

No. 844,278.

PATENTED FEB. 12, 1907.

J. J. GHEGAN.  
TELEGRAPH KEY.  
APPLICATION FILED OCT. 18, 1905.

Fig. 1.

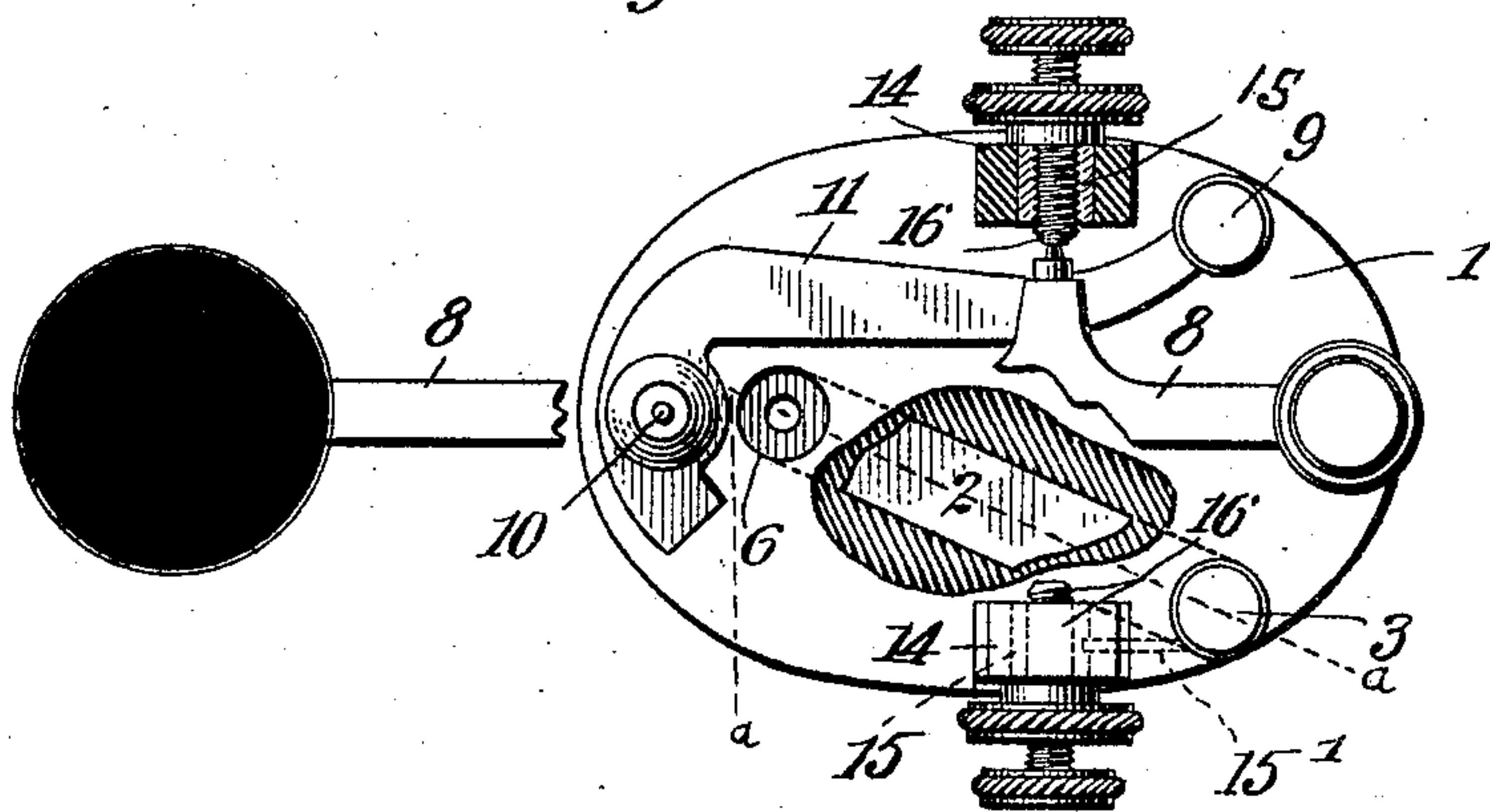
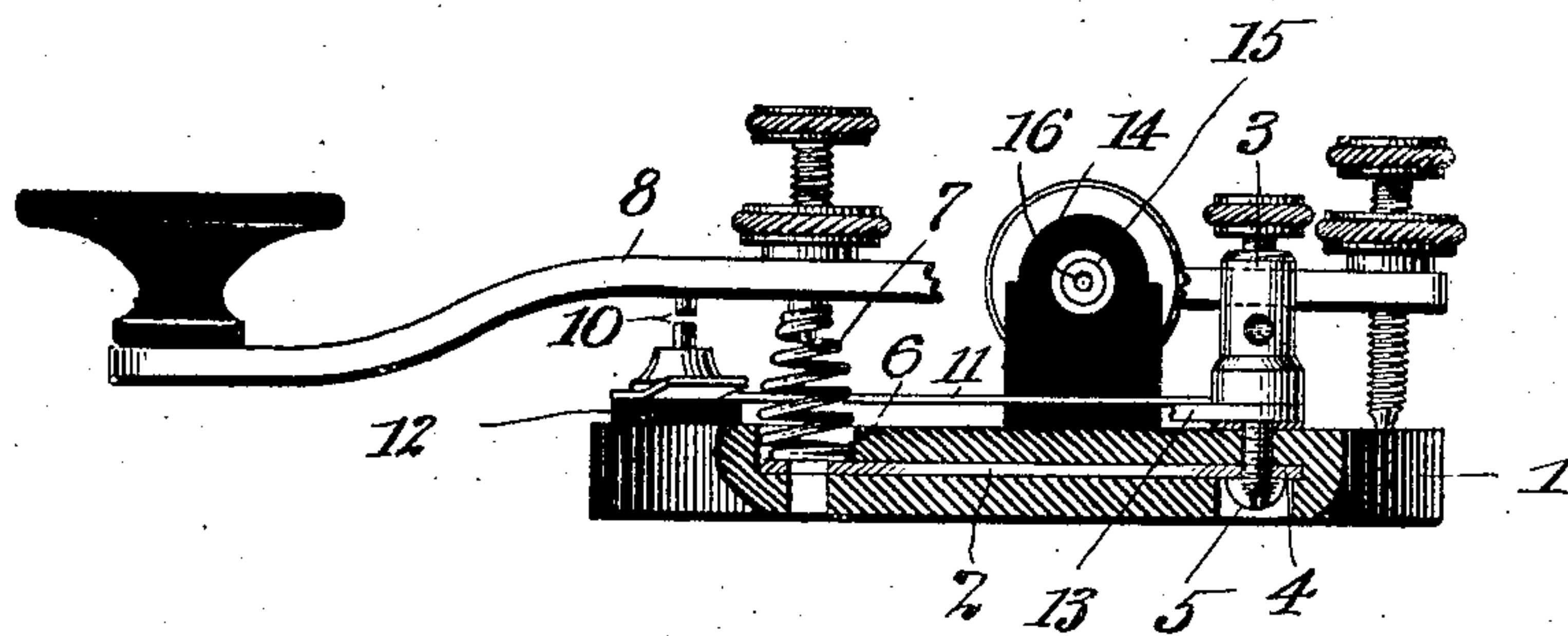


