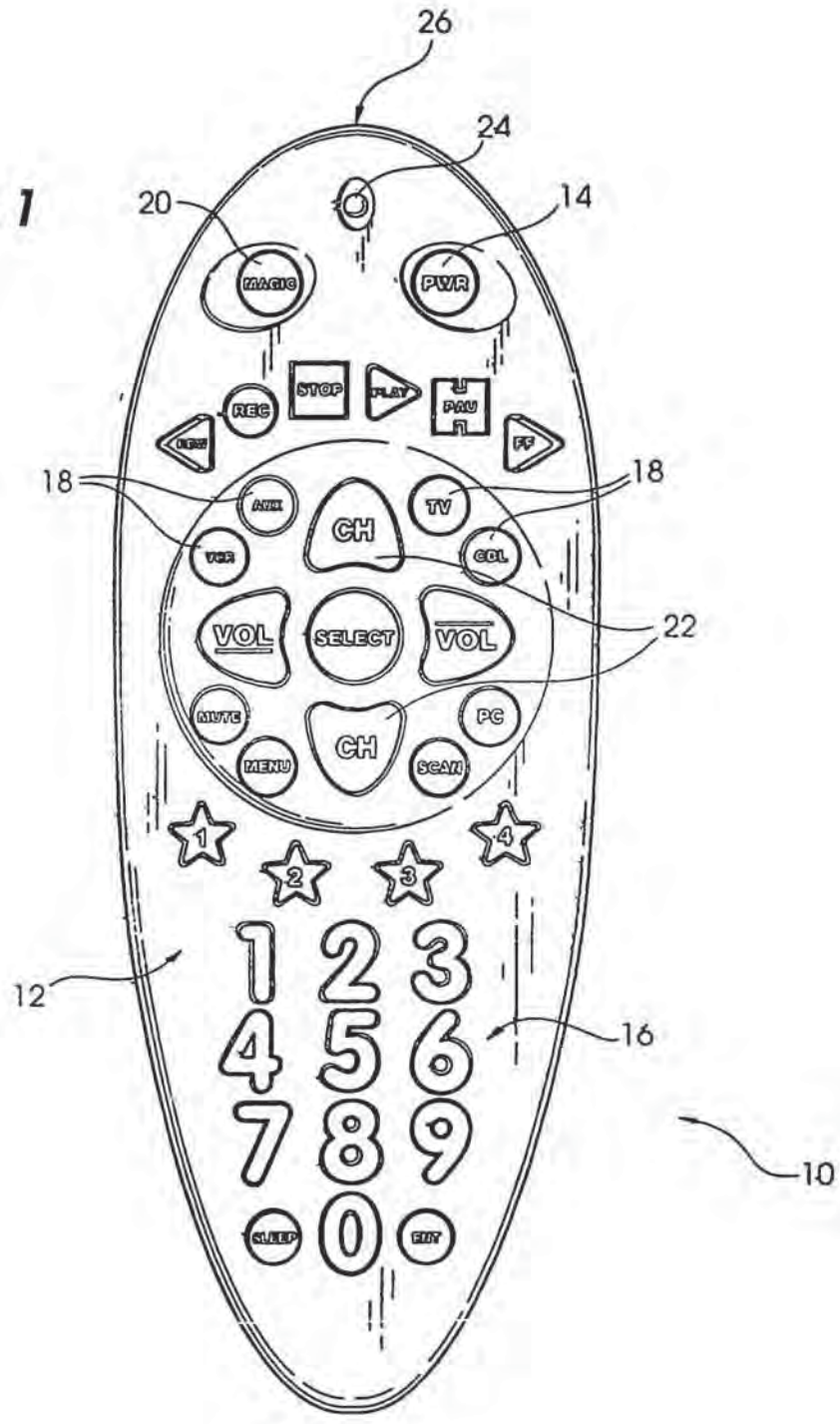
10- A method as claimed in claim 9, based upon decreasing popularity of usage of each of the command sets, ~~(the method preferably)~~ further comprising the step of receiving a code input from the user and wherein the code input indicates a particular criteria and is used to further determine the order the effects observable commands are assigned to the plurality of assignable user actuated switches or keys (12) based upon decreasing popularity of usage of each of the command sets conforming to the criteria.

11- A remote control (10) comprising:
means for assigning an effects observable command from each of the plurality of command sets to one of the plurality of assignable user actuated switches or keys (12);
means for transmitting the effects observable command when the corresponding one of the plurality of assignable user actuated switches or keys (12) is actuated;
means for indicating the halting of the actuation of the plurality of assignable user actuated switches or keys (12); and

means for setting the remote control (10) to transmit future <1> remote control commands from the command set containing the last transmitted effects observable command

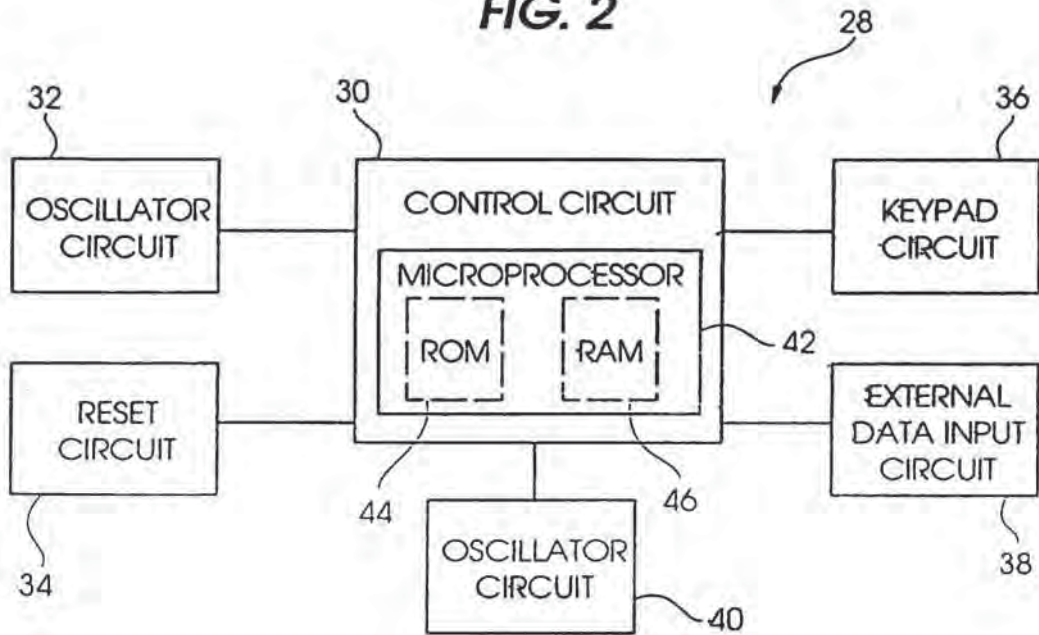
1/6

FIG. 1



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FIG. 2



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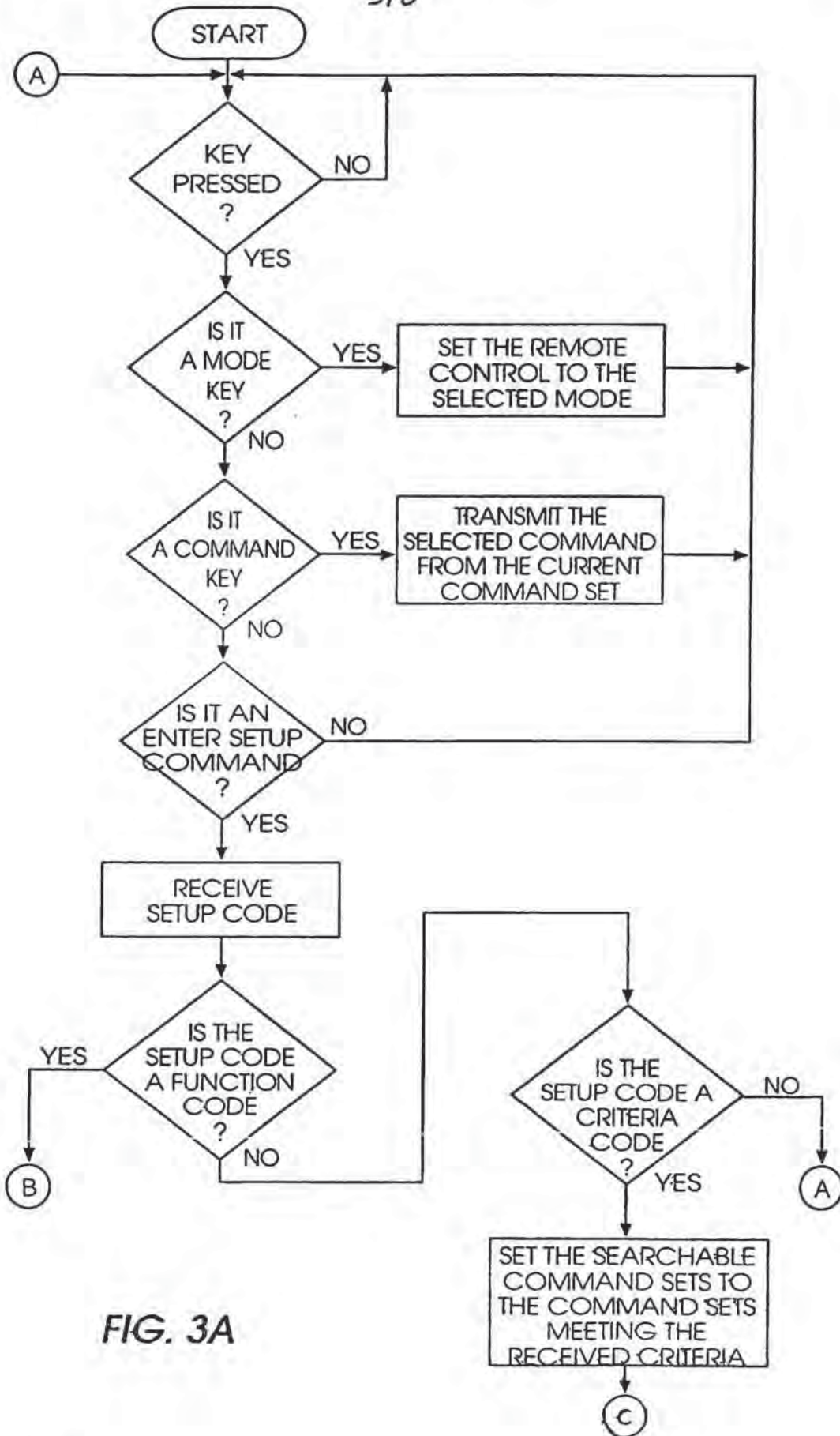


FIG. 3A

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FIG. 3B

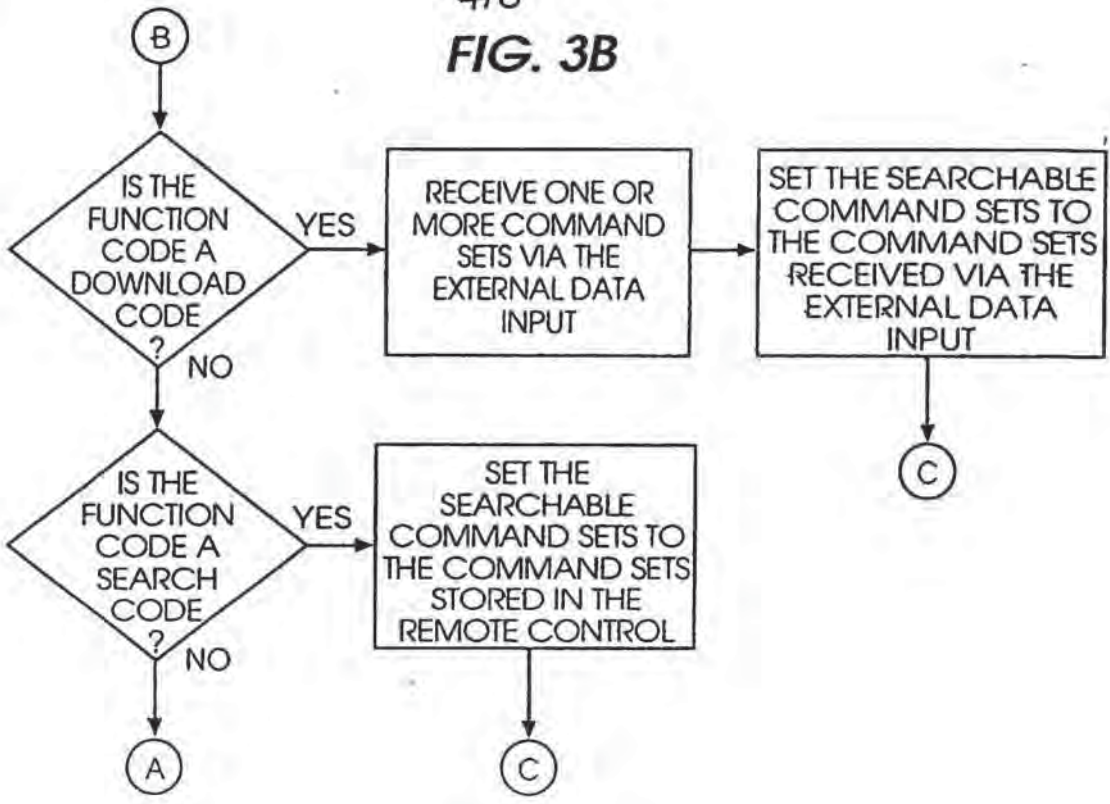
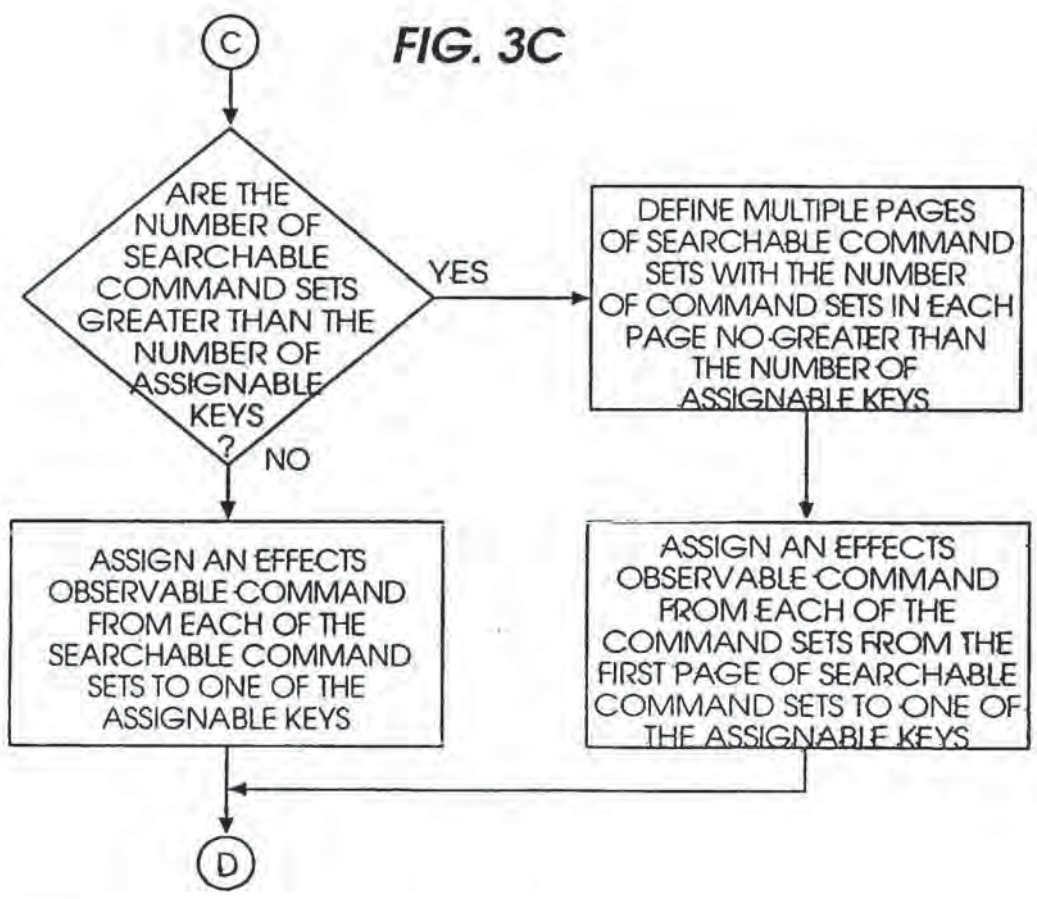
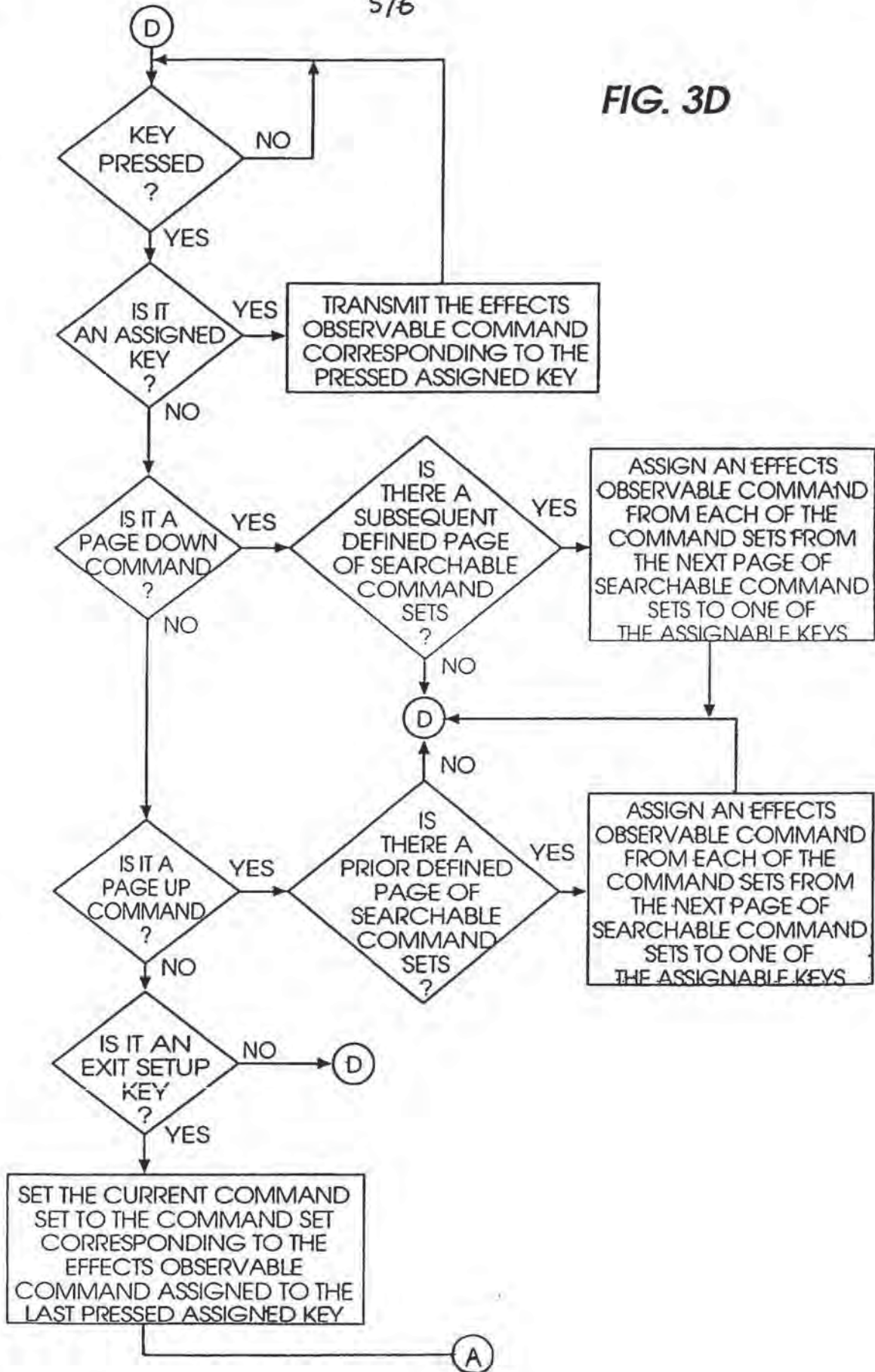


