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R. STEENECK

1,773,325

TELEGRAPH KEY

Filed May 6, 1929

Fig. 1.

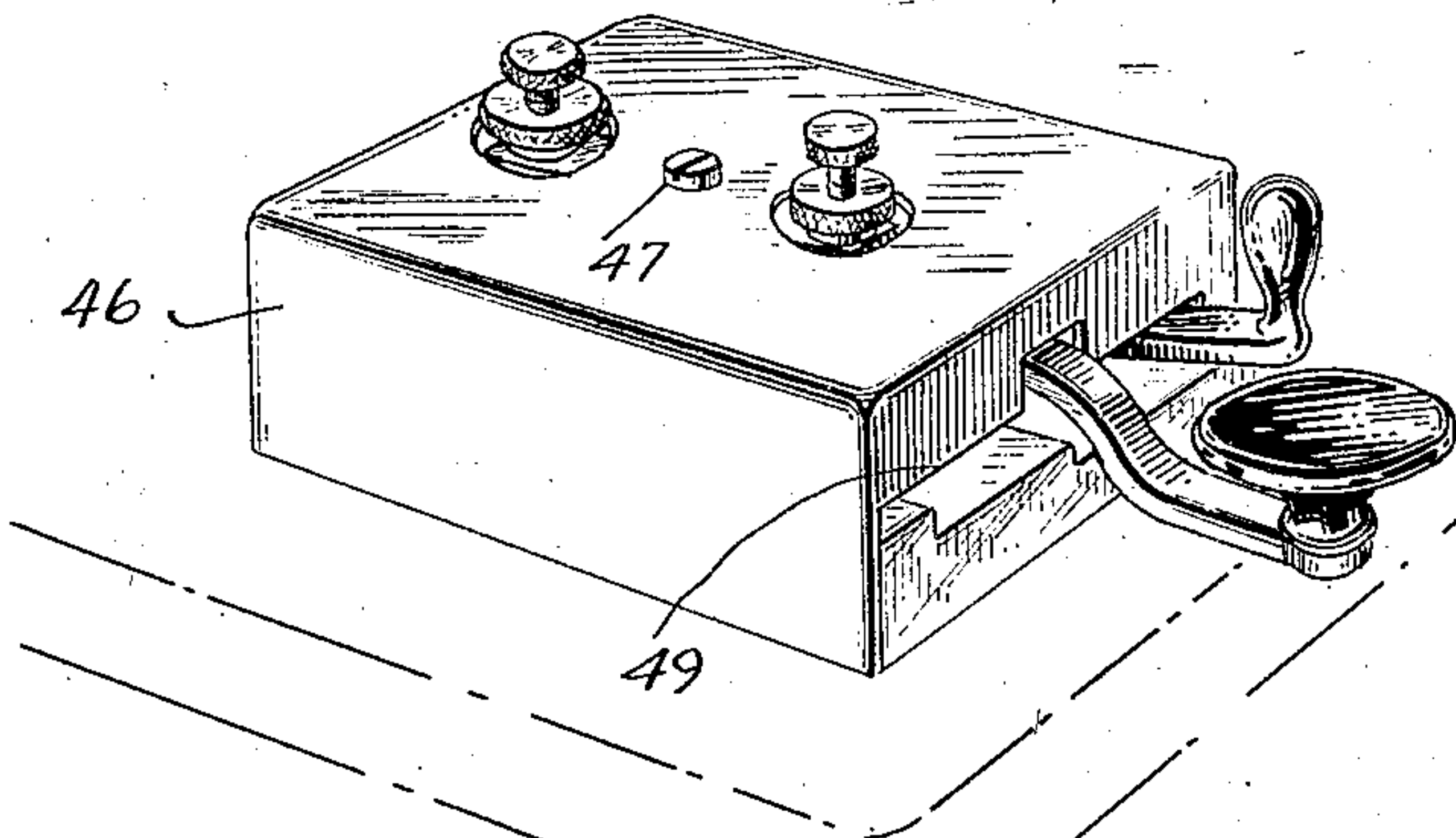


Fig. 7.

