

B. W. SWEET.
SELECTIVE RINGING KEY.
APPLICATION FILED SEPT. 28, 1906.

947,722.

Patented Jan. 25, 1910.

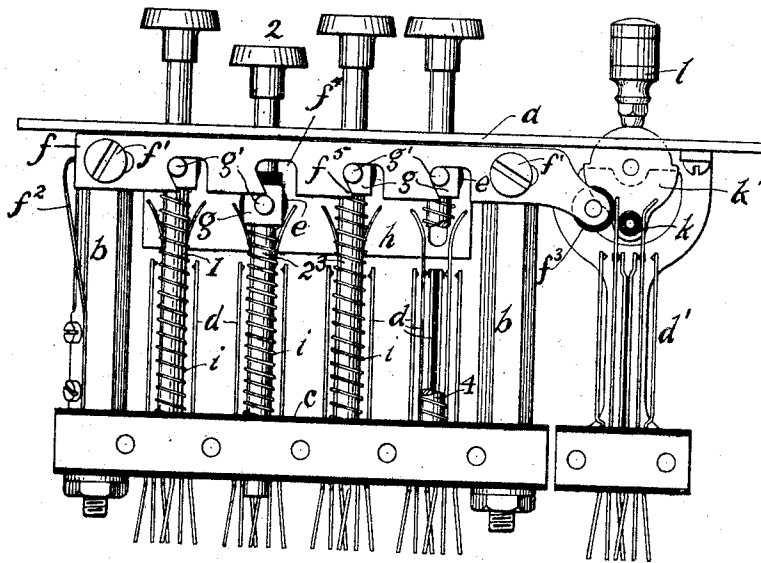


Fig. I.

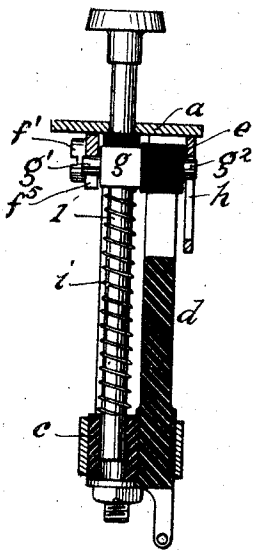


Fig. II.

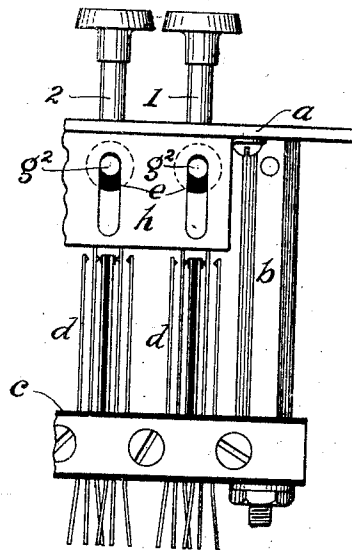


Fig. III.

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UNITED STATES PATENT OFFICE

BURTON W. SWEET, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
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SELECTIVE RINGING-KEY.

947,722.

Specification of Letters Patent.

Patented Jan. 25, 1910.

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To all whom it may concern:

Be it known that I, BURTON W. SWEET, a citizen of the United States of America, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Selective Ringing-Keys, of which the following is a specification.

My invention relates to improvements in selective ringing-keys adapted for use in connection with telephone party lines; the same being connected in the cord circuit at the central-office or exchange, and associated with suitable selective currents to be alternately thrown out upon the line and ring the signal-bell corresponding to such current.

The object of my improvement has been to simplify and cheapen this type of appliance, and to produce at the same time, a structure which shall be thoroughly efficient and durable.

The embodiment of my invention presents a ringing-key which combines the aforesaid advantages, and contains but few parts, which are readily assembled to form the complete device.

Briefly describing this ringing-key of my invention in a preliminary way, I may say that the circuit-changing apparatus comprises a plurality of vertically-mounted contact-springs adapted to be alternatively actuated by corresponding plungers. A simple slide-bar normally retains the plunger last depressed to indicate the party which was rung; said bar being controlled by a light spring, and affording practically no resistance to the depression of the plungers. Upon each plunger is an integral collar and detent-member, carrying upon one side the actuating roller for the contact springs, and upon the other, the pin or stop engaging the slide-bar. A universal retaining-member holds said rollers in place, and at the same time prevents the plungers from twisting or turning, whereby the slide-bar is actuated with certainty and ease. These, and other features of advantage will be apparent upon referring to the appended drawing illustrating the selective ringing-key of my improvement adapted for ringing four-party lines, and associated with a master-key adapted for individual ringing, and for simultaneously releasing any depressed plunger.

In said drawing, Figure I. is a side elevation of the complete selective ringing and master-key appliance. Fig. II. is a vertical section through one of the selective ringing members; and, Fig. III. is a fragmentary side elevation, showing the device from the side opposite that depicted in Fig. I.

The same character of reference has been employed throughout, to indicate similar parts.

