

United States Patent [19]

[11] **Patent Number:** **5,710,728**

Danielson et al.

[45] **Date of Patent:** **Jan. 20, 1998**

[54] **PORTABLE WORK STATION-TYPE DATA COLLECTION SYSTEM**

4,704,604	11/1987	Fuhs	364/708.1
4,733,265	3/1988	Haraguchi et al.	354/484
4,752,965	6/1988	Dunkley et al.	382/119
4,845,419	7/1989	Hacker	320/39
4,858,162	8/1989	Kieffer et al.	364/708.1

[75] **Inventors:** **Arvin D. Danielson, Solon; Darald R. Schultz, Cedar Rapids, both of Iowa; Dennis Silva, San Jose, Calif.; Darrell L. Boatwright, Cedar Rapids, Iowa; Rickey G. Austin, Lisbon, Iowa; Daniel E. Alt, Cedar Rapids, Iowa; Steve Darren Friend, Felton; Paul Beard, Milpitas, both of Calif.**

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0365286	4/1990	European Pat. Off. .
0096334	6/1983	Japan .
58-176792	10/1983	Japan .
0017523	1/1985	Japan .
60-061731	4/1985	Japan .
2122787	1/1984	United Kingdom .
2201125	8/1988	United Kingdom .

[73] **Assignee:** **Norand Corporation, Cedar Rapids, Iowa**

OTHER PUBLICATIONS

[21] **Appl. No.:** **488,406**

"Pen*View™ Pen Based Computer", No. 960-170-205, Norand Corporation, 1992.

[22] **Filed:** **Jun. 7, 1995**

Norand Marketing Bulletin #94-016, Entitled "Pen*Key™ Single Dock Installation Instructions", Dated Jun. 15, 1994 (1 Page).

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 389,830, Feb. 16, 1995, which is a continuation-in-part of Ser. No. 307,950, Sep. 16, 1994, abandoned, and Ser. No. 309,003, Sep. 19, 1994, said Ser. No. 389,830, is a continuation-in-part of Ser. No. 226,516, Apr. 12, 1994, Pat. No. 5,488,575, and Ser. No. 48,873, Apr. 16, 1993, abandoned, said Ser. No. 307,950, is a continuation-in-part of Ser. No. 226,516, and Ser. No. 48,873, Apr. 16, 1993, abandoned, said Ser. No. 309,003, is a continuation-in-part of Ser. No. 226,516, and Ser. No. 48,873, which is a continuation-in-part of Ser. No. 23,840, Feb. 26, 1993, abandoned, which is a continuation-in-part of Ser. No. 728,667, Jul. 11, 1991, abandoned.

Norand News Release, Entitled "Integrated Scanning Expands Pen*Key™ 6300 Hand-Held Personal Computer Functionality", Dated Nov. 1, 1994 (3 Pages).

Primary Examiner—David H. Malzahn
Attorney, Agent, or Firm—Lathrop & Gage L.C.

[51] **Int. Cl.⁶** **G06F 1/32**
[52] **U.S. Cl.** **364/707; 395/750; 361/683**
[58] **Field of Search** **364/707, 708.1; 395/750; 361/683**

[57] **ABSTRACT**

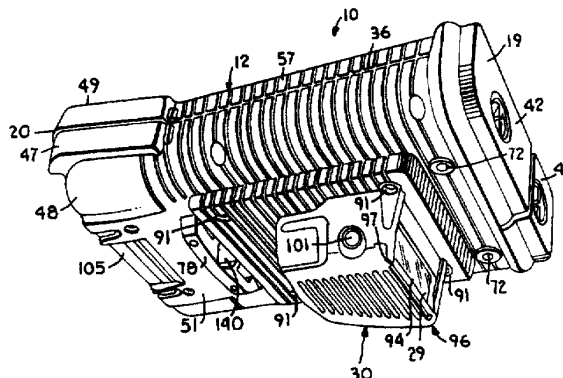
A portable data collection terminal system has a housing having a display screen with coincident graphic data input and a keyboard on the frontal side thereof. An accessory pod, having a width less than the width of the display screen and a handgrip extension adapted to hold a selected accessory device, such as a laser scanner, is disposed on the housing, opposite said frontal side. The accessory pod has one or two activation, diaphragm-type switches disposed in a pod wall disposed transversely to the handgrip extension and extending outwardly from, opposite the frontal side, the housing. The switch or switches are connected in parallel, if more than one, and are disposed near an end of the pod wall such that they are operable by either a user's thumb or finger.