FIG. 3C



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FIG. 3D



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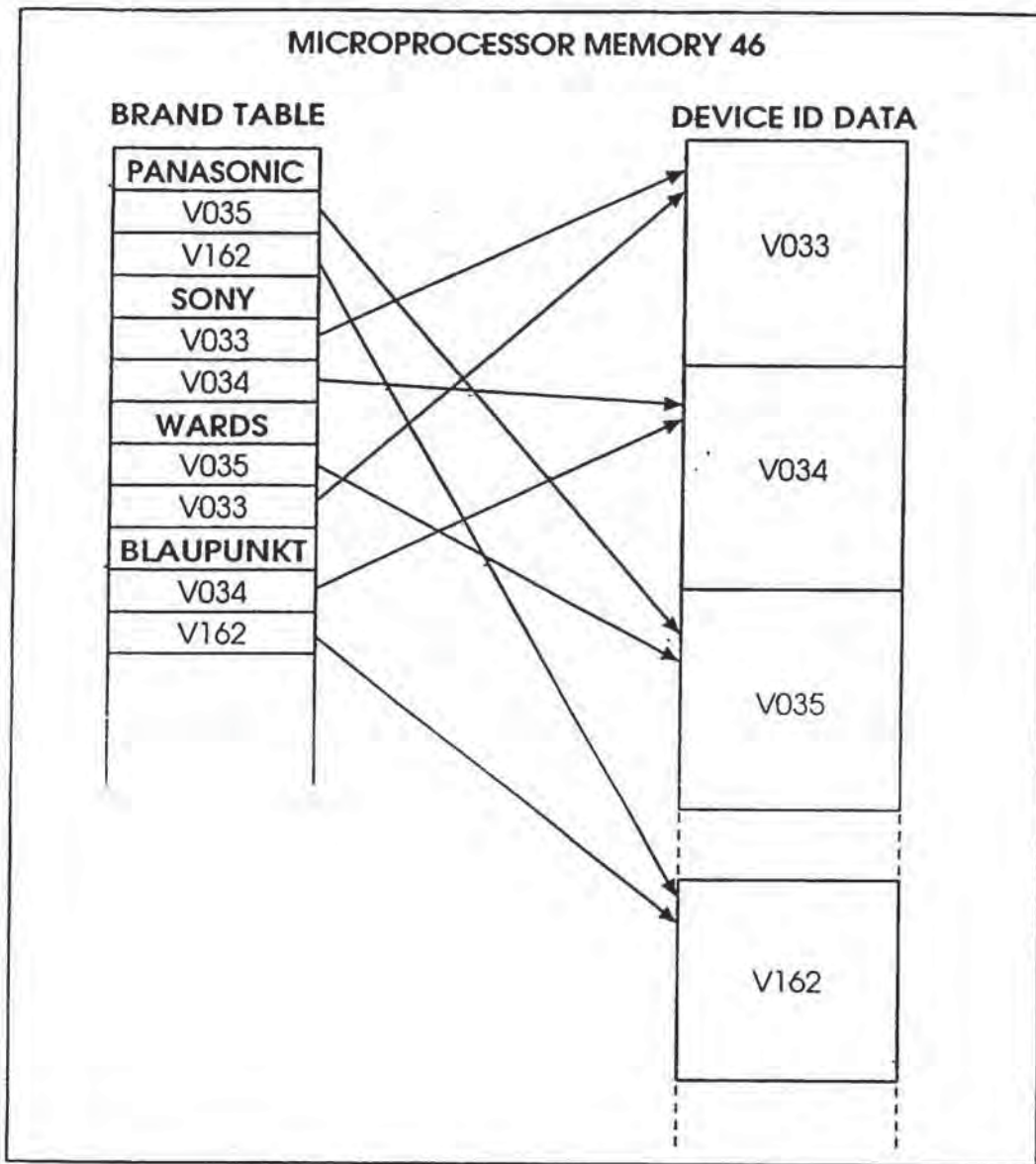


FIG. 4

<The invention provides a method in accordance with claim 1.>

4

SUMMARY OF THE INVENTION

<-> According to the present invention there is provided a method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for
5 controlling various remotely controllable electronic devices. The method includes assigning multiple effects observable commands (e.g. a "power off" command) from a group of command sets stored in the remote control to multiple user actuated switches or keys of the remote control.

10 The user then actuates the switches or keys, one at a time, with the corresponding assigned effects observable command being transmitted. The user continues to actuate keys until the user observes the remotely controlled device
15 responding properly to the transmitted command. The user then terminates the selection procedure with the remote control setting the active command set to the command set from which the successful effects observable command was assigned.

By assigning a single command set to a single user actuated key, the negative effects of a user key actuation that
20 results in a double key actuation or not registering due to failure to fully actuate the key is minimized. If the user suspects the key was not fully actuated, the user can repeat that particular key actuation. If the user inadvertently causes the remote to detect a double key actuation, the remote
25 control merely sends the effects observable command from the assigned command set twice. If the user wishes to actuate a particular key several times in order to confirm its effect on the responding device, he may do so at any point during the process without affecting the process.

30 The command sets stored in the remote control can be permanently stored in the remote control at the time of manufacture or downloaded from an external source. The ability to download command sets from an external source allows the remote control to provide remote control functionality with
35 future devices whose particular transmission protocol or commands have not yet been determined.

The method for selecting a remote control command set from a group of multiple command sets stored in a remote control, further provides for inputting a criteria code for limiting or

CLAIMS:

1. A method for selecting an appropriate one of a plurality of command sets stored in a remote control (10) having a plurality of assignable user actuated switches or keys (12) for controlling a remotely controllable electronic device, ~~comprising~~ ^{characterised by} the steps of:

(a) assigning an effects observable command from each of the plurality of command sets to ^{a respective} one of the plurality of assignable user actuated switches or keys (12), each assigned effects observable command to be transmitted when the corresponding one of the assignable user actuated switches or keys is actuated;

(b) actuating sequentially and individually each one of the plurality of assignable user actuated switches or keys (12), to individually transmit each assigned effects observable command until the proper effect is observed;

(c) halting the actuating of the plurality of assignable user actuated switches or keys (12); and

(d) setting the remote control (10) to transmit future remote control commands from the command set containing the last transmitted effects observable command.

2. A method as claimed in claim 1, further comprising the step of receiving the plurality of command sets from an external source prior to the step of assigning an effects observable command; the external source preferably communicating with the remote control via a wireless signal transmission, a wired signal transmission or a magnetic modem coupled to a telephone handset.

3. A method as claimed in claim 1 or 2, further comprising the

command from each of the plurality of command sets in a subsequent group of command sets to one of the plurality of assignable user actuated switches or keys (12), when a page down user actuated key is actuated; and assigning an effects observable command from each of the plurality of command sets in a prior group of command sets to one of said plurality of assignable user actuated switches or keys (12), when a page up user actuated key is actuated.

9. A method as claimed in claim 1, wherein the order of the effects observable commands from the plurality of command sets is assigned to the plurality of assignable user actuated switches or keys (12) based upon decreasing popularity of usage of each of the command sets ~~the method preferably~~ further comprising the step of receiving a code input from the user and wherein the code input indicates a particular criteria and is used to further determine the order the effects observable commands are assigned to the plurality of assignable user actuated switches or keys (12) based upon decreasing popularity of usage of each of the command sets conforming to the criteria.

10. A method as claimed in claim 9,

11. ~~10.~~

A remote control (10) comprising:
means for assigning an effects observable command from each of the plurality of command sets to one of the plurality of assignable user actuated switches or keys (12);
means for transmitting the effects observable command when the corresponding one of the plurality of assignable user actuated switches or keys (12) is actuated;
means for indicating the halting of the actuation of the plurality of assignable user actuated switches or keys (12); and
means for setting the remote control (10) to transmit future



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 GRANDE BRETAGNE

Datum/Date

19-04-2005

Zeichen/Ref./Réf. MCK/MS/P21983EP	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°. 97301600.9-1246/
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire UNIVERSAL ELECTRONICS, INC.	

EXTENSION OF TIME LIMIT PURSUANT TO RULE 84 EPC

Examination procedure

With reference to your request, the time limit for replying to the communication dated 02.12.04 has been extended

by 2 months
 to a total of 6 months,

from the date of notification of the above-mentioned communication.

Please note: To the extent that your request exceeded the above extension, your request has been refused.

Note:

The granting of extensions to time limits is governed by the implementing Regulations to the EPC and the Guidelines for Examination in the EPO, part E-VIII, 1.6.

If no reply to the communication is received in due time, the European patent application will be deemed to be withdrawn (Article 96(3) EPC).

For the Examining Division:

O'Sullivan, Lisa

Tel. No.: (+31-70) 340- 4208



European Patent Office
Erhardtstrasse 27
D-80298 München
Germany

EPO - Munich
46

19. April 2005

Our Ref: P21983EP/RC/AJE
Your Ref:

18 April 2005

Dear Sirs

European Patent Application No. 97301600.9-1246
In the name of Universal Electronics Inc.

This is in response to the communication dated 02.12.2004. Please find enclosed:

pages 13 and 15 of the specification presently on file on which amendments to claims 1, 9 and 10 have been made in manuscript; and

page 4 of the description presently on file on which amendment has been made in manuscript.

The paragraph numbers of the communication will be used in this letter.

2.0. It is noted that the Examiner has only raised objections of lack of inventive step.

2.1. The Examiner has objected that claim 1 lacks inventive step over D3. Prima facie this objection is not based on the disclosure of D3 with another document, or D3 in combination with general knowledge, but on a feature of claim 1 which is not disclosed in D3 and which the examiner does not consider solves a technical problem. It is not wholly clear to the representative on what provisions of the EPC this objection is founded. Clarification is requested.

Article 52(1) EPC requires the invention to be new and to involve an inventive step.

Article 56 EPC states that an invention shall be considered as involving an inventive step if ... it is not obvious to a person skilled in the art.

It does not appear that either of these articles require the wording of the claims to solve a particular technical problem.

It is the representative's understanding that it is the description which is required by the EPC to contain an indication of the technical problem to be solved by the invention, inter alia Rule 27(1)(c), and that Rule 27(1)(c) indicates that there is no obligation for the description to expressly state the technical problem. It is respectfully submitted that the description of the present application does indeed meet the requirements of Rule 27(1)(c), where an indication of the problems addressed by the invention and the solution provided by the invention can be found, inter alia in the "Summary of invention" at pages 4 and 5.

Page 4 lines 18-29 for example discusses how the assignment of different command sets to different keys prevents a problem in the prior art (where the same key is pressed until something happens, such as the appliance powering up) which can arise where the user inadvertently presses the key again after the effect has been observed, thereby selecting the wrong set of commands. With the present invention, pressing the same key more than once does not result in the selection of a different set of commands.

The Examiner's attention is respectfully directed to decision T0332/00, reason 2, page 7, where the Board held that there was no obligation to define in the claims any feature arbitrarily considered to be "essential for solving the technical problem". While this decision was in respect of an objection based on Article 84 EPC and Rule 27(1)(c), the principle expressed appears equally relevant to the present objection.

The Examiner concedes that the claim 1 is novel and that the features identified by the Examiner as (1(a)) and (1(b)) are not found in D3. The Examiner has provided no evidence or argumentation as to why it would be obvious to the skilled person to replace the steps of the prior art by the steps not found in the prior art but claimed in claim 1.

Claim 1 contains limiting features which do address and solve a technical problem and which are neither disclosed nor suggested in the prior art. Moreover, to more clearly distinguish the invention from the prior art, claim 1 has been amended to make it clear that different command sets are associated with different keys. The description discusses the problems of the prior art and teaches how to solve the problem by the technical features which are recited in claim 1. Hence the requirement of Article 52(1) and 56 EPC are complied with.

2.2. The same comments apply to claim 10.

2.3. As the appendant claims depend from independent claims which is novel and inventive, the claims themselves are both novel and inventive.

3.0. To remove the potential ambiguity associated with "preferably", claim 9 has been redrafted as two distinct claims, claims 9 and 10 as shown in manuscript on the accompanying copy of page 15 presently on file. Former claim 10 has been renumbered as claim 11 as a consequence.

The Examiner's objection to "popularity of usage of the command sets" is noted. However, it is observed that Article 69(1) EPC second sentence requires the description to be used to interpret the claims and it is observed that the description at page 9 lines 9-36, in particular lines 20-29,

provide the person skilled in the art with a teaching as to the meaning of this expression and support for the claims in the description.

4.0. As indicated above, it is the representative's view that the present application complies with the requirements of Rule 27(1) (c) in that it already refers to D3 and already indicates the advantages of the invention over the prior art of the type disclosed in D3.

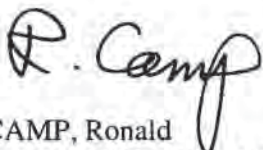
4.1. It appears that the only features of claim 1 presently on file which are also disclosed in D3 are those recited in the preamble to the lettered features of claim 1. Claim 1 has been amended accordingly.

4.2. A statement relating the invention to claim 1 has been provided in the description at page 4 as shown in manuscript.

In view of the foregoing comments and of the amendments that have now been made, it is respectfully submitted that the present application is in order for grant. If this is not the case, it would be appreciated if the examiner would telephone the undersigned to discuss any outstanding issues. Oral Proceedings are only requested in the event that the Examining Division is minded to reject the present application.

Please acknowledge safe receipt of this letter by returning the enclosed copy of EPO Form 1037 duly stamped.

Yours faithfully,



CAMP, Ronald
Authorised Representative

Kilburn & Strode

Encs.

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EPO - Munich
21
13. April 2005

Our Ref: P21983EP/RC/AJE
Your Ref:

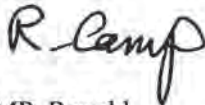
12 April 2005

Dear Sirs

European Patent Application No. 97301600.9
In the name of Universal Electronics Inc.

I hereby request a further two month extension to the period to reply to the Art 96(2) communication dated 2 December 2004.

Yours faithfully,



CAMP, Ronald
Authorised Representative
Kilburn & Strode

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G.V.Roberts * T.Z.Gold † N.J.Hedley † N.C.Bassil * N.J.Lee † C.H.A.Lindley † T.G.Copsey * J.J.G.Hibbert * W.J.Neobard *
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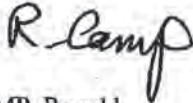
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FAX TRANSMISSION Page 1 of 1

European Patent Office
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Germany

Our Ref: **P21983EP/RC/AJE**
Your Ref:

12 April 2005

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European Patent Application No. 97301600.9
In the name of Universal Electronics Inc.

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Partnership Secretary: B.Collins Records: M.R.Jenkins Accounts: B.J.Nutchev
* Patent Attorneys † Trade Mark Attorneys † Patent & Trade Mark Attorneys

Empf.zeit:12/04/2005 12:30



The examination is being carried out on the **following application documents**:

Description, Pages

1-12 as originally filed

Claims, Numbers

1-10 as originally filed

Drawings, Sheets

1/6-6/6 as originally filed

1.0 The following documents (D) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-A-5 485 149 (TAKIGUCHI IWAO ET AL) 16 January 1996 (1996-01-16)

D2: US-A-5 414 761 (DARBEE PAUL V) 9 May 1995 (1995-05-09)

1.1 The following document (D) is cited by the examiner (see the Guidelines, C-VI, 8.7). A copy of the document is annexed to the communication and the numbering will be adhered to in the rest of the procedure:

D3: US-A-4 703 359 (RUMBOLT ROBIN ET AL) 27 October 1987 (1987-10-27)

2.0 The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 does not involve an inventive step in the sense of Article 56 EPC.

2.1 Regarding claim 1 the document D3 discloses:

A method for selecting an appropriate one of a plurality of command sets stored in



a remote control having a plurality of assignable user actuated switches or keys (36) for controlling a remotely controllable electronic device, comprising the steps of:

(1) sequentially transmitting each assigned effects observable command until the proper effect is observed;

(2) halting the actuating of the plurality of assignable user actuated switches or keys (12); and

(3) setting the remote control to transmit future remote control commands from the command set containing the last transmitted effects observable command.

The subject-matter of claim 1 differs in that it further comprises the step of:

(1a) assigning an effects observable command from each of the plurality of command sets to one of the plurality of assignable user actuated switches or keys, each assigned effects observable command to be transmitted when the corresponding one of the assignable user actuated switches or keys is actuated;

and in that the step (1) of D3 is replaced by:

(1b) actuating sequentially and individually each one of the plurality of assignable user actuated switches or keys, to individually transmit each assigned effects observable command until the proper effect is observed;

In other words in D3, during set up mode, the remote control automatically and sequentially transmits a specific 'test' command in all different formats. When the device to be controlled responds to a command, the user stops the procedure there and the last set of commands is chosen for controlling the specific device.

On the other hand, in claim 1, during set up mode, each key of the remote control is assigned with the 'test' command in a specific format. The user pushes the keys one after the other, until he finds the one that corresponds to the required format for the specific device, and then stores the specific commands set.

However, it is not clear what is the technical problem solved by the above-mentioned modification.



Thus, the subject-matter of claim 1 does not involve an inventive step and does not satisfy the criterion set forth in Articles 52(1) and 56 EPC.

2.2 The same objection as the one under point 2.1 applies to the corresponding product claim 10.

2.3 Dependent claims 2-9 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to inventive step, the reasons being as follows:

- downloading command sets to the remote control (claim 2), is known from D2,
- receiving a code from the user to identify a subset of command sets (claims 3, 4) is known from D1,
- selecting a power off command, as a 'test' command (claim 5), is an obvious design option,
- a remote control with a power key and numeric keys (claim 6) is known from D3,
- mode selection keys (claim 7) are known from D3 (see col.3 lines 56-68; col. 5, lines 34-37)
- the function of a 'page up' and a 'page down' key in the case that the number of command sets exceeds the number of keys (claim 8), is equivalent to the function of the multiple pressings of the keys to indicate different devices as described in D1,
- as far as it can be understood (see point 3.0), claim 9 does not appear to be inventive.

3.0 The application does not meet the requirements of Article 84 EPC, because claim 9 is not clear.

In particular, the term 'preferably' (line 5 of the claim) leaves the reader in doubt whether the steps described afterwards are part of the invention or not (Guidelines C III, 4.6). Moreover the term 'popularity of usage of the command sets' does not have a specific technical meaning, and therefore it is unclear to the skilled person, what the criteria of assigning effects observable commands to switches or keys, are.

