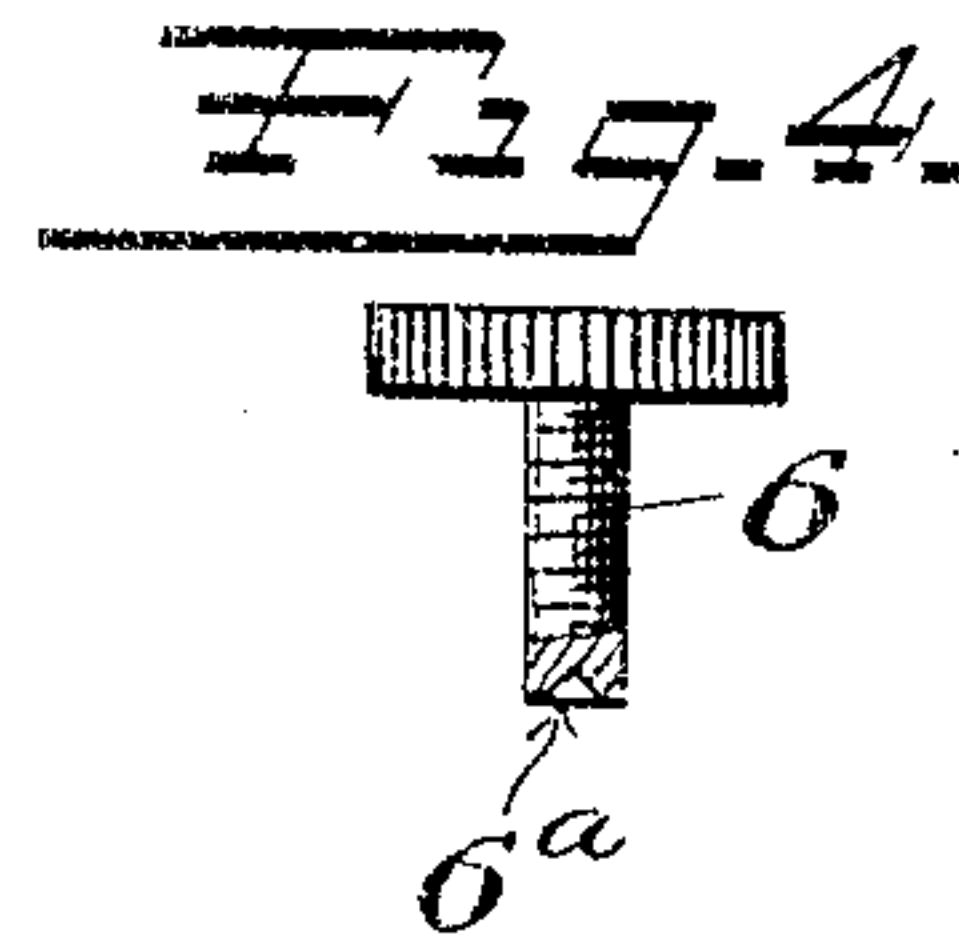
