No. 661,465. Patented Nov. 6, 1900.

N. BASSETT.

ELECTRICAL SWITCH.

(Application filed Feb. 8, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 2.

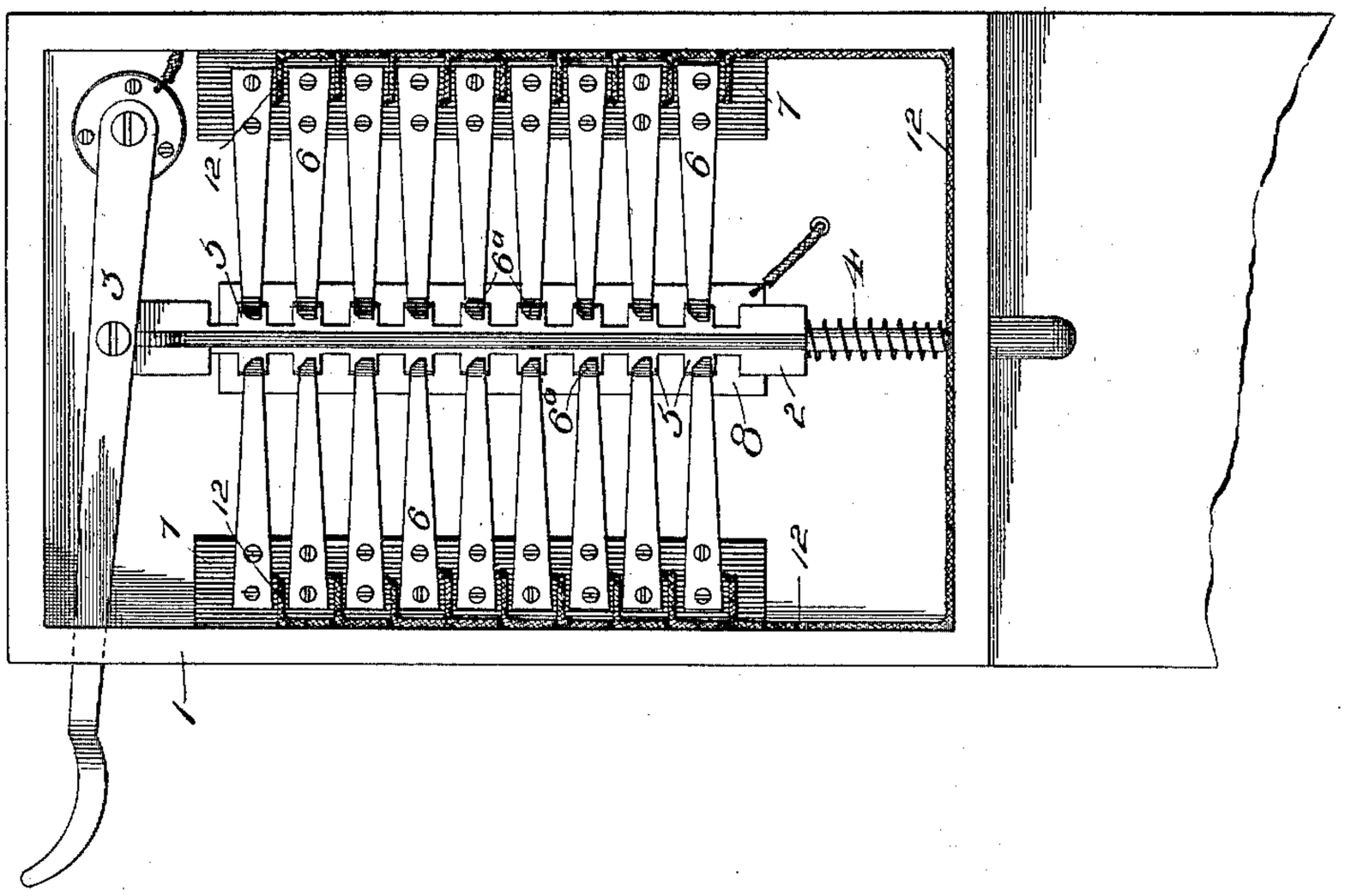

Fig. 1.