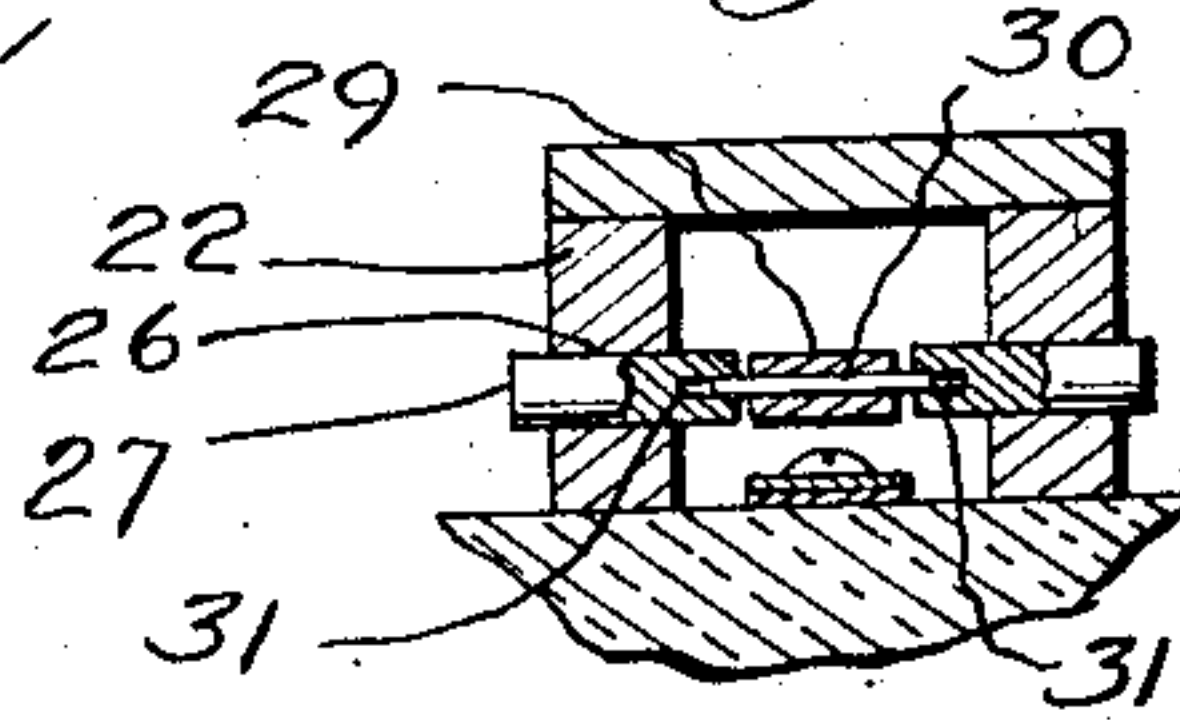


Fig. 2.