Fig. 2.



Witnesses  
James S. Gbur  
Edwin Charles

Inventor:  
J. J. GHEGAN,  
By Attorney  
Albert Nathan

# UNITED STATES PATENT OFFICE.

JOHN J. GHEGAN, OF NEWARK, NEW JERSEY.

## TELEGRAPH-KEY.

No. 844,278.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed October 18, 1905. Serial No. 283,236.

*To all whom it may concern:*

Be it known that I, JOHN J. GHEGAN, a citizen of the United States, residing in Newark, in the county of Essex and State of New Jersey, have invented a certain new and useful Telegraph-Key, of which the following is a specification.

This invention relates to improvements in telegraph-keys, and refers more particularly to keys of that class intended for use in connection with currents of comparatively high potential.

Heretofore keys have been mainly employed in connection with very low potential currents, and therefore it has sufficed in practice to provide such keys with a metallic base from which various current-carrying parts were insulated by septa of non-conducting material, such as mica, fiber rubber, and the like. The evolution of the art of telegraphing has, however, gradually increased the potential of the employed currents, and the telegraph-keys have consequently been provided with insulating septa of higher resistance and better construction; but notwithstanding the greatest care in and assembling the parts of such keys short-circuiting frequently occurs in use, resulting in interruption of service in telegraph-lines, which is a most serious defect.

My invention has in view, among other objects, an adaptation of telegraph-key in which the parts are so arranged and combined that it is capable of efficiently carrying currents of high potential without any possibility of incurring breakdowns, such as the above-recited.

A further object is to formulate an instrument of the class stated in which the component parts are all simple in construction, adapted to being expeditiously manufactured at small cost, and are so devised in their mutual relationship that they may with facility be assembled into a complete key characterized by a high degree of durability under the most exacting and trying conditions attending hard service.

An additional object is to produce a telegraph-key of compact structure and neat appearance in which the number of contacts will be reduced to a minimum and in which certain current-carrying conductors will be in the main completely insulated and guarded against displacement without interfering with

easy accessibility to the terminals thereof for the purpose of cleaning and otherwise improving the contacting surfaces thereof.

