No. 672,406. Patented Apr. 16, 1901.

H. HERBSTRITT.

COMBINED DESK TELEPHONE AND SWITCH STAND FOR INTERCONNECTING TELEPHONE LINES.

(Application filed Feb. 12, 1900. Renewed Sept. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.

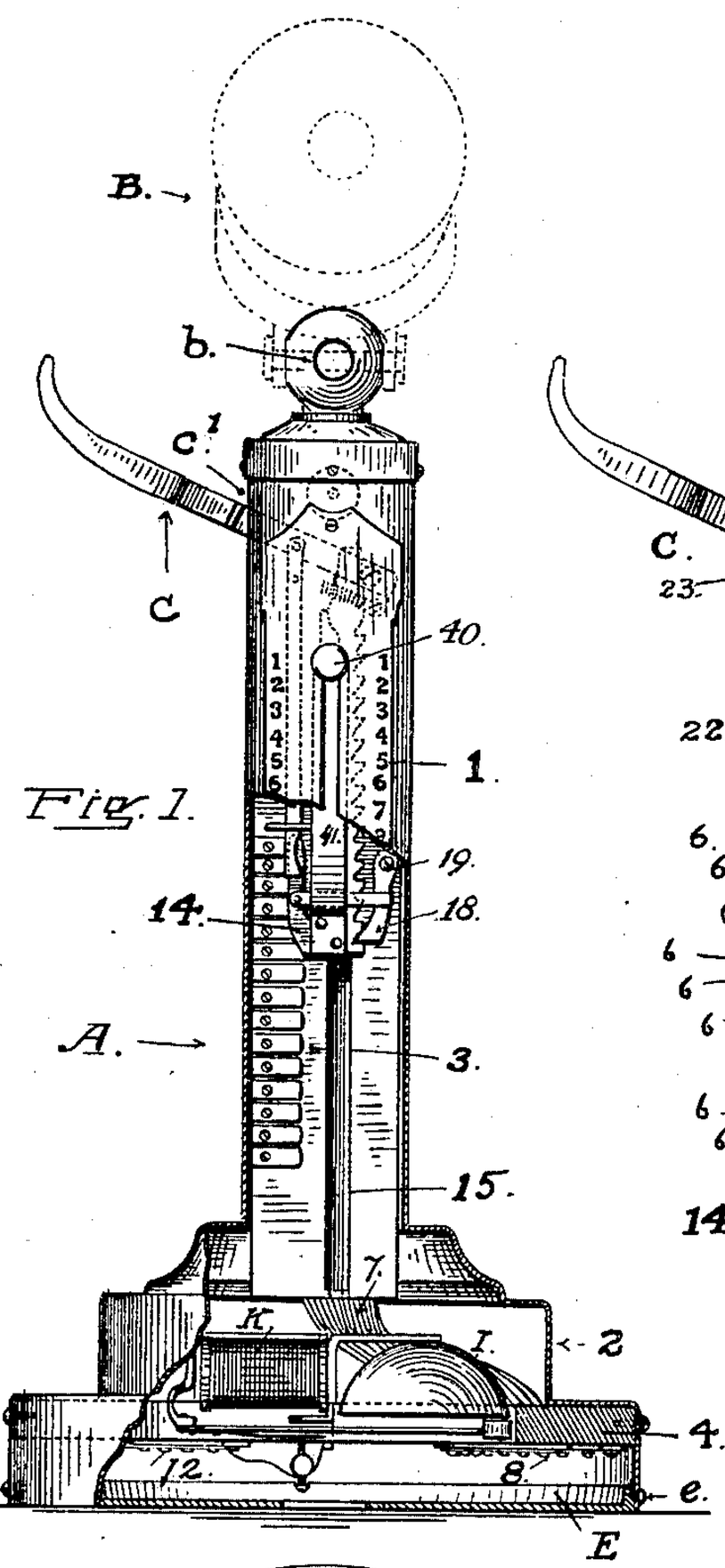

Fig. 1.