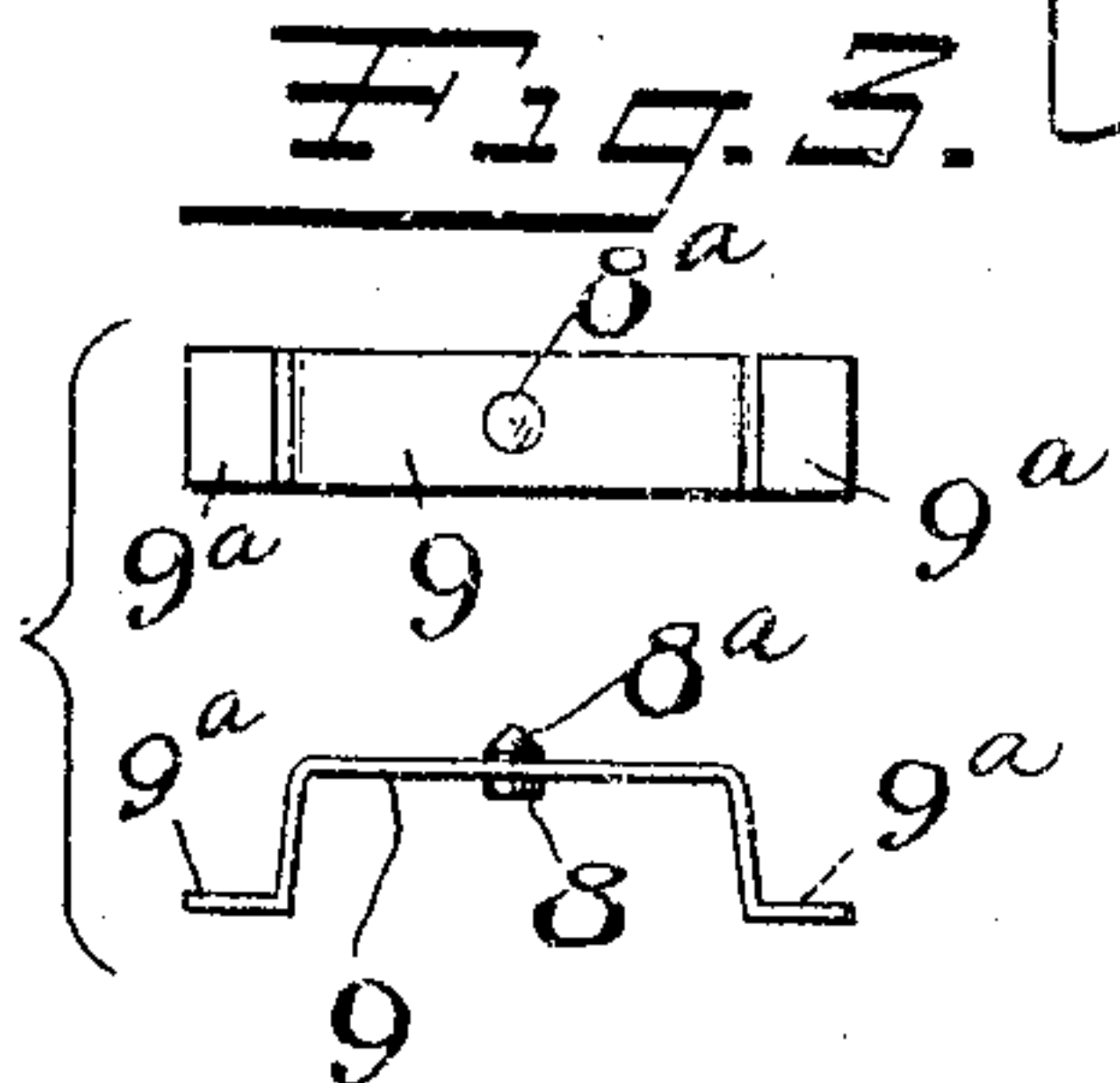
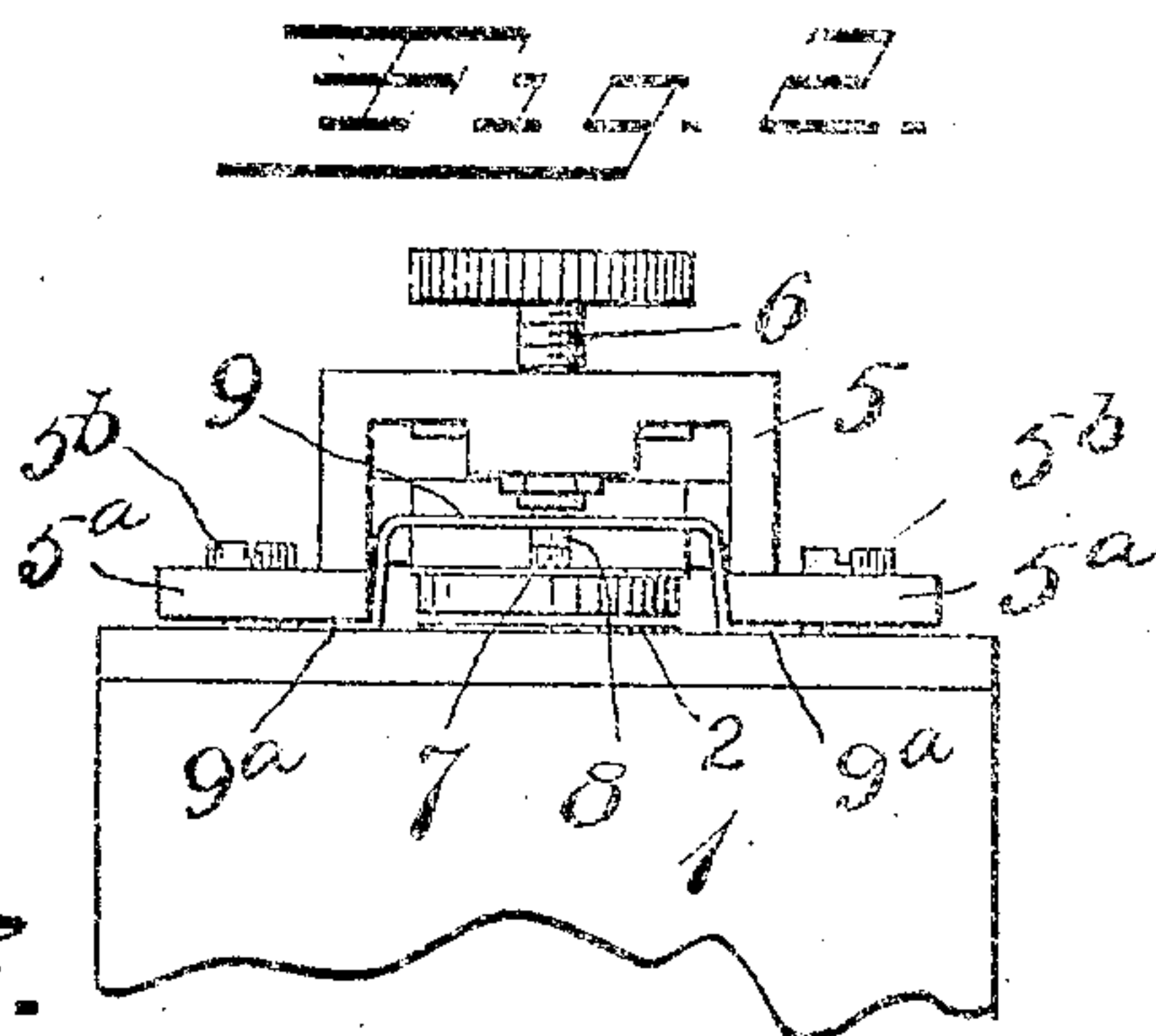
