

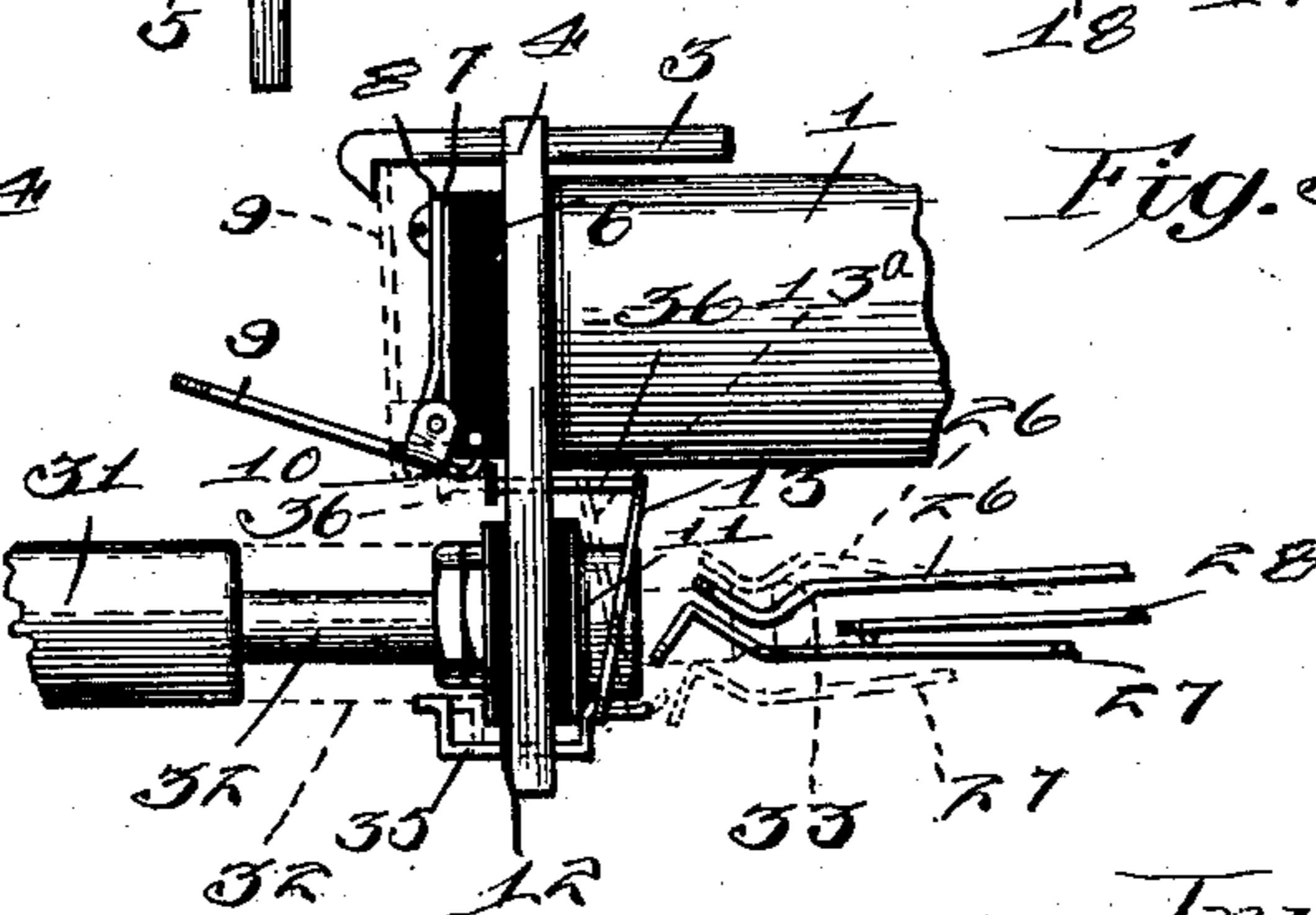
