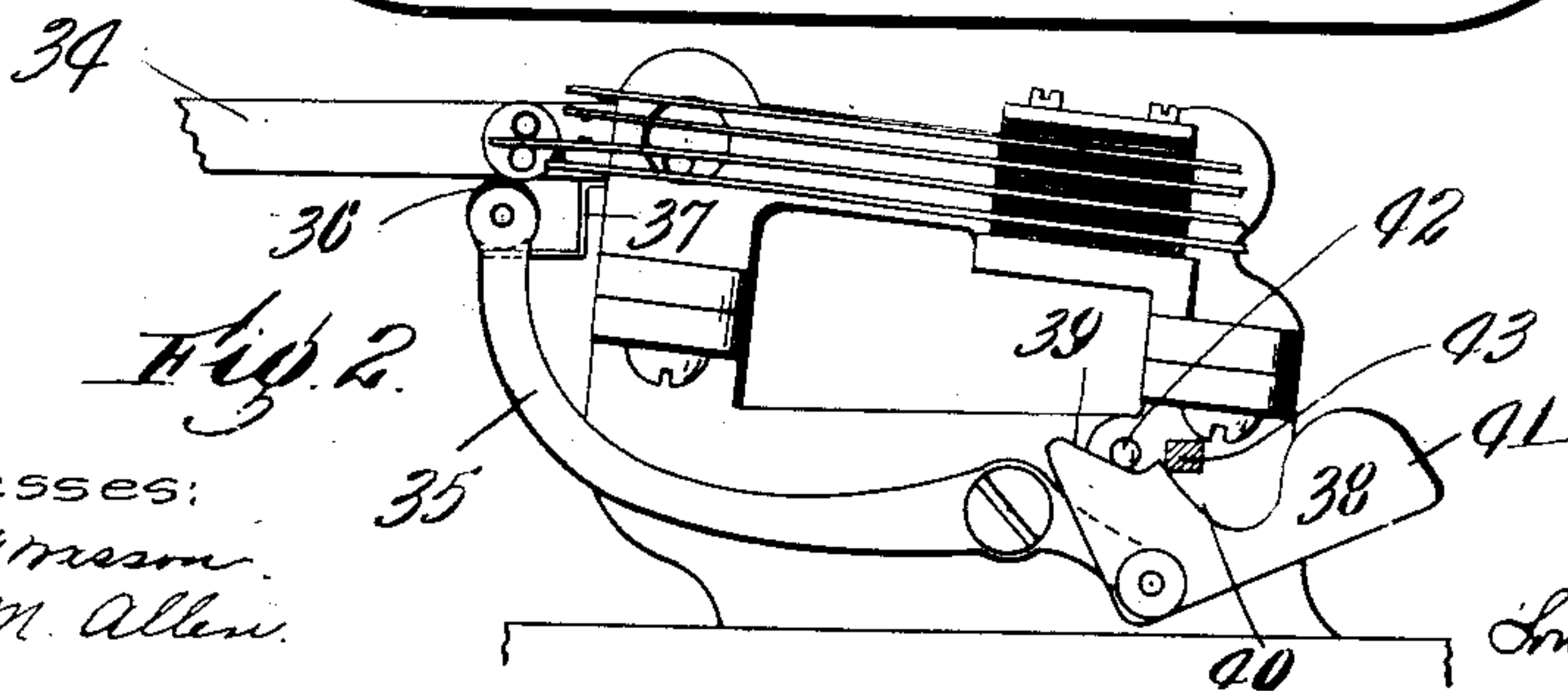