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,075,702	2/1978	Davies	364/708.1
4,327,410	4/1982	Patel et al.	364/200
4,409,665	10/1983	Jubbs	364/707
4,523,297	6/1985	Ugon et al.	364/709.1
4,545,023	10/1985	Mizzi	364/709.13
4,634,845	1/1987	Hale et al.	235/380
4,703,161	10/1987	McLean	364/708.1

45 Claims, 16 Drawing Sheets



U.S. PATENT DOCUMENTS		
4,866,646	9/1989	Nakamura et al. 364/709.11
4,870,677	9/1989	DiSanto et al. 379/96
4,890,832	1/1990	Komaki 273/460
4,916,441	4/1990	Gombrich 364/709.11
4,953,113	8/1990	Chadima, Jr. et al. 364/708.1
4,969,647	11/1990	Mical et al. 273/85 G
4,972,496	11/1990	Sklarew 382/187
5,023,438	6/1991	Wakatsuki et al. 235/472
5,123,064	6/1992	Hacker et al. 382/313
5,133,076	7/1992	Hawkins et al. 395/800
5,155,659	10/1992	Kunert 364/708.1
5,203,003	4/1993	Donner 364/707
5,241,488	8/1993	Chadima, Jr. et al. 364/708.1
5,241,680	8/1993	Cole et al. 364/707
5,265,238	11/1993	Canova, Jr. et al. 364/708.1
5,382,962	1/1995	Young 364/708.1
5,383,091	1/1995	Snell 361/732
5,404,267	4/1995	Silva et al. 361/683
5,421,621	6/1995	Ohtsuki 364/707
5,519,871	5/1996	Shimoda 395/750

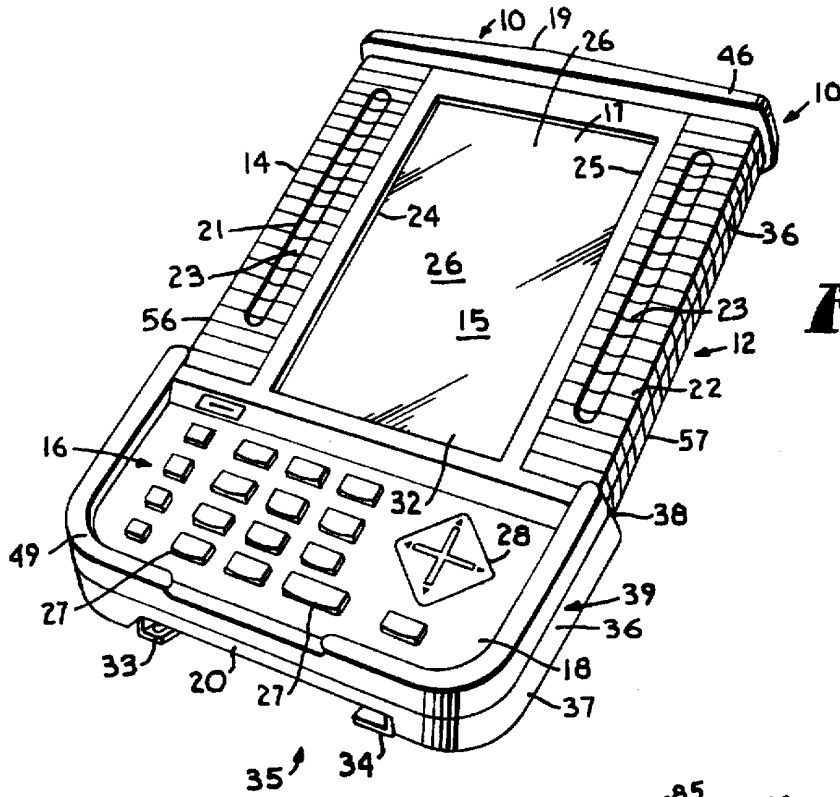


Fig. 1.

Fig. 2.