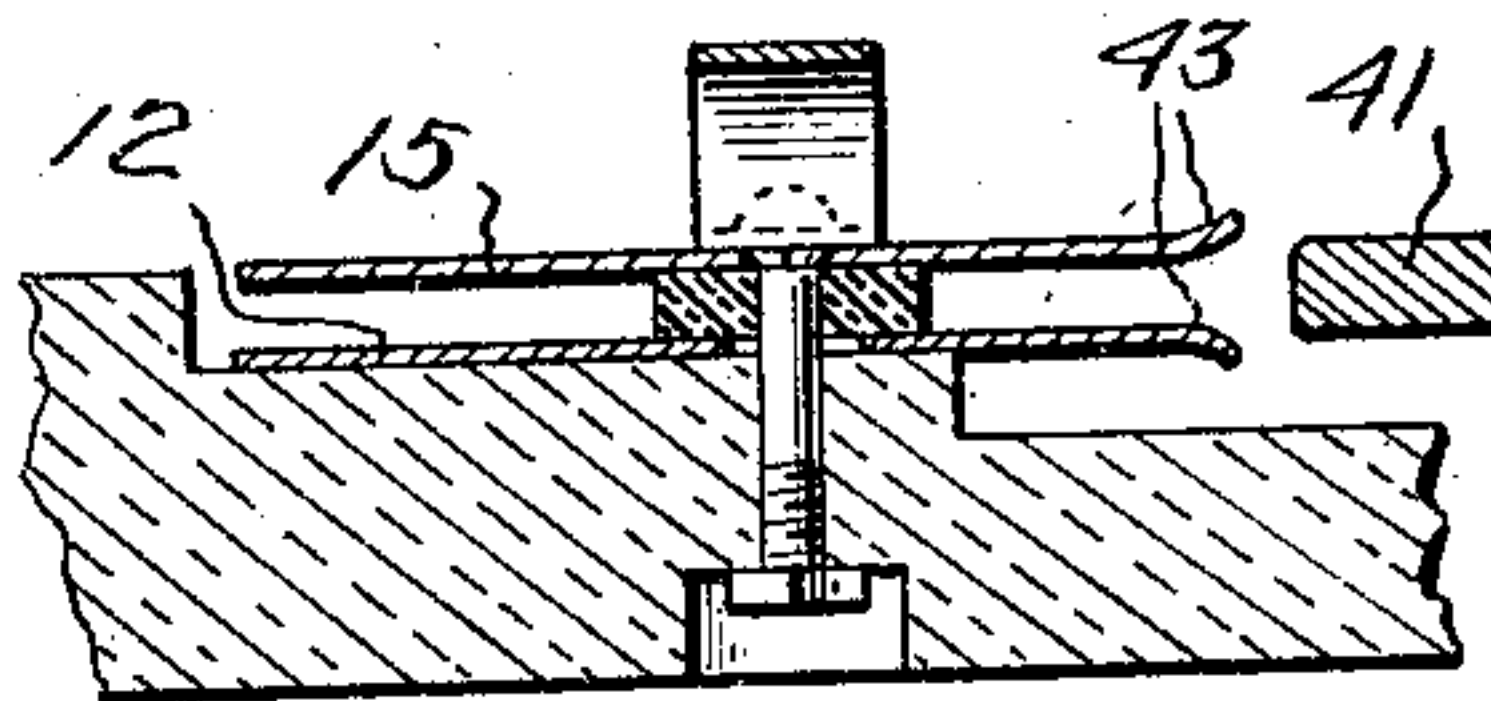
