

[54] **IR REMOTE CONTROL DETECTOR/DECODER**

[75] Inventors: Peter C. Skerlos, Arlington Hts.; Thomas J. Zato, Palatine, both of Ill.

[73] Assignee: Zenith Radio Corporation, Glenview, Ill.

[21] Appl. No.: 340,555

[22] Filed: Jan. 18, 1982

[51] Int. Cl.³ H04B 9/00

[52] U.S. Cl. 358/194.1; 455/603; 455/619

[58] Field of Search 358/194.1; 455/603, 455/607, 608, 619

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,866,177	2/1975	Kawamata et al. .	
3,928,760	12/1975	Isoda .	
4,121,198	10/1978	Tsuboi et al. .	
4,231,031	10/1980	Crowther	455/603
4,246,611	1/1981	Davies	358/194.1
4,337,480	6/1982	Bourassin	358/194.1

OTHER PUBLICATIONS

Microcomputer-Based Remote Control System for TV

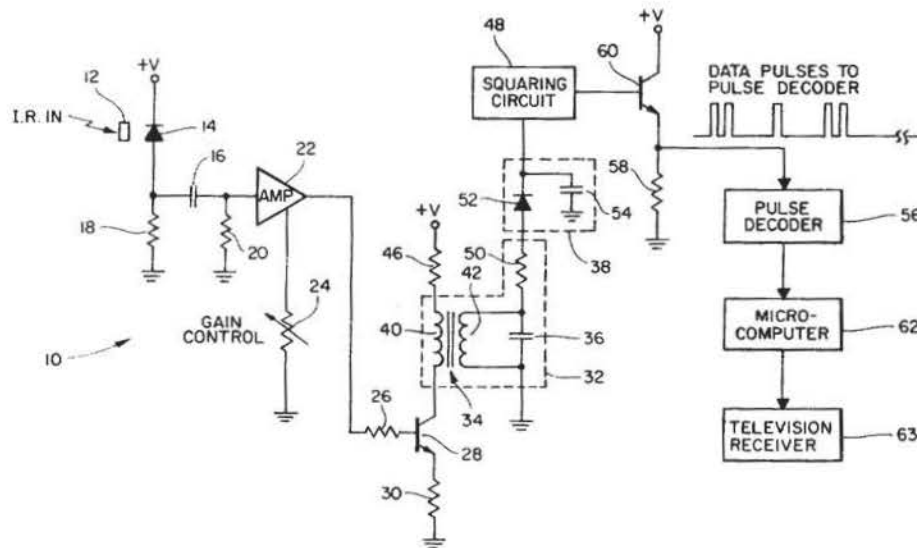
Receivers Tsuboi et al, IEEE Trans Consum Electronics vol.-CE-25 No. 5 Nov. 1979, pp. 731-740.

