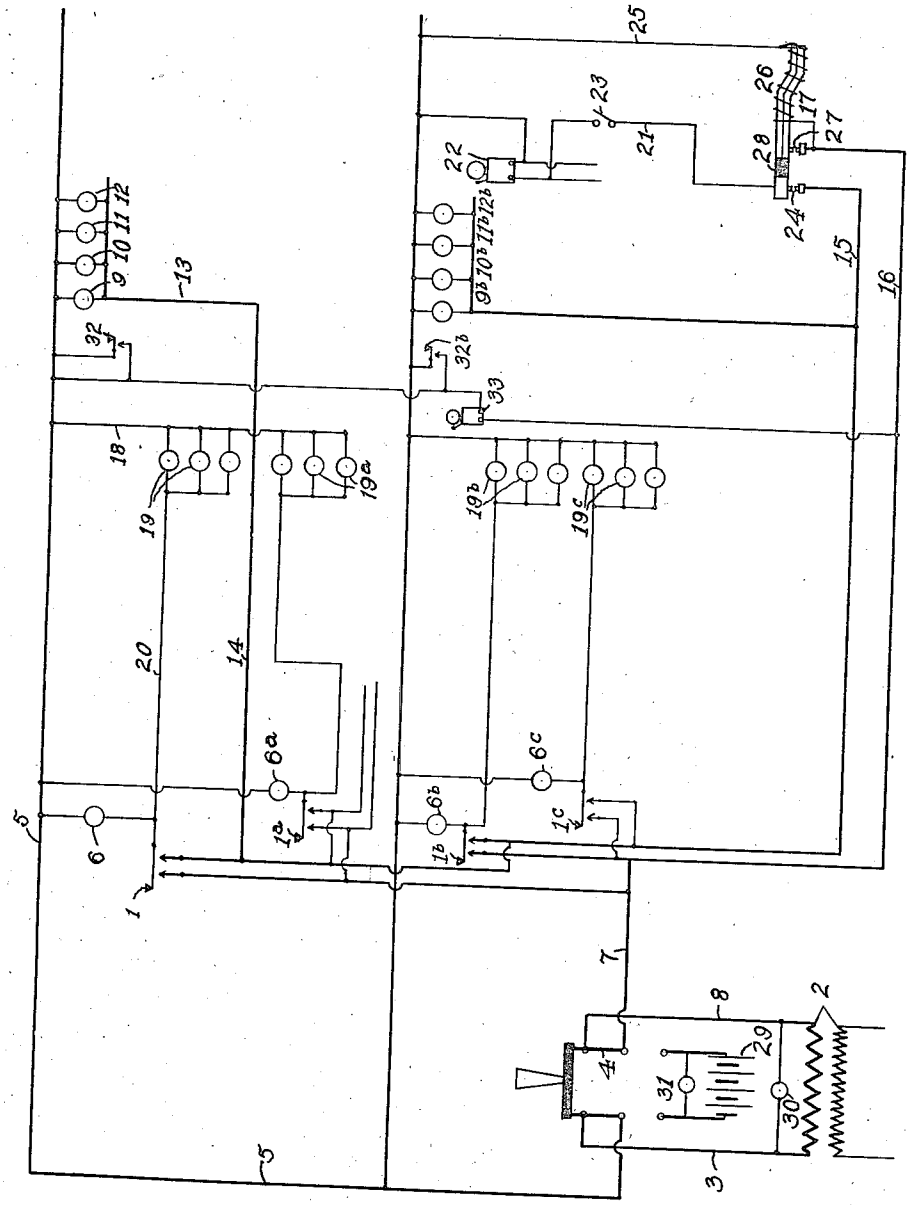
W. M. PERRY.

SIGNALING SYSTEM.

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1,143,313.

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SIGNALING SYSTEM.

1,143,313. Specification of Letters Patent. Patented June 15, 1915.

Application filed March 29, 1912. Serial No. 687,082.