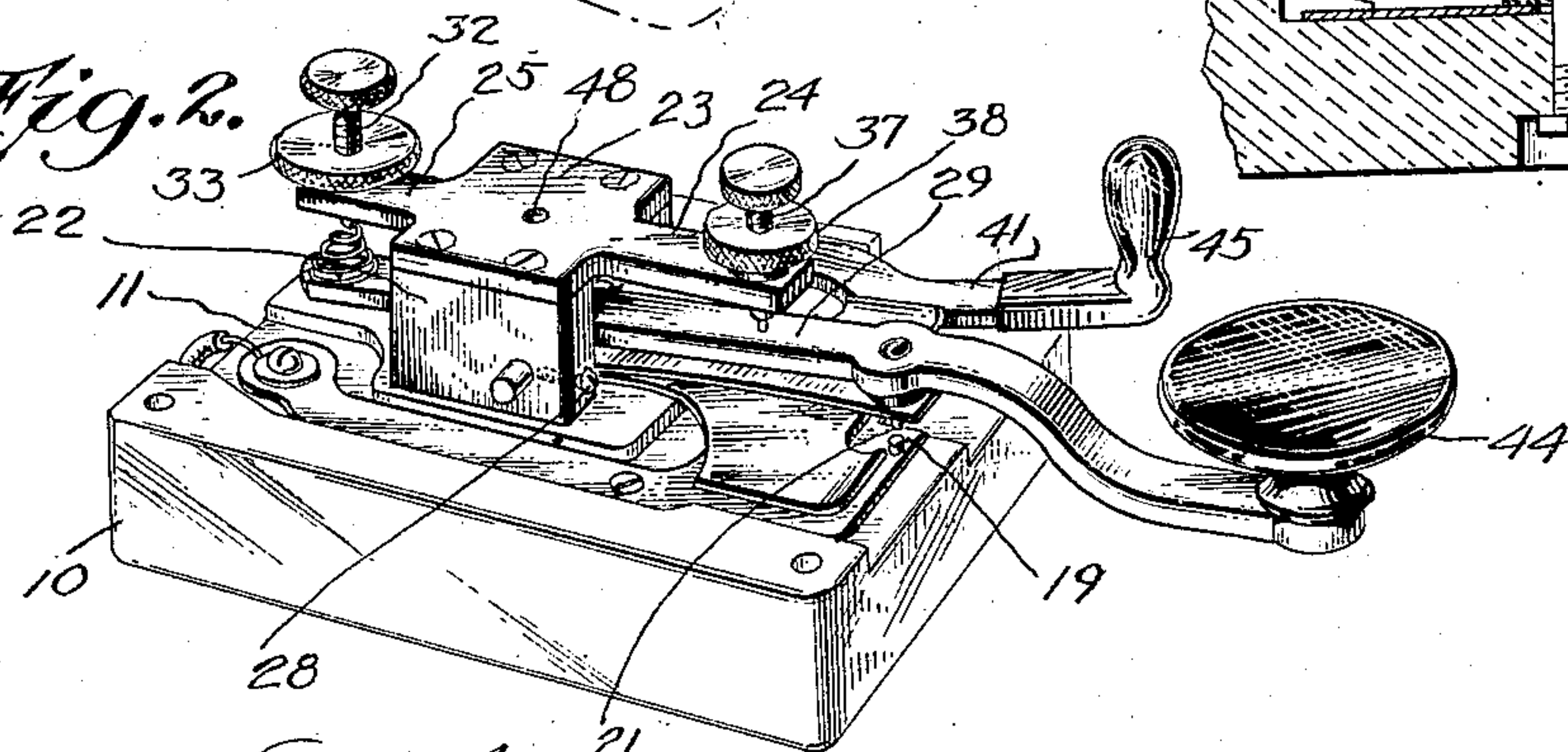


Fig. 6.

