

(No Model.)

W. M. MINER.  
TELEPHONE SWITCH.

No. 547,613.

Patented Oct. 8, 1895.

Fig. 1,

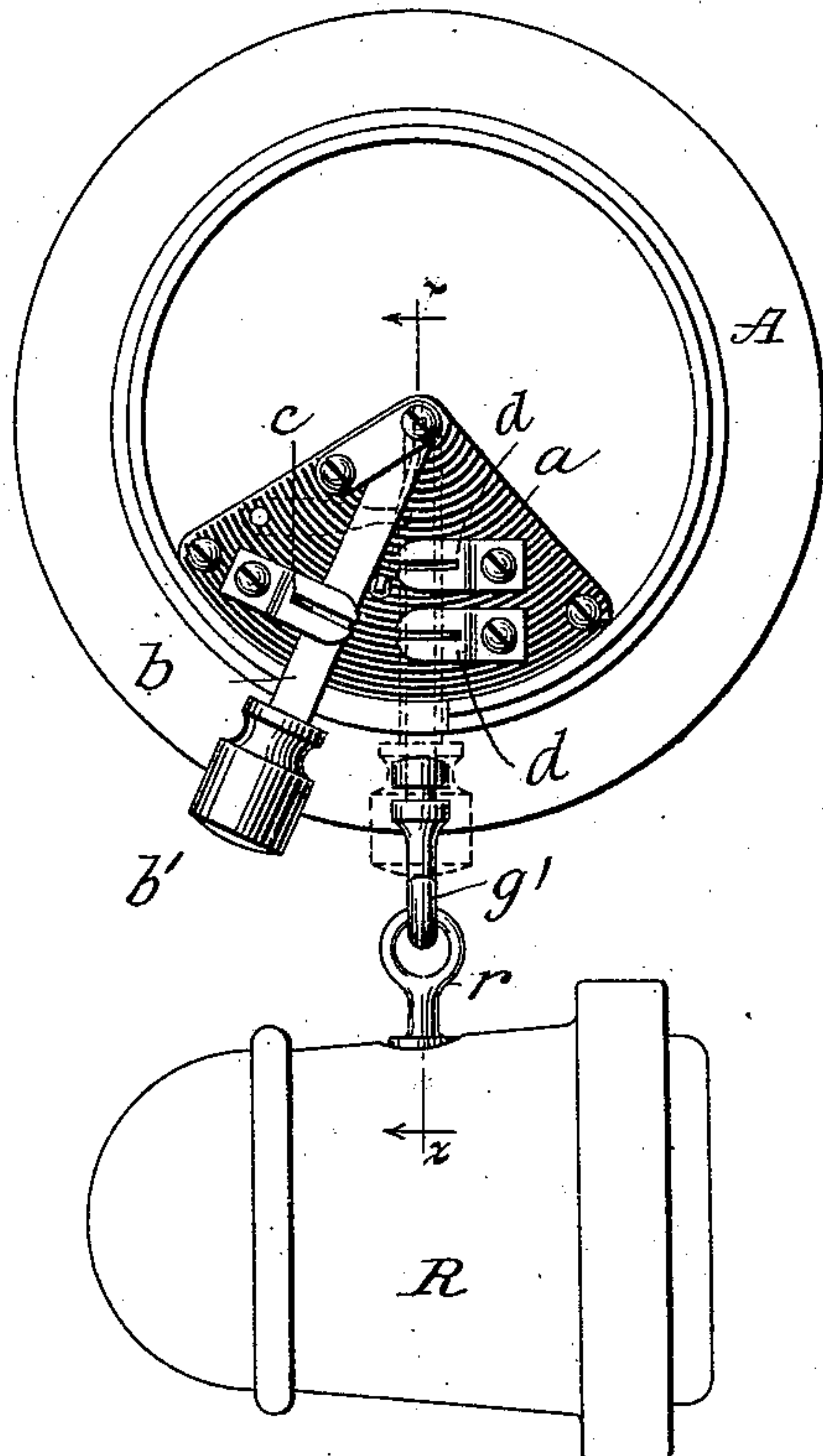


Fig. 2,

