

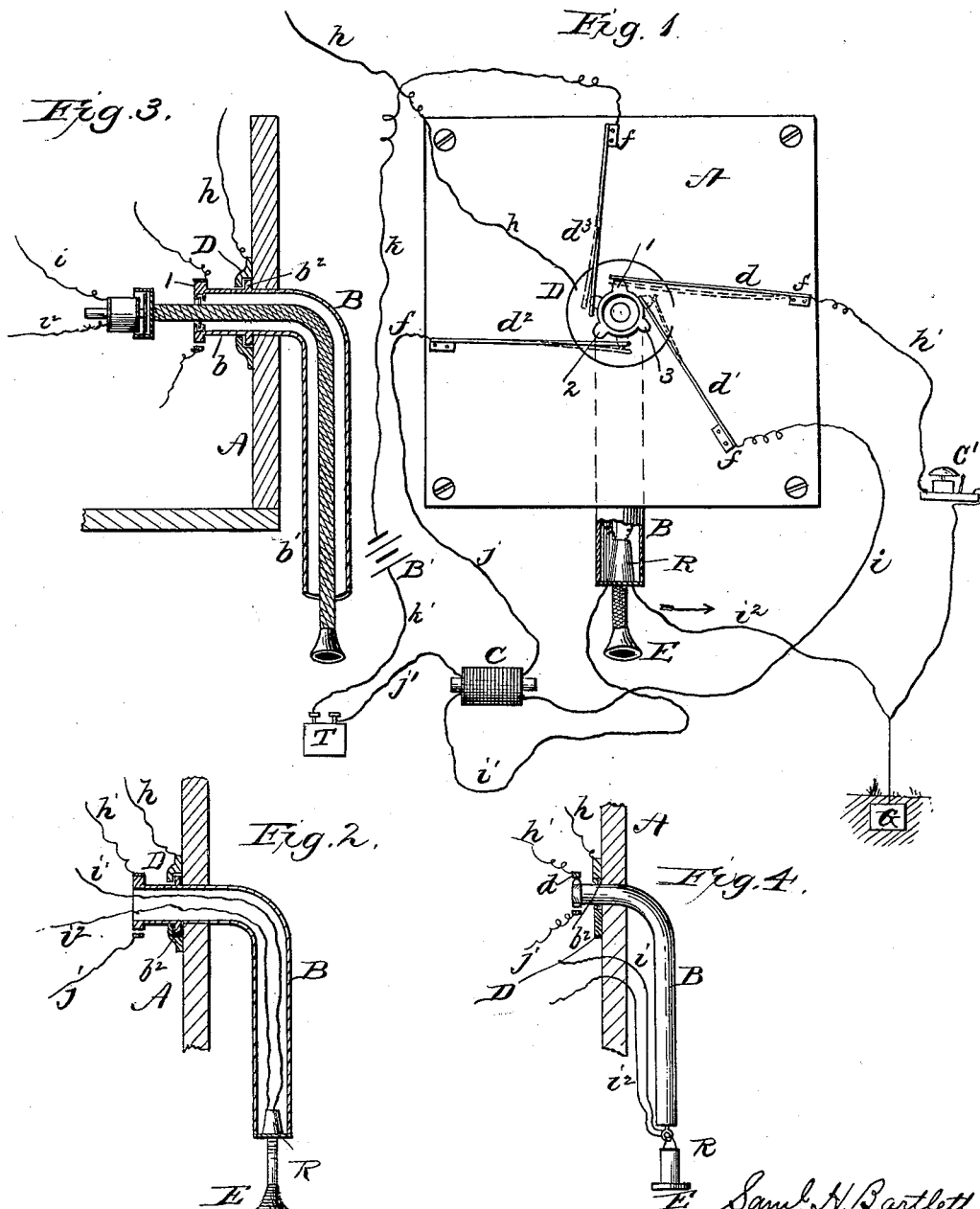
(No Model.)

S. H. BARTLETT & H. E. WAITE.

SWITCH FOR TELEPHONES.

No. 262,532.

Patented Aug. 8, 1882.



**WITNESSES**

WITNESSES  
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# UNITED STATES PATENT OFFICE.