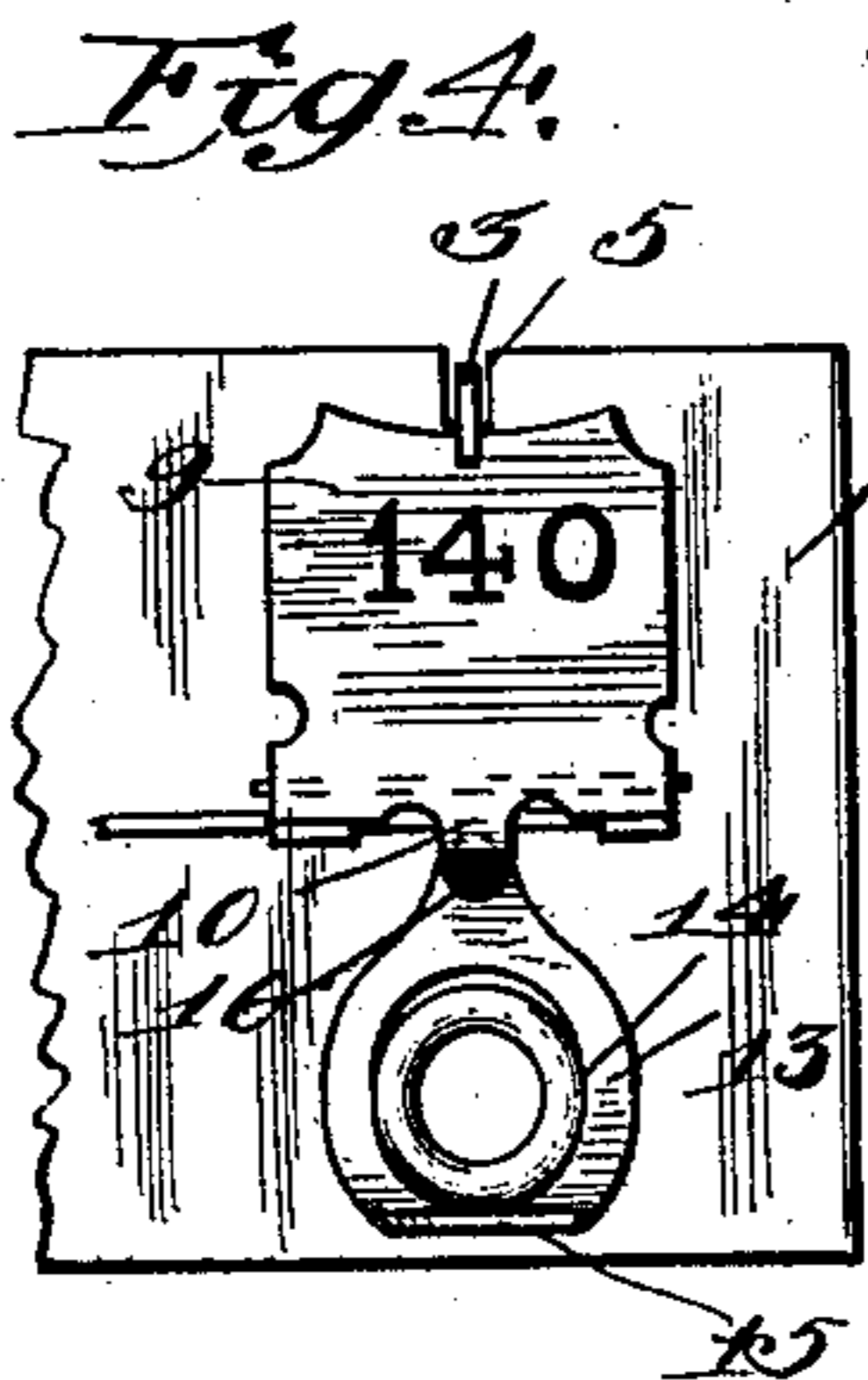
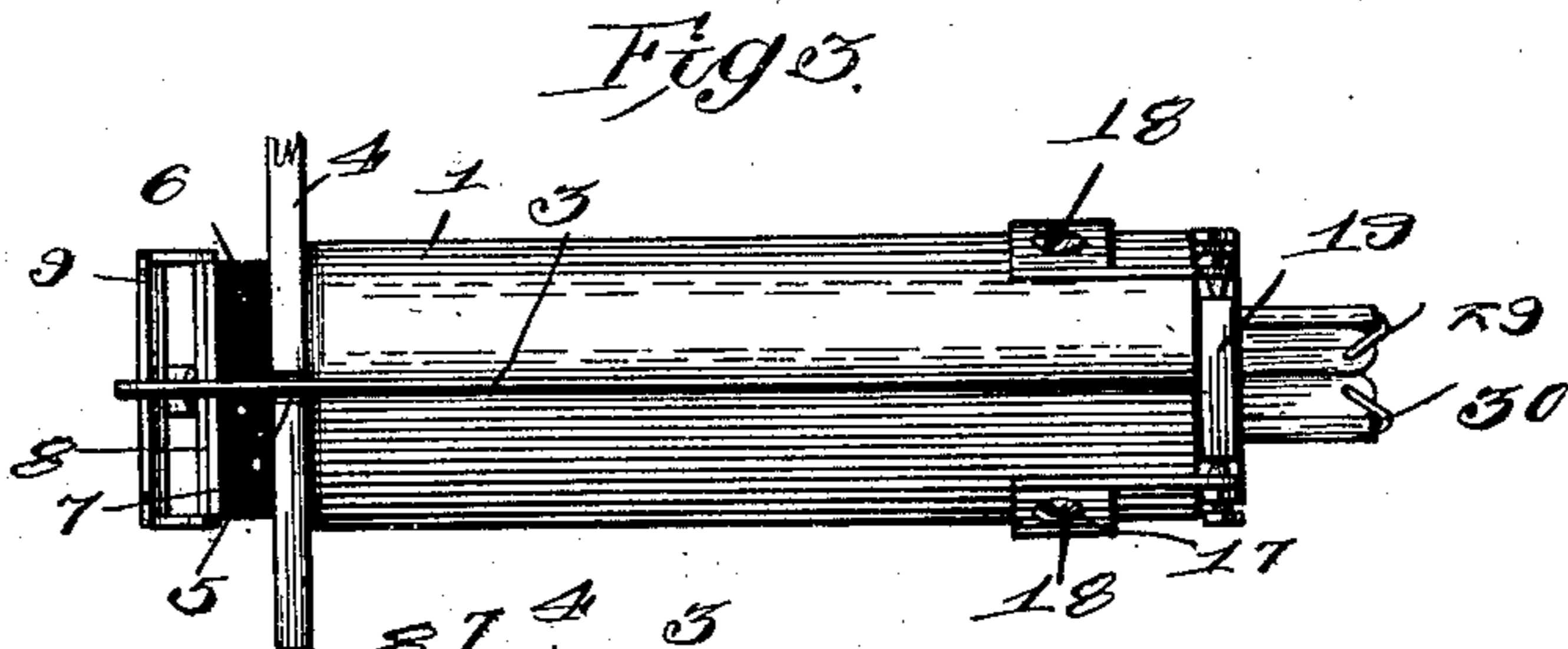