4.0 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 29(1) EPC. The applicant should also indicate in the letter of reply the difference of





the subject-matter of the new claim vis-à-vis the state of the art and the significance thereof.

In particular, the applicant should state the technical problem solved in relation to document D3.

- 4.1 It would be appropriate to draft the independent claims in the two-part form as required by Rule 29(1) EPC, whereby the features known from D3 should be placed in the preamble.
- 4.2 When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims. Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).
- 4.3 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.



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Primary Examiner +31 70 340-4246
 (substantive examination)

Formalities Officer / Assistant +31 70 340-2898
 (Formalities and other matters)



Application No. 97 301 600.9 - 1246	Ref. MCKMS/ P21983EP	Date 02.12.2004
Applicant UNIVERSAL ELECTRONICS, INC.		

Communication pursuant to Article 96(2) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(1) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 78(2) and 83(2) and (4) EPC.

One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (Rule 36(1) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Article 96(3) EPC).



TZIMEAS K
 Primary Examiner
 for the Examining Division

Enclosure(s): 4 page/s reasons (Form 2906)

Kilburn & Strode

FAX TRANSMISSION

The European Patent Office
PB 5818 Patentlaan 2
2280 HV Rijswijk (ZH)
THE NETHERLANDS

Our Ref: MCK/MS/P21983EP
Your Ref: 97301600.9-2211

Dear Sirs,

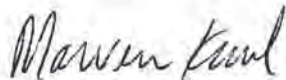
European Patent Application No: 97301600.9
In the name of Universal Electronics, Inc.

In connection with the above-mentioned European patent application, I designate the following states:

UK, Belgium, Germany, France, Spain, Italy and The Netherlands.

Separate arrangements have been made for payment of the appropriate fees.

Yours faithfully,



Dr Maureen Kinsler
Authorised Representative
Kilburn & Strode

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EPO - DG 1

17. 10. 2000

(73)

CONFIRMATION
ORIGINAL SENT BY FAX

CONFIRMATION
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16 October 2000

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Partners: K.D.N.Kearney R.Ashmead N.R.Jennings D.C.Rees M.N.Maggs P.Hale P.W.Chapman
J.L.W.Miller Kristina V.J. Cornish G.V.Roberts

Associates: N.C.Bassil T.G.Conroy Julia A.Flores Maureen C.Kinsler N.J.Les Carollanne H.A.Lindley
Consultants: A.G.Sheard Alison C. Roberts
Universal Remote Control Exhibit 1014 Page 56

Kilburn

& Strode

Our Ref: MCK/P21983EP
Your Ref:

European Patent Office
Directorate
Cash and Accounts Department
D-80298 Munchen
GERMANY

29 September 2000

Dear Sirs,

RE: EUROPEAN PATENT APPLICATION NO. 97301600.9 -
REF: MCK/P21983EP
APPLICANT(S): UNIVERSAL ELECTRONIC INC

Please debit our deposit account number **28050204** with the fees shown on the attached form 1010, totalling **1,963.00 EURO ONE THOUSAND NINE HUNDRED AND SIXTY THREE EURO** in respect of the above application and designating the following countries, if applicable **BE, DE, ES, FR, GB, IT, NL**.

Zur Kasse

Yours faithfully,



Kilburn & Strode
Enc:

EPO - Munich
61
04. Okt. 2000

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GRANDE BRETAGNE

Datum/Date

03/05/00

Zeichen/Ref./Réf. MCK/MS/P21983EP	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n° 97301600.9-2211 / 0803987
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire UNIVERSAL ELECTRONICS, INC.	

**COMMUNICATION PURSUANT TO RULE 50 EPC
REMINDER OF PAYMENT OF THE DESIGNATION FEES (ART. 79(2) EPC)
AND OF THE EXAMINATION FEE (ART. 94(2) EPC)**

The date on which the European Patent Bulletin mentions the publication of the European search report for the above-mentioned European patent application is: 26.04.00.

Your attention is drawn to Article 79(2) and (3) EPC as well as Article 94(2) and (3) EPC according to which within SIX MONTHS after the above-mentioned publication date of the search report

- the designation fee(s) must be paid (reference is, however, made to the Supplement to OJ EPO 12/1996, para. 6)
- a written request for examination must be filed as well as the examination fee must be paid. (A written request for examination has been filed already.)

The current rate of the designation fee for each contracting state designated is:

EUR	DEM	GBP	FRF	CHF	NLG	SEK	BEF/LUF	ITL
76	148,64	51	498,53	120	167,48	680	3066	147157
ATS	ESP	GRD	DKK	PTE	IEP	FIM	CYP	
1045,78	12645	25300	570	15236,60	59,85	451,88	45	

If the application has been filed on or after 01 July 1999 the payment of seven times the amount of the designation fee is deemed to constitute payment of the designation fees for all contracting states (see OJ EPO 06/1999, 405).

--/2

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EPO Form 1081 (07.99)
009

GB* 7011006 27/04/00



The current rate of the examination fee is:

EUR	DEM	GBP	FRF	CHF	NLG	SEK	BEF/LUF	ITL
1431	2798,79	966	9386,74	2320	3153,51	12880	57726	2770802
ATS	ESP	GRD	DKK	PTE	IEP	FIM	CYP	
19690,99	238098	476500	10730	286889,70	1127	8508,34	844	

If at least one designation fee and the examination fee are not paid within the period laid down in Article 79(2) or 94(2) EPC, the application shall be deemed to be withdrawn (Arts. 79(3), 94(3) EPC).

Any extension fees are also payable within the above-mentioned period.

NOTE TO USERS OF THE AUTOMATIC DEBITING PROCEDURE:

1) Designation fees

If the application has been filed up to 30 June 1999, the designation fees for the contracting states marked under no. 2 of section 32 of the Request for Grant (EPO Form 1001 (11.98) will be debited on the last day of the period pursuant to Art. 79(2) EPC, unless the EPO receives prior instructions to the contrary.

If the application has been filed on or after 01 July 1999, seven times the amount of the designation fee will be debited on the last day of the period pursuant to Art. 79(2) EPC. However, if contracting states are marked under no. 2 of section 32 of the Request for Grant (EPO Form 1001 (07.99)), the designation fees only for these contracting states will be debited unless instructions to the contrary have reached the EPO within the basic period for paying the designation fees.

2) Examination fee

Unless the EPO receives prior instructions to the contrary, the examination fee will be debited on the last day of the period for payment.

For further details see the Arrangements for the automatic debiting procedure, Supplement to OJ EPO 02/1999.

RECEIVING SECTION



Anmeldung Nr./Application No./Demande n° // Patent Nr./Patent No./Brevet n°	Blatt/Page/Feuille
97301600.9	2

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 30 1600

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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01-03-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5485149 A	16-01-1996	JP 6006876 A	14-01-1994
		CA 2097411 A	19-12-1993
		EP 0577267 A	05-01-1994
US 5414761 A	09-05-1995	US 5255313 A	19-10-1993
		US 5228077 A	13-07-1993
		US 4959810 A	25-09-1990
		US 5537463 A	16-07-1993
		US 5481256 A	02-01-1996
		US 5515052 A	07-05-1996
		US 5552917 A	03-09-1993
		US 5689353 A	18-11-1997
		US 5959751 A	28-09-1999
		US 5953144 A	14-09-1999
		US 6014092 A	11-01-2000
		US 5414426 A	09-05-1990

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82



P.B. 5818 - Patentlaan 2
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Kinsler, Maureen Catherine
 Kilburn & Strode,
 20 Red Lion Street
 London WC1R 4PJ
 GRANDE BRETAGNE

Datum/Date
 10.03.00

Zeichen/Ref./Réf. MCK/MS/P21983EP	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n° 97301600.9-2211-
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire UNIVERSAL ELECTRONICS, INC.	

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

abstract title

The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract: 1

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X,D	US 5 485 149 A (TAKIGUCHI IWAO ET AL) 16 January 1996 (1996-01-16)	1-7,10	H04B1/20
A	* abstract * * column 4, line 10 - column 7, line 4 *	8,9	
A	US 5 414 761 A (DARBEE PAUL V) 9 May 1995 (1995-05-09) * abstract * * column 2, line 7 - column 3, line 34 * * figure 15 *	1-10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H04B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		1 March 2000	Tzimeas, K
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

1
EPO FORM 1503 03.82 (P04C01)

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THE NETHERLANDS
ATTN: Mr Korese

Our Ref: MCK/MS/P21983EP
Your Ref: 97301600.9-2211

21 October 1999

BY FAX

Dear Sirs,

European Patent Application No: 97301600.9
In the name of Universal Electronics, Inc.

In response to the Invitation to File an Authorisation dated 14 October 1999, I file herewith a general authorisation that has been signed on behalf of the Applicant, together with a copy thereof.

I understand that this general authorisation is sufficient to satisfy the requirements of the Invitation to File an Authorisation issued under Rule 101(1) EPC. Nevertheless, I would be grateful if you could confirm as soon as possible that the deadline set by the invitation of 14 October 1999 is now met.

Yours faithfully,

Dr Maureen Kinsler
Authorised Representative
Kilburn & Strode

R.T. Koerse 02. 11. 1999

Ontvangst tijd

1. nov. 9:54

Afdruk tijd

1. nov. 9:56

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Datum Date October __, 1999

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EP3 EP3 023 501 01

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1. nov. 9:54

Afdruk tijd

1. nov. 9:56



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 GRANDE BRETAGNE



Datum/Date

29. 10. 99

Zeichen/Ref./Réf. MCK/MS/P21983EP	Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°. 97301600.9-2211/0803987
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire UNIVERSAL ELECTRONICS, INC.	

Receipt of your letter (payment) dated *2/10/99* ..., under cover of
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 tel: 3386



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EPO Form 1153 (07.98)

7001153 26/10/99

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Kilburn & Strode

European Patent Attorneys
Chartered Patent Attorneys
Trade Mark Attorneys

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The European Patent Office
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2280 HV Rijswijk (ZH)
THE NETHERLANDS
ATTN: Mr Korese

EPO - DG 1

25 10. 1999

(68)

CONFIRMATION
ORIGINAL SENT BY FAX

Our Ref: MCK/MS/P21983EP
Your Ref: 97301600.9-2211

21 October 1999

BY FAX

Dear Sirs,

European Patent Application No: 97301600.9
In the name of Universal Electronics, Inc.

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Yours faithfully,

Dr Maureen Kinsler
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Datum / Date October __, 1999

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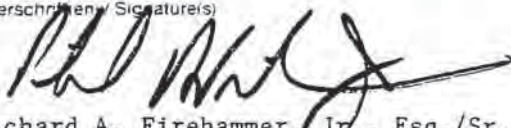
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**Kilburn
& Strode**

European Patent Attorneys
Chartered Patent Attorneys
Trade Mark Attorneys

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The European Patent Office
PB 5818 Patentlaan 2
2280 HV Rijswijk (ZH)
THE NETHERLANDS
ATTN: Mr Korese

Our Ref: MCK/MS/P21983EP
Your Ref: 97301600.9-2211

21 October 1999

BY FAX

Dear Sirs,

European Patent Application No: 97301600.9
In the name of Universal Electronics, Inc.

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Yours faithfully,

Maureen Kinsler

Dr Maureen Kinsler
Authorised Representative
Kilburn & Strode

*cc. Mr
general Auth.*

BT Korese 21 Oct 1999

Ref 261299 genA

Partners: K.D.N. Kearney R. Ashmead N.R. Jennings D.C. Rees A.G. Sheard M.N. Maggs P. Hale P.W. Chapman
J.L.W. Miller Kristina V.J. Cornish G.V. Roberts
Associates: N.C. Bossil Julia A. Florence Kathleen D. Harris* Maureen C. Kinsler N.J. Lee F. Lupton *US Attorney only
Consultant: Alison C. Roberts Partnership Secretary: B. Collins Records: W.D.D. Green Accounts: H.J. Nutehey

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FAX TRANSMISSION

To: Mr Korese
Fax: 00 31 70 3403986
Of: The European Patent Office – Hague

From: Dr Maureen Kinsler
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Date: 21 October 1999

Number of pages including this page: 3

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J.L.W. Miller Kristina V.J. Cornish G.V. Roberts
Associates: N.C. Bassil Julia A. Florence Kathleen D. Harris* Maureen C. Kinsler N.J. Lee F. Lupton *US Attorney only
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A general authorisation in our favour will be submitted shortly.

Yours faithfully,


D.C. Rees
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Authorised Representative

cc Messrs Merten & Pfeffer, Messrs Kohler Schmid & Partner, Messrs A.A. Thornton

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ABSTRACT

METHOD FOR SELECTING A REMOTE
CONTROL COMMAND SET

A method for selecting a command set from a group of command sets stored in a remote control (10). Each remote control command set includes a set of commands for operating at least one of various remotely controllable devices. A command, whose effect is observable in the remotely controlled device, is assigned to one of a plurality of user actuated keys (12). The keys (12) are pressed one by one until the user observes the desired effect on the remotely controlled device. The user then signals the remote control (10) to exit the select procedure with the remote control setting the remote control to transmit future commands from the command set including the last transmitted effects observable command having the observed desired effect.

(Figure 1)

CLAIMS:

1. A method for selecting an appropriate one of a plurality of command sets stored in a remote control (10) having a plurality of assignable user actuated switches or keys (12) for controlling a remotely controllable electronic device, comprising the steps of:

- (a) assigning an effects observable command from each of the plurality of command sets to one of the plurality of assignable user actuated switches or keys (12), each assigned effects observable command to be transmitted when the corresponding one of the assignable user actuated switches or keys is actuated;
- (b) actuating sequentially and individually each one of the plurality of assignable user actuated switches or keys (12), to individually transmit each assigned effects observable command until the proper effect is observed;
- (c) halting the actuating of the plurality of assignable user actuated switches or keys (12); and
- (d) setting the remote control (10) to transmit future remote control commands from the command set containing the last transmitted effects observable command.

2. A method as claimed in claim 1, further comprising the step of receiving the plurality of command sets from an external source prior to the step of assigning an effects observable command; the external source preferably communicating with the remote control via a wireless signal transmission, a wired signal transmission or a magnetic modem coupled to a telephone handset.

3. A method as claimed in claim 1 or 2, further comprising the

step of receiving a code input from the user and wherein the code input is used to identify a subset of command sets meeting a particular criteria, from which the effects observable commands are assigned.

4. A method as claimed in claim 3, wherein the particular criteria refer to command sets which control electronic devices manufactured by a specific manufacturer or within a specific time period, or, sold through a particular retail outlet.

5. A method as claimed in any of the preceding claims, wherein the effects observable command is a power off command.

6. A method as claimed in any of the preceding claims, wherein the plurality of assignable user actuated switches or keys (12) include a power key (14) and numeric keys (16).

7. A method as claimed in any of the preceding claims, wherein the remote control (10) further includes a plurality of user actuated mode keys (18) for selecting one of a plurality of modes and the method further includes the step of selecting one of the plurality of modes prior to the step of assigning an effects observable command, such that, the method for selecting an appropriate one of a plurality of command sets can be performed to separately set a different command set for each mode.

8. A method as claimed in any of the preceding claims, wherein the remote control (10) further includes a page down user actuated key and a page up user actuated key and, when the number of command sets exceed the number of assignable user actuated switches or keys, the method further includes the steps of: assigning an effects observable

command from each of the plurality of command sets in a subsequent group of command sets to one of the plurality of assignable user actuated switches or keys (12), when a page down user actuated key is actuated; and assigning an effects observable command from each of the plurality of command sets in a prior group of command sets to one of said plurality of assignable user actuated switches or keys (12), when a page up user actuated key is actuated.

9. A method as claimed in claim 1, wherein the order of the effects observable commands from the plurality of command sets is assigned to the plurality of assignable user actuated switches or keys (12) based upon decreasing popularity of usage of each of the command sets; the method preferably further comprising the step of receiving a code input from the user and wherein the code input indicates a particular criteria and is used to further determine the order the effects observable commands are assigned to the plurality of assignable user actuated switches or keys (12) based upon decreasing popularity of usage of each of the command sets conforming to the criteria.

10. A remote control (10) comprising:
means for assigning an effects observable command from each of the plurality of command sets to one of the plurality of assignable user actuated switches or keys (12);
means for transmitting the effects observable command when the corresponding one of the plurality of assignable user actuated switches or keys (12) is actuated;
means for indicating the halting of the actuation of the plurality of assignable user actuated switches or keys (12); and
means for setting the remote control (10) to transmit future

remote control commands from the command set containing the last transmitted effects observable command.

METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET
BACKGROUND OF THE INVENTION

1. Field of the Invention.

The present invention relates to a method for selecting a
5 remote control command set from a group of multiple command
sets stored in a remote control, for controlling various
remotely controllable electronic devices.

2. Description of the related art including information
disclosed under 37 CFR §§ 1.97-1.99.

10 Heretofore, various systems for providing methods of
selecting a remote control command set from a group of multiple
command sets have been proposed. Several examples of analogous
and non-analogous methods are disclosed in the following U.S.
Patents:

15	<u>U.S. Patent No.</u>	<u>Patentee</u>
	4,703,359	Rumbolt et al.
	4,959,810	Darbee et al.
	5,485,149	Takiguchi et al.
	<u>German Patent Publications:</u>	
20	DE 33 13 493 A1	Telefunken

The Rumbolt et al., U.S. Patent No. 4,703,359 discloses a
method for adapting a remote control to generate a remote
command signal having the appropriate signal structure for
controlling a selected one of a plurality of electronic
25 devices. Once the method is initiated, the remote control
automatically cycles through the entire list of different
format command lists stored within the remote control's
internal memory, transmitting a test command to the desired
device to be controlled until the user interrupts the cycle.
30 Interrupting the cycle of test commands causes the remote
control to transmit future commands using the signal structure
of the last test command transmitted prior to interrupting the
cycle.

The Darbee et al., U.S. Patent No. 4,959,810 discloses a
35 universal remote control system that provides for two methods
for selecting a remote control command set.

The first method is a step and set procedure in which the
list of command sets stored in the remote control are stepped
through both forward and backwards allowing a test command from

the currently selected command set to be transmitted. The user observes the effects of the test command to determine if the currently selected command set is compatible with the device the user is wanting to control. When the user finds a command
5 set compatible with the device to be controlled, the user exits the procedure with the remote control set to the compatible command set.

The second method is a direct entry - quick set procedure in which the user looks up the make and model of the of the
10 device to be controlled from a printed list of devices. The user then directly inputs a corresponding code associated with the make and model of the device to be controlled to index the proper command set from the remote control's internal command set library.

15 The Takiguchi et al., U.S. Patent No. 5,485,149 discloses a method for selecting a set of remote control signals from multiple remote control signal groups, where each group contains multiple sets of remote control signals. Each remote control signal group is assigned to one of the operating keys.

20 Upon entering a select setting mode, the particular set of remote control signals within one of the signal groups is selected by the number of times the assigned operating key is pressed. A single keypress will select the first set of remote control signals within the remote control signal group assigned
25 to the pressed key. Pressing the same key a second time will select the second set of remote control signals within the assigned remote control signal group. Similarly, subsequent key presses of the same key will select subsequent sets of remote control signals.

30 The Telefunken, German published patent application DE 33 13 493 A1 discloses a remote control having a table containing multiple columns of control signals each column containing the code signals for operating a particular device and a mechanism for selecting the appropriate column of control signals.