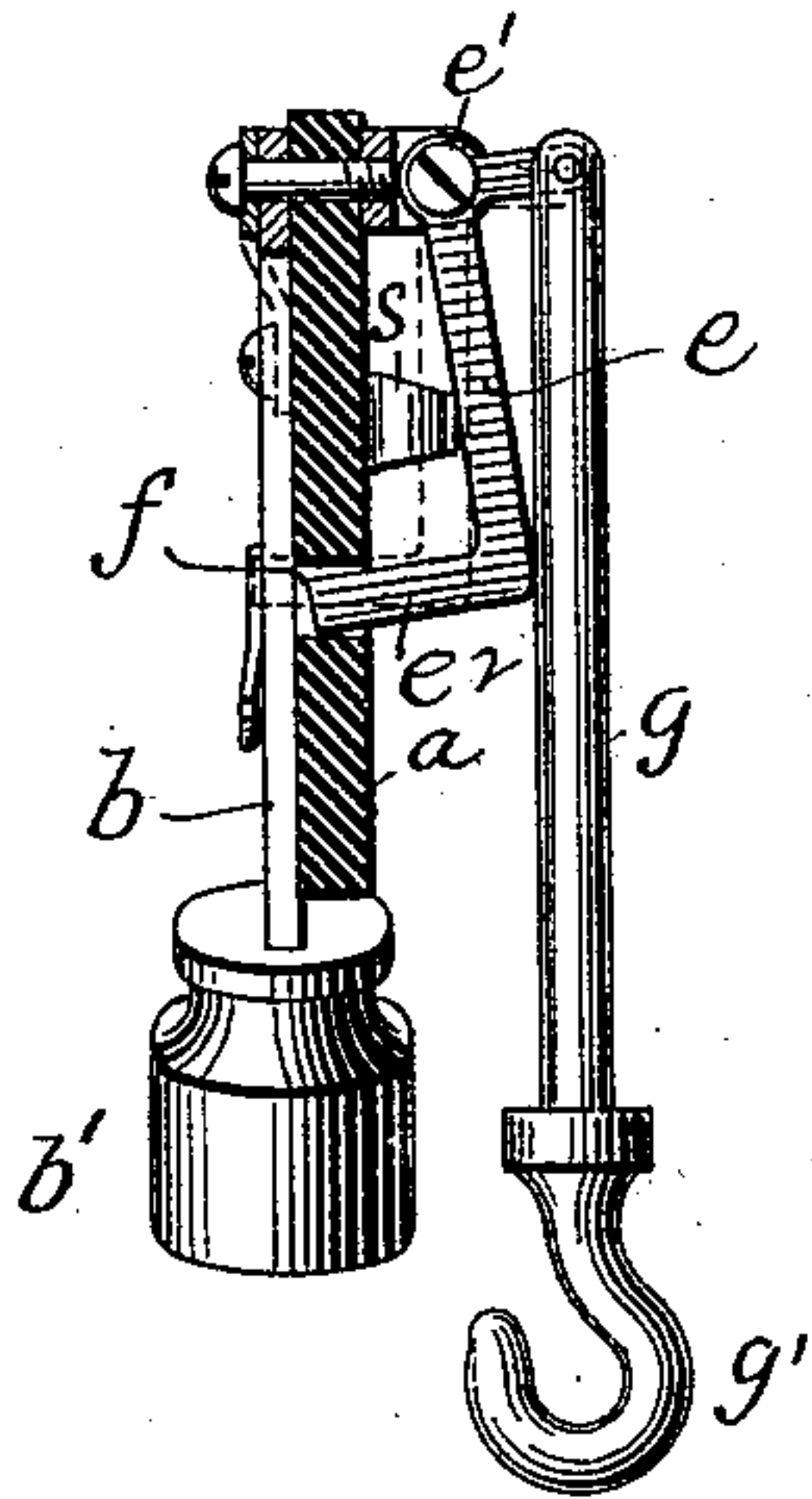
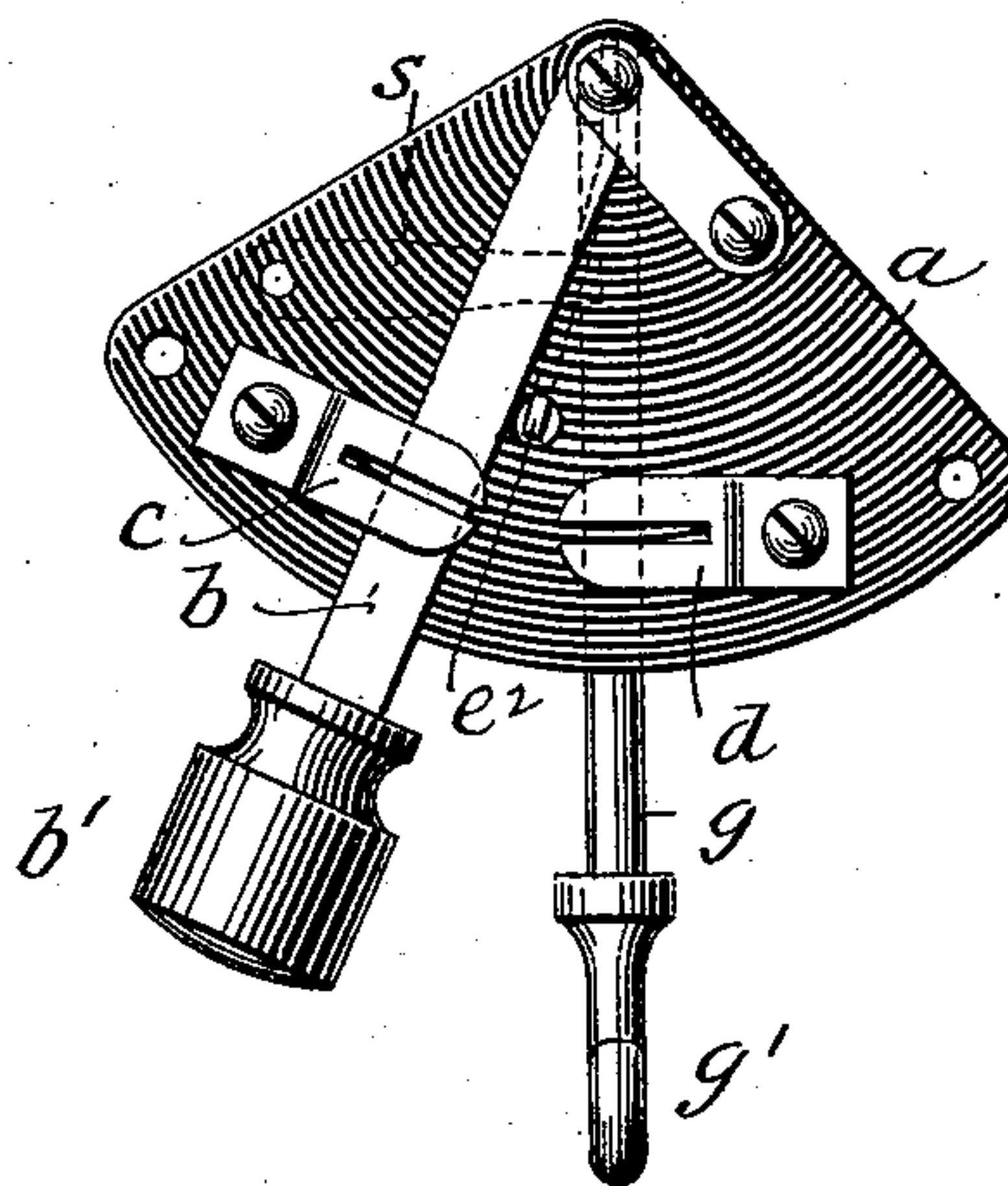