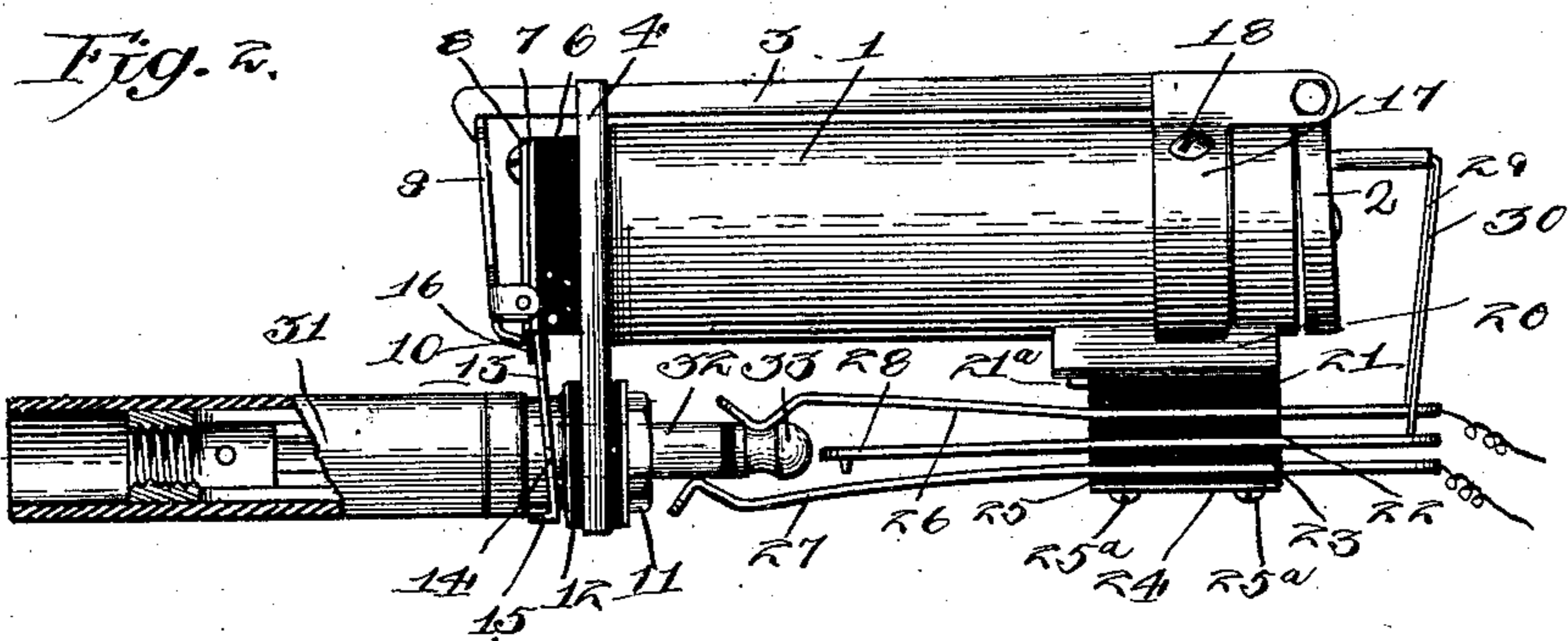