35 The remote control provides for the selection of the appropriate column of control signals by automatically cycling through the multiple columns of control signals, transmitting a trial command, and observing the effect of the trial command on the device to be remotely operated. When the desired result

is observed, the user signals the remote control that a successful command has been transmitted. The remote control then eliminates from consideration all columns of control signals that do not contain the matched successful trial
5 command. If more than one column of control signals match the successful trial command, the remote control repeats the above procedure using a different trial command and cycling through only the remaining columns of control signals until all columns of command signals have been eliminated except one.

SUMMARY OF THE INVENTION

According to the present invention there is provided a method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for
5 controlling various remotely controllable electronic devices. The method includes assigning multiple effects observable commands (e.g. a "power off" command) from a group of command sets stored in the remote control to multiple user actuated switches or keys of the remote control.

10 The user then actuates the switches or keys, one at a time, with the corresponding assigned effects observable command being transmitted. The user continues to actuate keys until the user observes the remotely controlled device responding properly to the transmitted command. The user then
15 terminates the selection procedure with the remote control setting the active command set to the command set from which the successful effects observable command was assigned.

By assigning a single command set to a single user actuated key, the negative effects of a user key actuation that
20 results in a double key actuation or not registering due to failure to fully actuate the key is minimized. If the user suspects the key was not fully actuated, the user can repeat that particular key actuation. If the user inadvertently causes the remote to detect a double key actuation, the remote
25 control merely sends the effects observable command from the assigned command set twice. If the user wishes to actuate a particular key several times in order to confirm its effect on the responding device, he may do so at any point during the process without affecting the process.

30 The command sets stored in the remote control can be permanently stored in the remote control at the time of manufacture or downloaded from an external source. The ability to download command sets from an external source allows the remote control to provide remote control functionality with
35 future devices whose particular transmission protocol or commands have not yet been determined.

The method for selecting a remote control command set from a group of multiple command sets stored in a remote control, further provides for inputting a criteria code for limiting or

filtering the list of command sets to be searched through to those command sets that work with devices meeting a particular criteria. In this way, the entire list of command sets do not need to be searched through. Similarly it does not require the user to know all the details about a particular device in order to determine and set the appropriate command set.

Where the number of command sets to be searched through exceeds the number of keys with which the effects observable commands are assigned, the method additionally provides for the ability to page through sub-groups of command sets. Each sub-group being no larger than the number of assignable keys.

Where a remote control provides for multiple modes, each mode providing for the remote operation of a different device (i.e. TV, VCR, cable box, etc.), a different command set can be selected for each of the available modes.

Other objects and advantages of the present application will be apparent from the detailed description and drawings which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the top face of a remote control incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the remote control.

FIG. 2 is a block diagram of the internal circuitry of the remote control shown in FIG. 1.

FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart that together provide instructions for assisting in the control of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

FIG. 4 is schematic layout of a portion of a BRAND TABLE and of a list of DEVICE ID DATA stored in a memory (RAM) of a microprocessor shown in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in greater detail, there is illustrated in FIG. 1 a plan view of the top face of a remote control 10 incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the remote control.

The remote control includes a set of user actuated keys 12, including a power key 14, numeric keys 16, mode keys 18, a magic key 20, and channel up and channel down keys 22. The remote control 10 further includes a visual LED 24 and an infra-red LED (not shown), located at the front 26 of the remote control 10.

FIG. 2 is a block diagram of the internal circuitry 28 of the remote control shown in FIG. 1. The internal circuitry 28 is similar to the circuitry described in Escobosa et al., USSN 08/251,336, filed May 31, 1994, now U.S. Patent No. whose specification is incorporated herein by reference.

The internal circuitry 28 includes a control circuit 30, an oscillator circuit 32, a reset circuit 34, a key pad circuit 36, an external data input circuit 38, and an LED driver circuit 40.

The control circuit 30 monitors and controls the overall functioning of the remote control 10. In a preferred embodiment it incorporates a microprocessor 42, with associated semiconductor memory in the form of ROM 44 and/or RAM 46. The semiconductor memory is used to store both program operating instructions and program data for assisting in the control of the remote control 10.

The oscillator circuit 32 provides a clocking signal to the control circuit 30. The reset circuit 34 provides a reset signal to the control circuit when the internal circuitry 28 is initially powered up. The key pad circuit 36 incorporates the user actuated keys 12 and provides circuitry in conjunction with the control circuit 30 for decoding which one of the user actuated keys 12 has been actuated.

The external data input circuit 38 receives data from a source external to the remote control 10. The particular circuitry can take the form of any one of many traditional forms of communication, whether wired or wireless. In one

preferred embodiment the external data communication is accomplished by a magnetic modem similar to the one described in the Escobosa application, USSN 08/251,336, filed May 31, 1994, referred to above.

5 The LED driver circuit 40 is coupled to the control circuit 30 and incorporates the visual LED 24 and the infra-red LED (not shown) located at the front 26 of the remote control 10 and provides the LEDs with driving power in response to signals received from the control circuit 30. The visual LED
10 24 provides the user with visual feedback concerning the remote control's 10 activity. The infra-red LED provides the signalling capability for sending the remote control signals to the devices to be controlled.

FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart
15 that together provide instructions for assisting in the control of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

20 FIG. 3A shows the starting point of the instructions to be executed by the microprocessor 42 in controlling the remote control 10. The flow chart begins by waiting for an interrupt or an indication that a key or switch 12 has been pressed or actuated. Upon actuation of a key or switch 12, a
25 determination is made as to which key has been pressed.

If a mode key 18 is pressed the remote control 10 sets the current command set from which commands will be transmitted to the command set chosen for the selected mode. The mode keys 18 preferably include separate mode keys 18 for a TV, a VCR, a
30 Cable Box, as well as any other device for which an infra-red remote control transmitter could be used to remotely control the device.

If a command key is pressed, the remote control 10 transmits the particular operating command associated with the
35 pressed command key from the currently selected command set.

If an enter setup key is pressed the remote control 10 enters a setup mode used to configure the remote control 10. In the preferred embodiment the enter setup key is equivalent to the magic key 20, however it can take any one of various

forms including a slider switch or a combination of key presses.

Upon entering the setup mode, the remote control 10 waits until it receives a set up code. If the setup code is a setup
5 function code, the execution of operating instructions of the remote control 10 branches to FIG. 3B to perform instructions to determine which function code has been requested to be performed.

If the setup code is a criteria code, indicating a
10 particular subset of command code sets, the remote control sets the searchable command sets to the command sets meeting the received criteria and branches the execution of instructions to FIG. 3C to perform instructions to select a new command set for the currently active mode.

15 The criteria code allows the remote control to restrict the number of searchable command sets to only those command sets used with devices meeting a particular criteria and/or to determine a different order of assigning the effects observable commands.

20 Preferably the effects observable commands will be assigned to the user actuated keys in order of decreasing popularity. However a command set that is not very popular when one considers the entire list of stored command sets used for operating a television, may be the most popular command set
25 used for operating a television manufactured by a particular manufacturer. The use of a criteria code representing a particular manufacturer by the user can be used to establish a different assignment order based on the popularity of command sets following the indicated criteria.

30 Examples of different possible criteria include codes for different manufacturers, codes for equipment manufactured or purchased between a specified time period, devices sold through a particular retail outlet, etc.

Additionally in some embodiments it is possible to allow
35 for the entry of multiple criteria in order to further isolate the proper command set for operating a particular device.

If the setup code is neither a function code nor a setup code, it is assumed the user inadvertently entered the setup mode and the execution of the operating instructions of the

remote control 10 branches to the start of the instructions in FIG. 3A.

FIG. 3B shows the program steps performed when a function code is received after entering the setup mode. First a
5 determination is made to identify which function is being requested to be executed. If the function code is determined to be a download code, the remote control executes a procedure to receive one or more command sets via the external data input. The searchable subset of command sets are defined to
10 include the received command sets and the execution of the operating instructions branches to FIG. 3C.

Similarly, an alternative embodiment can allow the received command sets to supplement the command sets previously stored in the remote control 10.

15 In the embodiment disclosed in FIGS. 3A through 3D the remote control enters a command set selection procedure after downloading the received data, however it is not necessary for the selection procedure to be entered immediately after downloading of the received data, but can be delayed until the
20 user chooses. Similarly, the data received does not necessarily have to be one or more command sets, but can include updates to already stored command sets or other related data.

If the function code is a search code, the searchable set
25 of commands is defined to include the command sets stored in the remote control without first inputting a criteria code or downloading command sets. This allows the user to directly enter the procedure to select the new command set without first entering a criteria code or performing another function.

30 FIGS. 3C and 3D shows the program steps for selecting the new command set from the list of searchable command sets. Initially, as shown in FIG. 3C a determination is made whether the number of searchable command sets exceeds the number of assignable user actuated keys or switches.

35 If the number of searchable command sets is greater than the number of assignable user actuated keys or switches the searchable command sets are broken up into multiple pages of command sets no greater in size than the number of assignable user actuated keys that can be paged through using the channel

up and channel down keys 22. The effects observable commands from the currently selected page, initially the first page, of command sets is assigned to the assignable user actuated keys.

If the number of searchable command sets is equal to or 5 less than the number of assignable user actuated keys or switches, the effects observable commands from the searchable command sets, forming a single page of command sets, are assigned to the assignable user actuated keys.

After the effects observable commands for the currently 10 selected page have been assigned, the remote control 10 waits for a key to be pressed. When a key press has been detected the remote control 10 determines if the key pressed is an assignable user actuated key, a key which has had an effects observable command assigned to it. If it is then the remote 15 control transmits the assigned effects observable command (e.g., a "power off" command) to the device to be remotely controlled and loops back to wait for another key press. The user observes the device to be remotely controlled for a visual indication of a compatible command.

20 In the preferred embodiment the assignable user actuated keys include the power key 14 and the numeric keys 16. The assignable user actuated keys are assigned in the order of the power key 14 first, followed by the numeric keys 16 in order starting with the "one" key and ending with the "zero" key. 25 Additionally the preferred effects observable command is a power off command.

If the key pressed is a page down command (i.e. a channel down key 22), and a subsequent page of command sets is defined. Then the remote control 10 reassigns an effects observable 30 command from each of the command sets from the subsequent page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is a page up command (i.e. a channel up key 22), and a prior page of command sets is defined, then the 35 remote control reassigns an effects observable command from each of the command sets from the prior page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is an exit setup key (i.e. a magic key

20), then the remote control 10 sets the current command set for the currently selected mode to the command set corresponding to the effects observable command assigned to the last pressed assigned key. Typically the user exits the setup
5 procedure when the user observes the desired effect on the device to be controlled by the remote control 10, indicating that a compatible command set has been located.

In this way a method for selecting a compatible command set from a library of multiple command sets can be realized.
10 Similarly different command sets can be selected for each of the different device modes by selecting the mode key 18 corresponding to the desired mode prior to entering the setup procedure.

Often times, a plurality of brands of electronic devices,
15 e.g., television sets may share a device entry code. For example, the Panasonic code, 035, is also the entry code for a private labelled television set sold by Montgomery Wards. This is illustrated in FIG. 4.

Additionally, as shown in FIG. 4, the priority order may
20 be different from brand name to brand name, even though they use the same device entry code. For example the Sony number 1 code is 033, but this device entry code is only the Wards number 2 code.

From the foregoing description, it will be apparent that
25 the method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for controlling various remotely controllable electronic devices of the present invention has a number of advantages, some of which have been described above and others of which are inherent in
30 the method of the invention. Also it will be understood that modifications can be made to the method for selecting a remote control command set described above without departing from the teachings of the invention.

ERFINDERNENNUNG / DESIGNATION OF INVENTOR / DESIGNATION DEL'INVENTEUR **3**

(falls Anmelder nicht oder nicht allein der Erfinder ist) / (where the applicant is not the inventor or is not the sole inventor) / (si le demandeur n'est pas l'inventeur ou l'unique inventeur)

Nr. der Anmeldung / Application N° / N° de la demande

Zeichen des (der) Anmelders (Anmelder) oder Vertreters (Vertreter) (max. 15 Positionen)
 Applicant's or Representative's Reference (max. 15 spaces)
 Référence du (des) demandeur(s) ou du (des) mandataire(s)
 (15 caractères au maximum)

NG/18100

In Sachen der europäischen Patentanmeldung (Bezeichnung der Erfindung)
 In respect of the European patent application (title of the invention)
 En ce qui concerne la demande de brevet européen (Titre de l'invention)

METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

nennt (nennen) der (die) Unterzeichnete(n)¹
 I (we), the undersigned¹
 le(s) soussigné(s)¹

UNIVERSAL ELECTRONICS INC.

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(Weitere Erfinder sind auf einem gesonderten Blatt angegeben).³
 (Additional inventors indicated on supplementary sheet).³
 (les autres inventeurs sont mentionnés sur une feuille supplémentaire).³

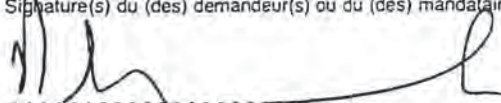
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 Statement indicating the origin of the right to the European patent:⁴
 Déclaration indiquant l'origine de l'acquisition du droit au brevet:⁴

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Datum/Date 10 MARCH 1997

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FIG. 1

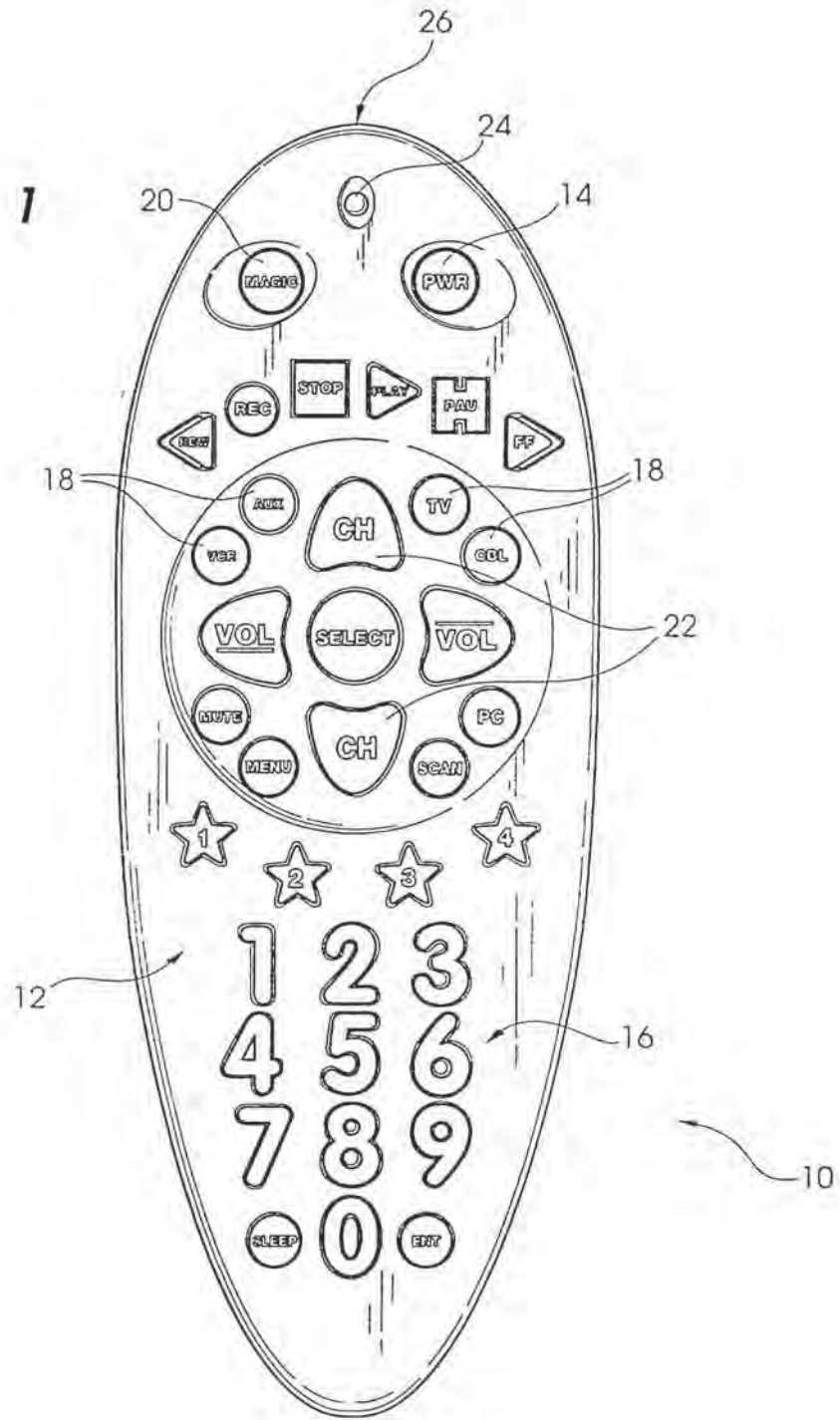
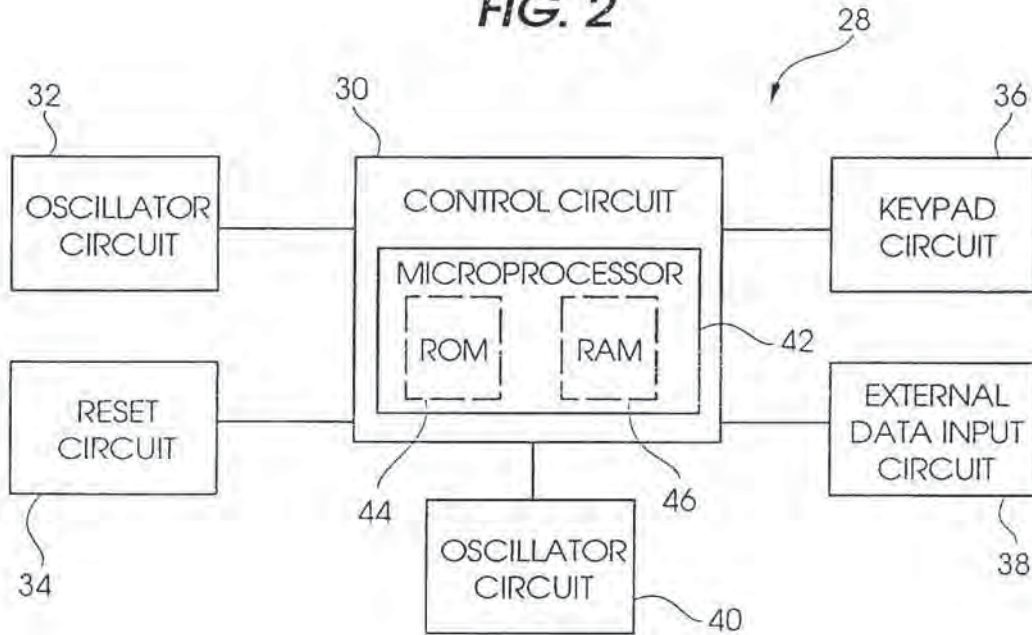


