

No. 672,662.

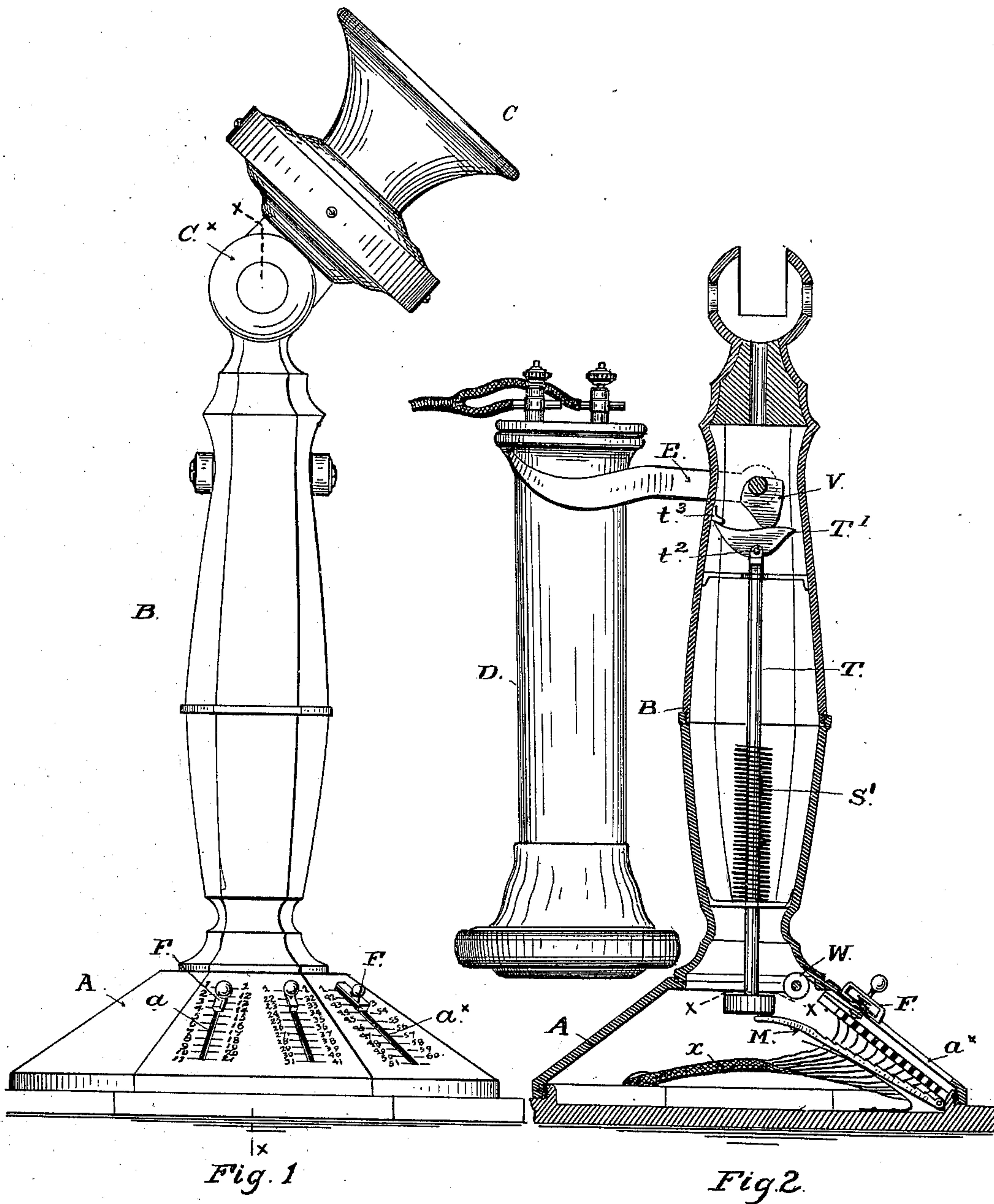
Patented Apr. 23, 1901.