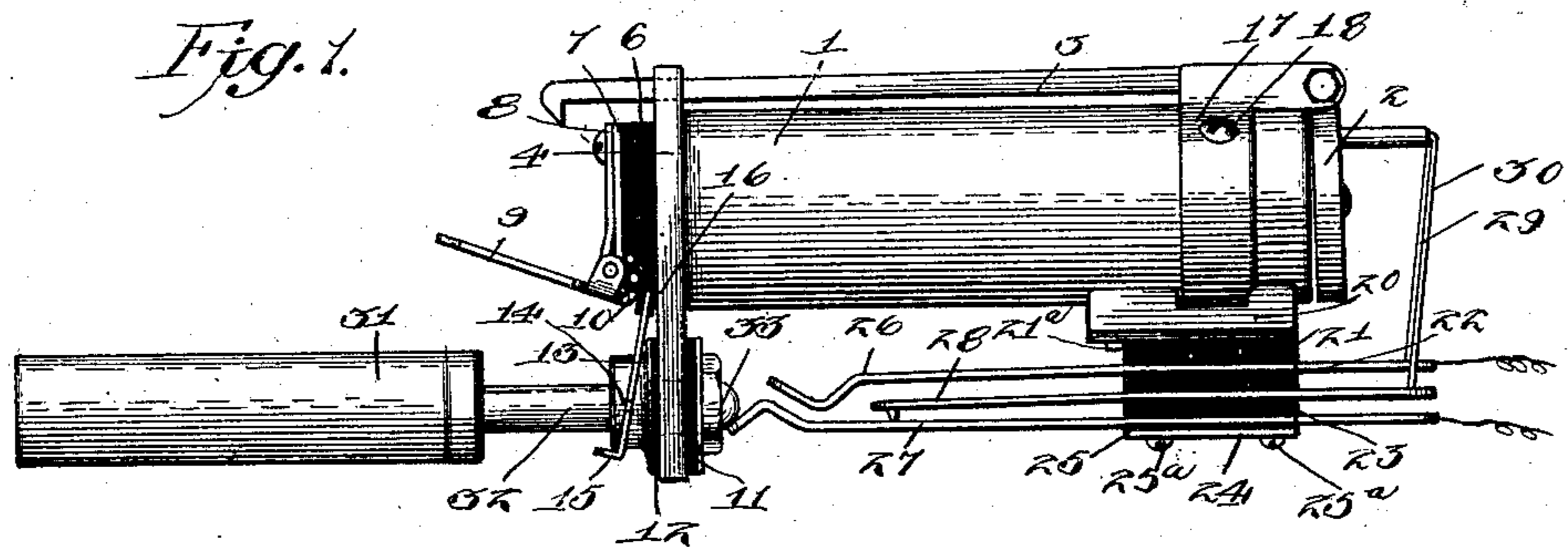
No. 842,409.