FIG. 2



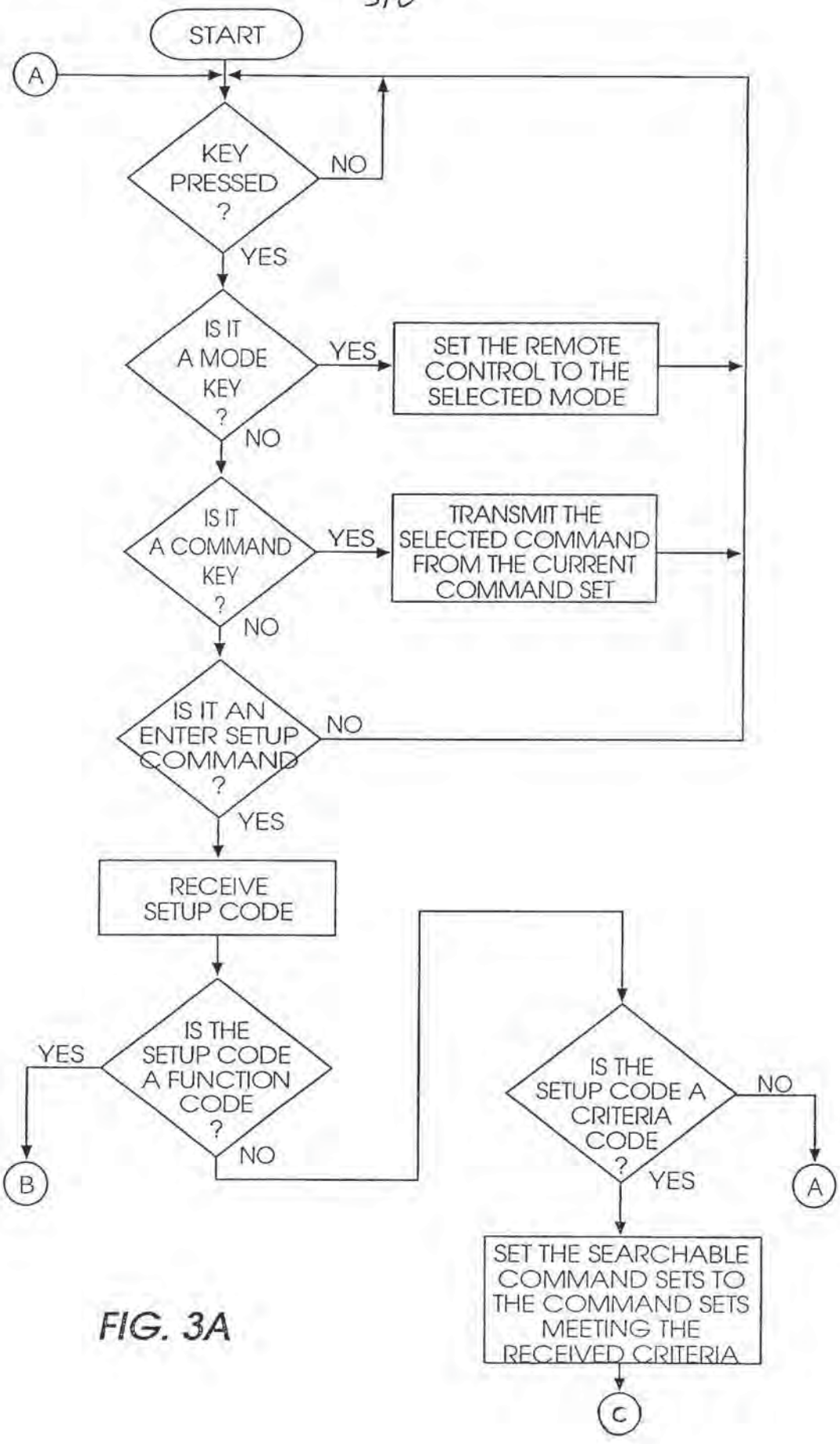


FIG. 3A

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FIG. 3B

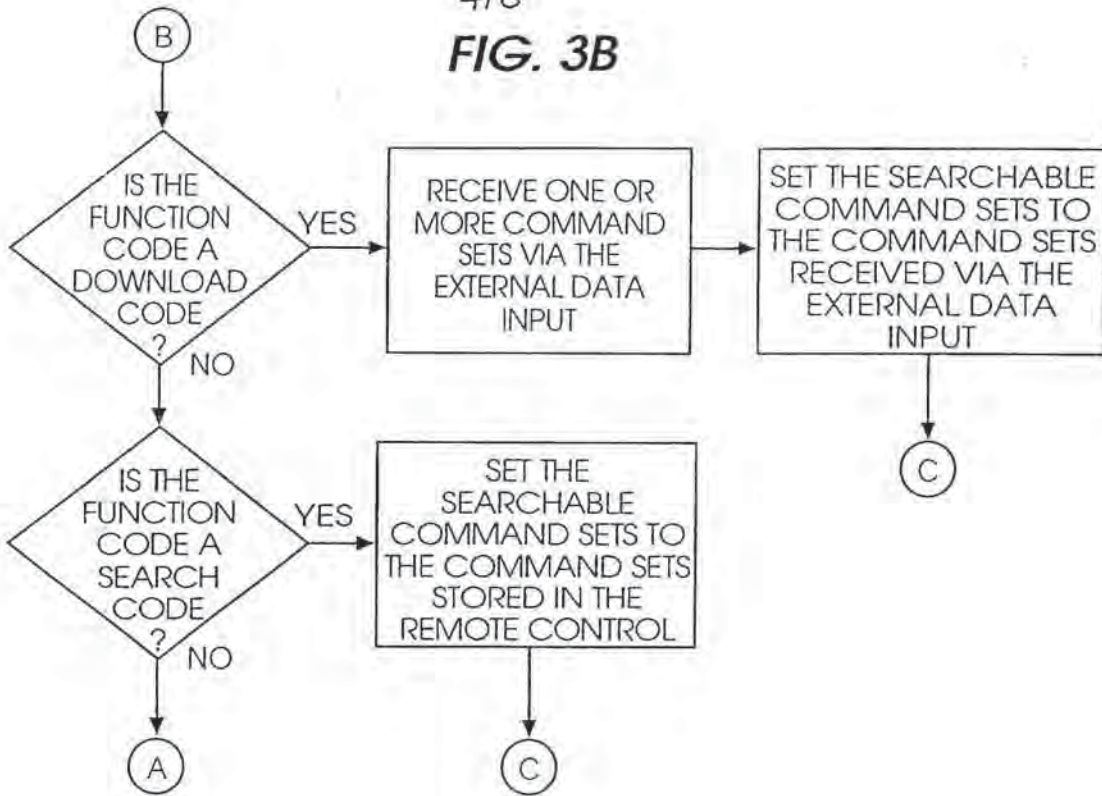
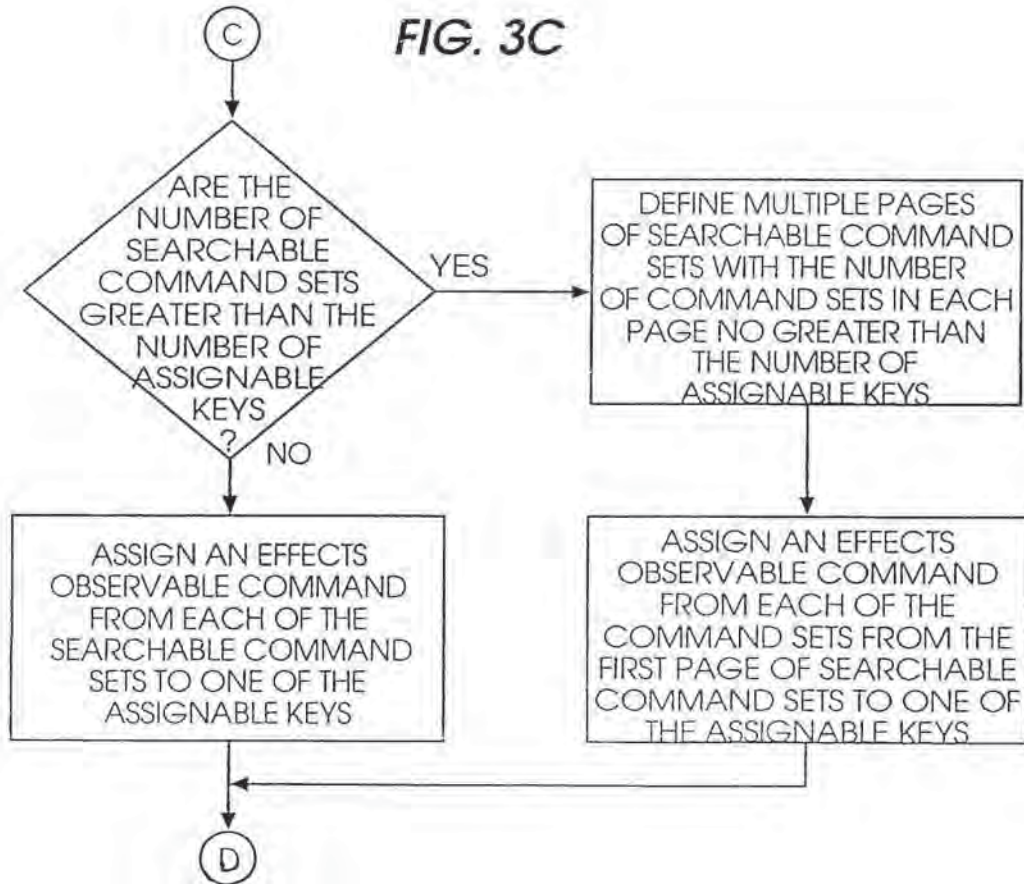
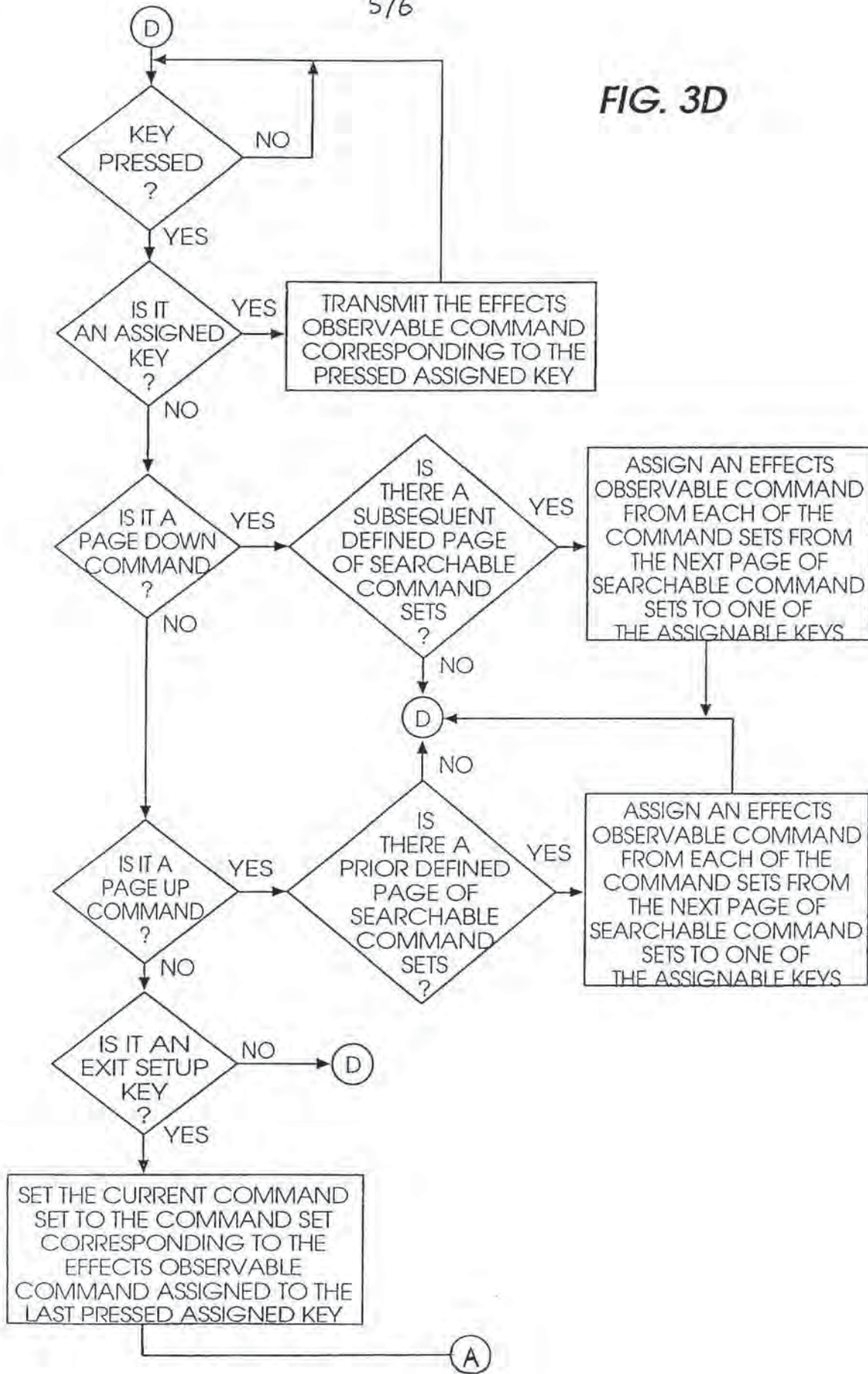


FIG. 3C



5/6

FIG. 3D



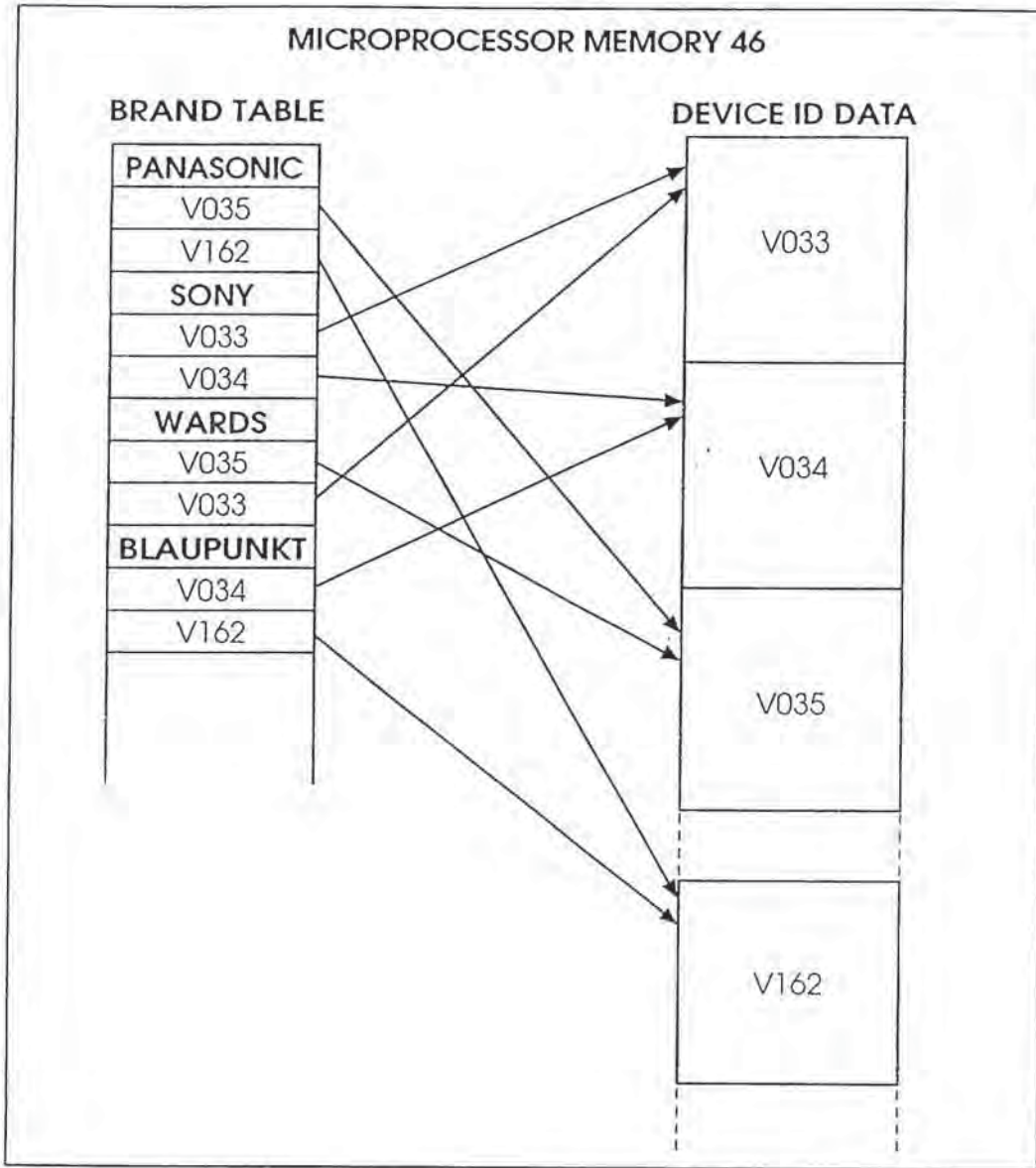


FIG. 4



B 010613

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APPLICATION NUMBER: 08/636,666

FILING DATE: April 23, 1996



By Authority of the
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1 201 375.00 CK 96030

PTO-1556
(5/87)



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METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

BACKGROUND OF THE INVENTION

1. Field of the Invention.

The present invention relates to a method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for controlling various remotely controllable electronic devices.

2. Description of the related art including information disclosed under 37 CFR §§ 1.97-1.99.

Heretofore, various systems for providing methods of selecting a remote control command set from a group of multiple command sets have been proposed. Several examples of analogous and non-analogous methods are disclosed in the following U.S. Patents:

15	<u>U.S. Patent No.</u>	<u>Patentee</u>
	4,703,359	Rumbolt et al.
	4,959,810	Darbee et al.
	5,485,149	Takiguchi et al.

German Patent Publications:

20	DE 33 13 493 A1	Telefunken
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The Rumbolt et al., U.S. Patent No. 4,703,359 discloses a method for adapting a remote control to generate a remote command signal having the appropriate signal structure for controlling a selected one of a plurality of electronic devices. Once the method is initiated, the remote control automatically cycles through the entire list of different format command lists stored within the remote control's internal memory, transmitting a test command to the desired device to be controlled until the user interrupts the cycle. Interrupting the cycle of test commands causes the remote control to transmit future commands using the signal structure of the last test command transmitted prior to interrupting the cycle.

The Darbee et al., U.S. Patent No. 4,959,810 discloses a universal remote control system that provides for two methods for selecting a remote control command set.

The first method is a step and set procedure in which the list of command sets stored in the remote control are stepped through both forward and backwards allowing a test command from

the currently selected command set to be transmitted. The user observes the effects of the test command to determine if the currently selected command set is compatible with the device the user is wanting to control. When the user finds a command set compatible with the device to be controlled, the user exits the procedure with the remote control set to the compatible command set.

The second method is a direct entry - quick set procedure in which the user looks up the make and model of the of the device to be controlled from a printed list of devices. The user then directly inputs a corresponding code associated with the make and model of the device to be controlled to index the proper command set from the remote control's internal command set library.

The Takiguchi et al., U.S. Patent No. 5,485,149 discloses a method for selecting a set of remote control signals from multiple remote control signal groups, where each group contains multiple sets of remote control signals. Each remote control signal group is assigned to one of the operating keys.

Upon entering a select setting mode, the particular set of remote control signals within one of the signal groups is selected by the number of times the assigned operating key is pressed. A single keypress will select the first set of remote control signals within the remote control signal group assigned to the pressed key. Pressing the same key a second time will select the second set of remote control signals within the assigned remote control signal group. Similarly, subsequent key presses of the same key will select subsequent sets of remote control signals.