Fig. 3,



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLARD M. MINER, OF PLAINFIELD, NEW JERSEY.

## TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 547,613, dated October 8, 1895.

Application filed June 4, 1895. Serial No. 551,637. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD M. MINER, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Telephone-Switches, of which the following is a full, clear, and exact description.

This invention relates to telephone-switches adapted for use at sub-stations to enable the subscriber or user to switch the annunciator out of the main circuit and at the same time throw the transmitter and battery into the circuit at will.

The object of the invention is to provide an automatic lock for such switches, which operates to prevent a movement of the switch to change the circuits from either one of its two positions until the lock or detent is removed by some act of the user.

The invention does not relate to that class of switches in which the circuits are automatically changed by the removal of the receiver or other weight from its accustomed support, but to that class of switches in which the circuits are changed by manual operation and which comprehends locking devices to prevent such manual operation until the switch is released by some other act.

My invention comprehends a switch-lever or element having two positions, a catch or locking device for holding it in one position, and a second catch consisting of the switch-lever itself and preventing the return of a portion of the apparatus to its normal position without first throwing the switch-lever to its normal position.

The invention will be described in detail with reference to the accompanying drawings, in which—

Figure 1 shows a front elevation of the complete switch. Fig. 2 is a section taken on line  $xx$  of the switch proper and on an enlarged scale; and Fig. 3 is a front elevation of the switch proper, showing a slight modification thereof.

Referring to the drawings by letter, A represents a case within which the switch mechanism is located. As used by me this case also contains the transmitter. (Not shown.) Within the case is located a quadrantal block

of insulating material  $a$ , having pivoted at its center or apex a switch-lever  $b$ , having a handle  $b'$  projecting outside of the case A. Upon the face of the insulating-block are arranged contact-pieces  $c$  and  $d$ , with which the lever is adapted to be brought into connection for the purpose of making the necessary changes of circuits. The number of contacts may be varied in accordance with the particular connections used; but it is to be understood that when the lever is connected with the contacts  $c$ , whether there be one or more, the annunciator or signal is in the main line and the station is in condition to receive a call, and when the lever is in contact with the points  $d$ , one or more, the annunciator is out of the main line and the necessary connections are made for talking. Mounted at the back of the insulating-block and upon a suitable stud  $e'$  is a bell-crank lever  $e$ , carrying a bolt  $e^2$  at one extremity, which is adapted to pass through an opening  $f$  in the block and to project across the path of movement of the lever  $b$ . A spring  $s$  bears against the bell-crank lever and tends to withdraw the bolt from the path of the lever  $b$ . To the other end of the bell-crank lever a depending rod  $g$  is attached, having a hook  $g'$  at its lower end. This rod and hook occupy the same plane in which lever  $b$  is located when in connection with the contact-points  $d$ , and the length of lever  $b$  is such that its handle  $b'$  stands immediately over and closes the opening of the hook, through which an eye or similar device will have to be passed to become engaged with the hook. I propose to use a weight and have adopted the receiving-instrument R for this purpose to hang upon the hook and thus swing the bell-crank lever against the power of the spring  $s$  to project the bolt  $e^2$  through the block. The receiver will be provided with an eye  $r$  for this purpose.

The parts of the apparatus, as shown in Fig. 1, are in their normal position, the lever  $b$  being in connection with the contact  $c$  and being locked in that position by the bolt  $e^2$ , which is thrust outward by the weight on the hook  $g'$ . When a call is received, the receiver is removed from the hook, and spring  $s$  then removes the bolt  $e^2$ . The user must then throw the lever out of contact with



points *c* and into contact with points *d* in order to establish the conversation-circuit. This movement of the lever brings the handle *b'* thereof into position to close the hook *g'*, and when the conversation is finished the user finds that he cannot return the receiver to its accustomed place upon the hook until he removes the lever *b*. This is his reminder of the necessity of throwing the lever to the position shown in Fig. 1. When this is done, the weight of the receiver, which is immediately thereafter hung upon the hook *g'*, throws the bolt *e*<sup>2</sup> in front of lever *b* and prevents the latter from being accidentally or otherwise thrown out of its normal position.

It will be observed that the lever *b* and the receiver are mutual locking devices, the receiver preventing the lever from moving from one of its positions and the lever preventing the receiver from going to its accustomed or normal position.

The switch is extremely simple and cheap to manufacture and is quite simple in its operation.

Having thus described my invention, I claim—

1. In a telephone switch, the combination of a switch-lever having two positions, a lock for the same when in one position, said lock being operated by the weight of the receiver when in its normal position, and the lever when in its other position barring the receiver

from its normal position, substantially as described.

2. In a telephone switch, the combination of a switch-lever, a pivoted bolt lever adapted to lock the switch-lever when in one of its positions, a spring acting against the bolt lever and means for suspending a weight upon the bolt lever to hold it out of operative position, substantially as described.

3. In a telephone switch, the combination of a switch-lever, a bell crank lever, carrying a bolt at one end adapted to engage with the switch-lever, a hook suspended from the other end of the bell crank lever and a spring engaging with the bell crank lever and tending to swing it in opposition to a weight on the hook, substantially as described.

4. In a telephone switch, the combination of a suitable support or base, a switch-lever pivoted to one side of the base, a lever carrying a bolt and pivoted to the other side of the base, said bolt projecting through an opening in the base to become engaged with the switch-lever and means for withdrawing the bolt, substantially as described.

In testimony whereof I subscribe my signature in presence of two witnesses.

WILLARD M. MINER.

Witnesses:

FRANK S. OBER,  
JOHN KRAEGER.