PATENTED JAN. 29, 1907.

M. V. MEHREN.

COMBINED ANNUNCIATOR AND JACK FOR TELEPHONE SWITCHBOARDS.

APPLICATION FILED JUNE 2, 1904.



Witnesses:
G. T. Donarum.
Harold W. Wood.

Inventor:
Martin V. Mehren.
 by: *A. Miller Peasefield*
 atty.

UNITED STATES PATENT OFFICE.

MARTIN V. MEHREN, OF GENOA, ILLINOIS, ASSIGNOR TO EUREKA ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINED ANNUNCIATOR AND JACK FOR TELEPHONE-SWITCHBOARDS.

No. 842,409.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed June 2, 1904. Serial No. 210,844.

To all whom it may concern:

Be it known that I, MARTIN V. MEHREN, a citizen of the United States, residing at Genoa, in the county of Dekalb and State of Illinois, have invented a certain new and useful Improvement in a Combined Annunciator and Jack for Telephone-Switchboards, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a combined annunciator and drop for telephone-switchboards of the class or variety in which the drop is automatically restored by the insertion of the plug into the jack.

Prominent objects of my invention are to provide a simple, practical, and inexpensive form of combined annunciator and jack, to arrange for the effective and automatic restoration of the drop upon the insertion of the plug, to make such action speedy and reliable, to simplify the apparatus and at the same time make it durable, to allow the drop to be operated by hand instead of automatically by the plug, if desired, to dissociate the jack entirely from the self-restoring operation and permit such operation to be accomplished entirely by the plug and cooperating instrumentalities, and to accomplish the above and other desirable results in a simple and practical manner.

In the combined annunciator and jack which I show herein for carrying out my invention I conveniently arrange the jack below the annunciator and hang the jack-socket below the front end of the annunciator and the line-springs below the rear end of the annunciator. A latch device is provided, by which the drop is normally maintained in an upright position, but is released upon the energization of the annunciator. An instrumentality conveniently in the form of a lever is provided and arranged to act upon the lower end of the drop to throw the same upwardly when the lever is swung, which is done by the insertion of the plug into the jack-socket, the end of the lever being desirably arranged to be struck by the shank or enlargement forming the handle of the plug. The drop-restoring lever which is thus interposed between the drop and the plug is conveniently in the form of a ring or collar inclosing the jack-socket and pivoted thereto.

In the accompanying drawings, Figure 1 is a side elevation of a combined drop and annunciator embodying my invention, showing the plug in process of being inserted. Fig. 2 is a similar view with the plug inserted. Fig. 3 is a top plan view of the device. Fig. 4 is a front view thereof, and Fig. 5 is a side view of the front portion of a modified form of device.

The combined drop and annunciator shown in the drawings for carrying out my invention comprises an annunciator 1, which may be of any usual form or construction. An armature 2 is hung at the rear end of the annunciator and is provided with a rigidly-attached latch 3, which extends along the top of the annunciator and projects beyond the front end thereof. A metal plate 4 is secured to the front end of the annunciator 1 and is provided with a slot 5, Fig. 3, through which the latch 3 passes. The block 6 of insulation is secured in front of the plate 4, and a pair of metal plates 7 and 8 are secured in front of the insulation 6, the outer plate 8 being constructed at its lower end to form bearings for the spindle of a drop 9, which latter is made with a rearwardly-bent lower end 10. A jack-socket 11 is secured in the plate 4 below the annunciator 1 by means of an insulating-bushing 12, by which said jack-socket is insulated from the plate 4. A ring lever 13 embraces the outer projecting end of the socket 11 and is pivoted on the opposite sides thereof, as at 14 14. The lower end of the lever 13 is provided with an outwardly or forwardly bent portion or end 15, and the upper end of said lever is provided with pads 16 16 of insulation. A hanger 17 is secured to the rear of the annunciator 1, and it is in the form of a strap surrounding the lower part of the annunciator and open at its top. It is secured to the annunciator by means of screws 18 18. The spindle 19 of the latch 3 is supported between the upper ends of the hanger 17, whereby the hanger serves as a support for said armature 2 and latch 3. The hanger 17 is desirably made of non-magnetic material, such as brass. Line-springs 26 and 27 and an annunciator-strip 28 are mounted below the annunciator 1, and between and above and below them are insulating-strips 21, 22, 23, 24, and 25. These are secured to a brass block 20 by screws 25^a 25^a, and the block 20 is secured to the annun-

ciator 1 by screws 21^a. The springs 26 27 and strip 28 are arranged in the rear of the socket 11, with the upper line-spring 26 above and the lower line-spring 27 below the center of said socket. The annunciator-strip 28 is normally in contact with the lower line-spring 27. A connecting-wire 29 connects the line-spring 26 with the annunciator, and another conductor 30 connects the annunciator-strip 28 with the other end of the annunciator-winding.

The plug 31 is constructed with a shank 32 and an insulated tip 33, which are adapted for connection with opposite sides of the cord-circuit in the usual way, the plug being tubular in construction, as shown in Fig. 2, to permit the terminal of a cord-circuit to be inserted and secured into it.