A. K. ANDRIANO.
DESK TELEPHONE.

(Application filed Sept. 25, 1899. Renewed Sept. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

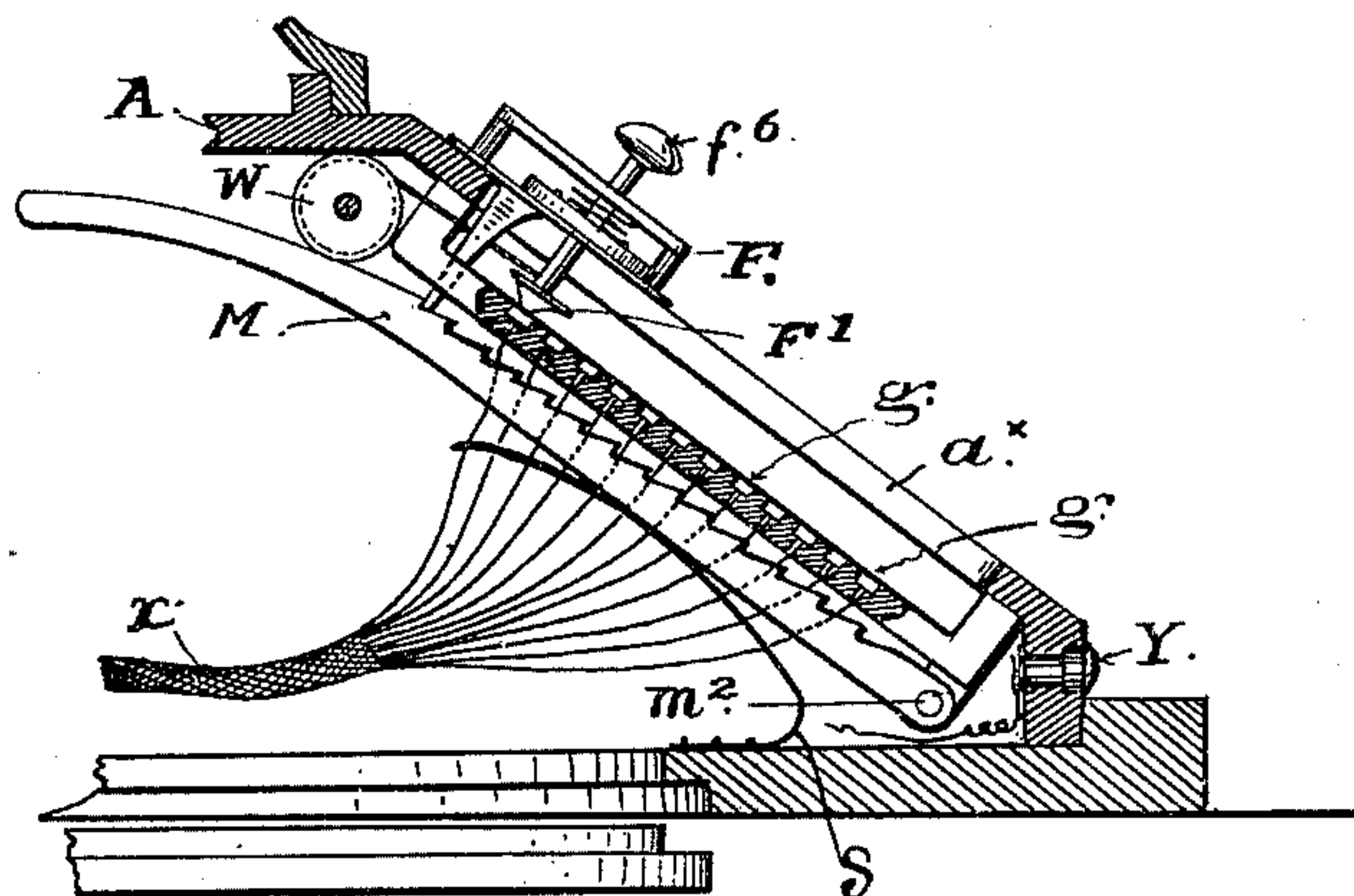


Fig. 3

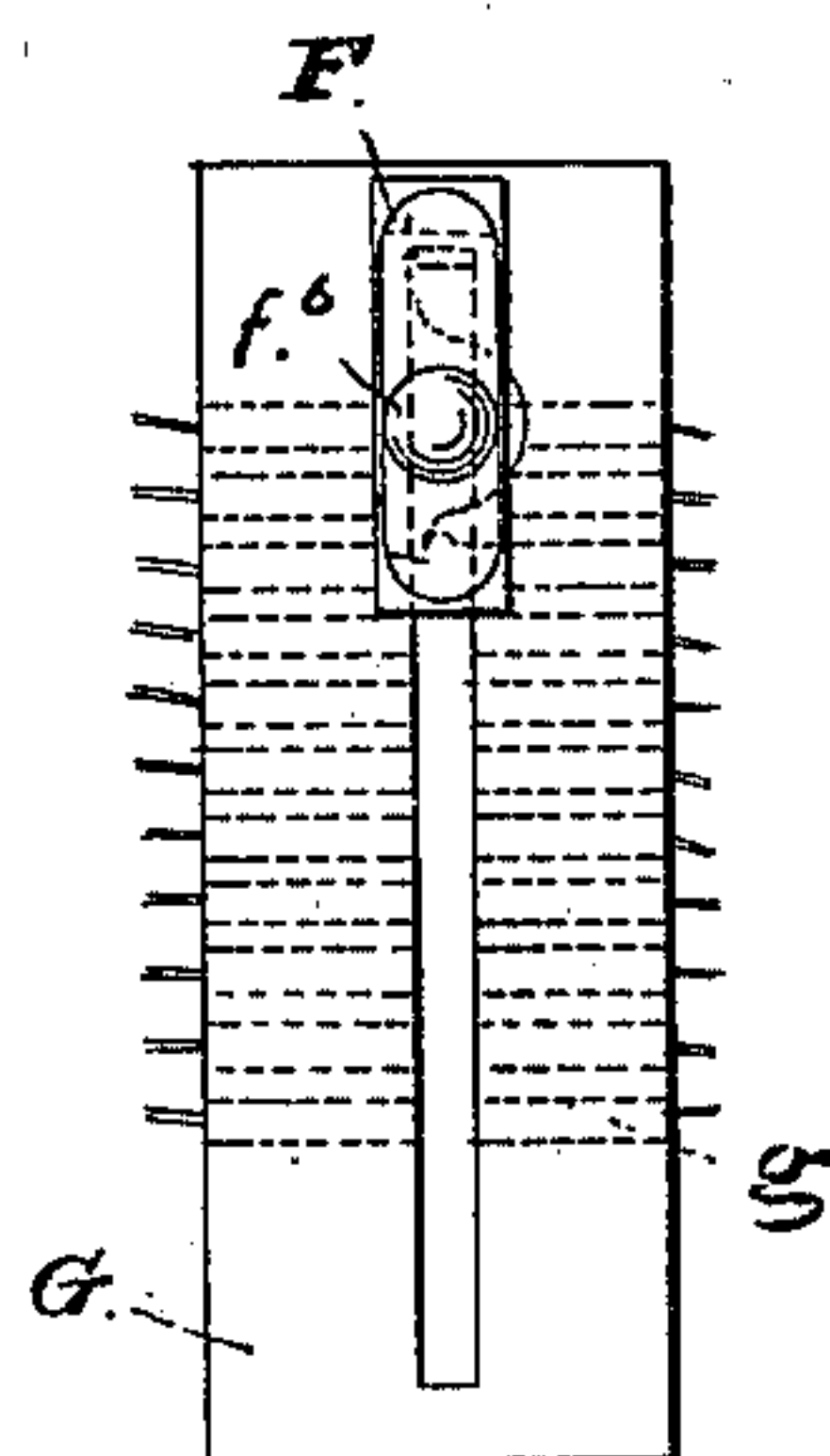


Fig. 4



Fig. 8

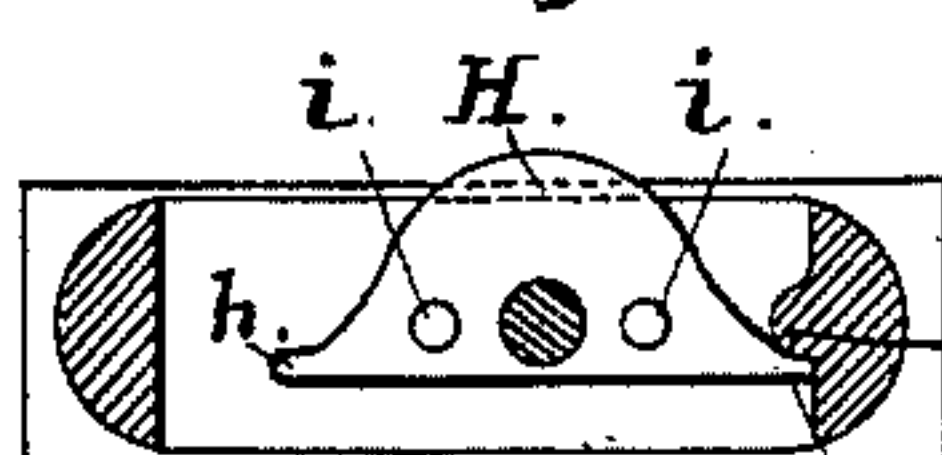


Fig. 7

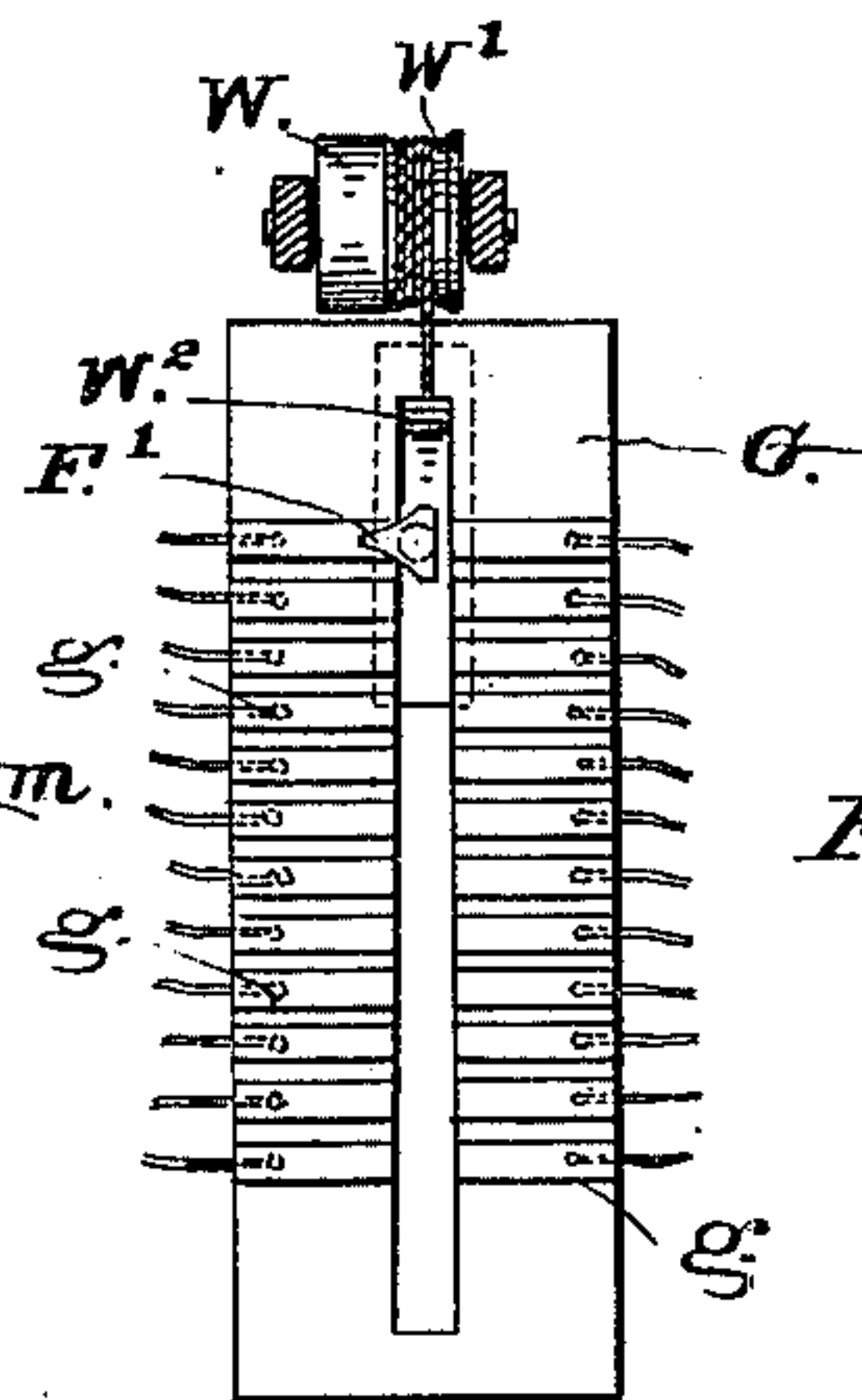


Fig. 5

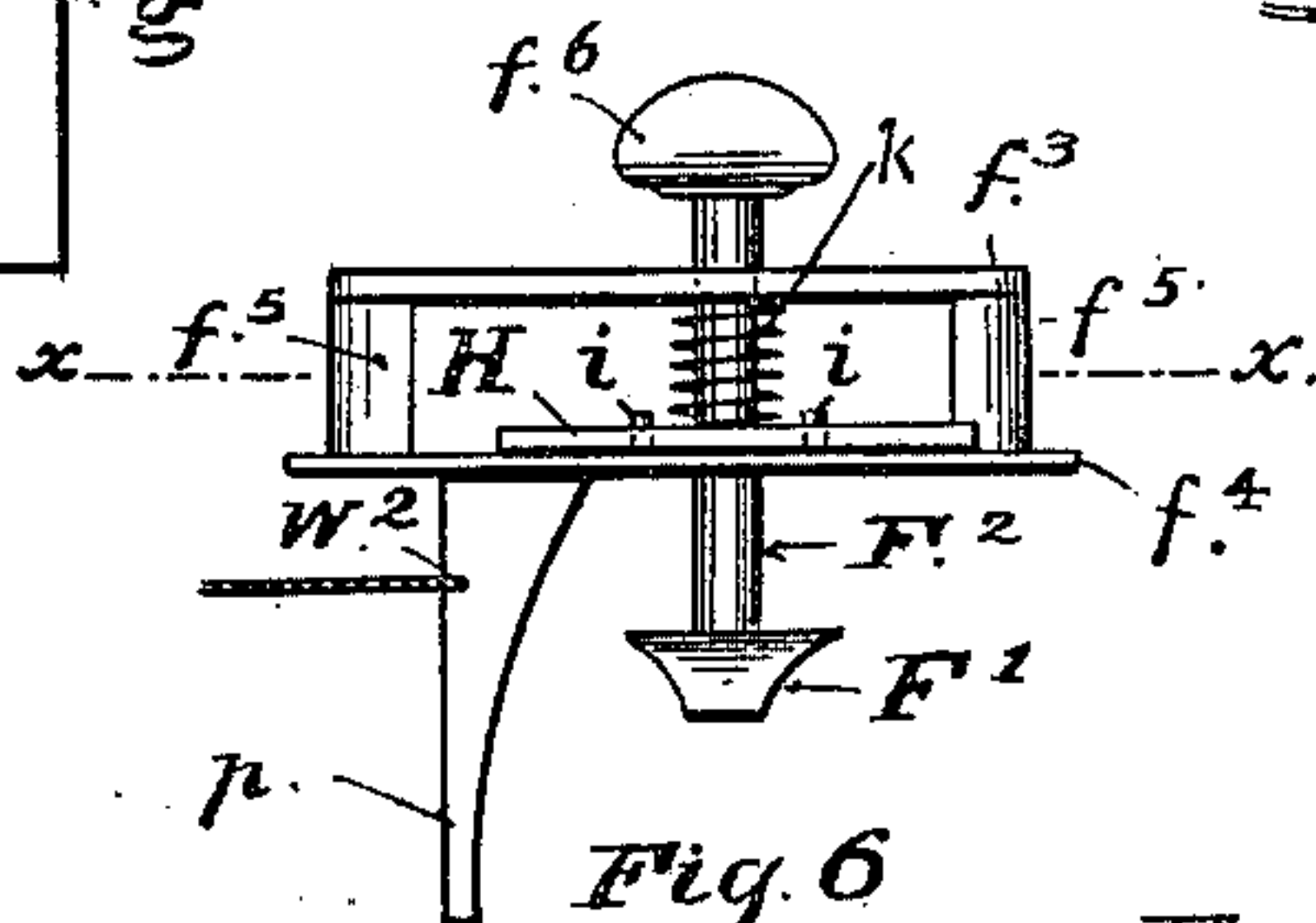


Fig. 6

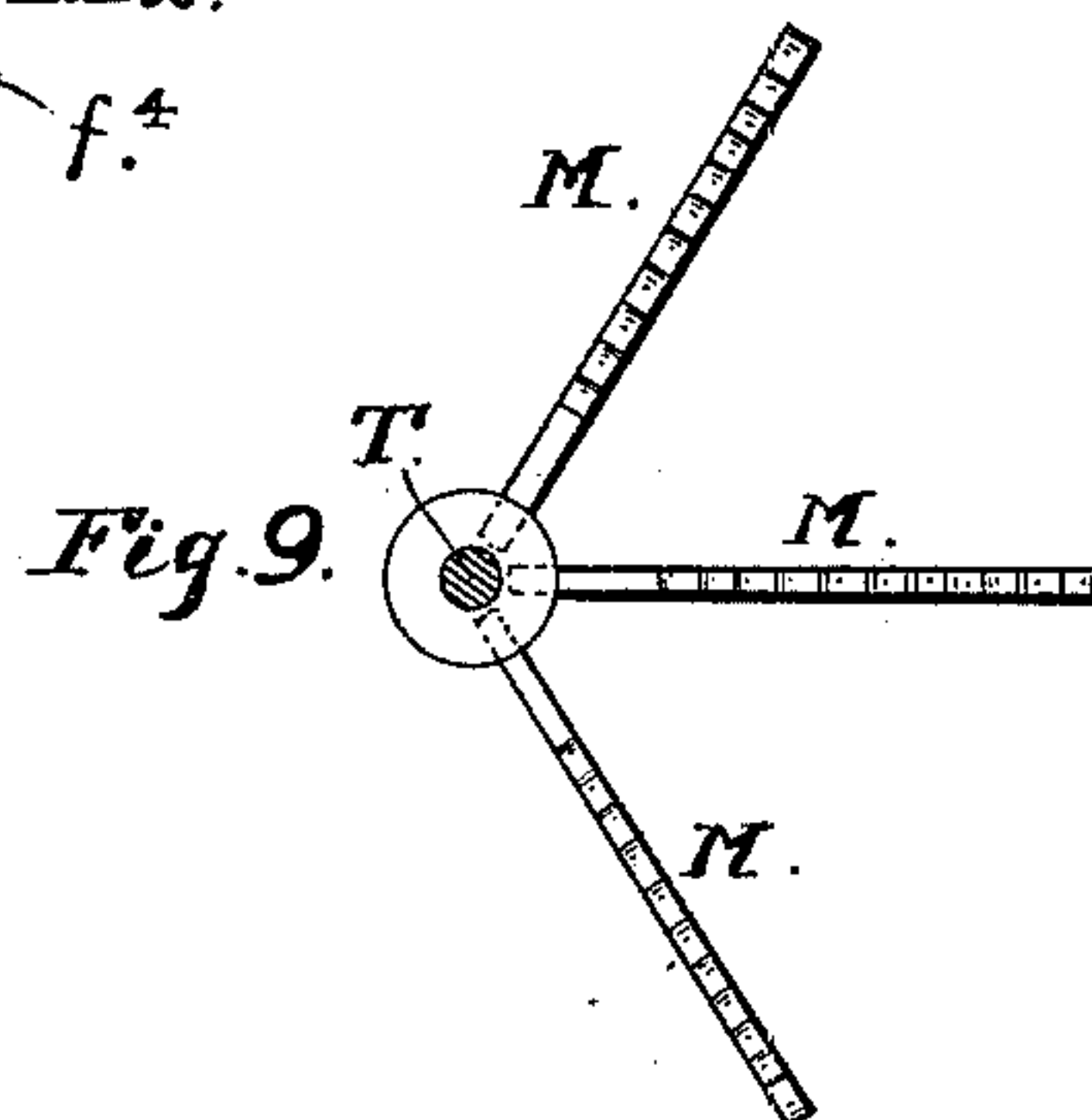


Fig. 9

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UNITED STATES PATENT OFFICE.