To all whom it may concern:

Be it known that I, WILLIAM MAYRANT PERRY, a citizen of the United States, residing at Columbia, in the county of Richland and State of South Carolina, have invented certain new and useful Improvements in Signaling Systems, of which the following is a specification, reference being had to the accompanying drawing.

This invention relates to signaling systems, and more particularly to systems used in hospitals for calling the nurses and attendants.

The objects of the invention are to provide a system easy to install; the elimination of all mechanical parts such as relays, annunciator drops, etc., and the arrangement of the system as a whole so it will operate equally well on either direct or alternating current, and the provision of an intermittently operating audible signal circuit controlled by the same push button device used for the visual signaling.

There are other advantages hereinafter described and claimed.

To accomplish the results I obtain, it has heretofore been necessary to make use of complicated circuits and push button mechanism. Prior systems have also required relays to operate pilot circuits, said relays requiring adjustment—especially if both alternating and direct currents are used.

Heretofore when an audible signal, such as a bell, was employed with a system, the bell was either arranged to ring constantly after once being put into operation until restored by the nurse, or the push button had to be operated intermittently, which caused confusion and annoyance.

My invention obviates these objections.

The accompanying drawing is a diagram of the system as a whole; the various circuits may be extended as indicated, any suitable number of bells, pilots, and push buttons, being used. I only show one visual signal button and one audible signal button with their associated groups of signals, as it is readily understood how additional signals can be added. It is also obvious that the pilots and bells may be disposed in the building in any suitable manner, and that individually, if necessary, various lamps and bells may be controlled by suitable switches whereby they are cut out of circuit. Such modifications are obvious to those skilled in the art, and I deem them to be within the scope of my invention.

In the drawing 1, 1^a, 1^b, and 1^c denote push buttons having three contacts which close when a button is pushed. The button may be any of the usual on and off buttons now on the market. One of these buttons is located at each bedside, room, or ward, and when pressed current will flow, assuming button 1 to have been pressed, from the transformer 2 through conductor 3, switch 4, conductor 5, lamp 6, button 1, conductor 7, other side of switch 4, conductor 8, and back to the transformer 2. Lamps 6, 6^a, 6^b, and 6^c I term the "local" lamps, and they are usually positioned over the entrance to the room or ward, or over the bed. This serves as a local signal in contradistinction to the pilot lamps, which are common to a number of "locals".

Keeping in mind that the local lamp 6 is now illuminated, and button 1 is in its "on" position, a second circuit is established from common conductor 5 through conductor 18, annunciator lamps 19 (and any other lamps that may be in parallel therewith) through conductor 20 to common wire 7. This illuminates the lamps 19, which serve at any desired point as a signal that some one is calling. These lamps remain lighted as long as any one of the "local" lamps is lighted.

At the same time another circuit may be traced from common conductor 5 through the pilot lamps 9, 10, 11 and 12, any suitable number of which may be employed throughout the building at suitable points. The current passes through conductors 13 and 14 to conductor 7, and the lamps remain illuminated.

Another circuit can be traced from common conductor 5 through the bell or other audible signaling device 22, over conductor 21 and switch 23, to the upper contact 24 of a circuit interrupting device hereinafter described, and then via conductors 15 and 14 to common conductor 7.

The circuit interrupting device may be of the type commonly known as a "flasher." Such a device often consists of two strips

of dissimilar metals, around which is coiled some wire indicated at 26, to form a heating element. Current flowing through this wire via conductors 5, 17 and 16 to 7, causes the strips to expand, thereby closing the contacts 27. This short circuits the winding 26, as the current passes directly from 5 to the metal strip. As the strips contract, the contacts 27 are opened, and this process of opening and closing continues as long as the device is in circuit. It will be evident that contacts 24, which are carried by the strips 26 but insulated therefrom by any suitable means indicated at 28, will also be opened and closed, thereby starting and stopping bell 22, as they are in circuit with it.