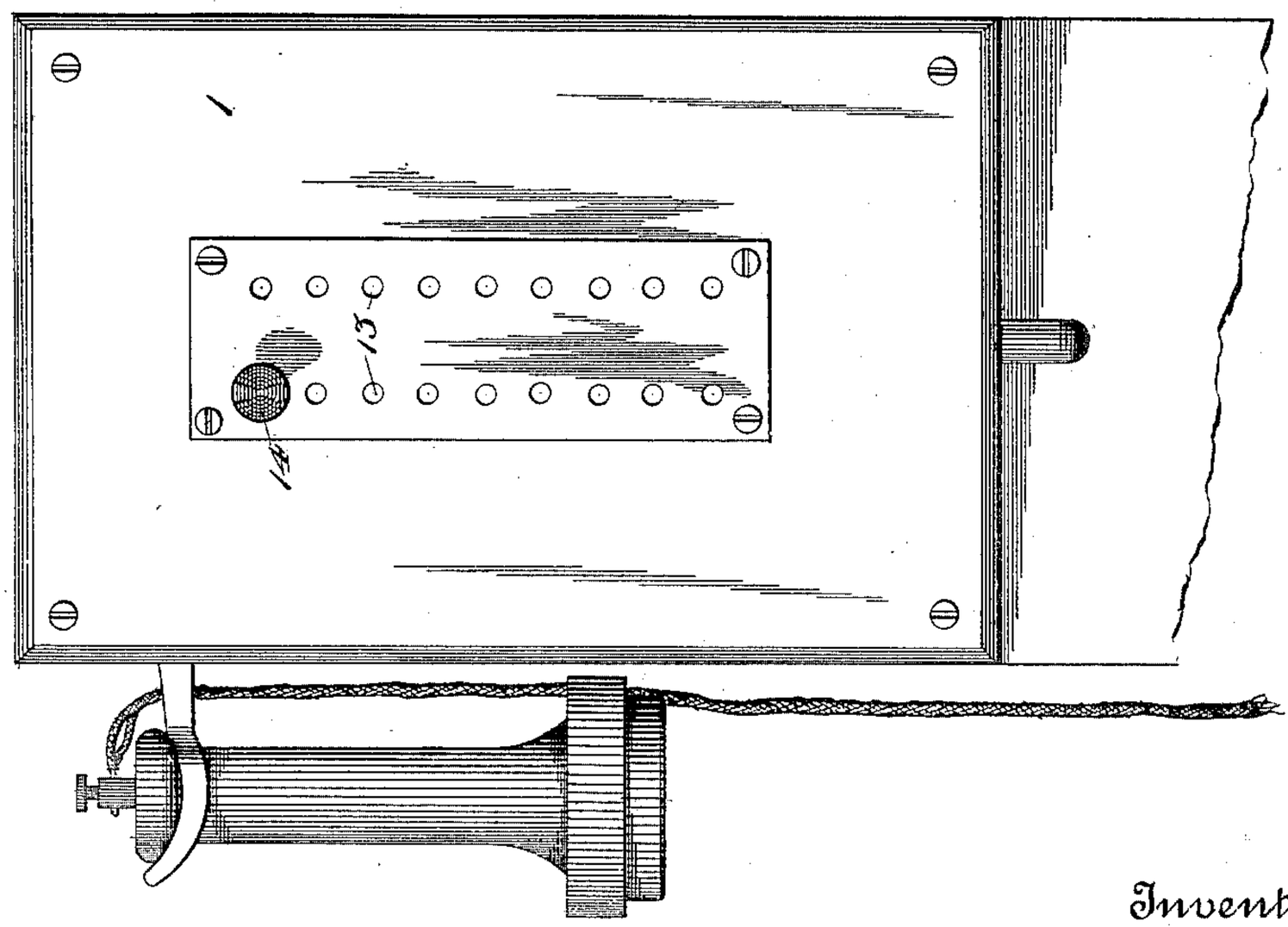

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Fig. 3.