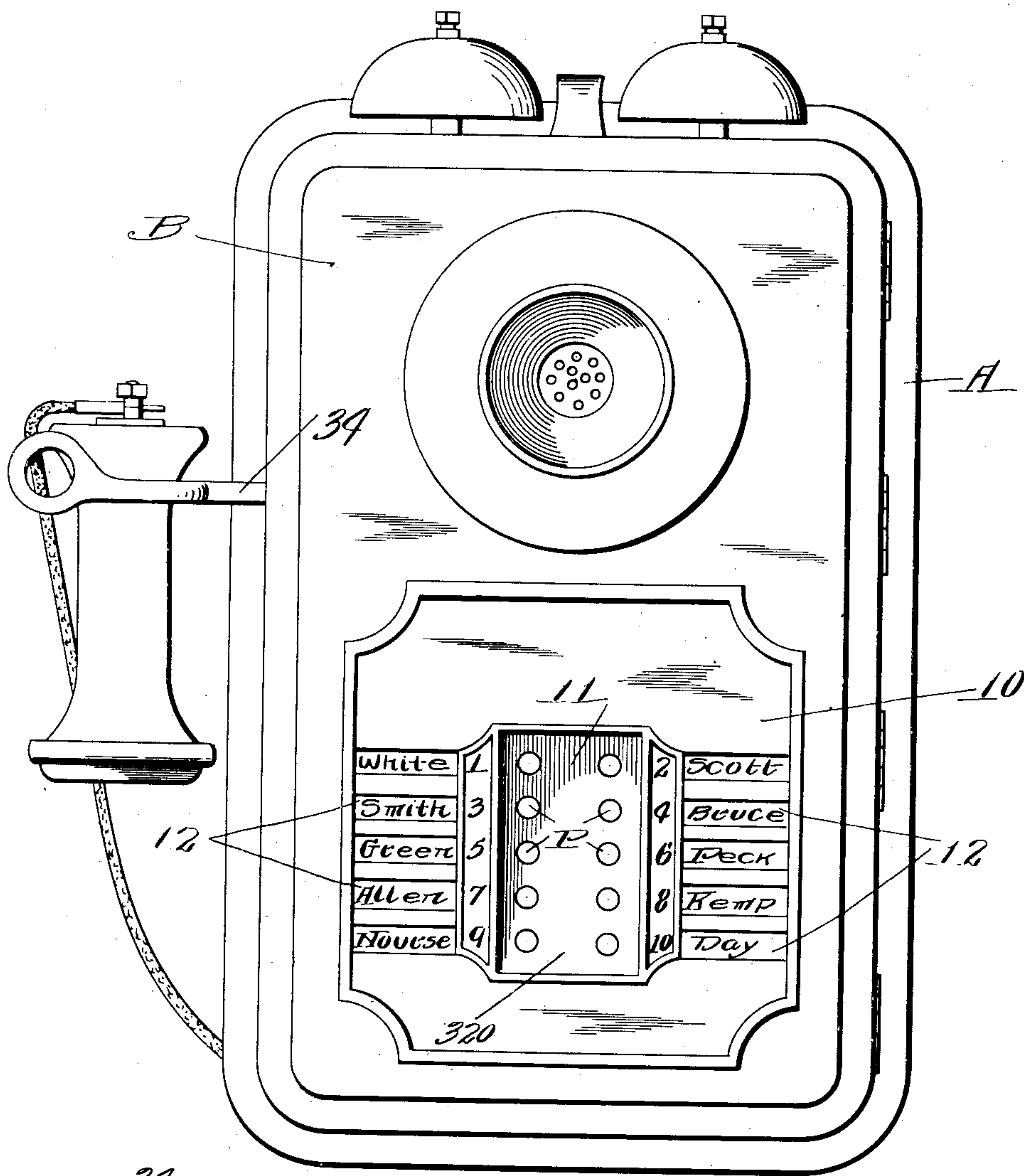