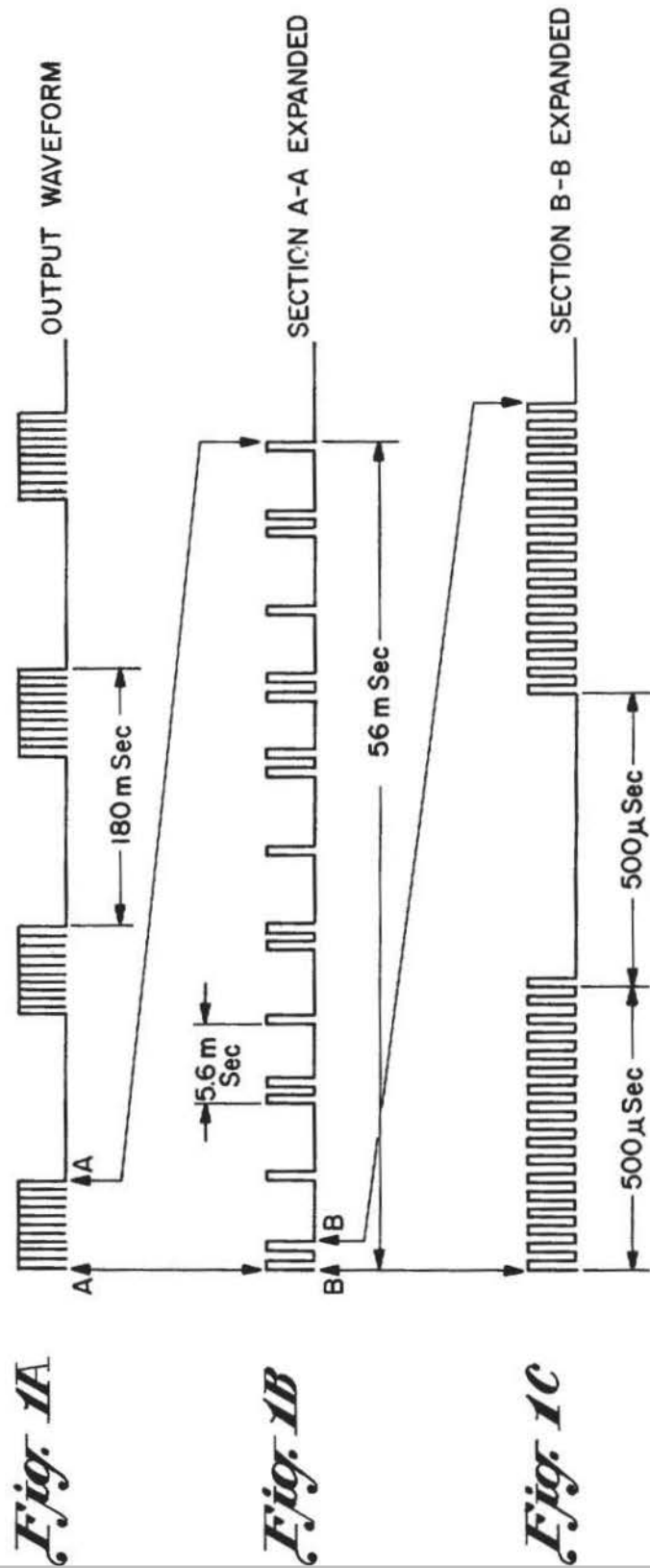
Primary Examiner—Michael A. Masinick

[57] **ABSTRACT**

A pulse code modulated (PCM) infrared (IR) remote control detector/decoder with improved noise immunity particularly adapted for use with a television receiver is disclosed. The IR pulses are modulated by means of a high frequency clock signal in translating the transmitted signal to a higher frequency, more noise immune portion of the IR spectrum. After receipt of the transmitted signal by a signal detector, the high frequency modulation is removed from the pulses which are then decoded. Under the control of a microcomputer, the decoder looks for the start data bit and, if received, the subsequent control instructions. When the data transmission has been decoded, the microcomputer activates the appropriate control outputs to the television receiver's tuner system to achieve the desired control function.