ALBERT K. ANDRIANO, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO
THE AUTOMATIC INTERCONNECTING TELEPHONE COMPANY, (INCORPORATED,) OF SAME PLACE.

DESK-TELEPHONE.

SPECIFICATION forming part of Letters Patent No. 672,662, dated April 23, 1901.

Application filed September 25, 1899. Renewed September 17, 1900. Serial No. 30,334. (No model.)

To all whom it may concern:

Be it known that I, ALBERT K. ANDRIANO, a citizen of the United States of America, residing at No. 2212 Union street, in the city and county of San Francisco, in the State of California, have invented new and useful Improvements in Desk-Telephones, of which the following is a specification.

This invention relates to improvements made in portable telephone outfits commonly known as "desk-telephones;" and the same consist in certain novel parts and combination of parts and mechanism, as hereinafter specifically described, and pointed out in the claims at the end of this specification.

The novel and principal parts or features of this invention consist of a portable switch-stand and telephone-support having a hollow base adapted to contain a considerable number of coöperating switch points or contacts and a hollow post or upright support for the receiver and the transmitter, together with coöperating stationary and movable contacts and a switch-throw-off mechanism operated by the movement of the telephone-hook and adapted to release and restore to its normal position by the act of hanging up the receiver any one of the movable contacts previously set to make a switch.

The improvements include also a movable contact or switch piece of novel construction capable of coöperating with stationary contacts arranged in a line or row on both sides of the guide-slot in which the switch-piece moves.

The stand has a capacity for a considerable number of switches, and the same are arranged in such compact form as to be brought under the eye of the operator and at hand for convenient and ready selection.

The nature of these improvements and the manner in which I proceed to construct, apply, and carry out the same are explained at length in the following description, reference being had to the accompanying drawings, forming part thereof.