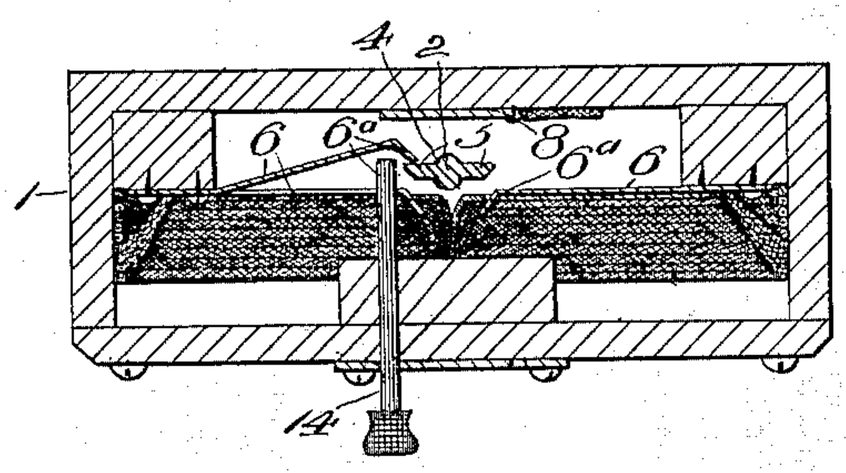

Fig. 4

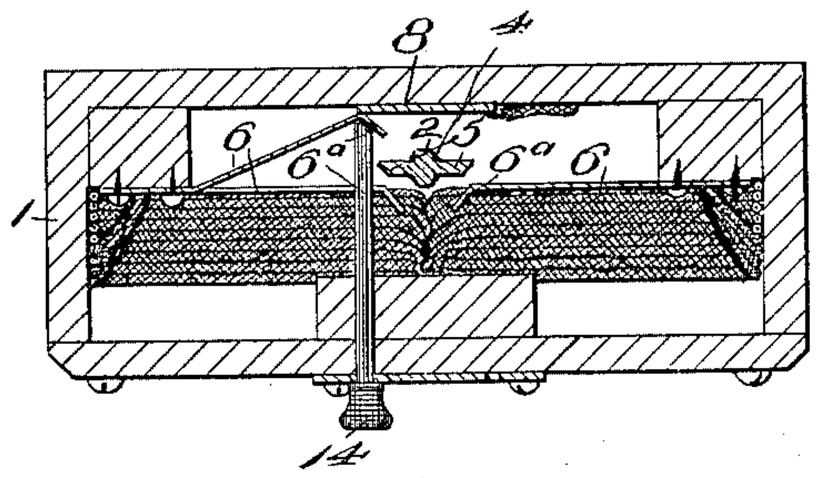

Fig. 5.

