

No. 814,277.

PATENTED MAR. 6, 1906.

E. B. CRAFT.
SWITCH KEY.

APPLICATION FILED DEC. 7, 1904.

Fig. 1.

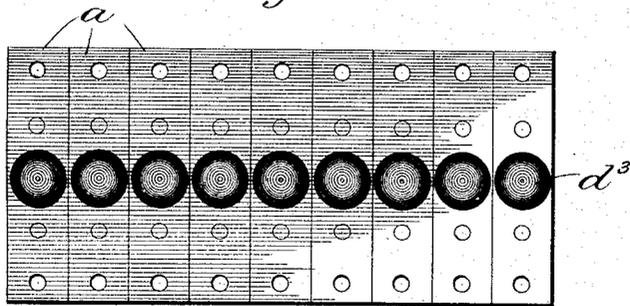


Fig. 2.

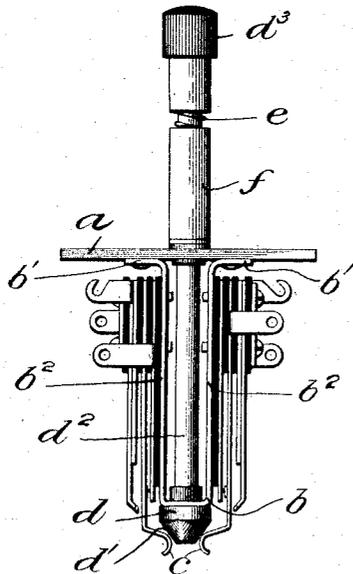
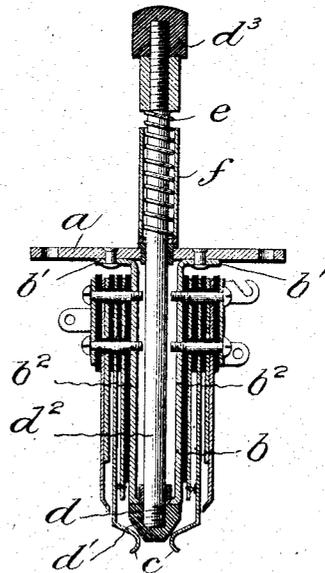


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDWARD B. CRAFT, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SWITCH-KEY.

No. 814,277.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed December 7, 1904. Serial No. 235,851.

To all whom it may concern:

Be it known that I, EDWARD B. CRAFT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Switch-Keys, of which the following is a full, clear, concise, and exact description.

My invention relates to a switch-key, and has for its object to provide an improved device which will be especially adapted for use in telephone-exchange switchboards and which will be compact, durable, efficient in operation, and very simple and cheap to manufacture.

I will describe my invention by reference to the accompanying drawings, wherein—

Figure 1 is a plan view of a number of keys embodying my invention mounted side by side. Fig. 2 is a side elevation of the switch-key of my invention, and Fig. 3 is a vertical sectional view thereof.

The same letters of reference are used to designate the same parts wherever they are shown.

The upper frame-plate *a* of the key carries a U-shaped supporting-plate *b*, which is formed of a metal strap, the arms of said supporting-plate being secured to the bottom of the upper plate *a* by having their upper ends bent to form horizontally-projecting lugs *b'* *b'*, which may be riveted to the frame-plate *a*. The ends of the frame-plate, which are in practice secured to the switchboard key-shelf, project beyond the ends of strap *b*. Each of the arms *b'* *b'* of the supporting-plate carries a set of switch-springs and their insulating-strips. Each of said sets of switch-springs is mounted upon the outer surface of its support and may comprise a spring *c* and its front and back contact-anvils. The said springs are adapted to be operated by a plunger *d*, mounted to reciprocate in bearings formed in the frame-plate *a* and in the base of the U-shaped supporting-plate *b*. The springs *c* extend beyond the base of the plate *b* and are bent inward, as shown, so as to be engaged by a wedge *d'*, carried upon the end of the shaft *d*, which, as shown, lies between the two arms of the supporting-plate *b*, a push-button *d*² being mounted upon the upper end of said shaft for operating the same. It will thus be seen that the supporting-plate *b* serves the double function of supporting

the switch-springs and of furnishing a bearing for the shaft *d*² of the plunger.

A helical spring *e* may surround a portion of the shaft *d*² above the frame-plate *a*, said spring lying between the push-button *d*² and the upper frame-plate *a*. The said spring serves to insure the return of the plunger to its normal position when released from its depressed position. To limit the downward movement of the plunger, a collar *f* may be loosely mounted upon the shaft *d*², with its lower end resting against the frame-plate *a*, said collar, as shown, surrounding and protecting the spring *e*.

I employ metal punchings for the plates *a* *b*, and I am thereby enabled to make very cheaply a switch-key that is durable and reliable in operation, the minimum amount of work and material being required.

A number of switch-keys such as above described may be very compactly mounted side by side (see Fig. 1) upon the key-shelf of a telephone-switchboard and associated with the different cord-circuits to connect a source of calling-current therewith. This arrangement is very convenient, since any individual key may be easily removed and access had to the parts thereof for the purposes of inspection, repair, or adjustment, &c., without in any wise disturbing the neighboring keys.

I claim—

1. In a switch-key, the combination with a flat upper metal frame-plate, of a U-shaped metal strap forming arms and having horizontally-projecting lugs formed at the upper ends thereof and secured to the bottom of the upper frame-plate, the ends of the plate projecting beyond the ends of the arms of the strap, switch-springs and insulating-strips therefor mounted upon the two arms of said strap, and a plunger for operating said springs mounted to reciprocate in bearings formed in the said upper frame-plate and the base of said strap.

2. In a switch-key, the combination with a metal upper frame-plate, of a U-shaped metal strap forming arms secured at their upper ends to the bottom of said upper frame-plate, the ends of said plate projecting beyond the ends of the arms of said strap, switch-springs and their insulating-strips mounted upon the arms of said strap; all of said parts being formed of punchings, and a plunger for operating said springs mounted to reciprocate in

bearings formed in said upper frame-plate and the base of said strap.

3. In a switch-key, the combination with the upper frame-plate, of a U-shaped supporting-plate having horizontally-projecting lugs formed at the upper ends thereof and fastened to the bottom of the upper frame-plate, the ends of said frame-plate projecting beyond the ends of said U-shaped supporting-plate, a switch-spring and its associated contacts supported by each arm of said U-shaped plate upon the outer surface thereof, the free ends of said springs extending below the base of said plate and being turned inwardly, a

shaft passing between the arms of said U-shaped plate and adapted to reciprocate in bearings in the upper frame and the base of said U-shaped plate, and a wedge carried at the lower end of said shaft adapted when the shaft is actuated to engage said springs and move them.

In witness whereof I hereunto subscribe my name this 17th day of September, A. D. 1904.

EDWARD B. CRAFT.

Witnesses:

JOHN G. ROBERTS,
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