Figure 1 is an elevation of a desk-telephone constructed according to my said invention. Fig. 2 is a vertical section through the center of the base and pillar on the line $x x$, Fig. 1, the transmitter being removed. Fig. 3 is a

vertical section in detail, on an enlarged scale, of one of the sets of stationary contacts in the base, the section being taken longitudinally through one of the slots for a movable contact. Fig. 4 is a plan or top view of a set of stationary contacts and the movable contact coöperating with them to throw the talking-circuit of the telephone into working connection with any one of the stationary contacts to which the wires from the remaining telephones in the system are connected. Fig. 5 is a reversed plan of Fig. 4. Fig. 6 is a side view, on an enlarged scale, of the movable contact-piece. Fig. 7 is a longitudinal section through the line $x x$, Fig. 6. Fig. 8 is a top view in detail of the locking-plate on the post of the movable contact or switch piece. Fig. 9 is a horizontal section at $x x$, Fig. 2, through the rod of the throw-off mechanism connected with the telephone-hook and showing in plan the ratchet-bars controlling three separate movable contacts.

The form of base which I prefer for the switch-stand is polygonal in outline, with the sides or faces sloping from the central post downwardly to the rim, because such form of base is capable of containing a considerable number of coöperating contacts by disposing them in separate sets or series among as many of the sides or faces of the polygon as may be required for them, and at the same time it affords sufficient space or room within the base for all the binding posts and wires.

The hollow post forming the support for the transmitter and receiver incloses the throw-off mechanism and the wires running to the transmitter. These parts are indicated in the several figures of the drawings by the letter A for the hollow base and B for the hollow post.

C is the transmitter, attached to the top of the post in the usual manner by a hinge-joint C^x , so as to be adjustable at different angles.

D is the receiver, and E is the telephone-hook to carry the receiver when not in use.

The coöperating contacts or switch-points, by which the talking outfit carried by the stand is connectible with any one of the remaining sets of instruments composing the system, are arranged in one or more sets on the slanting sides of the base, and as each

face of the polygon will accommodate at least one set of stationary contacts and a movable contact-piece it will be seen that a considerable number of contacts may be disposed in a compact manner in a base of comparatively small size occupying but little desk-room. Fig. 1 of the drawings illustrates a base containing three sets or groups of stationary contacts, affording interconnection for sixty other telephones; but the number of sets or groups of contacts may be increased or diminished at will in the construction, according to the requirements of the system.

A single movable contact F operates on two rows of stationary contacts g , placed along the two sides of the guide-slot a^x in the base, the movable contact being arranged to slide along the slot and being also reversible or changeable from one side to the other of the slot by a rotary movement, whereby the sliding contact-piece can be shifted at will from an operative position in line with the row of stationary contacts on one side of the slot to a corresponding position in line with the contacts on the opposite side of the slot. The construction of this reversible sliding contact and its operation upon the stationary contacts will be understood more clearly from the details of Figs. 4 to 9 of the drawings.

The metallic strips g , forming the stationary contacts, are fixed on the under side of the slotted plate at intervals apart properly insulated, and the individual wires from the cable x run through the insulating-block G to the backs of the strips.

The movable contact F is composed of a contact-piece F' , fixed on the foot of a post F^2 , having bearings in the slide in which it is rotatable. By giving this post a half-turn in the slide its foot F' is thrown from the contacts on one side of the slot to those on the opposite side and in working position to slide upon and make contact with any selected one of the strips g in that row. The slide is formed of a top plate f^4 and a bottom plate united by short pillars f^5 and fitted to slide in the slot in the base. The post F^2 , supported in these plates, has a limited longitudinal movement in its bearings in the slide, as well as a rotatable movement, to reverse the contact-piece. On the lower end of the post beneath the slotted plate the contact-piece F' is fixed, and on the upper end a head or knob f^6 is provided for rotating the post as well as for moving and setting the slide.

The latch-plate H, secured on the post between the two plates of the slide, limits and controls the extent and direction of the rotative setting movement by engaging a stop m on one of the pillars, the plate being provided with horns or projections h for that purpose. The post is locked and kept from turning by the fixed pins i on the slide setting into holes in the plate H, the last-named piece being held down by a coiled spring k .

In the operation of shifting the sliding con-

tact from one side of the slot a^x into operative position with any selected strip g in the row of stationary contacts on the opposite side of the slot the post is first drawn out to release the plate H from the locking-pins i and the post is rotated by a half-turn, throwing the contact F' around to the opposite side, after which the post is released to let the locking-plate seat on the pins i on the bottom plate of the slide, on which it is held by a coiled spring k , bearing on the plate.

To release the plate H from the pins i before the post can be turned, the post has a limited movement in its bearings in the slide before the contact-piece F' can be shifted from the row of contacts g on one side of the slot to those on the other side, and when such reversing movement of the contact F' is to be made the post is drawn out and then partially rotated and locked again before drawing down the slide to the desired switch-number on the side of the slot.

