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C. E. ACKERMAN.

NIGHT SERVICE ATTACHMENT FOR TELEPHONE LINES.

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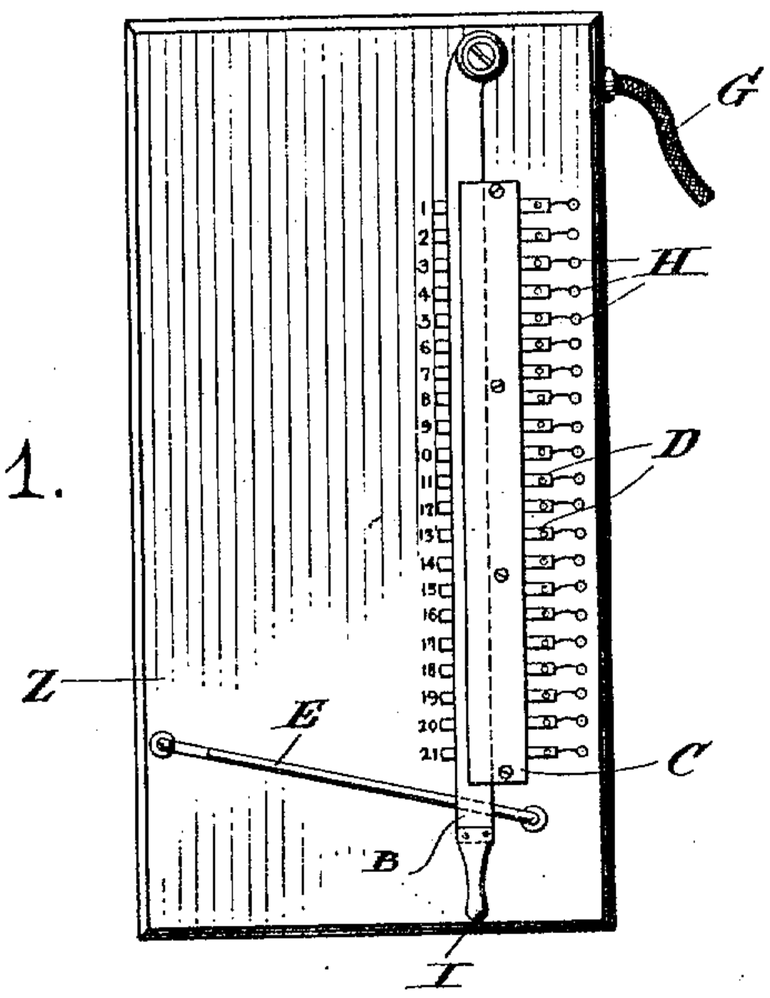

Fig. 1.