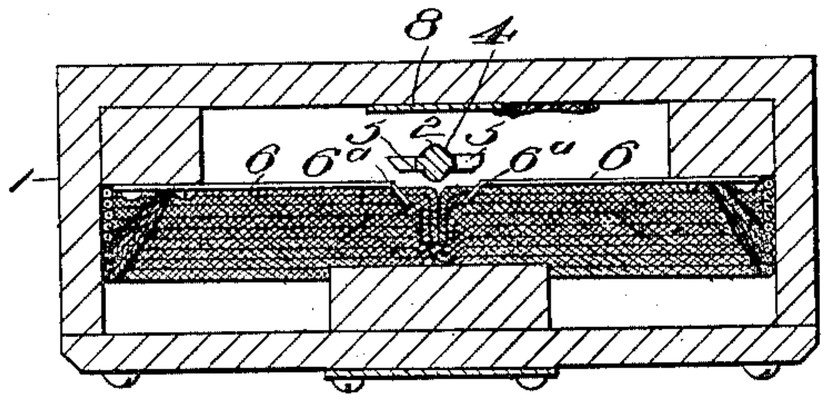

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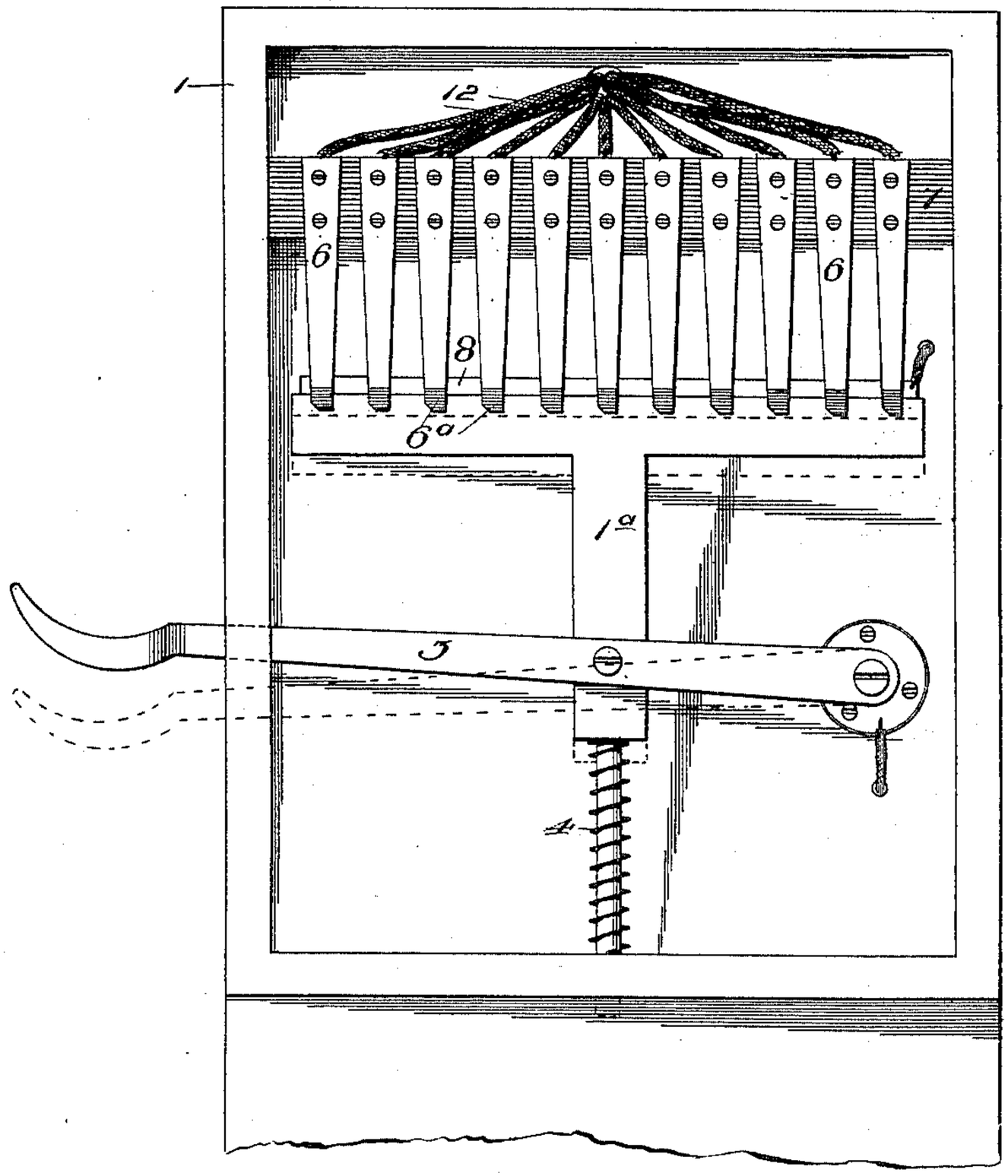
Fig. 6.



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UNITED STATES PATENT OFFICE.

NATHAN BASSETT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE GLOBE TELEPHONE MANUFACTURING COMPANY, OF SAME PLACE.

ELECTRICAL SWITCH.

SPECIFICATION forming part of Letters Patent No. 661,465, dated November 6, 1900.

Application filed February 8, 1900. Serial No. 4,517. (No model.)

