No. 877,902. PATENTED FEB. 4, 1908.

W. M. BRUCE, JR.

TELEPHONE SWITCH.

APPLICATION FILED FEB. 18, 1907.

Fig. 1.

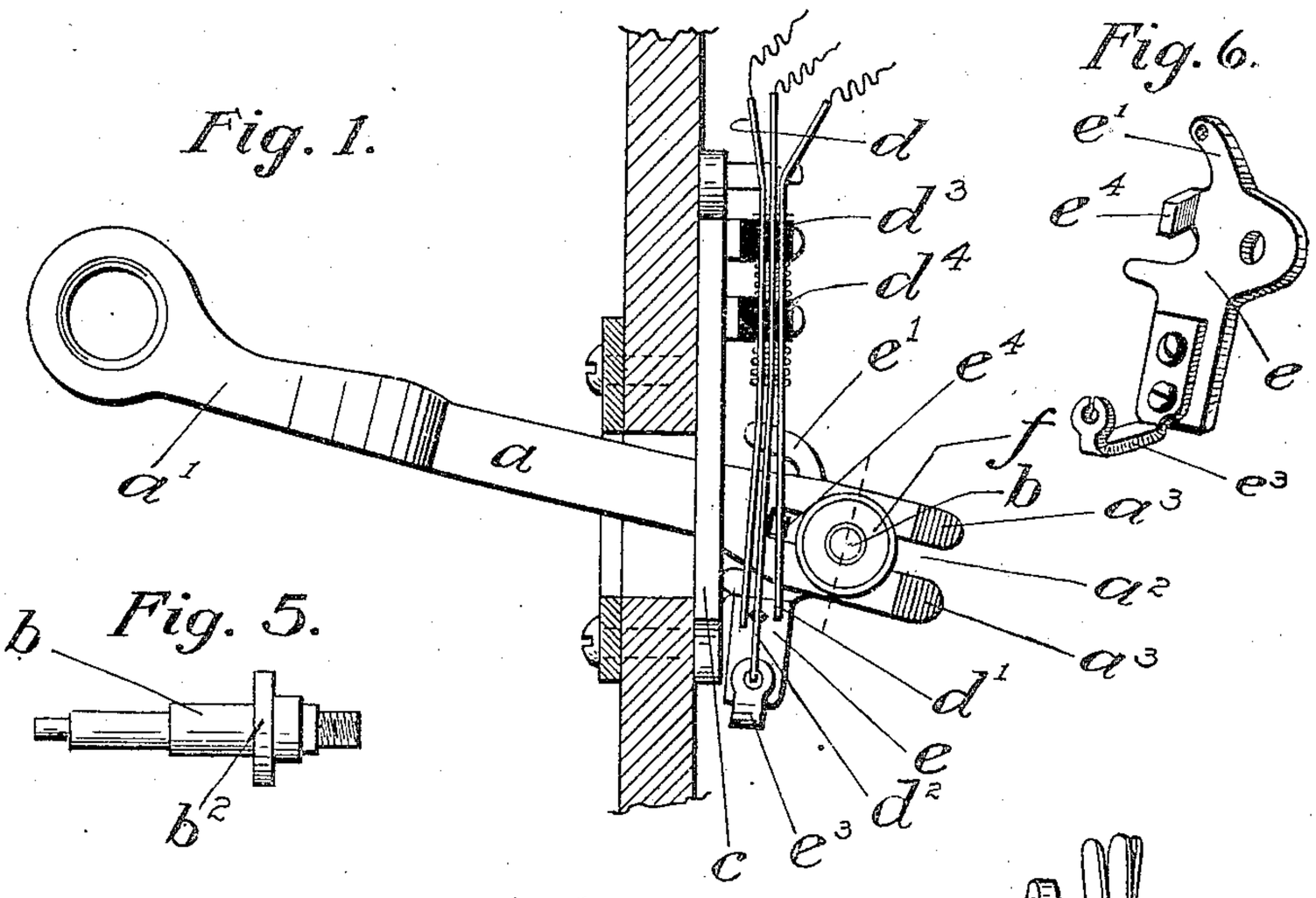
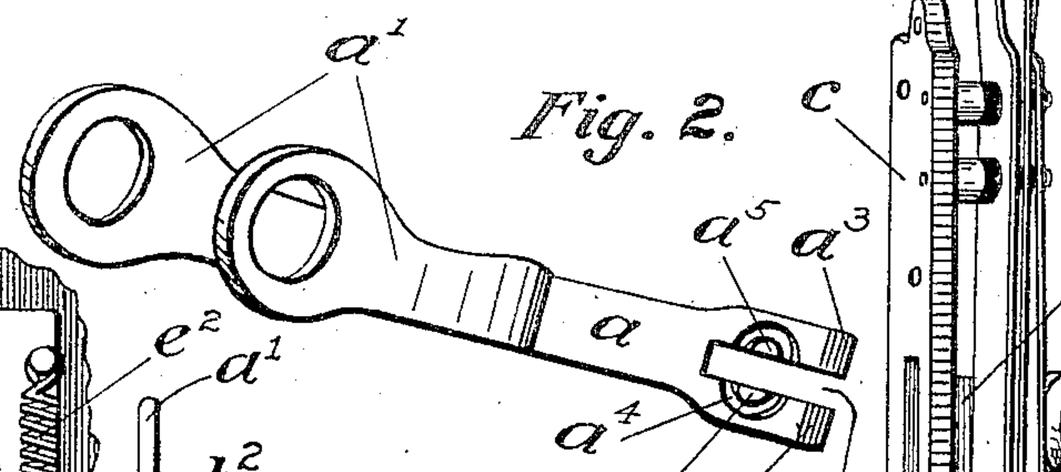