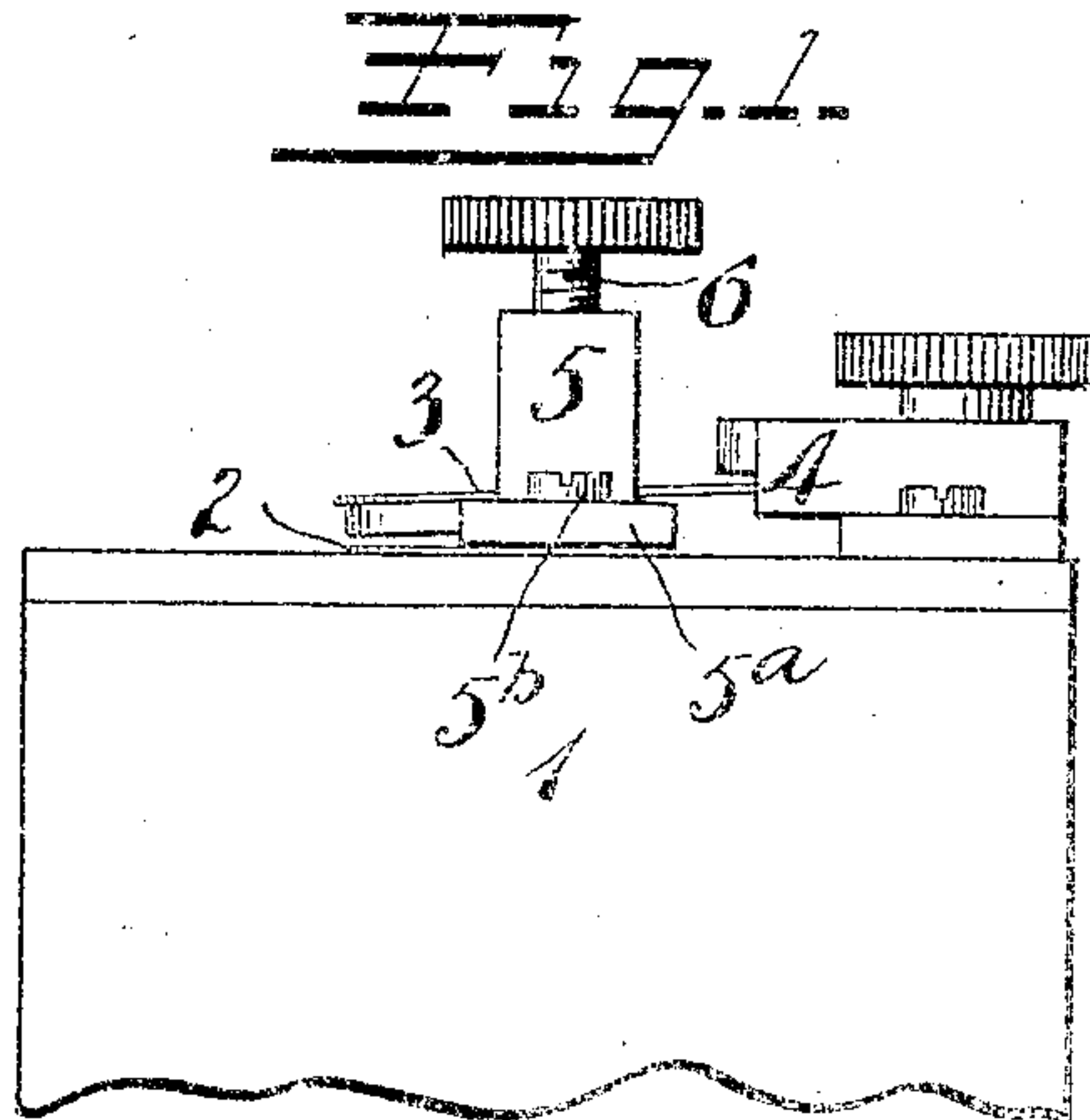