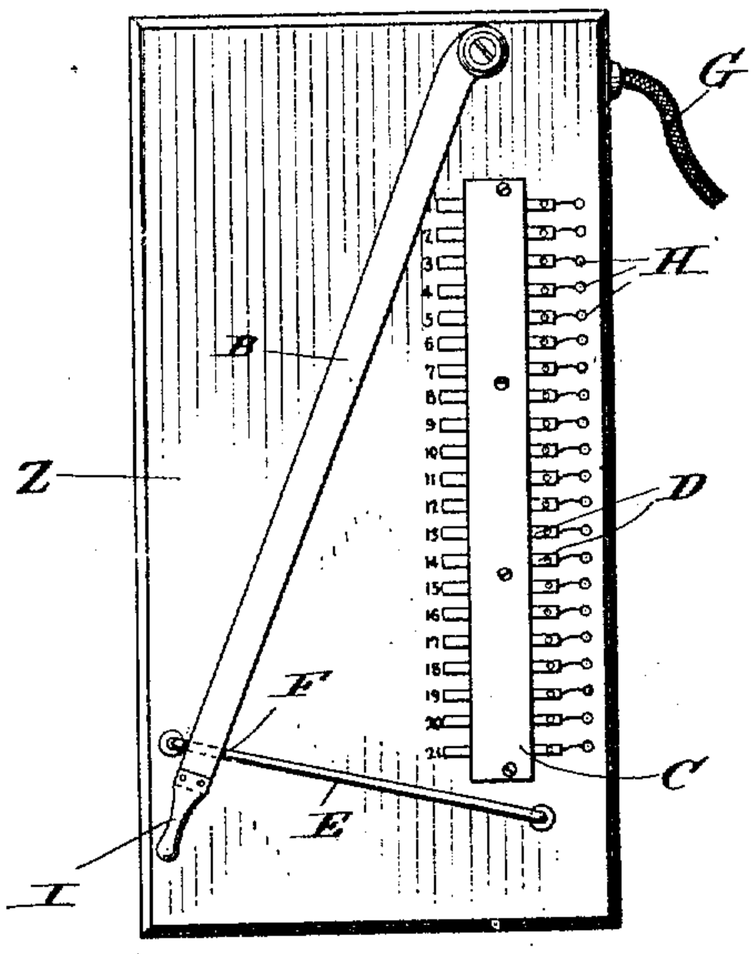

Fig. 2.