S. H. COUCH.
AUTOMATIC RESETTING SWITCH.

APPLICATION FILED OCT. 2, 1905.

2 SHEETS—SHEET 1.

Fig. 1



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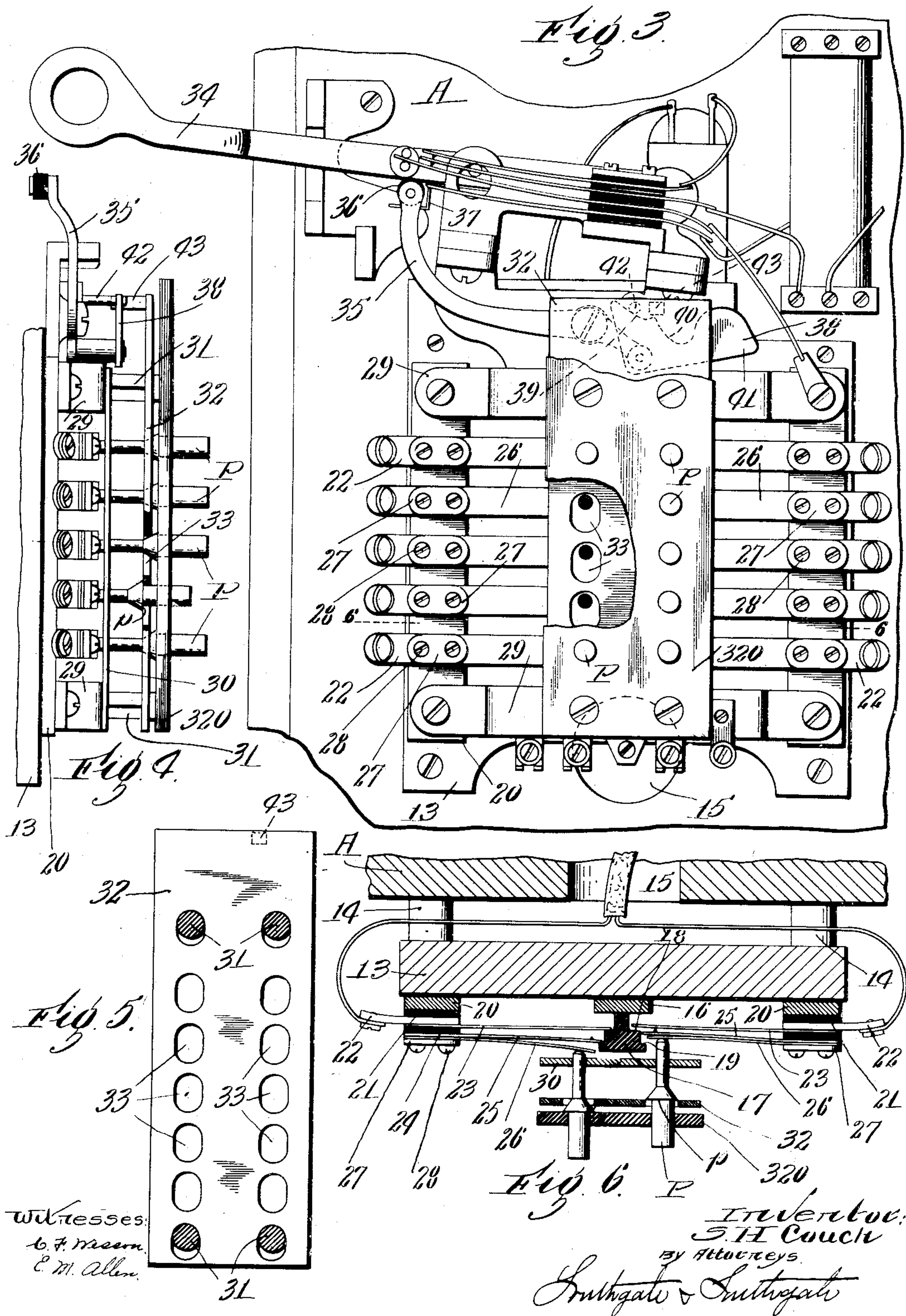
No. 830,770.

PATENTED SEPT. 11, 1906.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

SAMUEL H. COUCH, OF BOSTON, MASSACHUSETTS.