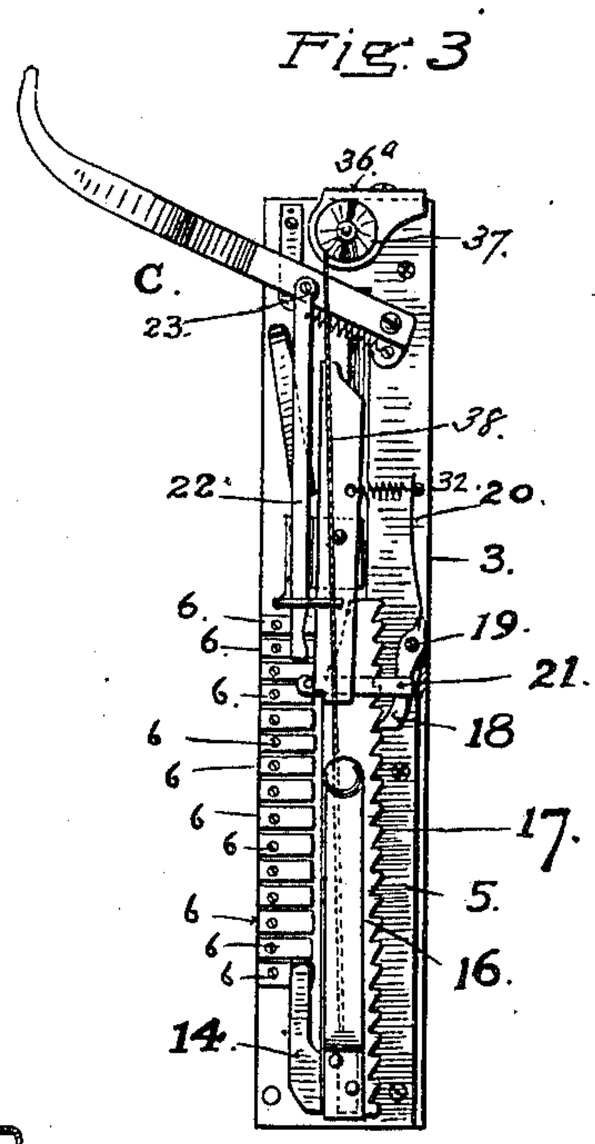

Fig. 3.

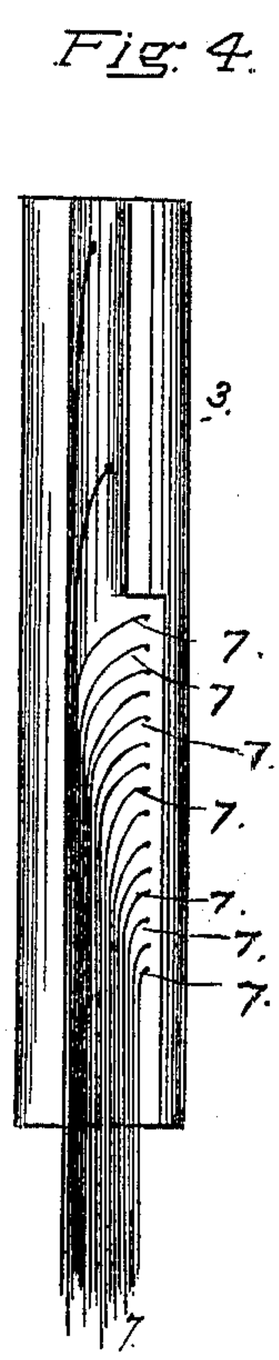

Fig. 4.

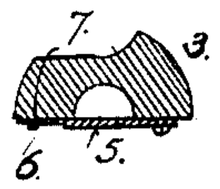

Fig. 5.