Fig. 3.

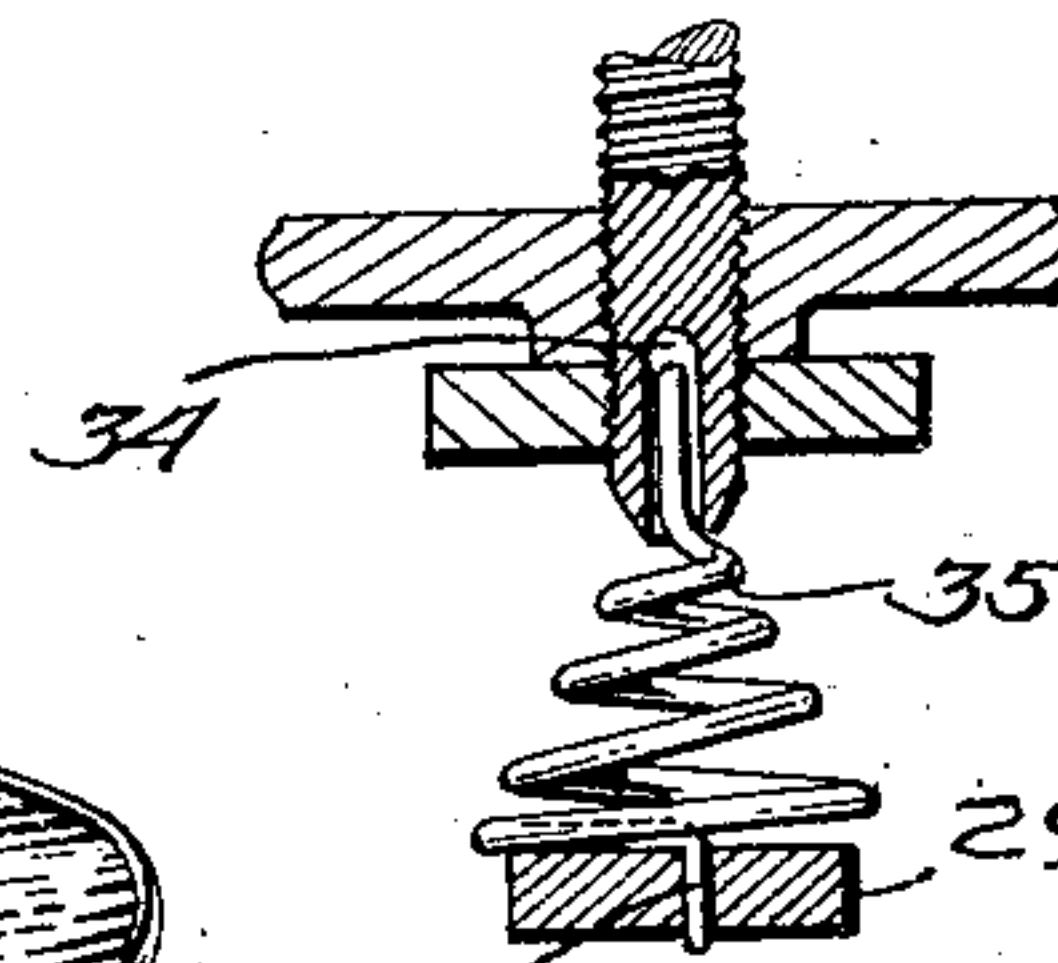
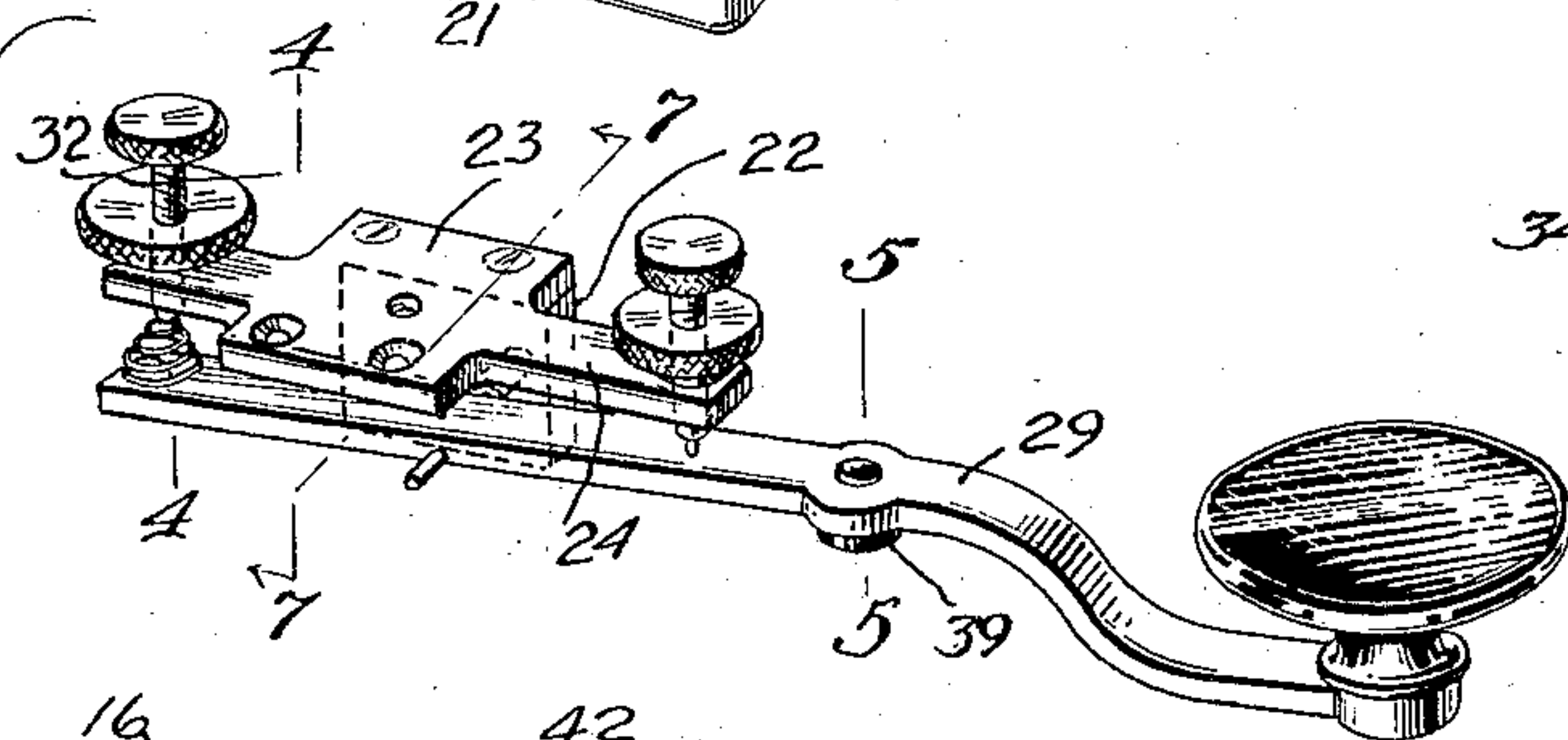