SAMUEL H. BARTLETT AND HENRY E. WAITE, OF NEW YORK, N. Y., ASSIGN-  
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## SWITCH FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 262,532, dated August 8, 1882.

Application filed April 4, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL H. BARTLETT and HENRY E. WAITE, of New York, county of New York, State of New York, have invented  
5 new and useful Improvements in Switches for Telephones, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 represents a rear elevation, partly in section, showing our improved switch. Fig. 2 is a vertical section through the same; and Figs. 3 and 4 are sectional views similar to Fig. 2, showing modifications in the construction and arrangement of some of the parts  
15 hereinafter described.

Our invention relates to a novel construction of switch for telephones, whereby the receiver is automatically thrown into action or into the  
20 line-circuit when the ear-piece is raised for use, and is in a similar manner thrown out of action or out of the line-circuit when said ear-piece is released, and the transmitter is provided with a closed battery-circuit thrown into action simul-  
25 taneously with the throwing in of the receiver, and vice versa; and it consists in the combination of the ear-piece with a swiveling elbow-lever or crank-arm acting when the ear-piece is raised to throw the receiver into the line or  
30 circuit, and vice versa, and simultaneously to connect the transmitter and its battery with or disconnect them from said circuit, as hereinafter explained.

In the accompanying drawings, A represents  
35 the front of a box, case, or frame designed to be attached to a wall or other convenient point of support, and provided with a central perforation, through which the horizontal arm or shaft *b* of an elbow or bell-crank lever, B, passes,  
40 said arm being free to turn or revolve in said perforation in such manner as to allow the arm *b* to hang pendent in front of the case A, as represented. This elbow or crank is by preference made hollow, as shown in Figs. 1, 2, and  
45 3, and is held in place in the bearing-perforation in case A by means of a collar, *b*<sup>2</sup>, formed upon or secured to it and a socketed annular metallic disk, D, secured to the case A, as shown, or in any convenient manner, adapting  
50 it to be held in place and to rotate freely in

said plate or case. The inner end of the arm *b* is provided with spurs 1, 2, and 3, which act upon springs *d* *d'* *d*<sup>2</sup> *d*<sup>3</sup> as the arm *b* is rotated, as will be explained. These springs are rigidly  
55 connected with suitable lugs or brackets, *f*, attached to the inner face of the wall A, of the case or frame, or to other convenient point of support upon different sides of the arm or shaft *b*, in such manner as to cause their free ends to overhang the spurs on inner end of said  
60 shaft *b* from different directions, as shown, removed from contact with said arm or shaft but in sufficiently close proximity thereto to permit the spurs 1, 2, and 3 to come in contact with them as the shaft *b* is rocked. 65

The receiver R may be connected with this tube or elbow at either end with the outer swinging end, as shown in Figs. 1, 2, and 4, or with the inner end, as shown in Fig. 3, the  
70 wires extending in the former case to the receiver, while in the latter a flexible tube, *e*, extends from the receiver through the bent tube to an ear-piece, E, as shown. Where a solid crank-arm is employed, as shown in Fig. 4, the  
75 wires or flexible tube may pass through the front A of the case near the swiveling shaft *b* of the latter, and thence to the receiver or ear-piece through an eye in a block, *g*, secured to the swinging end of arm B in such manner as  
80 to adapt the ear-piece or receiver to be held in convenient position for use.

B' represents a battery, C a coil, T the transmitter, and G the ground.

The arrangement of the wires is as follows: *h* represents the line-wire; *h'*, a wire connecting  
85 spring *d* with any suitable or convenient signaling-instrument or call-bell (indicated at C', Fig. 1,) and thence with the ground, the arrangement being such that when the swiveling crank-arm is released and hangs pend-  
90 ent by its own gravity, as represented, the spur 1 on the shaft *b* thereof will rest in contact with said spring *d*, and the line *h* being connected therewith through the annular plate D and arm *b*, said line-wire will be grounded  
95 through the call-bell and wire *h'*. In this position the springs *d'* *d*<sup>2</sup> *d*<sup>3</sup> are out of contact with the spurs on sleeve or shaft *b'*. The spring *d'* is connected by wire *i* with the secondary of coil C, and thence through wire *i'* with the  
100