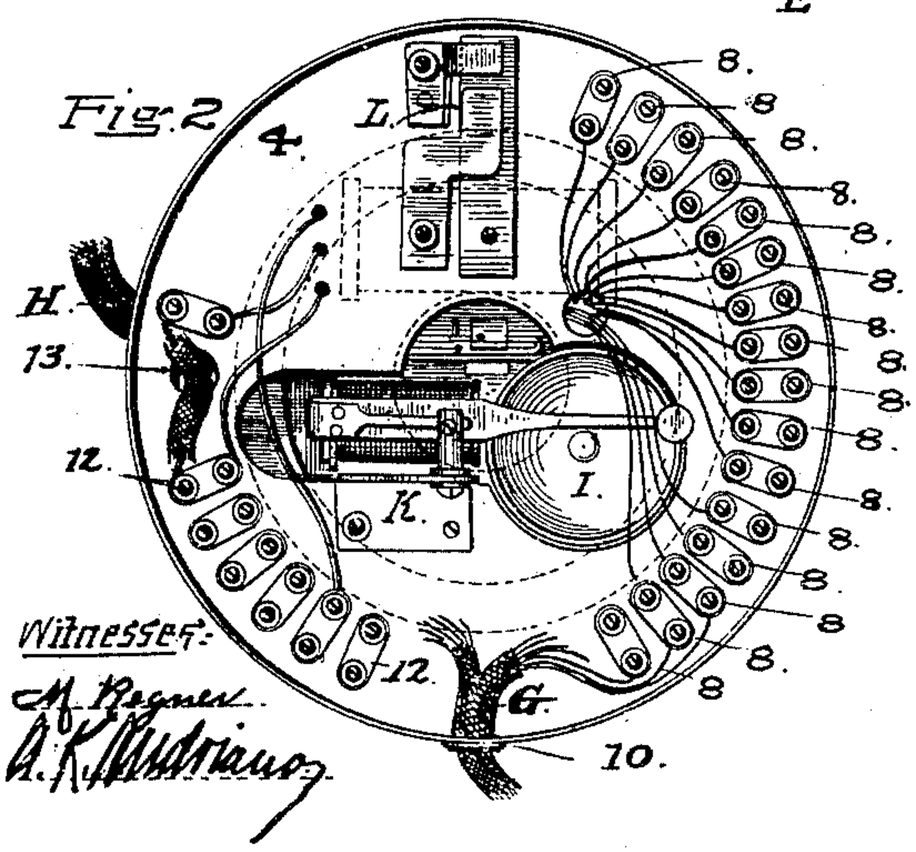

Fig. 2.

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Fig. 6.