The face-plate *a* serves to mount the several parts of the key. Posts *b* associated therewith, and with the slotted insulating strip *c*, comprise a frame mounting the several sets of contact springs *d*; one of said sets being shown in detail near the center of Fig. I, and in Fig. III, other sets are shown. It will be understood that as many sets of contact springs will be employed as there are parties to be selectively rung, but I have shown a standard four-party ringing-key.

In Fig. I, the second plunger 2 is shown held in semi-depressed position immediately after complete depression engaging its insulating roller *e*, with the two flaring actuated-springs, and having moved them into contact with the outer or line springs of the corresponding set *d*, to send a selective signal. This plunger is thus held by means of the slotted and recessed slide-bar *f*, which is held in place by means of two screws *f'* entering the posts *b*, and actuated by a twisted leaf-spring *f²* upon the left-hand post. At the other end of said slide-bar is a roller *f³* of insulating material, engaging an upright spring of the set *d'* belonging to the master-key upon the right. The collar *g* secured upon each of the plungers, as best shown in Fig. II, has outwardly extending integral pins *g'* *g²*, respectively engaging the slide-bar *f*, and carrying the insulating-roller *e*, and also engaging the slotted retaining-member *h*. A coiled spring *i* upon each of the plungers opposes the downward movement thereof.

The construction of the individual or master-key upon the right conforms to the well known oscillating type of ringing and listening-key; the lever *l* thereof carrying an insulating roller *k*, which is adapted to oscillate between the two uppermost of the set of contact springs *d'*. When said lever *l* is thrown either from the listening-in or the median position in which it is shown,

toward the right or ringing position, its contact-roller k mounted upon the disk k' , will move the vertical spring toward the left, and this will cause the slide-bar f to move in a corresponding direction, thereby releasing any plunger which has previously been depressed.

Those conversant with telephone practice will understand that this construction is one which cancels the indication of the party which was last selectively rung. Thus, if plungers 1, 3 or 4 had been previously depressed, that plunger would be held in its semi-depressed position, and plunger 2, on the contrary, would be released from the position shown. This always furnishes a certain indication as to which party is the one desired and may require a repeated or additional signal to call him to the telephone.

Having given above brief attention to the well known functions of this appliance, I may now point out that the structure illustrated is one which is unusually rigid and durable, and contains relatively few and simple parts. Thus, the plungers are all retained in proper position, and their insulating rollers are held in place by the L-shaped strip forming retaining-member h which is screwed beneath plate a , after the parts have been assembled with its slots closely embracing the pins g^2 . The slide-bar f is of simple construction, and accommodates the pins g' within the recesses f^4 , or temporarily retains the depressed pin by means of the outer-cut point f^5 , as shown in Fig. 1.

Having now described and shown the preferred embodiment of my invention, I claim as new, and desire to secure by Letters Patent, the following:—

1. In a selective ringing-key, the combination with a plurality of plungers and associated sets of contact-springs adapted to be individually actuated thereby, of transversely extending detents respectively provided upon said plungers, a universal slide-bar equipped with angularly disposed recesses and under-cut points associated with said detents, a light spring opposing the longitudinal movement of said bar, and a slotted member accommodating the detents to prevent rotation of the plunger and insure the actuation of the slide-bar, substantially as and for the purpose set forth.

2. In a selective ringing-key, the combination with a plurality of plungers and associated sets of contact-springs adapted to be

individually actuated thereby, of transversely extending detents respectively provided upon said plungers, a universal slide-bar equipped with angularly disposed recesses and under-cut points associated with said detents, a light spring opposing the longitudinal movement of said bar, insulating parts carried by said detents respectively adapted to actuate the contact-springs, and a slotted retaining-member engaged by said detents; the same being positioned to retain the insulating parts in place and insure the vertical movement of the plungers, substantially as set forth.

3. In an operator's selective ringing-key, the combination with a plurality of reciprocating plungers, of sets of contact-springs respectively controlled thereby, a recessed slide-bar mounted at one side to have longitudinal movement, integral detent-members provided upon each of the plungers and having pins extending upon either side respectively to engage the recessed slide-bar and a vertically slotted member, insulating parts carried upon said pins opposite the slide-bar, and a vertically slotted retaining member engaging said pins beyond said insulating parts, and adapted to secure them in their assembled relations and prevent the turning of the plungers, substantially as set forth.

4. In an operator's selective ringing-key, the combination with a plurality of reciprocating plungers, of sets of contact-springs respectively controlled thereby, a recessed slide-bar mounted at one side to have longitudinal movement, integral detent-members provided upon each of the plungers and having pins extending upon either side respectively to engage the recessed slide-bar and a vertically slotted member, insulating parts carried upon said pins opposite the slide-bar, a vertically slotted retaining member engaging said pins beyond said insulating parts, and adapted to secure them in their assembled relations and prevent the turning of the plungers, and an oscillating ringing-key associated with the slide-bar and positioned to impart longitudinal movement thereto in the act of ringing, whereby the plungers are released, substantially as set forth.

Executed by me at Cleveland, this twenty-seventh day of September, A. D. 1906, before the undersigned witnesses.

BURTON W. SWEET.

Witnesses:

V. G. ARMSTRONG,
ALBERT LYNN LAWRENCE.