To all whom it may concern:

Be it known that I, NATHAN BASSETT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in electrical switches more especially designed for telephones.

It has for its object, among other things, principally to provide against the accidental or unintentional leaving open of the circuit by failure of the user to replace or return the switch-lever to the initial contact as practiced in some forms of this class of apparatus, as often happens, or even where a spring is used to restore the switch-lever to its initial position this objection is not wholly overcome, since the spring is subject to relaxation, consequently measurably loses its tension, and the switch-lever is liable to become clogged or "stuck" in the sweep of its movement when released by the hand after use.

In addition to remedying the above-pointed-out difficulties my invention is also positive and direct in its action and is not involved in the arrangement of the many or numerous circuit or contact wires employed in devices of this kind.

It is also adapted for throwing or bringing into circuit a number or plurality of wire-contacts for use simultaneously to provide for speaking to a number of persons at one using of the telephone.

It also provides for readily bringing into requisition the bell-circuit and to use the telephone-circuit contacts in connection with the bell-circuit.

It also provides for utilizing to the maximum the capacity of the circuit maker and breaker, whereby a multiplicity of circuit-contacts is arranged within a proportionately or comparatively small space or compass.

It also insures quick responsive action between the contacts of the various circuit-wires in closing the circuits and provides for the ready throwing out of circuit said contacts after using the telephone.

It is also adapted to prevent the establishing or closing of the telephone-circuit by the manipulation of the initial or push-pin contact after the using of the telephone or while the receiver is hung or suspended upon the telephone; also, to equally provide for the ready throwing into circuit any one or more telephone-circuit-wire contacts, as well as bell-circuit-wire contacts, by the use of a common circuit-closer; also, to effect the moving of the circuit-closer automatically into position.

It consists of mechanism or parts which will be first described hereinafter and pointed out by the claims.

In the accompanying drawings, Figure 1 is a view of the base of an ordinary telephone, upon which is incased my invention or switch adapted to have connection with or control the inclosed mechanism or circuit-wires, &c., of said telephone. Fig. 2 is a side elevation of my electrical telephone-switch with the cover of the inclosing case removed to more fully disclose the same. Fig. 3 is a cross-section thereof. Fig. 4 is a similar view showing the same as adjusted for the bell-circuit. Fig. 5 is a like view disclosing the position of the parts when the receiver is hung upon the circuit closer or maker and breaker. Fig. 6 is a view showing a modification of my invention.

It will be understood that I do not limit myself to details, as they may be changed without departing from the spirit of my invention and the same yet remain intact and be protected.

In carrying out my invention I arrange in a suitable casing or closure 1, fastened upon the base of and opening into the telephone, the principal features of my switch.

The slide or bar 2, constituting the circuit closer or maker and breaker, is suitably hung or pivoted to an end forked or furcated lever 3, with one end suitably pivoted, preferably as shown. The other or forked end of said lever projects beyond the casing 1, being adapted to permit of the suspending thereon of the telephone-receiver when not in use. The slide or bar 2 is held in its normal position by a spring 4, preferably applied thereto

so as to restore or return it to its initial position after depression and release. Said slide or bar has arranged, preferably upon each side, a series or multiplicity of short lateral projections or lugs 5, disposed at short intervals apart.

A series or multiplicity of spring-metal strips or contacts 6, each series having its preferably-wider ends suitably secured upon a non-conducting strip or support 7, fastened to the casing 1, have their free ends arranged coincidently with the lugs or projections 5 of the slide or bar 2.

A metal plate 8 is suitably secured to the bottom of the case 1 and arranged contiguously to the free ends of the contact-springs 6, and to this plate is connected a wire leading to the bell at the distant end of the line or other telephone. Circuit-wires 12 connect each of the spring-contacts 6 with the telephone-circuit wires, as shown, in turn leading to the other telephones.

Suitable holes or apertures 13 are provided in the cover of the casing 1 for the passage or insertion of the initial or push-pin contact 14 in effecting engagement between the spring-contacts 6 and the circuit-closer 2.