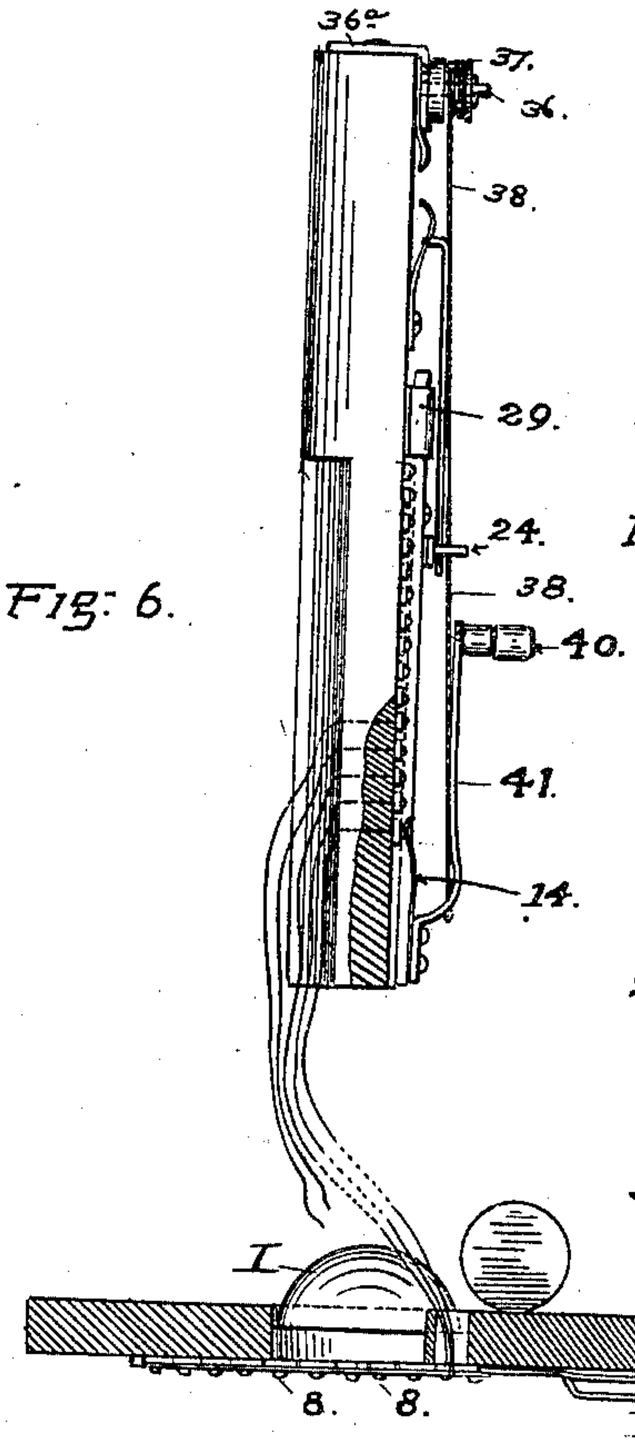


Fig. 7.

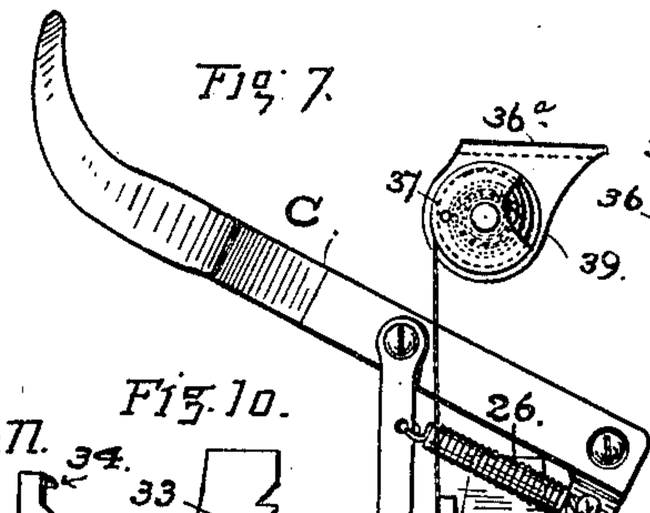


Fig. 8.

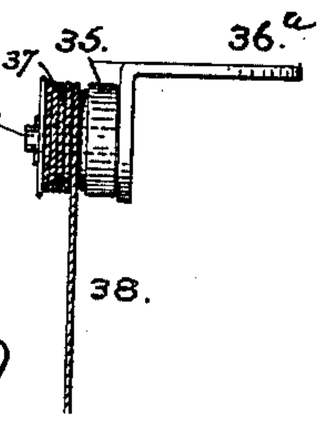


Fig. 10.