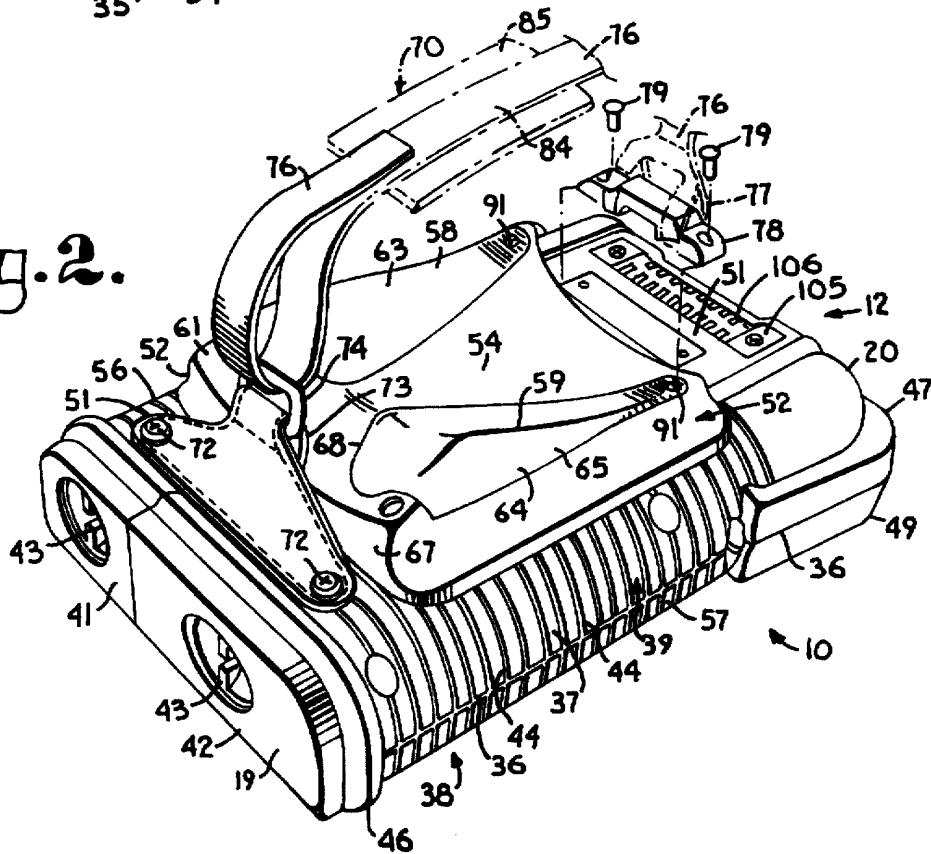


Fig. 3.

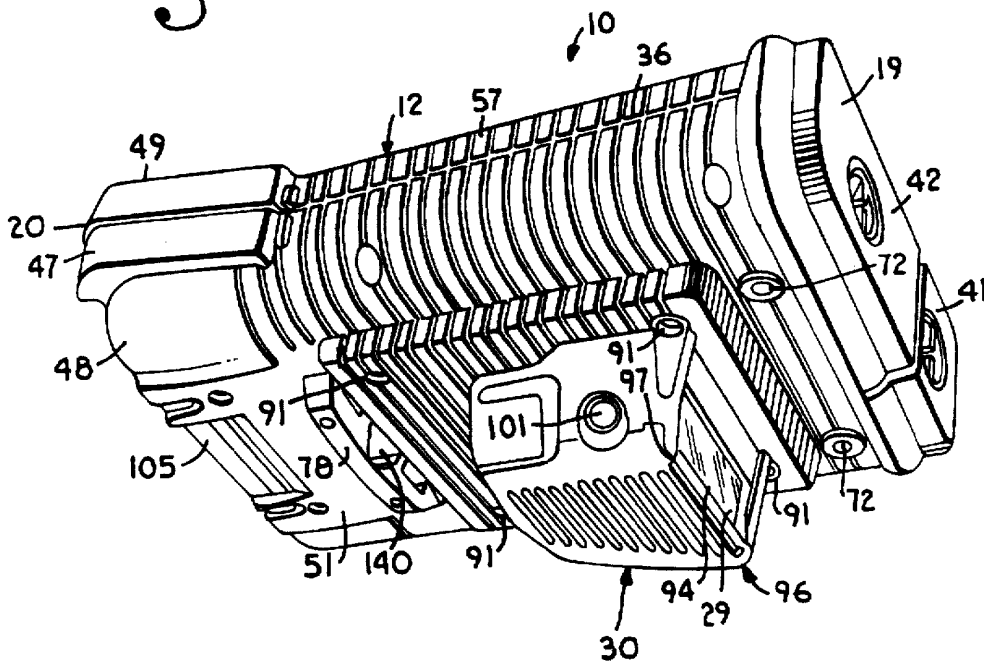


Fig. 4.