7 Claims, 16 Drawing Figures





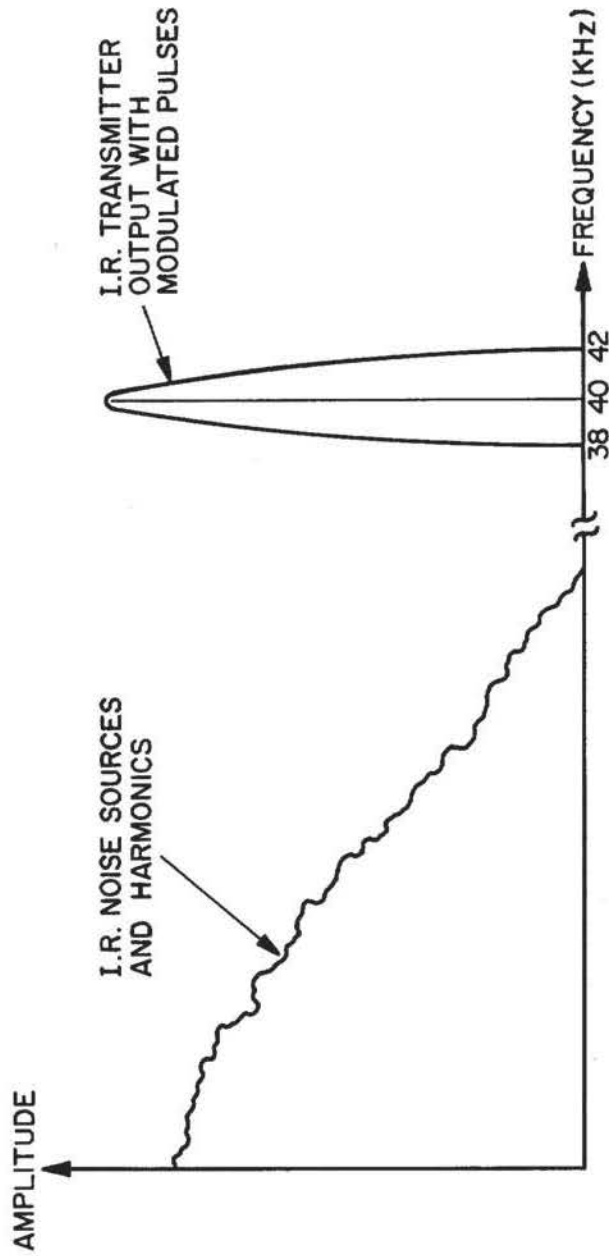


Fig. 2

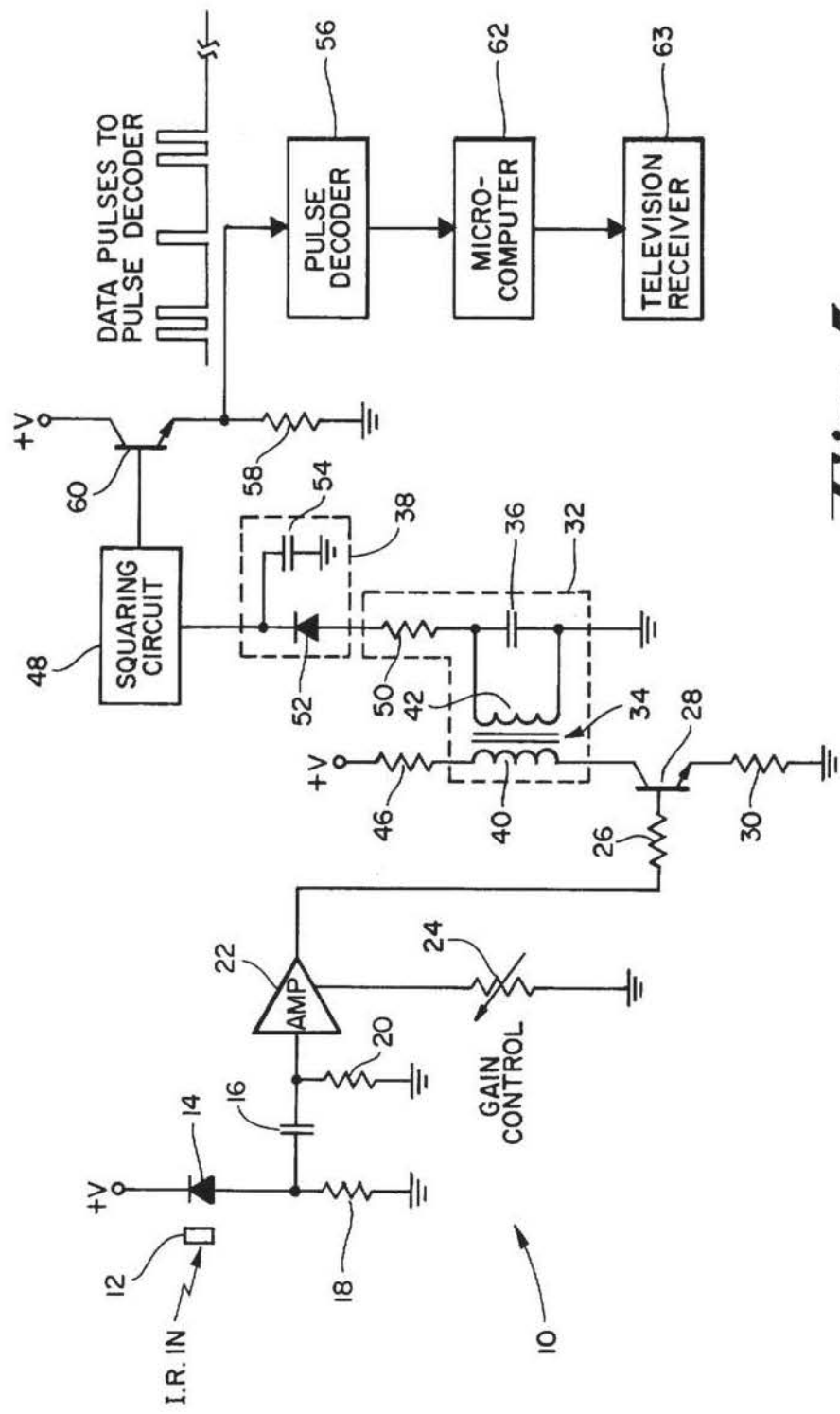