receiver R, which is grounded through wire  $i^2$ . The spring  $d^2$  is connected by wire  $j$  with the primary of coil C, and thence through  $j'$  with the transmitter T, and the spring  $d^3$  is connected by wires  $k$  and  $k'$  with the battery and transmitter. Now, supposing the arm B to be moved or swung up through an arc of one hundred and eighty degrees (more or less, according to the arrangement described) in a direction indicated by the arrow, the spur 1 will be brought into contact with spring  $d^2$ , the spur 2 into contact with spring  $d'$ , and the spur 3 into contact with spring  $d^3$ , and spring  $d$  will be left removed from contact with sleeve or shaft  $b$ . By this movement of the swiveling arm and spurs 1, 2, and 3, it will be seen that the line  $h$ , instead of being grounded through the spring  $d$  and wire  $h'$ , will be grounded through the coil and receiver, bringing the latter into action. By the spurs 1 and 3 being brought into contact with the springs  $d^2$  and  $d^3$  the battery B', transmitter T, and primary of coil C are brought into action through wires  $j j'$  and  $k k'$ , thereby providing a closed battery-circuit for the transmitter to work in. When the arm B is released it swings by its own gravity back into the pendent position shown, in which the receiver, as well as the transmitter and the battery B', is thrown out of action, leaving the line-wire grounded through the spring  $d$ , signaling apparatus, and wire  $h'$ , as explained.

It is not essential that the receiver shall be supported by the rocking crank-arm B, only that it shall be thrown into or out of the line or circuit by the movement of said arm, and that the ear-piece shall be so connected with the arm B as to render it necessary to vibrate the latter into position for throwing the receiver and transmitter into action when the ear-piece is raised for use, the weight of said arm serving to reverse the movement and throw the receiver and transmitter out of action when the ear-piece is dropped or released. The hollow or tubular form of the crank-arm is preferred, as giving compactness and neatness of arrangement and a concentric arrangement of the wires or flexible tube passing to the receiver or ear-piece passing through it; but a solid arm may be employed, in which case the arm may be reduced in size so long as sufficient weight is retained to insure its automatic action or partial rotation when released.

By the construction and arrangement of the parts described a simple, convenient, and compact form of switch is secured, one which automatically throws the receiver and transmitter into the line or circuit when the ear-piece is raised for use, and which, without attention on the part of the operator, automatically throws said parts out of circuit or action when the ear-piece is released.

Having now described our invention, what we claim as new, is—

1. In a telephone-switch, a swinging crank-arm, to which the receiver or ear-piece is permanently attached, provided with spurs or contact-points moving with said arm, in combination with arms connected with the signaling apparatus, transmitter, and receiver, whereby the signaling apparatus may be thrown out of and the transmitter and receiver into the line or circuit, and vice versa, with a positive movement by the movement of said crank-arm, substantially as described.

2. The tubular crank-arm through which the wires or flexible tube passes to the receiver or ear-piece, said arm being provided with spurs or contact-points moving with it, in combination with arms connected with the signaling apparatus, transmitter, and receiver, whereby said signal apparatus can be thrown out of and the transmitter and receiver into the line or circuit, and vice versa, with a positive movement by the movement of said crank-arm, substantially as described.

3. In a telephone-switch, a pivoted crank-arm, to which the receiver or ear-piece is permanently attached, provided on its pivotal portion with cams or spurs and tangentially-arranged arms operating in connection therewith, in combination with a signal apparatus, transmitter, and receiver connected with said arms and with the line wires or circuit, substantially as described.

4. In a telephone-switch, a tubular rock-shaft, to which the receiver or ear-piece is permanently attached, provided with spurs or cams, in combination with spring-arms acted upon by said spurs or cams and a signaling apparatus, transmitter, and receiver connected with said arms and with the line-wire, substantially as and for the purpose described.

5. In a telephone-switch, the combination of the rock-shaft, to which the receiver or ear-piece is permanently attached, and which is provided with cams or spurs, the spring arms or bars operating in connection therewith, and a signaling apparatus, receiver, transmitter, and battery connected with said arms, substantially as described, whereby a closed circuit is formed for the transmitter to work in when thrown into action, said parts being arranged and operating substantially as described.

In testimony whereof we have hereunto set our hands this 30th day of March, A. D. 1882.

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Witnesses:

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