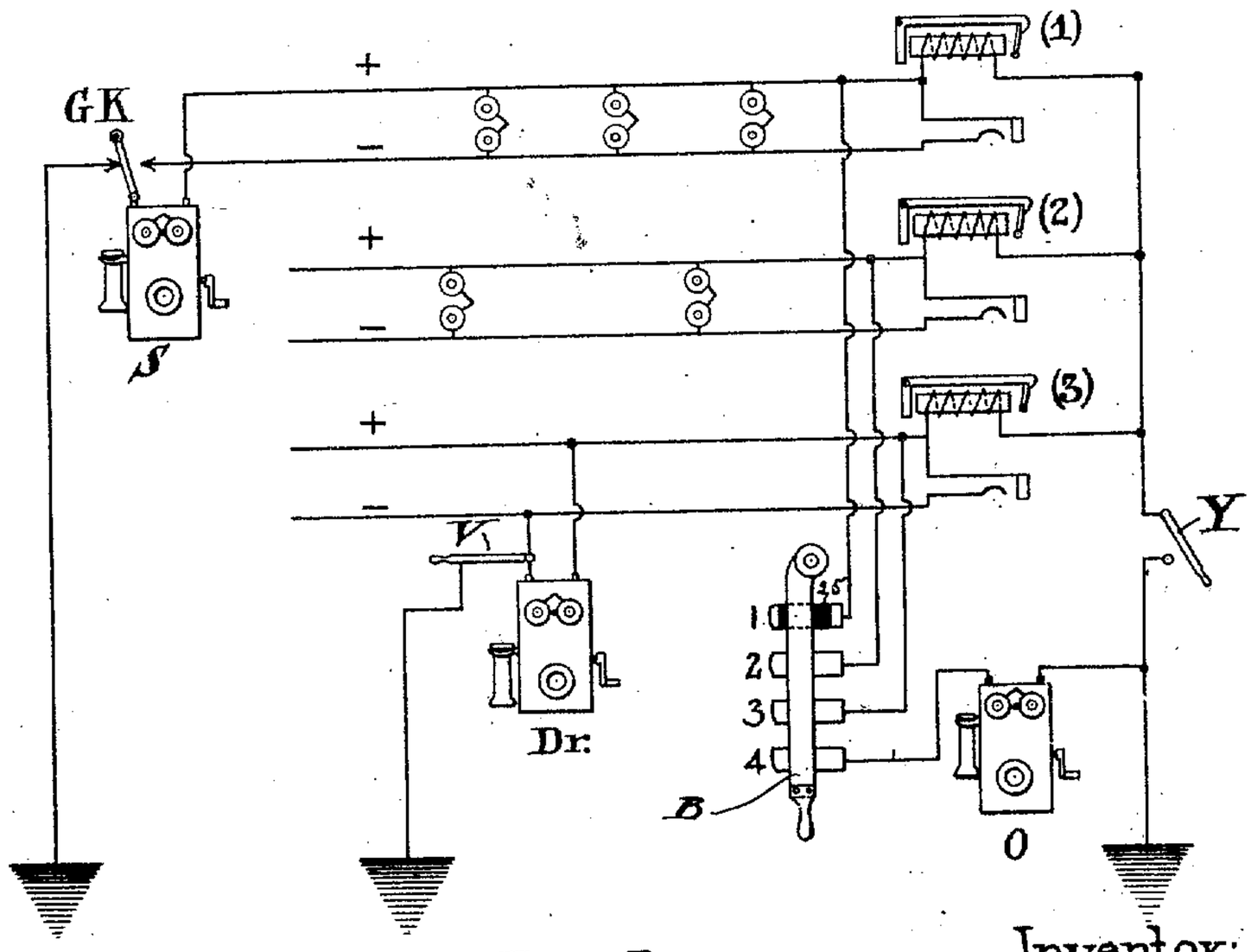

Fig. 3.

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UNITED STATES PATENT OFFICE.

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NIGHT-SERVICE ATTACHMENT FOR TELEPHONE-LINES.

No. 858,775. Specification of Letters Patent. Patented July 2, 1907.

Application filed September 27, 1905. Serial No. 280,366.

To all whom it may concern:

Be it known that I, CLARENCE EDWARD ACKERMAN, a citizen of the United States, residing in the township of Vernon, in the county of Shiawassee and State of Michigan, have invented a new and useful Night-Service Attachment for Telephone-Lines, of which the following is a specification.

My invention relates to an apparatus which when used in connection with metallic telephone lines as herein specified will enable any telephone subscriber on an exchange using my invention to call and talk with the operator who may be in his residence or to any number of doctors up to about forty who may be at their offices or residences without the help of an operator at the switch-board.

My invention when used will enable telephone users to talk with their doctors or attorneys at night or Sundays or at other times when there is no operator at the switch-board without disturbing any of the lines of the exchange or any of the parties on any of the lines in case the same are party lines.

My invention will work as well in connection with party or farm lines as with individual lines or will work as well in connection with both party and individual as with either one class of lines.

The object of my invention is to enable telephone users that are connected to rural or small exchanges that do not keep an operator at the switch-board at all times, to get connections with the doctors of such exchanges in case of emergencies, and in case the operator is wanted he can be called and interviewed without his leaving his residence or sleeping room.

I attain these objects by the mechanism illustrated in the accompanying drawing in which—:

Figure 1, is a front view of the machine as it looks when in use at night or when there is no operator at the switch-board. Fig. 2, is a front view of the machine when not in use or when the operator is at the switch-board ready to attend to calls. Fig. 3, is a diagram of the wiring of an exchange which shows the machine represented by A, connected on the telephone lines.

Similar letters refer to similar parts in the different views, excepting those inclosed in parenthesis ().

In Fig. 1, and Fig. 2, Z, represents a wooden foundation of the machine.

B, represents a copper switch.

C, represents a fiber strip which holds the contacts D, in place and also acts as a holder to hold the switch B in place when the switch is closed as in Fig. 1.

E represents a guide with a catch to hold the switch open as in Fig. 2. E is fastened on to Z, with screws.

D, represents separate contacts made of flexible copper and arranged to spring away from the foundation Z, up against the fiber C, so that when B, is placed between the contacts D, and the fiber C, a good connection will be made between contacts D, and switch B, as in Fig. 1. When the switch B is opened as in Fig. 2 all the contacts D will be disconnected from each other that is no electrical current will be able to pass from one contact to the other.

Switch B has a hard rubber handle attached represented by I. The other end of B, is fastened to Z, by washers & a screw, which enables B, to be moved from catch F, on E, to the other end of E, or between contacts D, and fiber C. Contacts D, are numbered from 1, to 21.

Contacts D, are soldered, to wires which run through holes in Z, and extend up the back of Z, and come out at the upper right-hand corner of Z, in the form of cable G.