Fig. 3

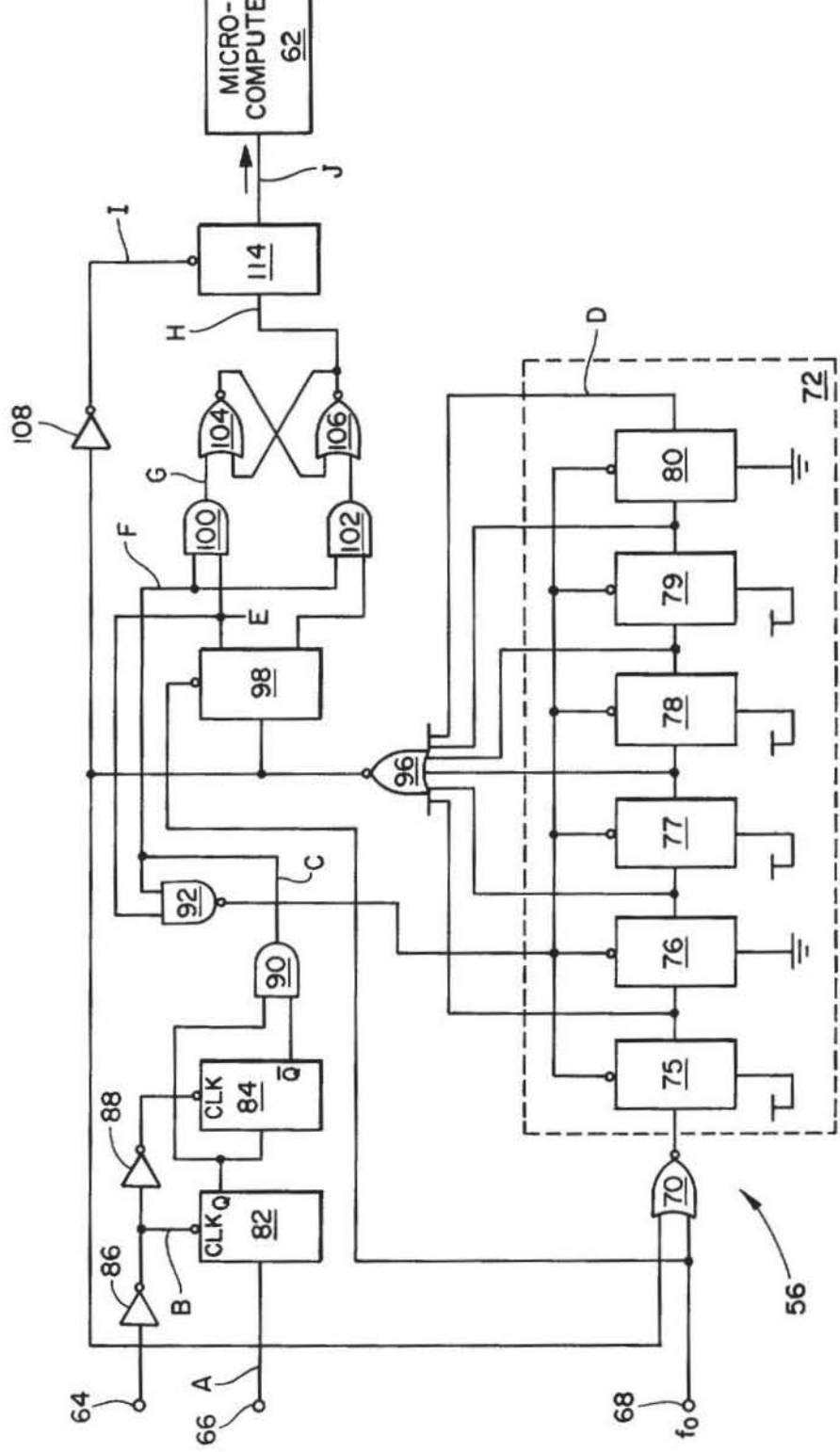


Fig. 4

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.