The Telefunken, German published patent application DE 33 13 493 A1 discloses a remote control having a table containing multiple columns of control signals each column containing the code signals for operating a particular device and a mechanism for selecting the appropriate column of control signals.

The remote control provides for the selection of the appropriate column of control signals by automatically cycling through the multiple columns of control signals, transmitting a trial command, and observing the effect of the trial command on the device to be remotely operated. When the desired result

is observed, the user signals the remote control that a successful command has been transmitted. The remote control then eliminates from consideration all columns of control signals that do not contain the matched successful trial command. If more than one column of control signals match the successful trial command, the remote control repeats the above procedure using a different trial command and cycling through only the remaining columns of control signals until all columns of command signals have been eliminated except one.

SUMMARY OF THE INVENTION

According to the present invention there is provided a method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for
5 controlling various remotely controllable electronic devices. The method includes assigning multiple effects observable commands (e.g. a "power off" command) from a group of command sets stored in the remote control to multiple user actuated switches or keys of the remote control.

10 The user then actuates the switches or keys, one at a time, with the corresponding assigned effects observable command being transmitted. The user continues to actuate keys until the user observes the remotely controlled device responding properly to the transmitted command. The user then
15 terminates the selection procedure with the remote control setting the active command set to the command set from which the successful effects observable command was assigned.

By assigning a single command set to a single user actuated key, the negative effects of a user key actuation that
20 results in a double key actuation or not registering due to failure to fully actuate the key is minimized. If the user suspects the key was not fully actuated, the user can repeat that particular key actuation. If the user inadvertently causes the remote to detect a double key actuation, the remote
25 control merely sends the effects observable command from the assigned command set twice. If the user wishes to actuate a particular key several times in order to confirm its effect on the responding device, he may do so at any point during the process without affecting the process.

30 The command sets stored in the remote control can be permanently stored in the remote control at the time of manufacture or downloaded from an external source. The ability to download command sets from an external source allows the remote control to provide remote control functionality with
35 future devices whose particular transmission protocol or commands have not yet been determined.

The method for selecting a remote control command set from a group of multiple command sets stored in a remote control, further provides for inputting a criteria code for limiting or

filtering the list of command sets to be searched through to those command sets that work with devices meeting a particular criteria. In this way, the entire list of command sets do not need to be searched through. Similarly it does not require the user to know all the details about a particular device in order to determine and set the appropriate command set.

Where the number of command sets to be searched through exceeds the number of keys with which the effects observable commands are assigned, the method additionally provides for the ability to page through sub-groups of command sets. Each sub-group being no larger than the number of assignable keys.

Where a remote control provides for multiple modes, each mode providing for the remote operation of a different device (i.e. TV, VCR, cable box, etc.), a different command set can be selected for each of the available modes.

Other objects and advantages of the present application will be apparent from the detailed description and drawings which follow.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of the top face of a remote control incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the remote control.

FIG. 2 is a block diagram of the internal circuitry of the remote control shown in FIG. 1.

FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart that together provide instructions for assisting in the control of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

FIG. 4 is schematic layout of a portion of a BRAND TABLE and of a list of DEVICE ID DATA stored in a memory (RAM) of a microprocessor shown in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in greater detail, there is illustrated in FIG. 1 a plan view of the top face of a remote control 10 incorporating the method for selecting a remote control command set from a group of multiple command sets stored in the remote control.

The remote control includes a set of user actuated keys 12, including a power key 14, numeric keys 16, mode keys 18, a magic key 20, and channel up and channel down keys 22. The remote control 10 further includes a visual LED 24 and an infra-red LED (not shown), located at the front 26 of the remote control 10.

FIG. 2 is a block diagram of the internal circuitry 28 of the remote control shown in FIG. 1. The internal circuitry 28 is similar to the circuitry described in Escobosa et al., USSN 08/251,336, filed May 31, 1994, now U.S. Patent No. whose specification is incorporated herein by reference.

The internal circuitry 28 includes a control circuit 30, an oscillator circuit 32, a reset circuit 34, a key pad circuit 36, an external data input circuit 38, and an LED driver circuit 40.

The control circuit 30 monitors and controls the overall functioning of the remote control 10. In a preferred embodiment it incorporates a microprocessor 42, with associated semiconductor memory in the form of ROM 44 and/or RAM 46. The semiconductor memory is used to store both program operating instructions and program data for assisting in the control of the remote control 10.

The oscillator circuit 32 provides a clocking signal to the control circuit 30. The reset circuit 34 provides a reset signal to the control circuit when the internal circuitry 28 is initially powered up. The key pad circuit 36 incorporates the user actuated keys 12 and provides circuitry in conjunction with the control circuit 30 for decoding which one of the user actuated keys 12 has been actuated.

The external data input circuit 38 receives data from a source external to the remote control 10. The particular circuitry can take the form of any one of many traditional forms of communication, whether wired or wireless. In one

preferred embodiment the external data communication is accomplished by a magnetic modem similar to the one described in the Escobosa application, USSN 08/251,336, filed May 31, 1994, referred to above.

5 The LED driver circuit 40 is coupled to the control circuit 30 and incorporates the visual LED 24 and the infra-red LED (not shown) located at the front 26 of the remote control 10 and provides the LEDs with driving power in response to signals received from the control circuit 30. The visual LED
10 24 provides the user with visual feedback concerning the remote control's 10 activity. The infra-red LED provides the signalling capability for sending the remote control signals to the devices to be controlled.

15 FIGS. 3A, 3B, 3C and 3D are each portions of a flow chart that together provide instructions for assisting in the control of the remote control with particular emphasis on the steps that provide for the method of selecting a remote control command set from a group of multiple command sets stored in the remote control.

20 FIG. 3A shows the starting point of the instructions to be executed by the microprocessor 42 in controlling the remote control 10. The flow chart begins by waiting for an interrupt or an indication that a key or switch 12 has been pressed or actuated. Upon actuation of a key or switch 12, a
25 determination is made as to which key has been pressed.

If a mode key 18 is pressed the remote control 10 sets the current command set from which commands will be transmitted to the command set chosen for the selected mode. The mode keys 18 preferably include separate mode keys 18 for a TV, a VCR, a
30 Cable Box, as well as any other device for which an infra-red remote control transmitter could be used to remotely control the device.

If a command key is pressed, the remote control 10 transmits the particular operating command associated with the
35 pressed command key from the currently selected command set.

If an enter setup key is pressed the remote control 10 enters a setup mode used to configure the remote control 10. In the preferred embodiment the enter setup key is equivalent to the magic key 20, however it can take any one of various

forms including a slider switch or a combination of key presses.

Upon entering the setup mode, the remote control 10 waits until it receives a set up code. If the setup code is a setup
5 function code, the execution of operating instructions of the remote control 10 branches to FIG. 3B to perform instructions to determine which function code has been requested to be performed.

If the setup code is a criteria code, indicating a
10 particular subset of command code sets, the remote control sets the searchable command sets to the command sets meeting the received criteria and branches the execution of instructions to FIG. 3C to perform instructions to select a new command set for the currently active mode.

15 The criteria code allows the remote control to restrict the number of searchable command sets to only those command sets used with devices meeting a particular criteria and/or to determine a different order of assigning the effects observable commands.

20 Preferably the effects observable commands will be assigned to the user actuated keys in order of decreasing popularity. However a command set that is not very popular when one considers the entire list of stored command sets used for operating a television, may be the most popular command set
25 used for operating a television manufactured by a particular manufacturer. The use of a criteria code representing a particular manufacturer by the user can be used to establish a different assignment order based on the popularity of command sets following the indicated criteria.

30 Examples of different possible criteria include codes for different manufacturers, codes for equipment manufactured or purchased between a specified time period, devices sold through a particular retail outlet, etc.

Additionally in some embodiments it is possible to allow
35 for the entry of multiple criteria in order to further isolate the proper command set for operating a particular device.

If the setup code is neither a function code nor a setup code, it is assumed the user inadvertently entered the setup mode and the execution of the operating instructions of the

remote control 10 branches to the start of the instructions in FIG. 3A.

FIG. 3B shows the program steps performed when a function code is received after entering the setup mode. First a
5 determination is made to identify which function is being requested to be executed. If the function code is determined to be a download code, the remote control executes a procedure to receive one or more command sets via the external data input. The searchable subset of command sets are defined to
10 include the received command sets and the execution of the operating instructions branches to FIG. 3C.

Similarly, an alternative embodiment can allow the received command sets to supplement the command sets previously stored in the remote control 10.

15 In the embodiment disclosed in FIGS. 3A through 3D the remote control enters a command set selection procedure after downloading the received data, however it is not necessary for the selection procedure to be entered immediately after downloading of the received data, but can be delayed until the
20 user chooses. Similarly, the data received does not necessarily have to be one or more command sets, but can include updates to already stored command sets or other related data.

If the function code is a search code, the searchable set
25 of commands is defined to include the command sets stored in the remote control without first inputting a criteria code or downloading command sets. This allows the user to directly enter the procedure to select the new command set without first entering a criteria code or performing another function.

30 FIGS. 3C and 3D shows the program steps for selecting the new command set from the list of searchable command sets. Initially, as shown in FIG. 3C a determination is made whether the number of searchable command sets exceeds the number of assignable user actuated keys or switches.

35 If the number of searchable command sets is greater than the number of assignable user actuated keys or switches the searchable command sets are broken up into multiple pages of command sets no greater in size than the number of assignable user actuated keys that can be paged through using the channel

up and channel down keys 22. The effects observable commands from the currently selected page, initially the first page, of command sets is assigned to the assignable user actuated keys.

If the number of searchable command sets is equal to or
5 less than the number of assignable user actuated keys or switches, the effects observable commands from the searchable command sets, forming a single page of command sets, are assigned to the assignable user actuated keys.

After the effects observable commands for the currently
10 selected page have been assigned, the remote control 10 waits for a key to be pressed. When a key press has been detected the remote control 10 determines if the key pressed is an assignable user actuated key, a key which has had an effects observable command assigned to it. If it is then the remote
15 control transmits the assigned effects observable command (e.g., a "power off" command) to the device to be remotely controlled and loops back to wait for another key press. The user observes the device to be remotely controlled for a visual indication of a compatible command.

20 In the preferred embodiment the assignable user actuated keys include the power key 14 and the numeric keys 16. The assignable user actuated keys are assigned in the order of the power key 14 first, followed by the numeric keys 16 in order starting with the "one" key and ending with the "zero" key.
25 Additionally the preferred effects observable command is a power off command.

If the key pressed is a page down command (i.e. a channel down key 22), and a subsequent page of command sets is defined. Then the remote control 10 reassigns an effects observable
30 command from each of the command sets from the subsequent page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is a page up command (i.e. a channel up key 22), and a prior page of command sets is defined, then the
35 remote control reassigns an effects observable command from each of the command sets from the prior page of command sets to the assignable user actuated keys and loops back to wait for another key press.

If the key pressed is an exit setup key (i.e. a magic key

20), then the remote control 10 sets the current command set for the currently selected mode to the command set corresponding to the effects observable command assigned to the last pressed assigned key. Typically the user exits the setup
5 procedure when the user observes the desired effect on the device to be controlled by the remote control 10, indicating that a compatible command set has been located.

In this way a method for selecting a compatible command set from a library of multiple command sets can be realized.
10 Similarly different command sets can be selected for each of the different device modes by selecting the mode key 18 corresponding to the desired mode prior to entering the setup procedure.

Often times, a plurality of brands of electronic devices,
15 e.g., television sets may share a device entry code. For example, the Panasonic code, 035, is also the entry code for a private labelled television set sold by Montgomery Wards. This is illustrated in FIG. 4.

Additionally, as shown in FIG. 4, the priority order may
20 be different from brand name to brand name, even though they use the same device entry code. For example the Sony number 1 code is 033, but this device entry code is only the Wards number 2 code.

From the foregoing description, it will be apparent that
25 the method for selecting a remote control command set from a group of multiple command sets stored in a remote control, for controlling various remotely controllable electronic devices of the present invention has a number of advantages, some of which have been described above and others of which are inherent in
30 the method of the invention. Also it will be understood that modifications can be made to the method for selecting a remote control command set described above without departing from the teachings of the invention.

CLAIMS

I Claim:

1. A method for selecting an appropriate one of a plurality of command sets stored in a remote control having a plurality of assignable user actuated switches or keys for controlling a remotely controllable electronic device, comprising the steps of:

(a) assigning an effects observable command from each of said plurality of command sets to one of said plurality of assignable user actuated switches or keys, each assigned, effects observable command to be transmitted when the corresponding one of the assignable user actuated switches or keys is actuated;

(b) actuating sequentially and individually each one of the plurality of assignable user actuated switches or keys, to individually transmit each assigned effects observable command until the proper effect is observed;

(c) halting the actuating of the plurality of assignable user actuated switches or keys; and

(d) setting the remote control to transmit future remote control commands from the command set containing the last transmitted effects observable command.

2. The method of claim 1, further comprising the step of receiving the plurality of command sets from an external source prior to the step of assigning an effects observable command.

3. The method of claim 2, wherein said external source communicates with the remote control via a wireless signal transmission.

4. The method of claim 2, wherein said external source communicates with the remote control via a wired signal transmission.

5. The method of claim 2, wherein said external source communicates with the remote control via a magnetic modem coupled to a telephone handset.

6. The method of claim 1, further comprising the step of receiving a code input from the user and wherein said code input is used to identify a subset of command sets meeting a particular criteria, from which said effects observable commands are assigned from.

7. The method of claim 6, wherein said particular criteria refer to command sets which control electronic devices manufactured by a specific manufacturer.

8. The method of claim 6, wherein said particular
5 criteria refer to command sets which control electronic devices manufactured within a specific time period.

9. The method of claim 6, wherein said particular criteria refer to command sets which control electronic devices sold through a particular retail outlet.

10 10. The method of claim 1, wherein said effects observable command is a power off command.

11. The method of claim 1, wherein said plurality of assignable user actuated switches or keys include a power key and numeric keys.

15 12. The method of claim 1, wherein said remote control further includes a plurality of user actuated mode keys for selecting one of a plurality of modes and said method further includes the step of selecting one of the plurality of modes prior to the step of assigning an effects observable command,
20 such that, the method for selecting an appropriate one of a plurality of command sets can be performed to separately set a different command set for each mode.

13. The method of claim 1, wherein said remote control further includes a page down user actuated key and a page up
25 user actuated key and, when the number of command sets exceed the number of assignable user actuated switches or keys, said method further includes the steps of: assigning an effects observable command from each of said plurality of command sets in a subsequent group of command sets to one of said plurality
30 of assignable user actuated switches or keys, when a page down user actuated key is actuated; and assigning an effects observable command from each of said plurality of command sets in a prior group of command sets to one of said plurality of assignable user actuated switches or keys, when a page up user
35 actuated key is actuated.

14. The method of claim 1, wherein the order of said effects observable commands from said plurality of command sets is assigned to said plurality of assignable user actuated switches or keys based upon decreasing popularity of usage of

each of said command sets.

15 15. The method of claim 14, further comprising the step of receiving a code input from the user and wherein said code input indicates a particular criteria and is used to further determine the order said effects observable commands are assigned to said plurality of assignable user actuated switches or keys based upon decreasing popularity of usage of each of said command sets conforming to said criteria.

10 16. An apparatus for selecting an appropriate one of a plurality of command sets stored in a remote control having a plurality of assignable user actuated switches or keys for controlling a remotely controllable electronic device, comprising:

15 means for assigning an effects observable command from each of the plurality of command sets to one of said plurality of assignable user actuated switches or keys;

means for transmitting said effects observable command when the corresponding one of said plurality of assignable user actuated switches or keys is actuated;

20 means for indicating the halting of the actuation of the plurality of assignable user actuated switches or keys; and

means for setting the remote control to transmit future remote control commands from the command set containing the last transmitted effects observable command.

ABSTRACT OF THE DISCLOSURE

A method for selecting a command set from a group of command sets stored in the remote control. Each remote control command set includes a set of commands for operating at least
5 one of various remotely controllable devices. A command, whose effect is observable in the remotely controlled device is assigned to one of the user actuated keys. The keys are pressed one by one until the user observes the desired effect on the remotely controlled device. The user then signals the
10 remote control to exit the select procedure with the remote control setting the remote control to transmit future commands from the command set including the last transmitted effects observable command having the observed desired effect.

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

(Includes Reference to PCT International Applications)

ATTORNEY DOCKET NUMBER

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As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I declare I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

the specification of which (check only one item below):

is attached hereto.

was filed as United States application

Serial No. _____

on _____

and was amended

on _____ (if applicable)

was filed as PCT international application

Number _____

on _____

and was amended under PCT Article 19

on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge my duty to disclose information which is material to the examination of this application in accordance with 37, Code of Federal Regulations, §1.56(a).

I hereby authorize the U.S. attorney or agent named herein to accept and follow instructions from _____

as to any action taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119	
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/> YES	<input type="checkbox"/> NO

Combined Declaration For Patent Application and Power of Attorney (Continued)

(Includes Reference to PCT International Applications)

ATTORNEY DOCKET NUMBER

96030

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. BENEFIT UNDER 35 U.S.C. 120

U.S. APPLICATIONS		STATUS (Check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED

PCT APPLICATIONS DESIGNATING THE U.S.			
PCT APPLICATION NUMBER	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)	

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (Last name and registration number)

Thomas R. Vigil, Reg. No. 24,542
 James P. Hanrath, Reg. No. 34,965
~~Lawrence J. Ghape, Reg. No. 69,135~~

Send Correspondence to:

Thomas R. Vigil
 836 South Northwest Highway
 Birmingham, Illinois 60010

Direct Telephone Calls to:
 (name and telephone number)

Thomas R. Vigil
 (708) 382-6500

10 R	FULL NAME OF INVENTOR	FAMILY NAME <u>HAYES</u>	FIRST GIVEN NAME <u>PATRICK</u>	SECOND GIVEN NAME <u>H</u>
	RESIDENCE & CITIZENSHIP	CITY <u>Mission Viejo</u>	STATE OR FOREIGN COUNTRY <u>California CA</u>	COUNTRY OF CITIZENSHIP <u>U.S.A.</u>
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>26451 Avenida Deseo</u>	CITY <u>Mission Viejo</u>	STATE & ZIP CODE/COUNTRY <u>California 92691</u>
R	FULL NAME OF INVENTOR	FAMILY NAME <u>NGIVEN</u>	FIRST GIVEN NAME <u>KIMTHOA</u>	SECOND GIVEN NAME <u>T.</u>
	RESIDENCE & CITIZENSHIP	CITY <u>Yorba Linda</u>	STATE OR FOREIGN COUNTRY <u>California CA</u>	COUNTRY OF CITIZENSHIP <u>U.S.A.</u>
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>5671 Lynnbrook Plaza</u>	CITY <u>Yorba Linda</u>	STATE & ZIP CODE/COUNTRY <u>California 92686</u>
R	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY

I hereby declare under penalty of perjury under the laws of the United States of America that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201 	SIGNATURE OF INVENTOR 202 	SIGNATURE OF INVENTOR 203
DATE <u>4/22/96</u>	DATE <u>4/22/96</u>	DATE

Applicant or Patensee: PATRICK H. HAYES & KIMTHOA T. NGUYEN Attorney's
Serial or Patent No.: _____ Docket No.: 96030
Filing date: _____



METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9 (f) and 1.27 (b)) INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9 (c) for purposes of paying reduced fees under section 41 (a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled:

METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

- the specification filed herewith
- application serial no. _____, filed _____
- patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9 (c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- such person, concern or organization
- persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights in the invention averring to their status as small entities. (37 CFR 1.27).