I find a suitable ringing interval for this bell to be two seconds, with a silent interval of seven seconds, this arrangement being much better than a steady ringing bell, which is very objectionable in a hospital system.

It is obvious that any suitable form of interrupter may be used instead of the thermo device herein described, although it is advisable to keep the contacts operating the device itself, if such contacts are used, electrically separated from the bell contacts, as it is often desirable to operate the device from a separate source of current of higher voltage than that used for operating the signaling system.

From the foregoing it will be noted that operating push 1 will light lamps 6 and 19, pilots 9, 10, 11 and 12, and place the bell 22 in circuit so it will operate when contacts 24 are closed. If there is more than one push "on," the bell, pilots and the individual annunciator lamps will remain lighted, for restoring a push under these conditions will only extinguish its associated lamps 6 and 19, the pilot and bell circuit remaining in operation as long as any push is "on."

As I find alternating current the most available, I prefer to employ it, using the regular 110 volt service, which I reduce to 10 volts by means of the ordinary transformer 2. As this service may fail, I provide an auxiliary source of current such as the battery 29, and by means of the switch 4, either source of current may be utilized. It is, of course, obvious that any other voltage than that herein mentioned may be used.

As an indication of the condition of each source of current, I employ the lamps 30 and 31, which are placed in any suitable location where they are readily seen. In case either lamp fails to burn, thereby indicating a failure of the source of current to which it is connected, the switch 4 may be thrown so as to connect the signaling system to the remaining source.

I find that when relays are employed and the system is changed from direct to alternating current, certain adjustments may be necessary, and furthermore that certain precautions must be taken in the construction of the relays to make them noiseless and positive in action when used with either current. These troubles I eliminate, together with all contacts throughout the system except those at the push button.

In addition to the foregoing signals, it is sometimes desirable to have a special device; in such cases I provide the push 32 and one or more bells 33 connected across conductors 5 and 7 as shown. Button 32 may then be operated to summon the special attendant by a definite number of rings on the bell 33.

I claim:

1. In a signaling system, a source of current supply, a circuit therefrom, a plurality of manually operated circuit closing devices in said circuit, signals individual to each circuit closing device, signals common to all circuit closing devices, and an intermittently operated signal common to said individual signals and controlled by any of said manually operated circuit closing devices, substantially as described.

2. In a signaling system, a source of current supply, a circuit therefrom, a plurality of manually operated circuit closing devices in said circuit, signals individual to each circuit closing device, visible and audible signals common to all circuit closing devices, said audible signals being included serially in circuit with a constantly operated intermittent circuit closer, substantially as described.

3. In a signaling system, a source of current supply, a main circuit therefrom, a group of signals consisting of a plurality of local lamps, circuit closing devices in series with said lamps and in multiple with the main circuit, a pilot circuit common to said group of signals and operated when any one of them is displayed, a plurality of annunciator lamps individual to each circuit closing device and operated thereby, a bell circuit common to all circuit closing devices, a circuit interrupting device in said bell circuit, and means for operating said interrupting device.

4. In a signaling system, a main circuit, a plurality of manually operated circuit closing devices connected therewith said circuit closing devices having three contacts each, a plurality of lamps all connected on one side to one leg of the main circuit, a circuit between one contact in each circuit closing device and the remaining side of one of the aforesaid lamps, an annunciator signal, a circuit from the beforementioned contact to said annunciator signal, a circuit from a separate contact in said circuit closing device to the remaining leg of the main circuit, a plurality of lamps, a circuit from the remaining contact in said circuit closing device to said last mentioned lamps, a bell

circuit operated by said last mentioned contact, and a circuit interrupting device in said bell circuit.

5. In a signaling system, a source of current supply, a main circuit, circuit closing devices in said circuit, signals individual to each circuit closing device, visual signals common to all circuit closing devices, and an automatically controlled intermittent signal common to all circuit closing devices.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM MAYRANT PERRY.

Witnesses:

G. P. LOGAN,

C. T. GRAYSON.