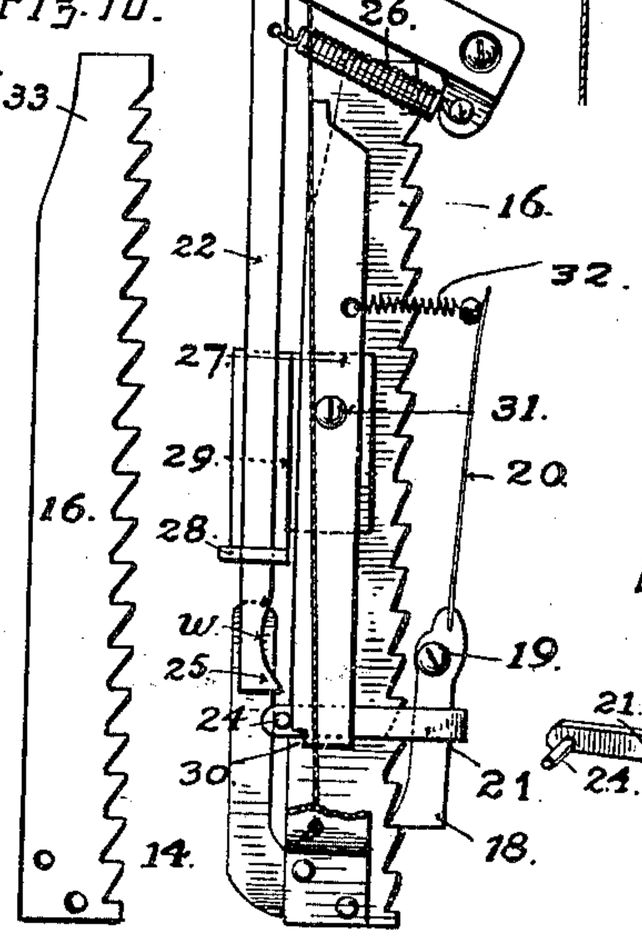


Fig. 11.

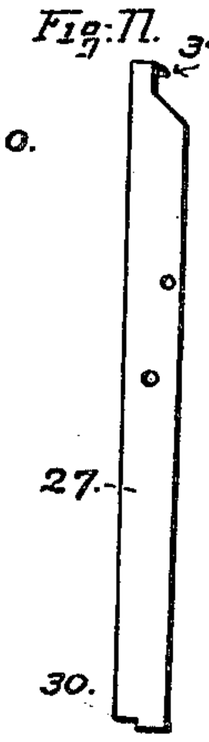
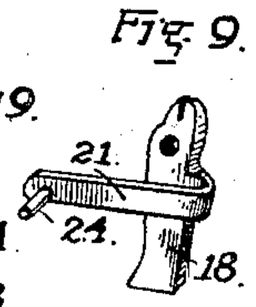


Fig. 9.



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UNITED STATES PATENT OFFICE.

HERMANN HERBSTRITT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE AUTOMATIC INTERCONNECTING TELEPHONE COMPANY, OF SAME PLACE.

COMBINED DESK-TELEPHONE AND SWITCH-STAND FOR INTERCONNECTING TELEPHONE-LINES.

SPECIFICATION forming part of Letters Patent No. 672,406, dated April 16, 1901.

Application filed February 12, 1900. Renewed September 17, 1900. Serial No. 30,336. (No model.)

To all whom it may concern:

Be it known that I, HERMANN HERBSTRITT, a citizen of the United States, residing in the city and county of San Francisco, in the State of California, have invented new and useful Improvements in a Combined Desk-Telephone and Switch-Stand for Interconnecting Telephone-Lines, of which the following is a specification.

This invention relates especially to improvements made in switching devices or apparatus for house or office telephone systems wherein a limited number of individual telephone-lines are interconnected through switching mechanism at each individual telephone, by means of which any one line is directly connectable at will with any other line of the system for conversation without the intervention of a central switchboard, and the two lines thus connected are afterward disconnected and restored to the main line after conversation is ended by the act of hanging up the telephone-receiver.

The invention has for its object, mainly, the production of interconnecting switching mechanism having several novel and useful points or features of construction and specially adapted by virtue thereof for combination and arrangement within the pillar and base of a portable stand which forms both a support for the receiver and the transmitter and an inclosure and carrier for the switching mechanism.

The novel features of an improved switching mechanism for interconnecting a number of lines and the combination thereof in and with a portable switch-stand and telephone-support are included in the present invention, together with automatic throw-off and switch-restoring devices of novel construction, through the medium of which two telephone-lines previously connected for conversation are separated and again restored to a condition for connection with another line of the system through their individual switching mechanism when the telephone-receivers of the respective lines are hung up.

The following description explains at length the nature, scope, and operation of my present improvements and the manner in which I proceed to construct, apply, and carry out the same, reference being had to the drawings that accompany and form part of this specification.