Fig. 4.

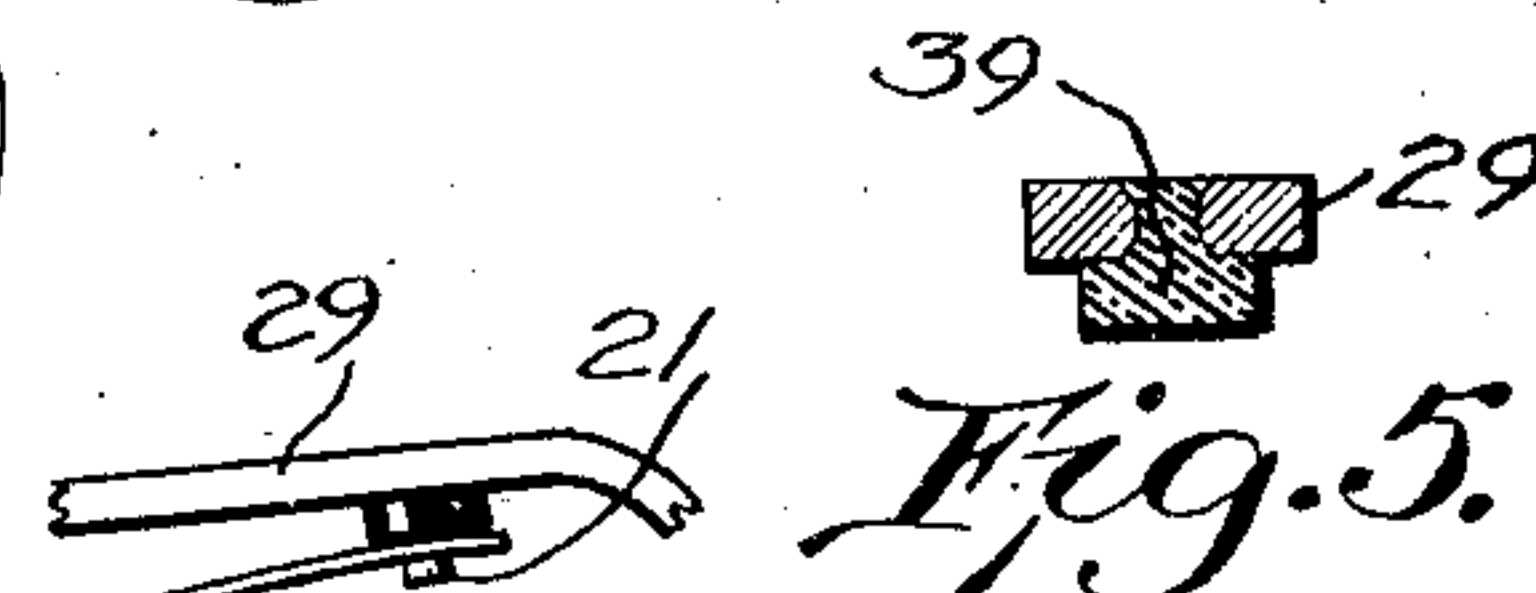
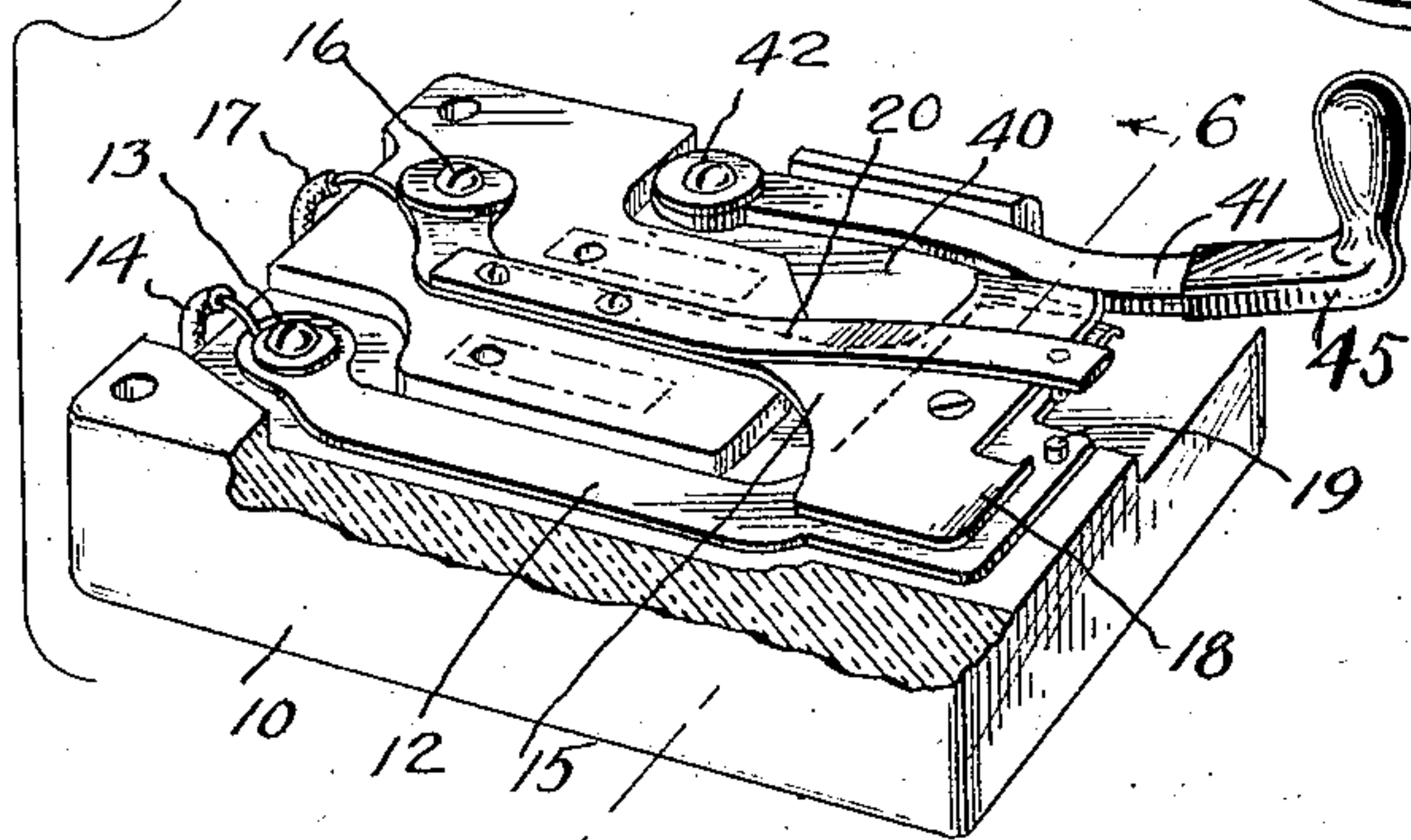


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UNITED STATES PATENT OFFICE

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TELEGRAPH KEY

Application filed May 6, 1929. Serial No. 360,843.