FULL NAME UNIVERSAL ELECTRONICS INC.
ADDRESS 1864 Enterprise Parkway, Twinsburg, Ohio 44087
 INDIVIDUAL SMALL BUSINESS CONCERN NONPROFIT ORGANIZATION

FULL NAME _____
ADDRESS _____
 INDIVIDUAL SMALL BUSINESS CONCERN NONPROFIT ORGANIZATION

FULL NAME _____
ADDRESS _____
 INDIVIDUAL SMALL BUSINESS CONCERN NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28 (b)).

I hereby declare that all statements made hereto of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Patrick H. Hayes NAME OF INVENTOR	Kimthoa T. Nguyen NAME OF INVENTOR	NAME OF INVENTOR
Signature of inventor	Signature of inventor	Signature of inventor
<u>4/22/96</u>	<u>4/22/96</u>	
Date	Date	Date

Applicant or Patentee: PATRICK H. HAYES & KIMTHOA T. NGUYEN Attorney's
Serial or Patent No.: _____ Docket No.: 96030
Filed at _____
For: METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9 (f) and 1.27 (c)) SMALL BUSINESS CONCERN

I hereby declare that I am

- the owner of the small business concern identified below;
 an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN Universal Electronics Inc.
ADDRESS OF CONCERN 1864 Enterprise Parkway
Twinsburg, OH 44087

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9 (d), for purposes of paying reduced fees under Section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET

Patrick H. Hayes and Kimthoa T. Nguyen (by inventor(s))
described in

- the specification filed herewith
 application serial no. _____, filed _____
 patent no. _____, issued _____

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9 (d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e).

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).

NAME _____
ADDRESS _____
 INDIVIDUAL SMALL BUSINESS CONCERN NONPROFIT ORGANIZATION

NAME _____
ADDRESS _____
 INDIVIDUAL SMALL BUSINESS CONCERN NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28 (b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING David Gabrielson
TITLE OF PERSON (OTHER THAN OWNER) President
ADDRESS OF PERSON SIGNING 1864 Enterprise Parkway
Twinsburg, OH 44087

SIGNATURE [Signature] DATE 4-15-96

FIG. 1

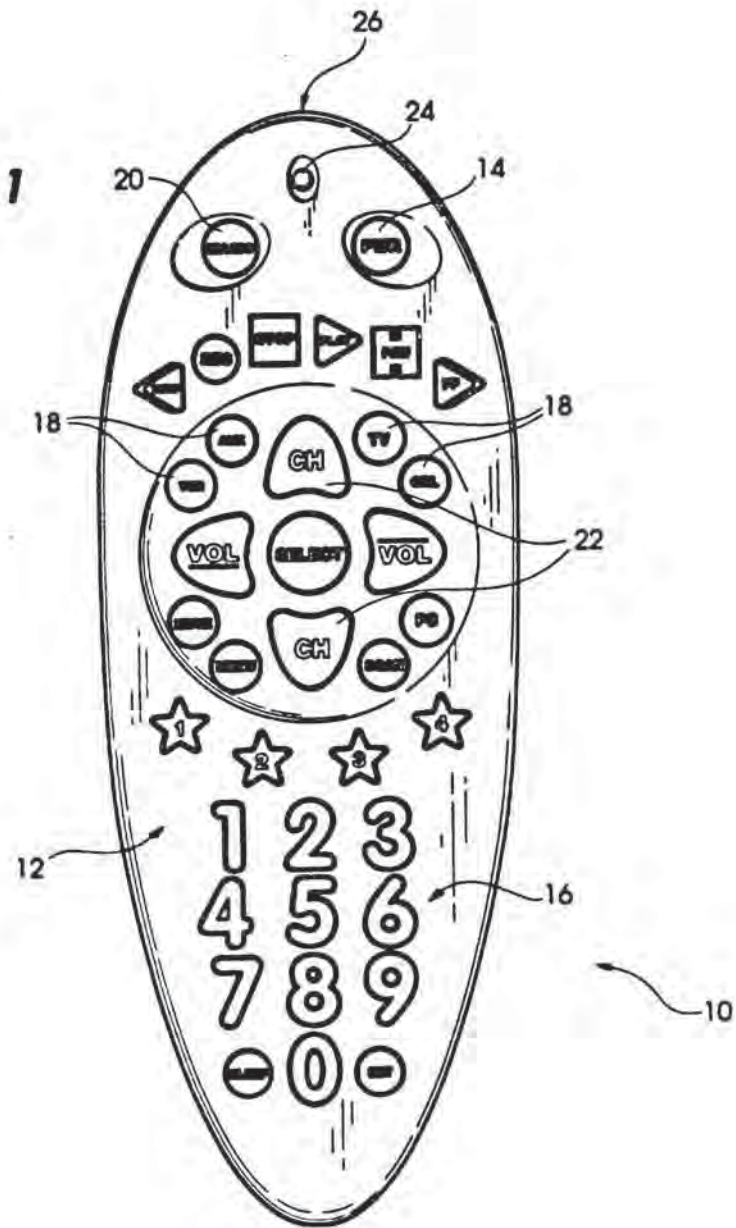
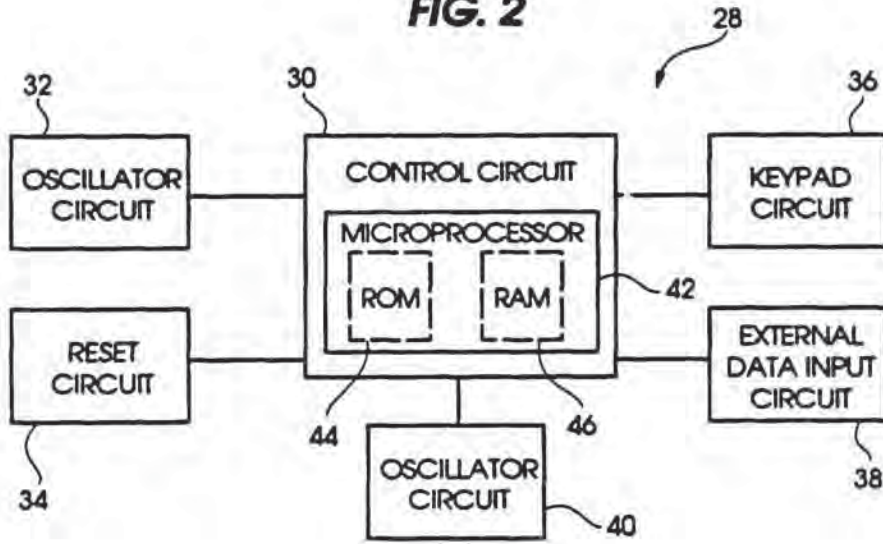


FIG. 2



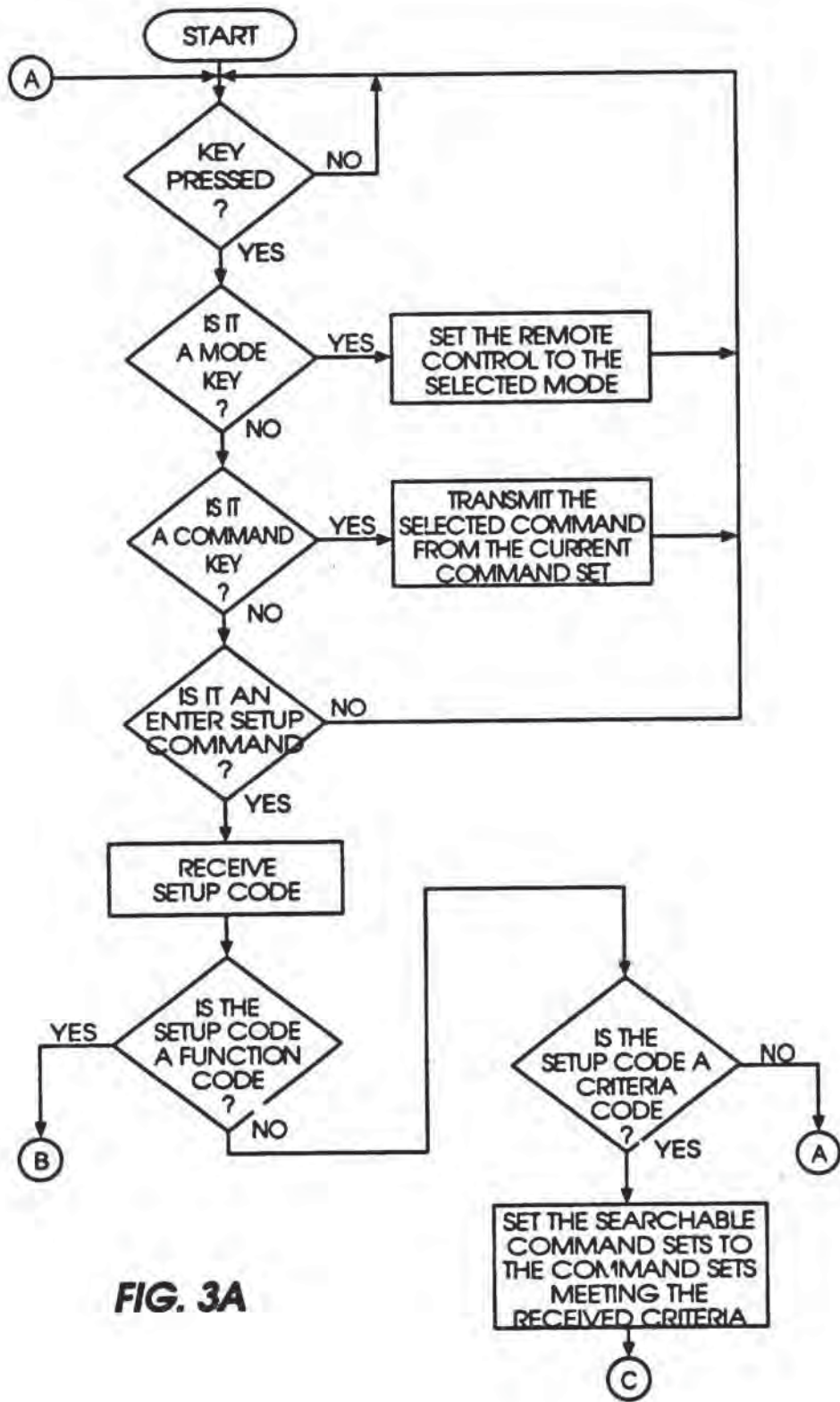


FIG. 3A

FIG. 3B

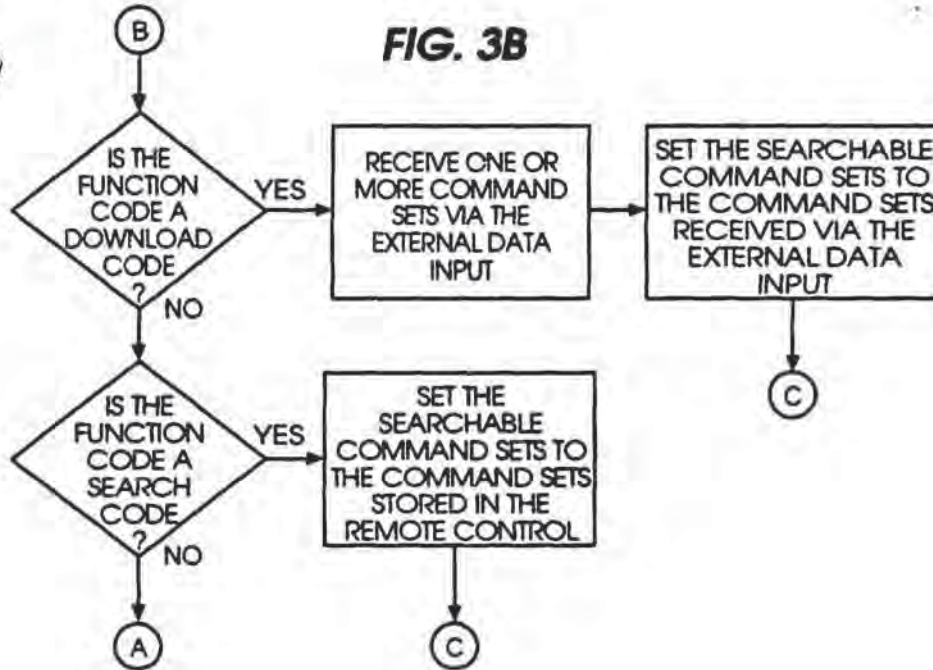


FIG. 3C

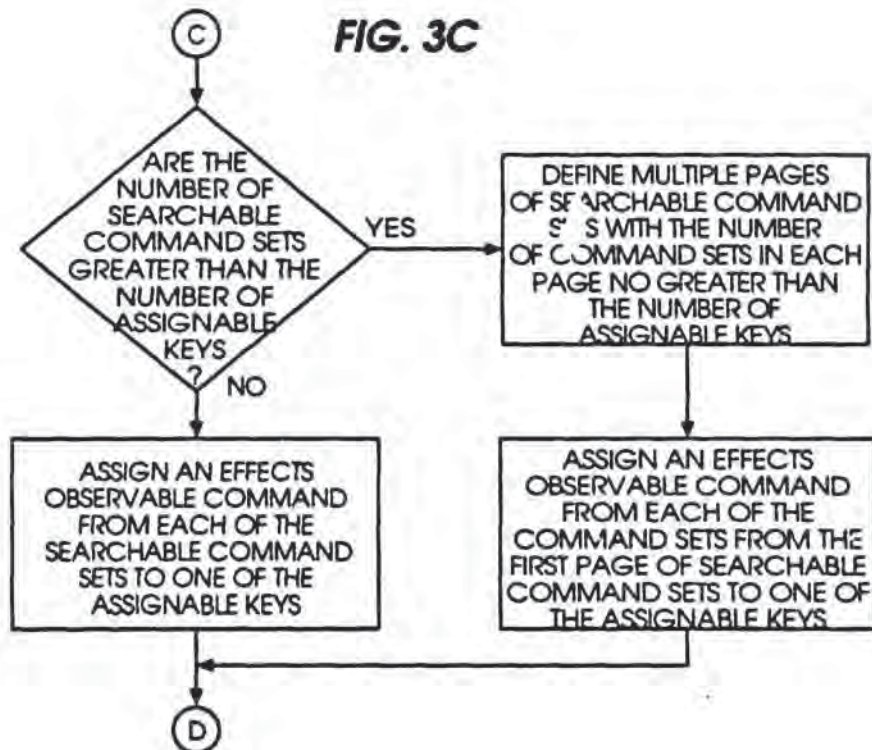
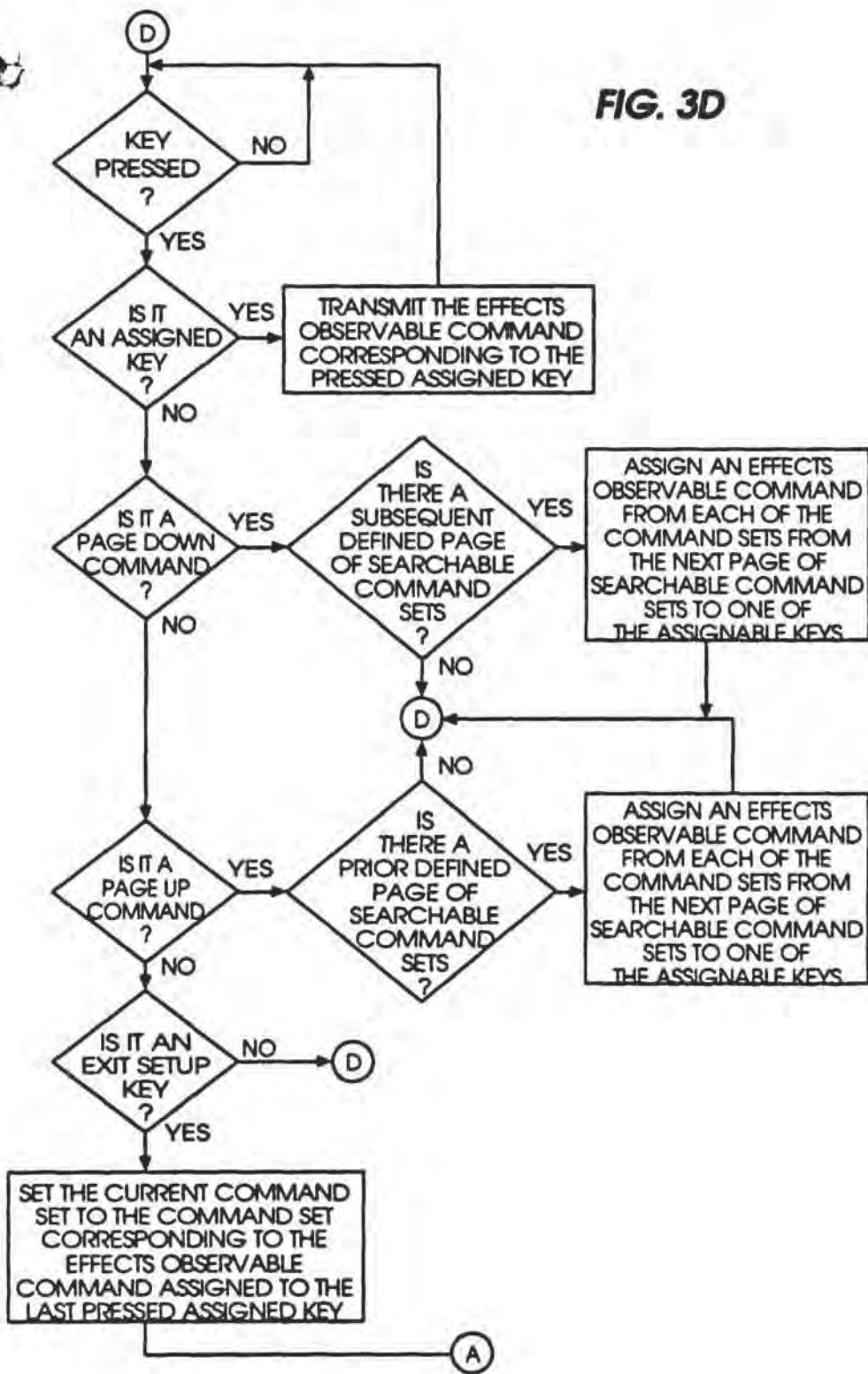