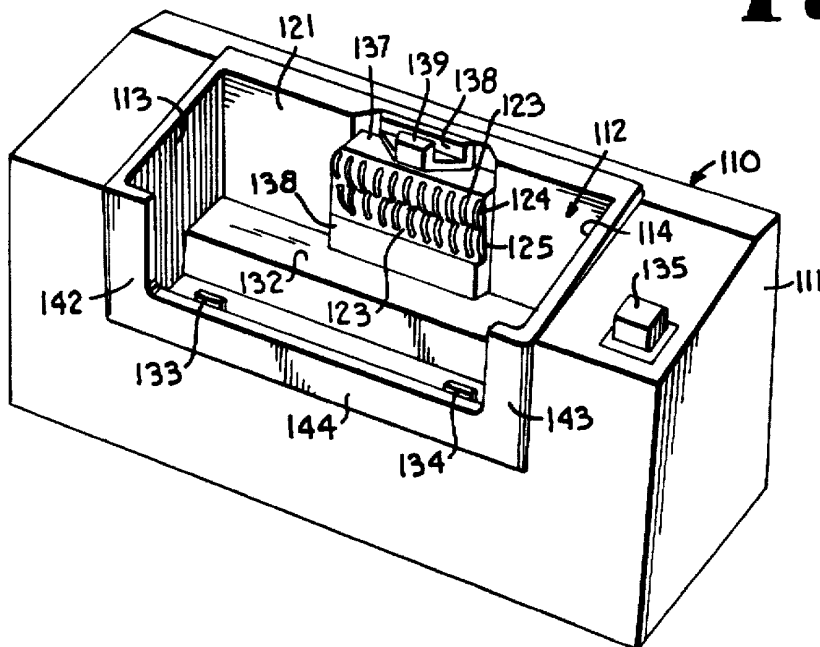


Fig. 5.

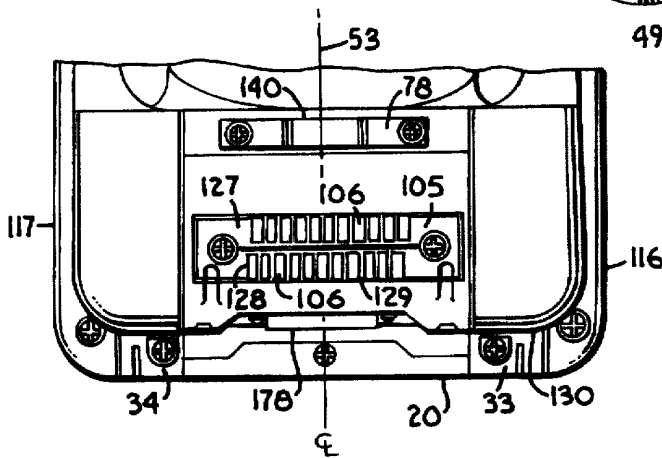
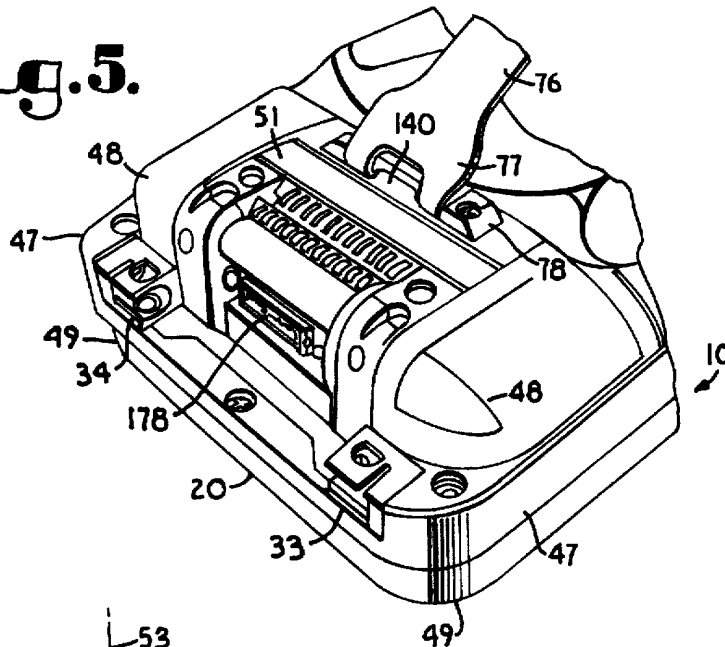


Fig. 6.

Fig. 7.

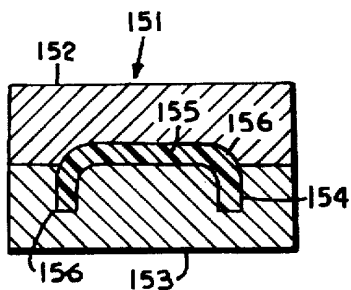
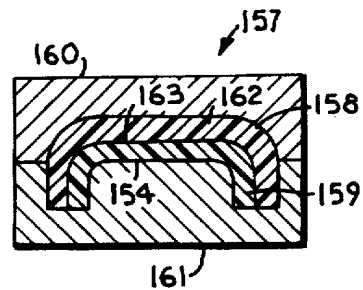


Fig. 8.



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