AUTOMATIC RESETTING-SWITCH.

No. 830,770.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed October 2, 1905. Serial No. 280,919.

To all whom it may concern:

Be it known that I, SAMUEL H. COUCH, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Automatic Resetting-Switch, of which the following is a specification.

The object of this invention is to improve that type of telephone apparatus wherein different buttons or plungers are employed in calling and connecting, which buttons are automatically restored to inoperative position or reset by replacing the receiver on its hook.

The principal aims in view are to improve and simplify this form of apparatus and to arrange the same so that it will work under all conditions.

The improvements will be best understood by a detailed description.

In the accompanying two sheets of drawings is shown the best form of apparatus now known to me for practicing the invention.

Referring to said drawings and in detail, Figure 1 is a front elevation of the apparatus. Fig. 2 is a sectional view illustrating the setting apparatus in the position assumed when the receiver is on the hook. Fig. 3 is a sectional view inside the box, showing the position assumed by the parts when the receiver is taken off the hook. Fig. 4 is a side elevation of part of the mechanism illustrated in Fig. 3. Fig. 5 is a front elevation of the setting-plate, and Fig. 6 is a cross-sectional view taken on the line 6 6 of Fig. 3.

Referring to the drawings and in detail, A designates the usual flat base-board, hinged to which is a box B.

The box B has secured to the front of the same a directory-plate 10, which is preferably made out of metal. This plate has a recess 11, through which the buttons or plungers project. The plate is also provided with a series of slots 12, so that a card or cards can be inserted under the plate and the names of the various subscribers or parties connected to the circuit designated opposite numbers which are cast on the plate to register with the plungers.

The transmitter and the bell are arranged on the box in the usual way and the receiver is hung on the usual hook 34, which projects through the side of the box.

Secured to the base-board or back A is a switchboard or foundation 13. This switchboard or foundation is set at some con-

siderable distance out from the plate or back A by means of posts 14.

A hole 15 is cut in the back A, so that the cable which contains the various wires can be brought into the box, and as the switchboard 13 is set out from the back A a convenient arrangement is provided for the disposition of the wires in back of the board 13.

Secured centrally to the switchboard is a rib 16, which carries a stop-plate 17, which is made out of insulating material. This stop-plate is made in peculiar cross-section, as shown in Fig. 6, so as to have two ribs 18 and 19 on each side, which form stops for the springs hereinafter described.

Secured near the edges of the switchboard 13 are plates 20 20, which carry the contact-springs. Each set of these contact-springs is made up as follows: A strip of insulation 21 is first placed on one of the plates. Then a contact-piece 22 for the line-wire is placed thereon. Then a spring 23 is placed on the contact-piece. Then a piece of insulation 24 is placed on the spring 23. Then a spring 25 is placed on the insulation 24. Then another spring 26 is placed on the spring 25, and the parts 21 to 26, inclusive, are held in place by a washer 27 and screws 28. The spring 23 is extended inwardly in position to engage the inner rib 18 of the stop-plate 17, and the spring 25 is extended inwardly in position to engage the outer rib 19 of the stop-plate 17, as shown at the left in Fig. 6. The outer spring 26 does not extend in to the stop-plate, but is used to forcibly return the button or plunger hereinafter described to inoperative or normal position. By this arrangement the springs 23 and 25 can be kept under tension at all times, so that they will not rattle or become deranged. Each switch for each wire is made up in the same way.

Secured to the plates 20 20 are cross-bars 29 29, which support a plate 30, which forms a guiding means for the inner ends of the plungers. Extending out from the plate 30 are four posts 31, which are grooved so that a vertically-arranged catch-plate 32 can be arranged to have a vertical movement thereon, as illustrated in Fig. 5. The posts 31 carry at their outer ends a plunger-guiding plate 320. Fitted in the plates 30 and 32 are the plungers P. Each plunger has a conical or beveled circular shoulder *p* formed thereon to cooperate with holes 33 in the catch-plate 32.