Other objects and advantages will be in part obvious and in part pointed out hereinafter.

With these and other ends in view my invention accordingly consists in the features of construction, combinations of parts, and arrangement of elements herein set forth as an exemplification of a preferred embodiment of my invention.

That the same may be more fully understood and made comprehensible to others skilled in its relating arts I have appended as a part of this specification drawings of the same, and while the underlying principle of the invention may be otherwise applied in various modifications falling within the scope of the claims the herein-stated form is that which I prefer to employ in ordinary practice, and now, upon referring to such drawings by means of reference-letters, it will be noted that like characters denote corresponding parts throughout all the views, of which—

Figure 1 is a plan view showing the general arrangement of a telegraph-key embodying my invention and showing in partial section one standard cut away to make clear the manner in which I bush the same and also showing a portion of the base-board cut away so that the conductor embedded therein will appear to view. Fig. 2 is a side view of Fig. 1, showing in section the part underlying line *a a* in Fig. 1, whereby the embedded conductor is more distinctly shown. The lever is also illustrated as partially cut away in this figure, so that the arrangement of bushing in one of the standards will appear.

Referring now to such drawings, more particularly by means of reference-letters, I denote the base-board, which is composed of any suitable non-insulating material. In practice I prefer to employ an insulating material of a plastic nature for this purpose in order that the same may be readily molded while in a plastic condition and thereby conveniently adapted to any desired shape.

A conductor 2 is embedded between the upper and lower surfaces of the base-board during the formative construction of the same. This is conveniently done when such base-board is of a plastic material by merely suitably positioning the conductor 2 within



the mold for giving the base its desired configuration. Other modes may obviously be resorted to for suitably embedding the conductor. Thus the base-board may be composed of two layers united and having the conductor embedded intermediate the two.

A binding-post 3 in contact with one end of the embedded conductor serves to lead the current thereto, and such post may also directly contact with the lever 8 through an interposed conductor embedded in the standard and contacting with conductor 15'. In order that a good contact may be insured, I prefer to cut away a portion of the under surface of the base-board, so as to expose a small section of the embedded conductor, as shown by 4. A screw 5 bears with its head against the under side of the conductor and has its shank passing through a perforation in the same into screw-threaded engagement with the overlying binding-post. As will be seen, ready access is afforded to these parts in order that the contacts may be cleansed or otherwise adjusted without disturbing the embedded conductor, which is rigidly held in place. The upper surface of the insulating base-board is cut away in a like manner at 6, which is just over the other end of the embedded conductor, so as to expose a portion of the same to view. Resting with its lower end in such orifice is a helical or other spring 7, consisting of a metallic conducting material in order that the spring may serve to contact with the exposed surface of the conductor and carry the current into the lever 8, which is at the same time maintained normally out of contact with the other binding-post 9 by means of such spring. It is clear that with the parts in the position shown, the spring is securely retained in place; but by merely releasing the lever 8 from its pivots the spring 7 may be removed and various contacting surfaces between the conductor and lever readily brightened or otherwise adjusted.

Through the usual platinum contact-points 10 connection is made with a conductor 11, which I have here shown as running along above the surface of the base-board into contact with a binding-post 9. Such conductor preferably terminates and rests upon a slight elevation 12, which it overlaps to form a spring-clip and contact with the circuit-closer 13, pivoted at its other end to binding-post 3. Obviously conductor 11 may, if so desired, be embedded in a manner similar the aforesaid conductor 2 and may make contact with the lever 8 in any desired manner, either by integrally rising through the mass of the base or by means of short contact-pieces resting thereon.

In order that the full benefit may be obtained in using a base-board of moldable material, I prefer to so construct the standards 14 that they are integral with such base-

board and form one and the same piece therewith. Accordingly such standards will be composed of insulating material, which is relatively soft, and that wear on the same may be reduced to the lowest degree I have provided around the orifices extending there-through bushings 15, which are molded and embedded into the mass of the standard during its formative construction. Such bushing is of brass or other wear-resisting substance and is centrally provided with an internally-threaded aperture to receive the adjustable pivots 16, provided as bearings for the trunnions of the lever. It will accordingly be seen that I have thus provided a telegraph-key construction characterized by the greatest of simplicity and durability and one well adapted to achieve the objects of my invention. Opportunities for short-circuiting are for all practical purposes entirely eliminated, the heretofore necessary washers and other thin insulating devices are completely obviated, and the whole structure is exceedingly compact and pleasing in appearance, and otherwise the instrument is a great improvement, both from an electrical and a mechanical standpoint, over prior existing devices.