This invention relates to telegraphers' keys.

In the construction of telegraphers' keys as commonly used a lever is employed for making and breaking the circuit in the sending of the signal impulses. This lever, actuated by the telegrapher, in the usual form acts to carry current. Also in the usual form of keys there is provided a circuit closing arm, likewise actuated by the telegrapher, and this arm carries current just as does the key lever. In modern telegraphy voltages are sometimes employed, in fact are frequently employed, which are high enough to give the telegrapher severe shocks if he happens to make contact with any current carrying or live part. Of course, both the key lever and the arm are provided with insulating grips for the telegrapher but it sometimes happens that his finger will accidentally contact with such lever or arm and, if these carry current, he may receive a heavy shock.

A comparatively recent development in telegraphy is the use of an auxiliary key known as a "vibroplex" key and modern telegraph instruments are commonly provided with a plate carrying current and spaced and insulated from the current key base so that a jack or plug attached to a vibroplex key may be inserted between the plate and base for supplying the key with current. Obviously, this provides another current carrying part apt to be contacted by the telegrapher with resultant shock.

Among the objects of the present invention are to provide an improved form of telegraph key wherein the key lever and circuit closing arm will be out of circuit or dead so that contact therewith by the telegrapher will not result in shock; to provide for covering all live parts of the key so as to render impossible contact with such live parts; and to so arrange the cover or housing for the live parts that a plug or jack may be inserted to connect an auxiliary key, such as a vibroplex key.

With the above and other objects in view the invention consists in general of certain novel arrangements of details and combinations of parts which will now be particularly described in one embodiment and specifically

claimed, reference being had to the accompanying drawings, wherein:—

Figure 1 is a perspective view of the key with its housing in position.

Figure 2 is a perspective view of the key with the housing removed.

Figure 3 is a perspective view of the key with certain parts disassembled.

Figure 4 is a detail section on the line 4—4 of Figure 3.

Figure 5 is a detail section on the line 5—5 of Figure 3.

Figure 6 is a detail section on the line 6—6 of Figure 3.

Figure 7 is a detail section with the parts assembled on the line 7—7 of Figure 3.

Figure 8 is a detail showing the arrangement of the anvil, spring contact and key lever in side elevation.

In the embodiment of the invention here illustrated there is provided an insulating base 10. The top of this base is channeled at one side, as at 11 and in this channeled portion is seated a lower contact plate 12 provided with a binding screw 13 by means of which a circuit wire 14 may be connected to the plate 12. This plate 12 extends well forwardly and terminates at its front edge in closely spaced relation to the front of the base 10. Mounted on the base 10 substantially central thereof is a second or upper plate 15 which is likewise provided with a binding screw 16 for connection of the remaining circuit wire 17. These plates are thus in insulated relation to each other and the forward end of the plate 15 overlies a portion of the forward end of the plate 12, this overlying portion being provided with a lip 18 upturned so as to permit ready introduction of a jack or plug between the front ends of the plates 12 and 15. As noted the forward end of the plate 15 overlies only the portion of the corresponding end of the plate 12 and projecting upwardly from the plate 12 clear of the plate 15 is a contact anvil 19. Fixed to the rear portion of the plate 15 and in electrical contact therewith is the rear end of a spring contact member 20 having its forward end overhanging the anvil 19 and provided with a contact pin 21 engaging the

anvil 19 upon the free forward end of the member 20 being depressed.