The device as thus constructed operates as follows: When the subscriber rings up and energizes the annunciator 1, the armature is attracted, thereby swinging the latch 3 and causing its front end to lift and release the drop 9, whereupon the latter falls to the position shown in Fig. 1. The operator then by plugging in causes the shank of the plug to strike the lower end of the lever 13, whereupon said lever is swung so that its upper end acts outwardly against the lower end of the drop 9, and thereby automatically restores said drop to its normal or elevated position. The insertion of the plug also causes the end thereof to be thrust in between the line-springs 26 and 27, so that the tip of the plug 33 makes connection with the line-spring 26, and the part 32 makes connection with the spring 27, whereupon connection is established between the subscriber's circuit and the cord-circuit of the plug. When the line-springs are thus separated, the lower one, 27, is disconnected from the strip 28, so that the connection between the annunciator and one side of the circuit is broken, thereby cutting out the annunciator. It will be seen that in this way the drop is automatically restored by an intermediate device conveniently in the form of a lever, upon which device the plug acts when it is inserted. This arrangement is in contradistinction to the arrangement whereby the plug or part of it is brought into direct contact with the drop or a part thereof. The arrangement herein, it will be seen, is simple and practical and allows the drop and jack to be associated together closely enough to economize space and at the same time not so close as to make the arrangement impractical or cramped. It will be seen also that in the arrangement shown the intermediate drop-restoring device is acted upon by the collar or shank of the plug and not by the tip of the plug, although of course the arrangement could be made so as to operate differently. The drop-restoring device can be removed, if desired, or the combined annunciator and jack can be built

without it, so as to permit the drops to be restored by hand if preferred.

In the arrangement shown in Fig. 5 the drop-restoring device 13^a is arranged in the rear of the front plate 4 instead of in the front thereof, as in the preceding figures. Slide-rods 35 and 36 are extended through said plate, so that their ends project in front thereof. The lever 35 is below the jack 11 and is arranged to be struck by the shank of the plug, and the lever 36 is above the jack-socket and is arranged to act upon the lower end of the drop or shutter 9. Thus a similar form of drop-restoring device is employed, but intermediate members are used between it and the plug and drop.

In the present application I propose to claim the drop mechanism and the means for automatically restoring the same herein set forth; but I propose to claim the jack mounting and arrangement in a separate application executed of even date herewith.

It will be understood that changes and modifications can be made from the construction herein set forth without departing from the spirit of my invention.

What I claim is—

1. The combination with an annunciator and drop therefor, of a restoring-lever hung below the drop and pivoted between its ends and arranged to be actuated by the plug on insertion and to act upon the drop to restore the same.
2. The combination with an annunciator, of a drop pivoted between its ends, and a pivoted lever hung below the drop and arranged to be actuated by the plug on insertion and to act upon the drop below its point of pivotal support to restore the same.
3. The combination with an annunciator, of a drop pivoted above its lower end, and a lever hung below the drop and pivoted between its ends and arranged to be actuated by the plug on insertion, and to act upon the drop below its point of pivotal support.
4. The combination with an annunciator, of a drop pivoted above its lower end, and a lever hung below the drop and pivoted between its ends and arranged to have its lower end actuated by the plug on insertion and to have its upper end act upon the drop below its point of pivotal support.
5. The combination with an annunciator, of a drop pivoted above its lower end, a restoring-lever pivoted between its ends and having its upper end located in the rear of the lower end of the drop and its lower end bent forwardly so as to be actuated by the handle of the plug on insertion.
6. In a combined jack and annunciator, the combination with the annunciator and drop, of a vertically-disposed lever arranged in front of the annunciator and below the drop and pivoted at one side of the jack-socket, whereby it will be struck by the plug

handle to restore the drop, substantially as described.

7. In a combined jack and annunciator, the combination with a drop pivoted between its ends and near its lower end, of a lever made in the form of a ring adapted to encircle the jack and pivoted between its ends so as to be actuated by the insertion of the plug to actuate the drop, substantially as described.

8. In a combined jack and annunciator, the combination with the drop, of a lever made in the form of a ring, and adapted to

encircle the jack-socket, said lever being pivoted between its ends and arranged with its lower end projecting forwardly so as to be struck by the plug on insertion, and with its upper end in the rear of the lower end of the drop, substantially as described.

In witness whereof I hereunto subscribe my name this 5th day of May, A. D. 1904.

MARTIN V. MEHREN.

Witnesses:

HOWARD W. FOOTE,
WM. M. ADAMS.