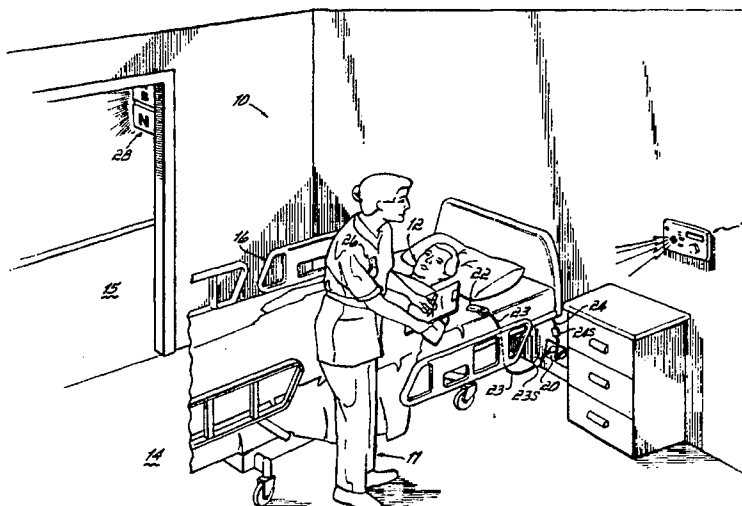


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US94/07735 (22) International Filing Date: 12 July 1994 (12.07.94) (30) Priority Data: 08/090,804 12 July 1993 (12.07.93) US (71) Applicant: HILL-ROM COMPANY, INC. [US/US]; 1069 State Route 46 E, Batesville, IN 47006-9166 (US). (72) Inventors: NOVAK, Joseph, H.; 805 Sycamore Lane, Batesville, IN 47006 (US). MYERS, Julie, E.; 2209 Berwick Drive, Shelbyville, IN 46176 (US). GEIGER, Curt, E.; P.O. Box 154, Oldenburg, IN 47036 (US). ULRICH, Daniel, J.; 6183 Gaines Road, Cincinnati, OH 45247 (US). JENNINGS, Robert, J.; 3704 Merlin Way, Annandale, VA 22003 (US). WEISMILLER, Matthew, W.; 58 White Oak Drive, Batesville, IN 47006 (US). PALERMO, Philip, D.; Apartment H, 202 Lyness Avenue, Harrison, OH 45030 (US). (74) Agents: BURGER, Thomas, J. et al.; Wood, Herron & Evans, 2700 Carew Tower, Cincinnati, OH 45202 (US).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the</i> <i>claims and to be republished in the event of the receipt of</i> <i>amendments.</i> (88) Date of publication of the international search report: 16 March 1995 (16.03.95)

(54) Title: IMPROVED PATIENT/NURSE CALL SYSTEM**(57) Abstract**

A patient/nurse call system (10) for a hospital includes patient stations (18) capable of generating hospital calls and a remote master station (32) which prioritizes and stores the calls. Hall units (28) outside patient rooms (14) identify the rooms (14) from which the calls originate and the type of call. Each patient station (18) allows selective retrieval and display of unanswered calls, and the system (10) further permits audio interconnection between any two of the stations (18, 32). Nurse-worn badges (26) transmit pulse-coded infrared signals which are received by receivers (21) at the patient stations (18) and in response, the system (10) generates identity and location signals which are stored at the master station (32). The nurse location and identity information may also be retrieved and displayed at any patient station (18). Receipt of a nurse's (11) infrared signal at a room station (18) automatically cancels a patient call originating from the room (14) and display thereof by the respective hall unit (28), while actuating a display (122) to indicate nurse (11) presence. Bed monitoring units (149) also interconnect to the patient stations (18) to generate signals related to bed status.

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 94/07735

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G08B5/22 G08B25/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G08B G08C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,4 275 385 (WHITE) 23 June 1981 cited in the application see abstract see column 2, line 30 - column 3, line 42 see column 9, line 30 - line 38 see column 11, line 16 - line 51 see figures 1,4-6,10 ---	1-5, 7-12,25, 47,48
Y	US,A,4 990 892 (GUEST ET AL.) 5 February 1991 see column 10, line 66 - column 12, line 22 see column 13, line 5 - line 26 see figures 1,8 --- -/--	1-5, 7-12,25, 47,48

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

31 October 1994

Date of mailing of the international search report

19. 02. 95

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 94/07735

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE,A,12 87 190 (SIEMENS AKTIENGESELLSCHAFT BERLIN UND MÜNCHEN) 16 January 1969 see claim 1; figure 1 ---	7,8
Y	FR,A,2 211 765 (STATITROL CORPORATION) 19 July 1974 see claim 1; figure 1 ---	11
A	US,A,5 062 151 (SHIPLEY) 29 October 1991 see the whole document ---	1
A	US,A,4 955 000 (NASTROM) 4 September 1990 see the whole document ---	1
A	US,A,4 225 953 (SIMON ET AL.) 30 September 1980 see the whole document ---	1
A	US,A,4 998 095 (SHIELDS) 5 March 1991 see abstract; figures 1-5 -----	1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 94/07735

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-12, 25, 47, 48

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

1. Claims 1-12,25,47,48: Locating system for nurses.
2. Claims 13-15,32,34,35: Hospital bed monitoring unit.
3. Claims 16-24,26-31,33,36-46,49-54: Patient calling and communication system with hall stations displaying the existence of a patient call.

The first special technical feature of the first invention is: Locating of nurses comprising infrared transmitters and receivers.

According to rule 13 PCT non unity a priori is detected for invention two which mainly deals with a hospital bed monitoring unit and for invention three which mainly deals with a patient calling and communication system, comprising hall stations displaying the existence of a patient call.

As a result there is no technical link between the three inventions.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter. Application No

PCT/US 94/07735

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4275385	23-06-81	NONE	
US-A-4990892	05-02-91	AU-B- 622384 AU-A- 6027590	02-04-92 07-02-91
DE-A-1287190		NONE	
FR-A-2211765	19-07-74	NONE	
US-A-5062151	29-10-91	US-A- 4601064	15-07-86
US-A-4955000	04-09-90	JP-A- 63075586	05-04-88
US-A-4225953	30-09-80	NONE	
US-A-4998095	05-03-91	NONE	