Cable G, is connected to the telephone lines at the distributing rack as represented in Fig. 3, contact, D represented by I, is connected to the + wire of line (I,) through its wire running through cable G which is composed of insulated wire. Contact D, represented by 2, is connected to the + wire of line (2,) through its wire in cable G. The wires in cable G, are so connected to contacts D and the + wires of the lines so that a certain contact having a certain number will be connected to the + wire of the line having the same number. One of contacts D, should be connected with one side of a telephone "in the operators sleeping room," and the other side connected to the ground as represented in Fig. 3.

O, represents the operators telephone Fig. 3 contains a diagram of the machine represented in Fig. 1, and Fig. 2, which has only 4 contacts D, and no foundation Z, as shown in Fig. 1 & Fig. 2. The cable is also omitted and the connections are represented in the plainest possible manner. The machines can be made with any number of contacts without changing the general plan of construction.

The machine is operated as follows in connection with telephone lines 1st all telephones connected on the exchange must be equipped with ground keys represented by G, K, in Fig. 3, of the drawing. In case the wires running to the left hand binding post of the telephone are equipped with the ground keys the right hand binding post must be connected to the + wires of the line on which the telephone is connected (I claim nothing on account of the ground keys.)

All telephones that are desired to be called without the assistance of the operator must be equipped with a switch which can be turned on at night and off in the day time or during the time the operator is at the board. Also if the switch board is wired as in the drawing in Fig. 3 so that the drop is thrown only when parties on the line press their ground keys & ring; a switch is placed at a point between the drops & the ground as in Fig. 3 as represented by Y, which when opened at night cuts all the drops out, (I claim nothing on account of switch Y, as represented in Fig. 3, also nothing on account of the wiring of the drops.) In case one side of the drop

is not taken to a common ground as in Fig. 3, but wired back to the side of the jack which is connected to the — wires of the lines no switch Y will be needed as the drops in that case will not be thrown in case a party calls the doctor or operator at night or when he (the operator) is not at the switch-board.

When the operator leaves the switch-board for the night he will give his closing ring on the lines where upon the doctors will close their switches represented by B—B, in Fig. 3 which will ground the side of their telephones which are connected to the — wires of the lines. The operator will close switch B, bringing all the contacts D, in connection with each other through B. He will then open switch Y, which will cut the drops out. He then can retire in his sleeping room in which telephone O, is located. After this is done the doctors or operator can be called by a code of rings as in Fig. 3 let the operators ring be one and the Dr.'s ring two, when the party at S as in Fig. 3 presses his ground key & rings and holds it pressed while he talks he can give the desired ring & talk direct with the desired party.

In case an accidental ground should come on any of the + wires of any of the lines a piece of mica or other insulation can be placed between the contact D having the number of the line on which the trouble is and the switch B, this will cut the faulty line from the system and the machine will give the desired night service on the rest of the lines.

In Fig. 3, when the ground key at S, is pressed and the generator turned the current will flow as follows; from the binding post at the right to the + wire of line 1 and will seek its path to the ground. In the diagram there are but two paths through bells of the same resistance. The bells, therefore will ring. The current passes from the + wire of line 1, down to contact D, represented by I, thence along switch B, to contact D, represented by 3. Half of the ringing current will go to the + wire of line 3 calling the doctor and half the current will flow to contact four thence through the phone O, and return through the ground to phone S, which while the ground key is pressed is in direct connection with the doctor & operator.

The night service attachment for telephone lines as herein described and as illustrated in the accompanying drawing will work on an unlimited number of lines. In exchanges having 1 to 4 hundred lines a number of machines as herein described having from 25 to 30 contacts can be used. I claim nothing as to the telephone lines drops jacks phones & bells represented in Fig. 3, but

I claim:—

In a central exchange telephone system, a night service attachment, comprising an auxiliary switch, a suitable number of contacts and connections leading from one side of subscribers' lines to the switch and means for closing the switch so as to temporarily connect the subscribers' lines with those of the doctors' lines or operators' lines or any other special lines which are temporarily grounded on one side at the will of the subscribers on the special lines or the doctors' lines or the operators' lines; whereby any of the special lines or doctors' lines or operators' lines temporarily grounded may be signaled without the use of the usual exchange apparatus.

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