Fig. 6.

Fig. 5.

Fig. 2.



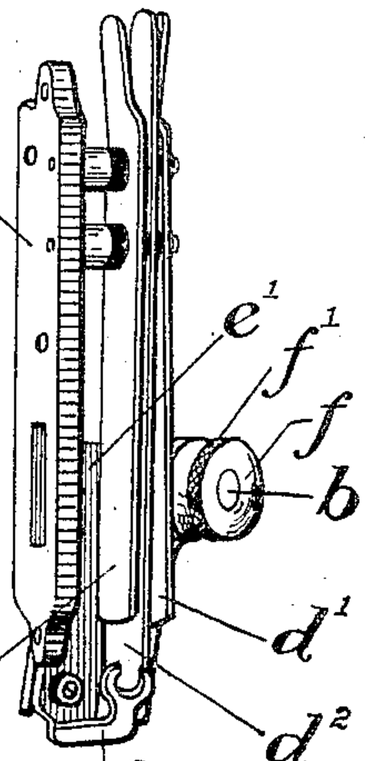


Fig. 4.

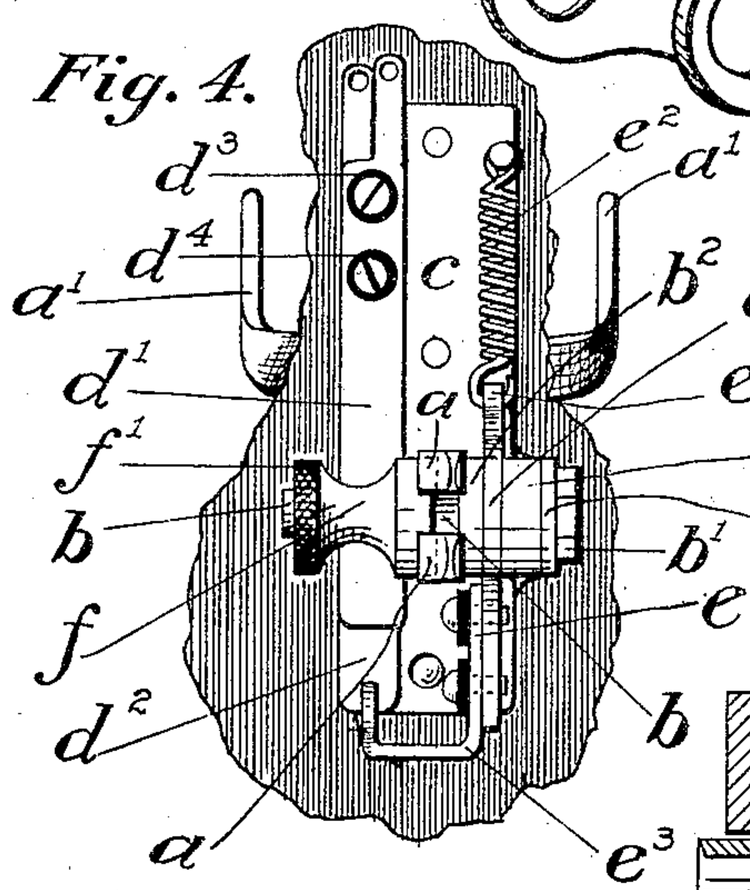
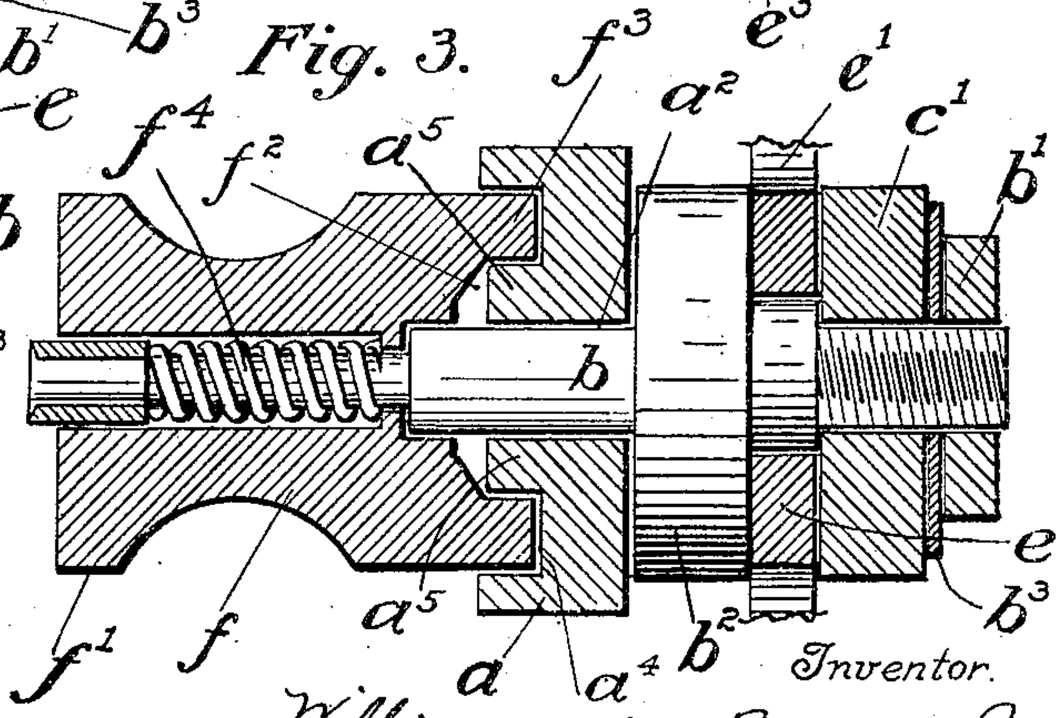


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM M. BRUCE, JR., OF SPRINGFIELD, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN AUTOMATIC TELEPHONE COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

TELEPHONE-SWITCH.

No. 877,902. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed February 18, 1907. Serial No. 357,788.

To all whom it may concern:

Be it known that I, WILLIAM M. BRUCE, Jr., a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Telephone-Switches, of which the following is a specification.

My invention relates to improvements in telephone switches, and especially relates to that class of switches which are mounted in ordinary telephone boxes and which are adapted to be operated by the weight of the telephone receiver when attached to the switch.

The object of the invention is to provide a switch which will be compact and occupy but a small space in the telephone box.

A further object is to provide means by which the lever portion of the switch can be readily attached or detached for shipping, repairs or otherwise, from the switch or telephone box.

With these primary and other incidental objects in view as will appear later, my invention consists in the construction and arrangement of parts hereinafter described and set forth in the claims.

In the drawings, Figure 1 represents a side elevation of the switch mechanism embodying my invention, shown attached to the ordinary box or cabinet in which the apparatus may be installed in a well-known manner. Fig. 2 is a perspective view of the switch mechanism removed from the box and the switch lever also removed or detached from the other portions. Fig. 3 is an enlarged view of a portion of the switch mechanism and the catch forming a part of the main pivot which is adapted to secure the switch proper in position when it is inserted into the other switch mechanism. Fig. 4 is a rear elevation of the same as applied to the cabinet, looking from the inside of the cabinet, with the supporting portion of the cabinet only shown, the other portions being broken away. Fig. 5 is a detail view of the pivot on which the hook is secured. Fig. 6 is a detail view with one of the parts removed.

Like parts are represented by similar characters of reference in the several views.