Since many changes could be made in the above construction and many embodiments of this invention might be made without departing either from the spirit or the scope thereof, although cursory inspection causes the same apparently to widely differ therefrom, I propose that all matter contained in the above description or shown in the accompanying drawings shall be interpreted merely in an illustrative and not in a limiting sense. Furthermore, I desire it to be understood that the language in the following claims is intended to cover all the generic and specific features of this invention and all statements of the scope thereof, which is a matter of language, might be said to fall therebetween.

I accordingly claim, and desire to secure by Letters Patent, the following:

1. In a telegraph instrument, a base of plastic material having insulating properties, a conductor embedded therein between the top and bottom surfaces thereof, aligned recesses exposing a portion of said conductor from the top and bottom of said base, a screw in said recesses having a portion in abutment with said conductor and establishing electrical contact therewith, the shank of said screw protruding above the said conductor, and a binding-post affixed to said protruding shank.

2. In a telegraph instrument, a base of plastic insulating material, a make-and-break lever mounted thereon and a suitable conductor embedded therein intermediate the top and bottom surfaces thereof, said base being provided with a recess exposing a terminal of said conductor whereby elec-



trical contact may be made therewith, and means establishing electrical communication between said lever and terminal.

3. In a telegraph instrument, a base of insulating material, and a suitable conductor embedded therein intermediate the top and bottom surfaces thereof, said base having a recess overlying one terminal of said conductor to form a seat for a suitable spring contacting directly with said conductor and provided over the opposite terminal with a recess leading thereto whereby a suitable binding-post may be affixed into direct contact with said conductor.

4. In a telegraph instrument, a base of plastic insulating material having portions thereof rising to constitute standards, metallic bushings affixed within apertures extending therethrough, said bushings being internally screw-threaded and adapted to receive adjustable pivots to resist the wear thereof, a lever carried by said pivots and a suitable conductor embedded within the base between the bottom and top surfaces thereof and entirely circumscribed by the plastic material constituting said base, said conductor rising through one of said standards into contact with said bushing.

5. In a telegraph instrument, a base composed entirely of insulating material having a portion thereof constituting a slight elevation, binding-posts mounted on said base, a suitable conductor leading from one of said posts and resting upon said elevation and terminating a distance therebeyond to form a suitable contacting clip, and a circuit-closer pivoted to another binding-post and adapted to be swung into engagement with said clip.

6. In a telegraph instrument, a base composed entirely of insulating material and having a portion thereof constituting a slight elevation, binding-posts mounted on said base, a suitable conductor leading from one of said posts and resting upon said elevation and overlapping the same to form a suitable contacting clip, a circuit-closer pivoted to another binding-post and adapted to be swung into contacting engagement with said clip, and a suitable conductor entirely embedded in said base and contacting at one end with one of said binding-posts and at the other end with means intermittently contacting with the aforesaid conductor.

7. In a telegraph instrument, a base of insulating material having portions integrally rising to constitute suitable standards, a

make-and-break lever pivotally carried by said standards, a conductor leading from a suitable binding-post and terminating in a contact beneath said lever, a suitable conductor embedded in said base, the latter having a recess overlying one terminal of said conductor to form a seat, a suitable spring in direct contact with a support for said conductor for electrically uniting the same to said lever and a binding-post mounted on said base and contacting with the opposite terminal of said embedded conductor.

8. In a telegraph instrument, a base of insulating material having portions integrally rising to constitute suitable standards, adjustable pivot-bearings mounted in said standards, bushings interposed between said bearings and standard to take up the wear of the same, a make-and-break lever pivotally mounted in said bearings, a conductor leading from a suitable binding-post and terminating in a contact beneath said lever, a suitable conductor embedded in said base, the latter being provided with a recess overlying one terminal of said embedded conductor, a suitable spring resting directly upon said conductor within said recess and electrically uniting such conductor with the aforesaid overlying lever, said base being also provided over the opposite terminal of said embedded conductor with a suitable aperture leading thereto whereby a binding-post may be secured on said base in contact with the underlying embedded conductor, and a circuit-closing lever pivoted to said binding-post and adapted to be swung into electrical engagement with the first-mentioned conductor.

9. In a telegraph instrument, a base of insulating material, a conductor embedded therein intermediate the top and bottom surfaces thereof, said base being provided with a recess leading from its top surface to a terminal of said conductor, a spring seated within said recess and resting in direct contact upon said conductor, and a make-and-break lever pivotally carried by said base and resting in direct contact with the upper end of said spring.

In testimony whereof I have affixed my signature in the presence of the two subscribing witnesses.

JOHN J. GHEGAN.

Witnesses:

JOS. K. DE LACY,  
ALBERT NATHAN.