The locking means to hold the slide in position opposite the switch-number consists of the hinged ratchet-bar M, located under the slot and engaging a dog p on the slide. This piece M is pivotally attached at the lower end to the base, and on that point as a center it is movable in an arc, so as to engage and hold the slide when moved forward against the dog or by movement in a contrary direction to release the slide and allow it to return to the top of the slot. The ratchet-bar is held up to the dog p in working position by a spring S, and the slide is returned to the end of the slot as often as released by a spring-barrel W and a cord W' , having one end attached to the slide at w^2 and the other end to the barrel around which the cord is laid.

The throw-off device consists of a push-rod T, held in guides t in the post, a tappet T' , pivotally attached to the upper end of the rod by a loose joint t^2 , and a cam-shaped block V, fast on the pivoted end of the telephone-hook, to which piece the tappet is held by a coiled spring S' , surrounding the rod T.

The ratchet-bars of the several slides set on converging lines, so as to bring their free ends directly under the center of the post and beneath the head on the lower end of the push-rod. The cam V is of such shape that in the upward movement of the telephone-hook when the receiver is taken off the rod T is allowed to rise and restore the ratchet-bars to position in contact with the slides, or by the descending movement of the hook under the weight of the hung-up receiver the cam will force down the push-rod and press back the ratchet-bars away from the slides, thus acting through the single push-rod upon the ratchet-bar of that one of the slides which may have previously been called into action. The form of the tappet and cam is shown in Fig. 2.

The pivoted tappet has a fulcrum or bearing against a lug or fixed projection t^3 in the

post, and the cam produces longitudinal movement of the rod by virtue of the rocking movement imparted to the tappet.

5 All the contacts and connections are readily accessible through the bottom of the base for inspection and repairs, for which purpose the shell or body of the base is removable from the bottom plate, as shown in Fig. 2, or an opening is provided in the bottom, to be closed by a door or plate, as shown in Fig. 3.

In a convenient part of the base is located the push-button Y for closing the battery on the ringing-circuit.

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

1. In a desk-telephone, the combination of a switch-stand comprising a hollow base having slanting sides or faces constituting a receptacle for the switching mechanism and a hollow post forming a support for the receiver and the transmitter, stationary contacts beneath the slanting sides of the base in line with a guide-slot therein, a movable contact cooperating with the stationary contacts and slidable along the slot from the outside, a slide carrying said movable contact, a ratchet-bar engaging the slide to lock the same at any point in the length of the slot, a spring adapted to return the slide to the top of the slot when released from the ratchet-bar and means actuated by the movement of the telephone-hook on the post when the receiver is hung up to throw off the ratchet-bar and release the slide.

2. In a desk-telephone, the combination of a hollow post, a hollow base having slanting sides or faces, a slotted opening therein, stationary contacts arranged in separate sets along both sides of the slotted opening, a slide adapted to move in said opening, a contact-piece carried by and rotatably adjustable in the slide, means for locking the slide at any point in the length of the slot, a telephone-hook pivotally mounted in the post, and

means connected with said hook and adapted by the movements of the same to throw off the locking means in the base and release the slide and a spring acting to return the slide to the end of the slot when so released.

3. The combination with stationary contacts arranged in two sets on opposite sides of a guide-slot; of a slidable contact comprising a slide movable along the slot, a rotatable contact-piece mounted on the slide, means for reversing the position of said contact to contact with said stationary contacts on either side of the slot, means for locking the rotatable contact in the slide and means for holding the slide at rest at any selected one of the stationary contacts along the line of that slot.

4. The combination with stationary contacts arranged in line with and on opposite sides of a guide-slot, of the slide F, the rotatable post F², locking-plate H, locking-pins i, stop h and contact-piece F' on the post rotatable thereby.

5. The combination with a plurality of stationary contacts arranged in separate sets each in line with a guide-slot, a movable contact in each slot cooperating with the stationary contacts in line therewith, a movable ratchet-bar behind and in line with each slot pivotally attached at the lower end, a projection on the movable contact engaging the teeth of the ratchet-bar and a spring holding said bar up to the projections, a push-rod having a head on the lower end located directly over the free ends of all the ratchet-bars to contact therewith, a spring holding the same off the ratchet-bars, and means connecting the push-rod with the telephone-hook to press down the rod and cause the same to act simultaneously on all the ratchet-bars when the receiver is hung up.

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

ALBERT K. ANDRIANO. [L. S.]

Witnesses:

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