In the said drawings *a* represents the main lever or hook, which is preferably bifurcated or forked, as at a^1, at its outer extremity to receive the telephone receiver in the usual way. It is also bifurcated at the other end to form a slotted opening, a^2, the parts on the opposite sides of the slot being beveled at their extremities, as shown at a^3. This slotted opening, a^2, is adapted to slip over a pivot or stud, *b*, which is secured to a lug or ear, c^1, on the main supporting plate, *c*, which is secured to the inside of the cabinet, the stud being preferably screw-threaded, as shown in Figs. 5 and 6, for the purpose of attaching it to said lug or ear, c^1; this being accomplished preferably by screwing the stud directly into the lug and by providing a suitable lock-nut, b^1, and washer, b^3. The plate, *c*, also provides a support for the stationary electrical contacts or circuit breakers, *d* and d^1, which are placed on each side of the movable contacting part, d^2, these parts being properly insulated from each other and from the supporting plate, as shown at d^3 d^4 in Fig. 1. There is also mounted on the pivot, *b*, between the lug c^1 and a collar, b^2 on said pivot a swinging L-shaped piece, *e*, having at the top a connection, e^1, to a retracting spring, e^2, and at the bottom an extending arm, e^3, which is notched at its outer extremity to engage on each side of the movable contact, d^2. This L-shaped piece, *e*, also has a lug or projection, e^4, slightly removed from the pivot, *b*, which engages in the slot, a^2, of the switch lever so that any movement of the switch lever will, through this lug or projection, be imparted to the arm, *e*, and thus impart motion to the movable contact, d^2, and cause it to contact successively with the stationary contacts *d* and d^1, according to the position of the main lever *a*. To provide for readily removing and replacing this main lever and at the same time holding it securely in position when desired, I employ a spring-pressed knob or catch, *f*, mounted at the end of the pivot, *b*, and preferably provided with a knurled periphery, f^1, at or near its outer extremity, and at its inner end having a cup-shaped recess, f^2, and a projecting flange, f^3, adapted to fit into a corresponding groove, a^4, in the side of the switch lever, *a*; this circular groove, a^4, being sufficiently removed at its greatest diameter from the slot, a^2, to leave between the groove and slot a projecting portion, a^5, over which this cup-shaped recess is adapted to fit thus forming a firm and secure connection between the pivot *b* and the switch lever when the same is in place; the fastening catch, *f*, being spring-pressed by a spring, *f*,

may be moved longitudinally on the pivot, *b*, so as to withdraw its flange from the groove in the switch lever, in which case the switch lever may be removed from its position. By this construction, the parts being separated by pressing the main lever, *a*, longitudinally, the catch, *f*, will be forced outwardly until the lever has entered to its proper position when the catch will drop into the groove and thus secure the same in position, means being thus secured by which the switch lever is held in perfect working position while attached and which can be instantly removed or replaced by the simple manipulation of the catch.

Having thus described my invention, I claim:

1. In a telephone switch, a frame or plate, contacting devices connected thereto, and a pivot also supported on said plate, a movable switch lever extending transversely of said plate and of said contacting devices, a movable arm supported on said pivot and having connections to one of said contacting devices, and a detachable slip connection for attaching and detaching said lever from said movable arm, substantially as specified.

2. The combination with a supporting plate and contacting devices, a movable arm pivoted to said plate, a switch lever bifurcated at its inner end and adapted to be projected over the pivot supporting said arm, and a projection on said arm to engage said lever, and a spring catch on said pivot to engage and hold said lever, substantially as specified.

3. In a telephone switch, a main supporting plate, contacting devices supported on said plate parallel thereto, one of said contacting devices being movable and located centrally between two other contacting devices, a hinged arm connected to the movable contacting device, and a switch lever connected to said arm and extending substantially at right angles thereto, and a spring catch for connecting said arm and lever, substantially as and for the purpose specified.

4. The combination with the contacting devices and the swinging arm of a detachable lever adapted to engage with the projection on said arm, and a spring catch to engage said lever, said spring catch being provided with a circular flange adapted to engage in a circular groove in said lever, substantially as specified.

5. The combination with contacting devices, a pivoted L-shaped arm and a stationary pivot on which said arm is journaled, of a switch lever bifurcated at its inner end and provided with grooved portions, which groove if extended would be circular, a spring catch on said pivot having a circular flange adapted to fit in the groove in said lever, the ends of the forks or bifurcations of said lever being beveled so as to be inserted under said spring catch, substantially as and for the purpose specified.

In testimony whereof, I have hereunto set my hand this 9th day of February, 1907

WILLIAM M. BRUCE, JR.

Witnesses:

CHAS. I. WELCH,

CLARA GALLAGHER.