When the plunger is pushed inwardly, the conical shoulder *p* thereon will first lift the catch-plate, allowing any plunger or plungers which are pushed inwardly to spring back to normal or inoperative position, and when the conical shoulder *p* is moved in past the catch-plate 32 the same will drop behind the edge of said circular shoulder and hold the plunger in its pushed-in position, as represented at the right in Fig. 6. This will make contact between the springs 23 and 25 and will throw the circuit into the particular wire controlled by the particular plunger.

A particularly unique feature of the device is obtained by the recess 11 in the cover or box, which recess is placed in position so that when the box B is closed onto the base-board A the plungers P will project through said recess in position to be operated, and the plunger-plate 320 will practically form part of the outer surface of the apparatus and close the recess. This allows the placing of all the plungers and the mechanism operated thereby on the base-board A so that the same does not have to be fitted in any way to the box or cover and so that the opening or closing of the box or cover does not in any way affect or derange the mechanism.

The mechanism for automatically releasing the plungers when the receiver is placed on its hook will now be described.

The receiver-hook 34 is pivoted and wired up in the usual manner, not necessary to describe at length. The top cross-bar 29 is extended to form supports for the switch operated by the receiver-hook 34. Pivoted to this extension is a tripping-lever 35. This lever has at its end a roller 36, of insulating material, against which the receiver-hook 34 bears, a finger keeping the roller in engagement with the receiver-hook. Pivoted to the short end of the tripping-lever 35 is a gravity catch or pawl 38. This pawl has a cam-surface 39, a notch 40, and a weighted arm 41. The cam-surface 39 is set to cooperate with a stationary pin 42, projecting from the extension of the cross-bar 29. A pin 43, which is preferably made square in cross-section, projects inwardly from the catch-plate 32. Assuming the receiver to be off the hook, as shown in Fig. 3, and then to be placed thereon to depress the receiver-hook, the operation is such that the gravity catch or pawl 38 will engage under the pin 43 and will raise the catch-plate 32, which will release any depressed plunger or plungers. As the gravity-pawl raises the catch-plate 32 the cam-surface 39 thereof will engage the stationary pin 42 and will move to the left, so that when the catch-plate has been lifted the pawl will be moved far enough to the left to disengage from the pin 43, which will allow the catch-plate 32 to drop back to its lowest position. This will leave the parts in normal position, so that any plunger or plun-

gers can be pushed in and locked by the catch-plate.

When the receiver is taken off the hook, the gravity-pawl swings to the right and engages under the pin 43. This still leaves the parts in normal position, so that any plunger can be pushed in and held in by the catch-plate. The result from this operation is that any plunger can be pushed in no matter whether the receiver is on or off its hook, whereby no mistake can be made in calling and whereby the plungers are only released and allowed to spring back to normal position when the receiver is placed upon the receiver-hook. It also will be noticed that the entire setting and the tripping mechanism for the plungers works by gravity, so that the use of springs in this mechanism is avoided, whereby the parts are made very durable and are so arranged that they will not easily get out of order and whereby the return of the catch-plate is always insured after a plunger is released. It also will be noticed that the springs of the switches are arranged flatwise relatively to the plungers, which allows a shallow construction of case. It also will be noticed that the construction of the three springs 23, 25, and 26 allows the springs 23 and 25 to be kept under tension and at the same time allows each spring 26 to return its plunger to normal position. It also will be noticed that the tripping device is arranged entirely on one part—that is, the extension of the bar 29, whereby the same will not get out of adjustment. These points of construction have been found to simplify the apparatus greatly.

The details of the electrical connections are not described, as the same may be arranged in any of the ordinary or approved ways.

The details and arrangements herein described may be greatly varied without departing from the scope of my invention as expressed in the claims.