Figure 1 is a front elevation, partly in section, of the switch-stand and telephone-support with the shell of the pillar and the base broken away in part to expose the switching mechanism and the connections inside. Fig. 2 is an inverted plan or bottom view of the base with the bottom plate removed to expose the parts within the base. Fig. 3 is a front elevation of the switching mechanism removed from the pillar of the stand. Fig. 4 is a rear view of the block that carries the parts shown in Fig. 3. Fig. 5 is a cross-section through the block, Fig. 4, taken at *x x*. Fig. 6 is a side view of the pillar-block and the base-block that carry the parts of the switching mechanism and the connections within the stand, portions of the two supports being broken away to uncover the wiring. Fig. 7 is a front view, on an enlarged scale, of the movable contact-piece and the locking and releasing mechanism of the switch in each switch-stand. Figs. 8, 9, 10, and 11 are details of the spring take-up, the locking-pawl, the ratcheted slide, and the trigger-plate of the setting and releasing mechanism.

The stand A is formed or constructed of a hollow pillar 1 and a hollow base 2, inclosing and concealing both the parts of the switching mechanism and the posts or connections and wiring, also the induction-coil and the signaling mechanism of the telephone. All these parts are mounted on and carried by a block 3, within the pillar, and a block 4, within the base, independent or separate from the shell, and these blocks are made detachable and removable from the shell, so as to take out and reach all the parts for adjustment and repairs.

The telephone-transmitter B is mounted on the top of the pillar, to which it is attached in the usual way by a hinge-joint *b*. The telephone-hook C, pivotally attached to a fixed point inside the pillar, extends to the outside through a slot *c'* in the shell to take the receiver in the same manner as that support is arranged in the ordinary desk-tele-

phones of outside systems. Access to the base is afforded by removing the bottom plate E, which is held in place by screws *e*.

The parts of the switch-slide and setting mechanism are mounted on a face-plate 5, secured to the front of the pillar-block, while on the block itself are fixed the switch-points 6 6 and the wires 7 7, that connect them with binding-posts or connections 8 8 in the base. The stationary contacts 6 6 correspond in number with the number of lines that are connected with the receiving and transmitting instruments of the stand, and each one forms the terminal of an incoming line from another telephone in the system, the connection therewith being made at one end of the posts 8 on the base-block, to which the lines are brought in a cable G into the base through an aperture 10. In addition to these connections the base-block is provided with binding-posts 12 for connecting the wires of the transmitting-circuits and the wires B of the receiver, which are carried in a cable H from the outside into the base of the stud through an aperture 13 in the shell and through the base-block; but the necessary connections to the transmitter are carried from the base-block upward inside the pillar.

In connection with the stationary contacts 6 6 and the movable contact 14, which are to be found in the construction of other switch mechanisms for the same purpose, and therefore are not of themselves novel parts in the present mechanism, I have combined and arranged for operation within the contracted space of the pillar a setting and releasing mechanism, the construction of which is well shown in Figs. 1, 2, and 7 of the drawings. In the face-plate 13 is a perpendicular slot 15 to guide a slide-bar 16, carrying on one side, near the lower end, a contact-spring 14 and provided with spaced ratchet-teeth 17 on the opposite side, equal in number to the stationary contacts 6 on the opposite side of the block 1. A pawl 18, pivoted at 19 to the face-plate, is held by a spring 20 constantly in contact with the ratchet-teeth, and an arm 21, rigidly fixed to that pawl, extends across and over the front face of the slide-bar to the opposite side of the ratchet, where the outer end of that arm projects under the foot of a depending rod 22, loosely attached at the upper end by a screw 23 to the lever of the telephone-hook. The inner edge or side of the piece 22 is cut away, as shown at *w*, Fig. 7, so as to clear the fixed pin 24 in the arm 21 and leave only the toe 25 on the end to make contact with the pin in the downward movement of the part 22. The coiled spring 26, attached to the lever C at a point below the pivot and to the part 22, acts both to elevate the hook when the receiver is taken off and to hold the part 22 in working position. A slotted guide 28, projecting from the face-plate above the foot of the part 22, serves to keep that part in line and in working position with relation to the end of the arm. When the lever C is depressed, therefore, the rod 22, striking against the pin on the arm 21, acts to throw out the pawl 18 from the ratchet-teeth and release the slide, which is thereupon returned to place at the top of the slot by the spring-barrel. The return movement of the pawl against the ratchet-teeth before the slide has completed its upward throw is prevented by a trigger-piece consisting of a pivoted lever 27, carried by a bracket 29 and having a shoulder 30 on the lower end, standing in line with the pin on the arm 21 and adapted to ride over and hold down that part when the arm is depressed. This latch works on a pivot 31 on the bracket 29, and its lower end is held against the side of the pin by a coiled spring 32, so as to immediately catch and hold down the arm when that part is depressed. By this means the pawl is momentarily held away from the ratchet-teeth and the slide is allowed to make a full throw to its highest point, preventing all danger of the pawl catching into the ratchet-teeth before the plate completes its return throw. When that point is reached, the trigger-piece releases the arm of the pawl by being moved laterally off the pin 24, such movement of the piece being produced by an incline 33 on the side of the slide engaging a lip or bent-over end 34 on the end of the lever, as shown in Figs. 7, 8, and 9. As thus constructed and combined these parts take up but little space and are readily arranged within a pillar of small dimensions.