Mounted on the base 10 in insulated relation to the plates 12 and 15 is a pair of spaced standards 22 which are bridged across their tops by a plate 23 having a forward projection 24 and a rearward projection 25. These standards 22 are provided with aligned openings 26 for the reception of bearing pins 27 which may be adjusted in these openings and which, when adjusted, will be secured in adjusted position by set screws 28. Between the standards 22 and extending over the spring contact 20 is a key lever 29 through which passes a journal pin 30, see Figure 7, having projecting ends which are received in bearing recesses 31 in the confronting ends of the pins 27. Thus the key lever is pivoted intermediate its ends between the standards and is supported thereby. Extending through the rear projection 25 is an adjusting screw 32 provided with a lock nut 33. The lower end of this adjusting screw is recessed as at 34 in Figure 4 and receives the upper end of a spiral spring 35 which has a downwardly projecting lower end fitting in an opening 36 in the rear end of the key lever 29. By this means the key lever is held with its forward end normally raised and in order to limit the upward movement of this forward end there is screwed through the forward projection 24 a stop screw 37 provided with the usual lock nut 38. By this means the upward motion of the key lever 29 may be limited. Just over the forward end of the spring contact 20 there is fitted to the key lever an insulating button 39 which normally rests on the front end of the contact 20 so that as the lever is depressed the contact 21 will be brought into engagement with the anvil 19 and circuit will be closed between the circuit wires 14 and 17 while at the same time the key lever will remain dead, carrying no circuit. On the side opposite the channel 13 the base 10 is recessed as at 40 and a circuit closing arm 41 has its rear end pivoted at 32 in this recess and projects forwardly of the base. In operating the key lever 29 this arm is moved to the position shown in Figures 3 and 6, thus being out of engagement with the plates 12 and 15 but these plates are provided with lips 43, see Figure 6, so that the arm 41 may be readily swung into position between the plates and thus establish electrical connection between the circuit wires 14 and 17, this of course being the normal position in receiving signals. For the purpose of manipulating the key lever the usual button 44 is carried thereby and the arm 41 is similarly provided with an insulating handle or knob 45 molded thereon. Covering the base 10 and the plates 12 and 15 is a housing 46 which is secured in position by a screw 47 engaging in an opening 48 in the bridge plate 23, the housing thus extending over this bridge plate

but suitable openings being provided to permit the passage of the adjusting screws 32 and 37 and their lock nuts so that the key may be adjusted without necessitating the removal of the housing. Moreover, this housing has its front wall cut away as at 49 to allow for the projection forwardly of the front ends of the key lever 29 and arm 41 and also to allow for the insertion of the jack or plug beneath the lip 18.

It will now be observed that with this construction no parts accessible to the telegrapher, so long as the housing is in position, carry any current and accordingly it is impossible for him to receive a shock from any of the live parts of the key under normal working conditions with the housing on.

Having thus described the invention, what is claimed as new, is:

1. In a telegraph key, a base of insulating material, an anvil supported thereon, a spring contact finger having one end in fixed relation to the base and its other end projecting over said anvil in normal spaced relation thereto, an operating lever pivotally supported from said base in insulated relation to the finger and anvil and extending over the free end of the finger to engage the latter and move it into electrical engagement with said anvil upon depression of the lever, and insulating means interposed between the finger and lever to prevent electrical contact therebetween.

2. In a telegraph key, an insulating base, a pair of conductive plates fixed to said base in insulated relation and having their forward ends vertically spaced one above the other, an anvil carried by the forward end of the lower plate, a spring contact finger having one end fixed to the upper plate and its free end positioned above the anvil in normally spaced relation thereto, an operating lever fulcrumed above the fixed end of said finger and having an arm extending over the finger in electrically spaced relation thereto, and insulating means interposed between said arm and finger.

3. In a telegraph key, an insulating base, a pair of conductive plates fixed to said base in insulated relation and having their forward ends vertically spaced one above the other, an anvil carried by the forward end of the lower plate, a spring contact finger having one end fixed to the upper plate and its free end positioned above the anvil in normally spaced relation thereto, an operating lever fulcrumed above the fixed end of said finger and having an arm extending over the finger in electrically spaced relation thereto, insulating means interposed between said arm and finger, and a contact arm pivoted on the base in spaced relation to said plates and positioned to swing into and out of bridging relation to said plates.

4. In a telegraph key, an insulating base,

a pair of conductive plates fixed to said base in insulated relation and having their forward ends vertically spaced one above the other, an anvil carried by the forward end of the lower plate, a spring contact finger having one end fixed to the upper plate and its free end positioned above the anvil in normally spaced relation thereto, an operating lever fulcrumed above the fixed end of said finger and having an arm extending over the finger in electrically spaced relation thereto, insulating means interposed between said arm and finger, and a cover mounted on said base in insulated relation to the plates and finger and slotted to permit projection of the key lever, and to permit introduction of a jack between said plates.

5. In a telegraph key, an insulating base, a pair of conductive plates fixed to said base in insulated relation and having their forward ends vertically spaced one above the other, an anvil carried by the forward end of the lower plate, a spring contact finger having one end fixed to the upper plate and its free end positioned above the anvil in normally spaced relation thereto, an operating lever fulcrumed above the fixed end of said finger and having an arm extending over the finger in electrically spaced relation thereto, insulating means interposed between said arm and finger, a contact arm pivoted on the base in spaced relation to said plates and positioned to swing into and out of bridging relation to said plates, and a cover mounted on said base in insulated relation to the plates and finger and slotted to permit projection of the key lever and contact arm and to permit introduction of a jack between said plates.

In testimony whereof I affix my signature.

ROBERT STEENECK.