It will be observed that when the instrument is not being used—*i. e.*, when the telephone-receiver is hung upon the lever 3, weighting the outer end of the lever—the slide or bar 2 will be depressed as against the resistance or action of its spring. This brings the notches or spaces between the contact-lugs 5 in alinement with or opposite the spring-contacts 6, removing the last named from opposite said contact-lugs, thus cutting and holding the same wholly out of possible engagement or contact with said spring-contacts when the apparatus or telephone is not in use.

In operating or using the telephone the push-pin 14, simultaneously with the taking of the receiver from the telephone-box in the hand, is inserted into any one or more of the holes 13 in the case 1, according as to whether the user desires to "call up" one or a number of persons, and said pin pressed therein, so as to engage the coincident or opposite spring contact or contacts 6. The contact-spring as it is continued to be pressed will, having its free end bent or deflected upward, as shown at 6^a, readily pass the opposite beveled-edge contact-lug 5 of the circuit-closer bar 2 and spring thereunder and effect the ringing of the bell. The spring-contact will be held in engagement with said plate 8 by pressure upon the pin 14 as long as it is desired to keep up the ringing of the bell. The upward bent or deflected end portions 6^a of the spring-contacts 6 will upon removal of pressure from said pin 14 spring into contact with the under sides of the contact-lugs 5, thus establishing the telephone-circuit. From this it will be seen that any number of circuits can be established from one upward according to the calls it may be desired to make, all with a common circuit-closer. This enables the user of the telephone to hold conversation with any number of persons at one using of the telephone, thus avoiding the shifting of a switch-lever each time it is desired to call up a person, as usually practiced.

It will have been noted that all the points of advantages as claimed or set up in the outset in behalf of my invention have been fully borne out by the aforesaid construction and arrangement of the parts. Notably among these is the positive and direct action of the circuit making and breaking devices; also, the fact that the switch-lever is always in its initial position when the instrument is out of use, it being thus retained by the telephone-receiver, which the user is compelled to hang thereon as the only way of properly disposing of it; also, the fact that the circuit-closer is automatically moved into position when the telephone-receiver is removed from the telephone or taken in the hand for use.

Referring to Fig. 6, disclosing a modification of my invention, I may employ in lieu of the bar 2, having a plurality of lugs or projections 5, a preferably T-shaped or angular bar or slide 1^a, with its stem or vertical portion suitably mounted or supported upon a spring, as in the aforesaid-described embodiment of the invention. The switch-lever is connected to the stem or vertical portion of said angular bar or slide 1^a and is adapted, as in the above-described arrangement of the parts, to permit of the suspending or hanging of the telephone-receiver thereon. The upper end or head of said angular or T-shaped bar or slide is adapted to permit of the free ends of the spring-contacts resting normally in a plane at one side of said bar or slide, but out of contact with it. It is therefore apparent that by suitably manipulating the spring-contacts by actuating the push-pin, as above disclosed, any one or more of said contacts may be moved, at the free end thereof, past the upper end or head of said bar or slide, and upon the release of said push-pin said free end permitted to contact with the inner or under side of said head or end of the slide; also, it will be seen that as the telephone-receiver is hung upon the switch-lever the slide or bar will be depressed or moved away from and permit the simultaneous disengagement of the spring-contacts from said slide or bar, thus similarly effecting the throwing out of circuit all of said spring-contacts. It is also obvious that the circuit-contacts may be increased or multiplied, as required, by making like additions answering to the head or cross bar of the angular or T bar or slide to an extension of the stem of said slide.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An electrical switch of the character described, having a sliding or movable circuit-closer arranged in a circuit and provided with a series of contact-lugs, means for actuating

or moving said circuit-closer and adapted to be weighted at one end, a spring-contact, normally movable in line with said contact-lugs and connected up in circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said lugs upon its return or recoil movement, and means to engage said spring-contact with said contact-lugs, substantially as set forth.

2. An electrical switch of the character described, having a sliding or movable circuit-closer arranged in a circuit and provided with a series of contact-lugs, a lever for actuating or moving said circuit-closer and adapted to be weighted at one end, a spring-contact, normally movable in line with said contact-lugs and connected up in circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said lugs upon its return or recoil movement, and means to engage said spring-contact with said contact-lugs, substantially as set forth.