A spring-drum and cord are employed as a take-up for the slide as a substitute for a coiled spring, on account of obtaining a greater length of throw, with a more uniform resistance and tension during the full length of throw, than is obtainable with a long coiled spring.

The drum 35 is mounted on a stud 36 on a bracket 36ª, secured to the pillar-block, and is formed with a winding-barrel 37 for the cord 38 and a spiral spring 39, one end of which is attached to the barrel on the inside, while the other end is attached to the fixed spindle. The cord 38 is attached at one end to the slide and at the other end to the barrel, and as the slide is moved down the slot in the pillar the spring is wound up, ready to react when the slide is released from the pawl.

A knob 40, attached to the slide by a plate 41, is fitted to work smoothly in the slot 15 in the pillar for moving and setting the slide into operative relation to any one of the separate contact-springs 6 6, the positions of which in the row or column are shown by the spaced row of switching numbers along the side of the slot in the pillar, a pointer being fixed to the knob on the outside to mark the position of the contact 14 on the slide with respect to the switch-points.

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

1. The combination of the switch-stand comprising a hollow base and a slotted hol-

low pillar having supports for a telephone-receiver and a transmitter, the removable pillar-block stationary switch-points thereon, a slidable switch-piece carrying a contact-spring and movable from the outside to set the contact-spring into operative position with respect to any selected one of the switch-points, a locking mechanism for the switch-piece, a releasing mechanism, means whereby said releasing mechanism is operated by the act of hanging up the telephone, a spring for returning the slide to position when released and binding-posts located in the base and individually connected with the stationary switch-points by wires.

2. The combination with a plurality of stationary switch-points, a slidable switch-piece movable in line therewith, a contact-spring carried thereby, and a locking mechanism consisting of ratchet-teeth on the slide and a pawl-spring held in working contact with the teeth; of a movable telephone-hook an arm attached to the pawl, a depression-rod attached to the telephone-hook and adapted to depress the arm of the pawl and throw that piece out of the ratchet-teeth, the swinging trigger-bar adapted to hold back the pawl until the slide has completed its upward movement and means actuated by the upward movement of such slide to operate the trigger, the stationary switch-points with their respective binding-posts and a plurality of binding-posts from which said lines are connected with an incoming cable of individual telephone-lines.

3. The combination of the switch-stand and telephone-support comprising the slotted hollow pillar and the hollow base, the removable pillar-block, stationary switch-points thereon, slidable switch-piece carrying a contact-spring, means moving the switch-piece from the outside of the pillar, means for locking the switch-piece, a means for releasing and returning the switch-piece to position, and a base-block having binding-posts mounted thereon and wires individually connecting the stationary contacts with the binding-posts.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

HERMANN HERBSTRITT. [L. S.]

Witnesses:

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