Having fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A telephone apparatus comprising a base-board, a switching apparatus mounted on the base-board, a series of outwardly-projecting plungers for operating the switching apparatus, a cover or box hinged to the base-board and provided with a recess arranged so that when the cover is closed the plungers will project through said recess, and a metallic plate mounted on said cover surrounding said recess and having slots registering with the plungers, so that a card or cards can be inserted under the plate to form a directory to register with the plungers.

2. A telephone apparatus comprising a vertical flat base-board, a switchboard connected thereto, posts for holding said switchboard out from the base-board, a switching apparatus mounted on said switchboard, a

cover, or box hinged to the base-board, and leading-in wires disposed between the base-board and the switchboard.

3. In a telephone apparatus, a switching apparatus comprising a switchboard, a stop-plate made out of insulated material and connected thereto and having two ribs, flat springs forming switches, the ends of said springs being set in position to engage the ribs on the stop-plate, and means for operating said switches the whole arranged so that the springs making up the switches may be kept under tension.

4. In a telephone apparatus, a switchboard, a stop-plate of insulated material connecting thereto and having two ribs on each side, switches disposed at each side of the stop-plate, each switch being made up of two springs set in position to engage said ribs, and means for operating said switches, the whole arranged so that the said springs may be kept under tension.

5. A telephone switching apparatus comprising a switchboard, a stop-plate secured thereon and having two ribs, switches each comprising two springs the ends of which are extended to engage said ribs and a third spring which clears said stop-plate, and a plunger engaging each of the third springs thereby providing for a return of the plunger and at the same time keeping the two contact-springs under tension.

6. A switching apparatus comprising a plurality of switches, plungers having conical or beveled shoulders for operating the switches, a sliding catch-plate cooperating with the plungers, and a gravity-pawl operated from the receiver-hook and arranged to actuate the catch-plate to release the plungers when the receiver is placed on its hook.

7. In a telephone apparatus, a switching device comprising a plurality of switches, plungers having beveled or conical shoulders for operating the same, a catch-plate cooperating with the plungers, and means for operating the catch-plate from the receiver-hook comprising a pivoted lever and a gravity-pawl arranged on said lever.

8. In a telephone apparatus, a switching device comprising a plurality of switches, plungers having beveled or conical shoulders for operating the same, a catch-plate cooperating with the plungers, and means for operating said catch-plate from the receiver-hook comprising a pivoted lever a gravity-pawl pivoted on said lever and having a cam-surface and a stationary pin engaging said cam-surface.

9. In a telephone apparatus, a switching device comprising a plurality of switches, plungers having beveled or conical shoulders for operating the same, a catch-plate cooperating with the plungers, and means for operating said catch-plate from the receiver-hook comprising a pivoted lever, a gravity-pawl pivoted on said lever, and having a cam-surface and a notch, a stationary pin cooperating with said cam-surface, and a pin projecting from the catch-plate which drops down into said notch when the gravity-pawl releases the same.

10. In a telephone apparatus, a switching device comprising a plurality of switches, plungers having beveled or conical shoulders for operating the same, a catch-plate cooperating with the plungers, and means for operating the catch-plate from the receiver-hook comprising a pivoted lever having a gravity-pawl engaging the catch-plate and an insulated roller engaging the receiver-hook.

11. In a telephone apparatus, a switching device comprising a plurality of switches, plungers having beveled or conical shoulders for operating the same, a catch-plate cooperating with the plungers, and means for actuating the catch-plate from the receiver-hook comprising a pivoted lever engaging the receiver-hook, a gravity-pawl pivoted on said lever and having a cam-surface, a stationary pin which engages said cam-surface, and a pin projecting from said catch-plate which said pawl engages, the parts being arranged so that when the receiver-hook is depressed the catch-plate will be operated and so that any plunger or plungers can be operated when the receiver-hook is in either position.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SAMUEL H. COUCH.

Witnesses:

ARTHUR S. CUMMINGS,
WM. N. McCONNELL.