3. An electrical switch of the character described, having a sliding or movable circuit-closer provided with a series of contact-lugs, a lever for actuating or moving said circuit-closer, a spring-contact connected up in circuit with said circuit-closer and normally movable in a line with said contact-lugs, a contact-plate arranged in the bell-circuit, and means for engaging said spring-contact with said contact-plate, substantially as set forth.

4. An electrical switch of the character described, having a sliding or movable circuit-closer provided with a series of spaced-apart contact-lugs, a contact-plate arranged in the bell-circuit, a lever connected to said circuit-closer and arranged in the telephone-circuit and adapted to be weighted at one end, a spring-contact normally movable in line with said contact-lugs and arranged in the same circuit with said lever and adapted to spring or snap past said contact-lugs and operatively engage said contact-lugs upon its recoil or return movement, and means for engaging said spring-contact with said contact-plate and said contact-lugs of the circuit-closer, substantially as specified.

5. An electrical switch of the character described, having a sliding circuit-closer, provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, means for depressing said circuit-closer, a spring-contact arranged in the same circuit with said circuit-closer and adapted to spring or snap past said contact-lugs and operatively engage said contact-lugs upon its return or recoil movement, means to engage said spring-contact with said contact-lugs, and means for automatically returning said circuit-closer to its normal position, substantially as set forth.

6. An electrical switch of the character described, having a slidable or movable circuit-closer provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, a series of spring-contacts arranged in the same circuit with said circuit-closer, and having their free ends opposed to said contact-lugs, means for actuating said circuit-closer, means for engaging said spring-contacts with said contact-lugs, substantially as set forth.

7. An electrical switch of the character described, having a circuit-closer comprising a slide or bar provided with a series of spaced-apart contact-lugs and arranged in the telephone-circuit, means for actuating said slide or bar, a series of spring-contacts having their free ends opposed to said contact-lugs and arranged in the same circuit with said circuit-closer, and means for engaging said spring-contacts with said contact-lugs, substantially as specified.

8. An electrical switch of the character described, having a circuit-closer comprising a slide or bar provided with a series of spaced-apart contact-lugs and a lever connected to said slide or bar and arranged in the telephone-circuit, with one end adapted to be weighted, to move or actuate said slide or bar, a series of spring-contacts arranged in the circuit referred to and having their free ends opposed to said contact-lugs, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

9. An electrical switch of the character described, having a circuit-closer comprising a spring-upheld slide or bar, provided with a series of spaced-apart contact-lugs, a lever arranged in the telephone-circuit and connected to said slide or bar, with one end adapted to have suspended therefrom a weight, a series of spring-contacts with their free ends opposed to said contact-lugs and arranged in the circuit above referred to, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

10. An electrical switch of the character described, having a circuit-closer arranged in the telephone-circuit and comprising a slide or bar provided with a series of spaced-apart contact-lugs, a spring the action of which is to retain said slide or bar in its normal or elevated position, means to depress or actuate said bar or slide comprising a furcated lever connected to the latter, a series of spring-contacts arranged in the circuit above referred to, and having their free ends opposed to said contact-lugs, and means to engage said spring-contacts with said contact-lugs, substantially as set forth.

11. An electrical switch of the character described, having a slide or movable circuit-closer arranged in a circuit, a spring-contact normally movable in line with said circuit-closer, means adapted to effect such movement of said spring-contact, and means to provide for the disengagement of said spring-contact from said circuit-closer, substantially as set forth.

12. An electrical switch of the character described, comprising a circuit-closer arranged in the telephone-circuit and having a series of spaced-apart contact-lugs, a series of spring-contacts arranged in the same circuit with said circuit-closer and opposed to said contact-lugs, means for actuating said circuit-closer, and a push-pin adapted to engage said spring-contacts with said contact-lugs, substantially as specified.

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

NATHAN BASSETT.

Witnesses:
MILTON WOLF,
WM. H. SHRYOCK.