FIG. 3D



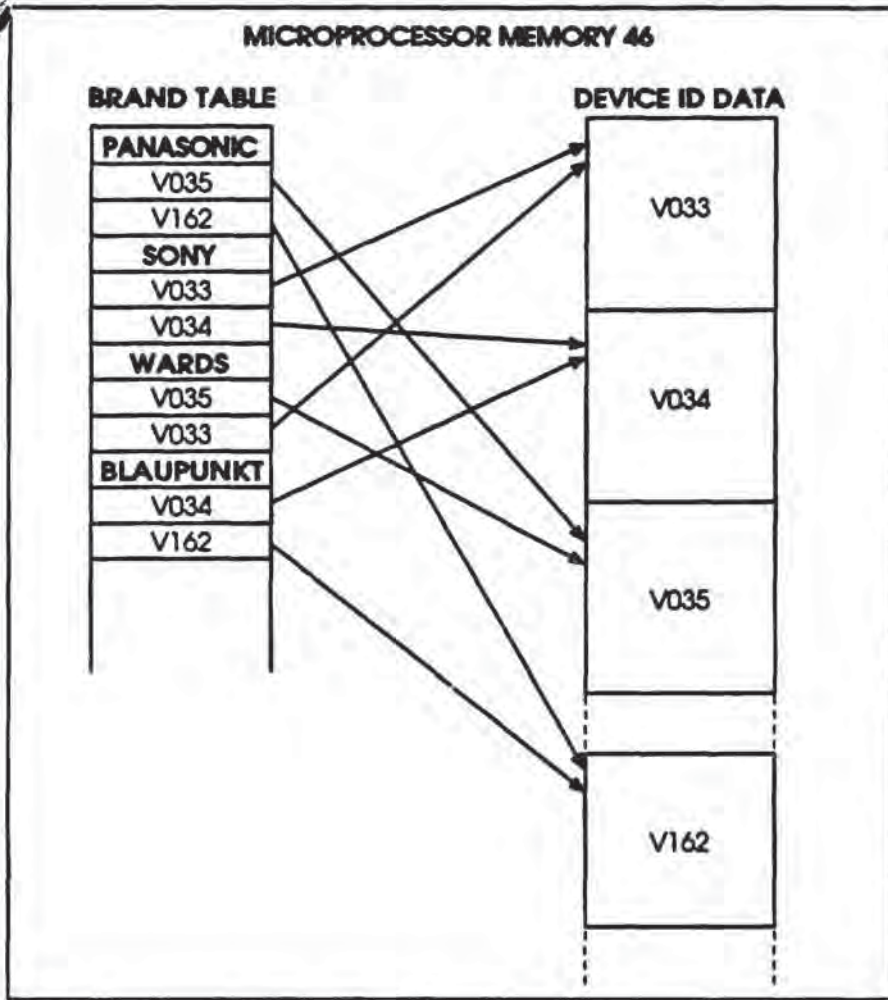


FIG. 4



Antrag auf Erteilung eines europäischen Patents / Request for grant of a European patent / Requête de délivrance d'un brevet européen

1

Bestätigung einer bereits durch Telekopie (Telefax) eingereichten Anmeldung / Confirmation of an application already filed by facsimile / Confirmation d'une demande déjà déposée par télécopie
 Wenn ja, Datum der Übermittlung der Telekopie und Name der Einreichungsbehörde / If yes, facsimile transmission date of the authority with which the documents were filed / Si oui, date d'envoi de la télécopie et nom de l'autorité de dépôt

Ja / Yes / Oui
 Datum / Date Behörde / Authority / Autorité

EPA EPO-OEB
 DG 1
 Paris
 19 MAR 1997
 ZEICHEN

Nur für amtlichen Gebrauch / For official use only / Cadre réservé à l'administration			
Anmeldenummer / Application No / N° de la demande	MKEY	1	97301600.9
Tag des Eingangs (Regel 24(2)) / Date of receipt (Rule 24(2)) / Date de réception (règle 24(2))	DREC	2	11 MAR 1997
Tag des Eingangs beim EPA (Regel 24(4)) / Date of receipt at EPO (Rule 24(4)) / Date de réception à l'OEB (règle 24(4))	RENA	3	19. 03. 97
Anmeldetag / Date of filing / Date de dépôt		4	

Tabulatoren-Positionen / Tabulation marks / Arrêts de tabulation		
Es wird die Erteilung eines europäischen Patents und gemäß Artikel 94 die Prüfung der Anmeldung beantragt / Grant of a European patent, and examination of the application under Article 94, are hereby requested / Il est demandé la délivrance d'un brevet européen et, conformément à l'article 94, l'examen de la demande	EXAM 4	5 <input checked="" type="checkbox"/> Prüfungsantrag in einer zugelassenen Nichtamtssprache (siehe Merkblatt II, 5) / Request for examination in an admissible non-EPO language (see Notes II, 5) / Requête en examen dans une langue non officielle autorisée (voir notice II, 5)
Zeichen des Anmelders oder Vertreters (max. 15 Positionen) / Applicant's or representative's reference (maximum 15 spaces) / Référence du demandeur ou du mandataire (max. 15 caractères ou espaces)	AREF	6 NG/18100
ANMELDER / APPLICANT / DEMANDEUR Name / Nom		7 UNIVERSAL ELECTRONICS INC.
Anschrift / Address / Adresse		8 1864 ENTERPRISE PARKWAY, TWINSBURG, OHIO 44087,
APPR 01 # 13961123		
# DEST #		
Zustellanschrift / Address for correspondence / Adresse pour la correspondance		9
PADR		
Staat des Wohnsitzes oder Sitzes / State of residence or of principal place of business / Etat du domicile ou du siège		10 DELAWARE
Staatsangehörigkeit / Nationality / Nationalité		11 USA
Telefon / Telephone / Téléphone		12
Telex / Télex	Telefax / Fax / Téléfax	13
Weitere(r) Anmelder auf Zusatzblatt / Additional applicant(s) on additional sheet / Autres demandeur(s) sur feuille additionnelle		14
VERTRETER / REPRESENTATIVE / MANDATAIRE: Name / Nom		15 GOODENOUGH, Nigel
(Nur einen Vertreter angeben, der in das europäische Patentregister eingetragen und an den zugestellt wird / Name only one representative, who is to be listed in the Register of European Patents and to whom notification is to be made / N'indiquer qu'un seul mandataire, qui sera inscrit au Registre européen des brevets et auquel signification sera faite)		
FREP 01 10311019# 1#		
Geschäftsanschrift / Address of place of business / Adresse professionnelle		16 A. A. THORNTON & CO., NORTHUMBERLAND HOUSE, 303-306 HIGH HOLBORN, LONDON, WC1V 7LE ENGLAND.
Telefon / Telephone / Téléphone		17 1604 38242
Telex / Télex	Telefax / Fax / Téléfax	18 1604 38164
Weitere(r) Vertreter auf Zusatzblatt / Additional representative(s) on additional sheet / Autres mandataire(s) sur feuille additionnelle		19 <input checked="" type="checkbox"/>

1

<p>Vollmacht / Authorisation / Pouvoir: ist beigefügt / is enclosed / ci-joint</p>	20		
<p>ist registriert unter Nummer / has been registered under No. / a été enregistré sous le n°</p>	21	GENA	Nummer Number Numéro
<p>ERFINDER / INVENTOR / INVENTEUR:</p>	22	INVT 20 # #	
<p>Anmelder ist (sind) alleinige(r) Erfinder / The applicant(s) is (are) the sole inventor(s) / Le(s) demandeur(s) est (sont) le (les) seul(s) inventeur(s)</p>	23	<input checked="" type="checkbox"/>	
<p>Erfindernennung auf gesondertem Schriftstück / Designation of inventor attached / Voir la désignation de l'inventeur ci-jointe</p>	24		<p>METHOD FOR SELECTING A REMOTE CONTROL COMMAND SET</p>
<p>BEZEICHNUNG DER ERFINDUNG / TITLE OF INVENTION / TITRE DE L'INVENTION:</p>		TIDE TIEN TIFR	
<p>PRIORITÄTSERKLÄRUNG / DECLARATION OF PRIORITY / DECLARATION DE PRIORITE</p>	25	PRIO	Staat / State / Etat Anmeldetag / Filing date / Date de dépôt Aktenzeichen / Application No / N° de la demande
<p>01 # # #</p>		END	1 U.S.A. 23.4.96 USSN 08/636 666
<p>02 # # #</p>			2
<p>03 # # #</p>			3
<p>04 # # #</p>			4
<p>Weitere Prioritätserklärung(en) auf Zusatzblatt / Additional declaration(s) of priority on additional sheet / Autre(s) déclaration(s) de priorité sur feuille additionnelle</p>			<input type="checkbox"/>
<p>BIOLOGISCHES MATERIAL BIOLOGICAL MATERIAL</p>	26		<p>MATIERE BIOLOGIQUE</p> <p>L'invention concerne et/ou utilise la matière biologique, déposée conformément à la règle 28.</p>
<p>Die Erfindung betrifft biologisches Material oder seine Verwendung, das nach Regel 28 hinterlegt worden ist.</p>		BIOM 1 # #	
<p>The invention relates to and/or uses biological material deposited under Rule 28</p>			
<p>Die Angaben nach Regel 28(1) c) sind in den technischen Anmeldeunterlagen enthalten auf / The particulars referred to in Rule 28(1) (c) are given in the technical documents in the application on / Les indications visées à la règle 28(1) c) figurent dans les pièces techniques de la demande à la /aux</p>	27		Seite(n) / page(s) Zeile(n) / line(s) / ligne(s)
<p>werden später mitgeteilt / will be submitted later / seront communiquées ultérieurement</p>	27a		<input type="checkbox"/>
<p>Die Empfangsbescheinigung(en) der Hinterlegungsstelle ist (sind) beigefügt / The receipt(s) of deposit issued by the depositary institution is (are) enclosed / Le(s) récépissé(s) de dépôt délivré(s) par l'autorité de dépôt est (sont) ci-joint(s)</p>	28		<input type="checkbox"/>
<p>wird (werden) nachgereicht / will be filed later / sera (seront) produit(s) ultérieurement</p>	28a		<input type="checkbox"/>
<p>Verzicht auf die Verpflichtung des Antragstellers nach Regel 28(3) auf gesondertem Schriftstück / Waiver of the right to an undertaking from the requester pursuant to Rule 28(3) attached / Renonciation, sur document distinct, à l'engagement du requérant au titre de la règle 28(3)</p>	29		<input type="checkbox"/>

Zusätzliche Abschrift(en) der im europäischen Recherchenbericht angeführten Schriftstücke wird (werden) beantragt / Additional copy(ies) of the documents cited in the European search report is (are) requested / Prière de fournir une (des) copie(s) supplémentaire(s) des documents cités dans le rapport de recherche européenne

ASOC

40 Anzahl der **zusätzlichen** Satze von Abschriften
Number of **additional** sets of copies
Nombre de jeux **supplémentaires** de copies

Es wird die Rückerstattung der Recherchegebühr gemäß Art. 10 GebO beantragt / Refund of the search fee is requested pursuant to Article 10 of the Rules relating to Fees / Le remboursement de la taxe de recherche est demandé en vertu de l'article 10 du règlement relatif aux taxes
Eine Kopie des Recherchenberichts ist beigefügt / A copy of the search report is attached / Une copie du rapport de recherche est jointe

41
42

AUTOMATISCHER ABBUCHUNGSauftrag (nur möglich für Inhaber von beim EPA geführten laufenden Konten)
AUTOMATIC DEBIT ORDER (for EPO deposit account holders only)
ORDRE DE PRELEVEMENT AUTOMATIQUE (uniquement possible pour les titulaires de comptes courants ouverts auprès de l'OEB)
Das Europäische Patentamt wird hiermit beauftragt, fällig werdende Gebühren und Auslagen nach Maßgabe der Vorschriften über das automatische Abbuchungsverfahren vom nebenstehenden laufenden Konto abzubuchen / The European Patent Office is hereby authorised, under the Arrangements for the automatic debiting procedure, to debit from the deposit account opposite any fees and costs falling due / Par la présente, il est demandé à l'Office européen des brevets de prélever du compte courant ci-contre les taxes et frais venant à échéance, conformément à la réglementation relative au prélèvement automatique

DECA

FÜR AUTOMATISCHEN ABBUCHUNGSauftrag:
FOR AUTOMATIC DEBIT ORDER:
POUR L'ORDRE DE PRELEVEMENT AUTOMATIQUE:
Nummer des laufenden Kontos / Name des Kontoinhabers /
Deposit account number / Account holder's name /
Numéro du compte courant / Nom du titulaire du compte
43

Eventuelle RÜCKZAHLUNGEN auf das nebenstehende beim EPA geführte laufende Konto / REIMBURSEMENT, if any, to EPO deposit account opposite / REMBOURSEMENTS éventuels à effectuer sur le compte courant ci-contre ouvert auprès de l'OEB

DEPA

44 Nummer des laufenden Kontos / Name des Kontoinhabers /
Deposit account number / Account holder's name /
Numéro du compte courant / Nom du titulaire du compte

Die vorgeschriebene Liste über die diesem Antrag beigefügten Unterlagen ergibt sich aus der vorbereiteten Empfangsbescheinigung (Seite 6 dieses Antrages) / The prescribed list of documents enclosed with this request is shown on the prepared receipt (page 6 of this request)

45 **La liste prescrite des documents joints à cette requête figure sur le récépissé préétabli (page 6 de la présente requête)**

Unterschrift(en) des (der) Anmelders(s) oder Vertreter(s) / Signature(s) of applicant(s) or representative(s) / Signature(s) du (des) demandeur(s) ou du (des) mandataire(s)

46 **Für Angestellte nach Artikel 133(3) Satz 1 mit allgemeiner Vollmacht / For employees under Article 133(3), 1st sentence, having a general authorisation / Pour les employés mentionnés à l'article 133(3), 1^{ère} phrase, munis d'un pouvoir général Nr. / No. / n° :**

Ort / Place / Lieu NORTHAMPTON, ENGLAND

Datum / Date 10 MARCH 1997



GOODENOUGH, Nigel
Representative of the Applicants

Name des (der) Unterzeichneten bitte mit Schreibmaschine wiederholen / Bei juristischen Personen bitte die Stellung des (der) Unterzeichneten innerhalb der Gesellschaft mit Schreibmaschine angeben / Please type name under signature / In case of legal persons, the position of the signatory within the company should also be typed / Le ou les noms des signataires doivent être également dactylographiés / S'il s'agit d'une personne morale, la position occupée au sein de celle-ci par le ou les signataires sera indiquée à la machine à écrire

Empfangsbescheinigung / Receipt for documents / Récépissé de documents 6

(Liste der diesem Antrag beigefügten Unterlagen)

(Checklist of enclosed documents)

(Liste des documents annexés à la présente requête)

Es wird hiermit der Empfang der unten bezeichneten Dokumente bescheinigt / Receipt of the documents indicated below is hereby acknowledged / Nous attestons le dépôt des documents désignés ci-dessous

Wird im Falle der Einreichung der europäischen Patentanmeldung bei einer nationalen Behörde diese Empfangsbescheinigung vom Europäischen Patentamt übersandt, so ist sie als Mitteilung gemäß Regel 24(4) anzusehen (siehe Feld RENA). **Nach Erhalt der Mitteilung nach Regel 24(4) sind alle weiteren Unterlagen, die die Anmeldung betreffen, nur noch unmittelbar beim EPA einzureichen.** / If this receipt is issued by the European Patent Office and the European patent application was filed with a national authority it serves as a communication under Rule 24(4) (see Section RENA). **Once the communication under Rule 24(4) has been received, all further documents relating to the application must be sent directly to the European Patent Office.** / Si, en cas de dépôt de la demande de brevet européen auprès d'un service national, l'Office européen des brevets délivre le présent récépissé de documents, ce récépissé est réputé être la notification visée à la règle 24(4). **Des que la notification visée à la règle 24(4) a été reçue, tous les autres documents relatifs à la demande doivent être adressés directement à l'OEB.**

Mr. N. Goodenough,
A. A. THORNTON & CO.,
Northumberland House,
303-306 High Holborn,
London.
WC1V 7LE

Nur für amtlichen Gebrauch / For official use only / Cadre réservé à l'administration

Datum / Date



Unterschrift / Amtsstempel / Signature / Official stamp / Signature / Cachet officiel

Anmeldenummer / Application No / N° de la demande		97301600.9	
Tag des Eingangs (Regel 24(2)) / Date of receipt (Rule 24(2)) / Date de réception (règle 24(2))	DREC	11 MAR 1997	
Zeichen des Anmelders/Vertreters / Applicant's/ Representative's ref. / Référence du demandeur ou du mandataire	AREF	NG/18100	
<i>Nur nach Einreichung der Anmeldung bei einer nationalen Behörde. / Only after filing of the application with a national authority / Seulement après le dépôt de la demande auprès d'un service national</i>			
Tag des Eingangs beim EPA (Regel 24(4)) / Date of receipt at EPO (Rule 24(4)) / Date de réception à l'OEB (règle 24(4))	RENA		

A	Anmeldungsunterlagen und Prioritätsbeleg(e) / Application documents and priority document(s) / Pièces de la demande et document(s) de priorité	47	Stückzahl / Number of copies / Nombre d'exemplaire	Blattzahl* eines Stücks / Number of sheets* in each copy / Nombre de feuilles* par exemplaire	Gesamtzahl der Abbildungen* / Total number of figures* / Nombre total de figures*
1	Beschreibung / Description		3	12	
2	Patentansprüche / Claim(s) / Revendication(s)		3	4	
3	Zeichnungen / Drawing(s) / Dessin(s)	DRAW 1 #	3	6	7
4	Zusammenfassung / Abstract / Abrégé		3	1	
5	Übersetzung der Anwendungsunterlagen / Translation of the application documents / Traduction des pièces de la demande		N/A		
6	Prioritätsbeleg(e) / Priority document(s) / Document(s) de priorité		1		
7	Übersetzung des (der) Prioritätsbelegs/beleg(e) / Translation of priority document(s) / Traduction du (des) document(s) de priorité		N/A		
B	Der Anmeldung in der eingereichten Fassung liegen folgende Unterlagen bei: / This application as filed is accompanied by the items below: / A la présente demande sont annexées les pièces suivantes:	48			
1	Einzelvollmacht / Specific authorisation / Pouvoir particulier		<input type="checkbox"/>		
2	Allgemeine Vollmacht / General authorisation / Pouvoir général		<input type="checkbox"/>		
3	Erfindernennung / Designation of inventor / Désignation de l'inventeur		<input checked="" type="checkbox"/>		
4	Früherer Recherchenbericht / Earlier search report / Rapport de recherche antérieure		<input type="checkbox"/>		
5	Gebührenzahlungsverdruck (EPA Form 1010) / Voucher for the settlement of fees (EPO Form 1010) / Bordereau de règlement de taxes (OEB Form 1010)		<input type="checkbox"/>		
6	Scheck (ausgeschlossen bei Einreichung bei den nationalen Behörden) / Cheque (not when filing with national authorities) / Chèque (pas de cheque en cas de dépôt auprès des services nationaux)		<input type="checkbox"/>		
7	Datenträger für Sequenzprotokoll / Data carrier for sequence listing / Support de données pour liste de séquences	SEQL (4)	<input type="checkbox"/>		
8	Zusatzblatt / Additional sheet / Feuille additionnelle		<input checked="" type="checkbox"/>		
9	Sonstige Unterlagen (bitte hier spezifizieren) / Other (please specify here) / Autres documents (veuillez préciser ici)		<input type="checkbox"/>		
C	Kopien dieser Empfangsbescheinigung / Copies of this receipt for documents / Copies du présent récépissé de documents	49	4		Anzahl der Kopien / Number of copies / Nombre de copies

* Die Richtigkeit der Angabe der Blattzahl und der Gesamtzahl der Abbildungen wurde bei Eingang nicht geprüft / No check was made on receipt that the number of sheets and the total number of figures indicated were correct / L'exactitude du nombre de feuilles et du nombre total de figures n'a pas été contrôlée lors du dépôt

Professional Representatives who may be signing are:

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