B. L. LAWTON.  
VIBRATOR FOR INDUCTION COILS.  
APPLICATION FILED NOV. 25, 1908.

958,509.

Patented May 17, 1910.



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# UNITED STATES PATENT OFFICE.

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## VIBRATOR FOR INDUCTION-COILS.

958,509.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed November 25, 1908. Serial No. 464,372.

To all whom it may concern:

Be it known that I, BURTON L. LAWTON, a citizen of the United States, residing at Meriden, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Vibrators for Induction-Coils, of which the following is a full, clear, and exact description.

My invention relates to improvements in vibrators for induction coils.

The chief object of the invention is to improve the vibrator adjusting means.

In the drawings, Figure 1 is a side elevation of the upper end of an induction coil having mounted thereon a vibrator. Fig. 2 is a front view of the same parts. Fig. 3 illustrates a plan and front elevation of a detail of construction detached. Fig. 4 is a side elevation of another detail.

1 may represent the casing of an induction coil.

2 represents the core of the coil projecting through the upper end and slightly exposed.

3 is the vibrator proper, which may be of the usual flexible type carried at its rear by a suitable mounting or support 4, the forward end of the vibrator overstanding and co-acting with the core 2 and having the usual facing block.

5 is a bridge having the usual feet or bases 5<sup>a</sup> by which said bridge is firmly supported upon and connected to the top of the coil casing.

5<sup>b</sup> are the usual connecting screws.

6 is an adjusting device, in this instance, in the form of a thumb screw carried by the bridge 5 above the vibrator 3. The vibrator 3 carries at its upper side the contact point 7, which is made ordinarily of platinum or other specially suitable material and which is rigidly secured to the vibrator in the usual manner.

Heretofore, it has been the practice to provide a contact at the foot of the screw 6 and rigidly connected thereto so as to rotate therewith, said screw co-acting with the vibrator contact point similar to 7. It has been found, however, that after continued use, these points become "pitted" so as to produce more or less unevenness upon the adjacent surfaces of the contact point members. Strangely enough where "pitting" of this sort occurs, the contact surfaces seem

to adjust themselves so that where a depression in one contact occurs, a substantially corresponding projection is formed upon the other contact. Now, assuming that these irregularities occurred at a point eccentric to the axis of rotation of the adjusting screw, under such conditions the slightest rotary movement of the screw and point would very seriously disturb the relative position of the contact surfaces of the companion points. This will be readily seen, because the projection on one of the contacts, formerly arranged opposite to a corresponding depression in the other contact, would be moved around to a higher point so as to present dissimilar surfaces which quickly wear down.

One of my objects is therefore to prevent this result and to make it possible to secure very simply and expeditiously the nicest sort of adjustment. To accomplish this, I prevent any independent rotation of the contact points themselves during adjustment and provide means for moving said contacts nearer to or farther from each other, always causing them to face up according to the original setting. As a result any pit formed in one contact point will always stand opposite to a corresponding projection on the other. One very simple and efficient means for accomplishing this end is illustrated herein, and this I will now proceed to describe.

8 is a second contact point arranged to co-act with the vibrator contact point 7. This contact point 8 in the particular form shown herein is rigidly connected to the arch of a yielding bridge 9, which stands over the vibrator 3, as best seen in Fig. 2. In this particular form of the contact support, the bridge 9 has laterally extending feet 9<sup>a</sup> which are arranged under the feet 5<sup>a</sup> of the bridge 5 so as to be clamped securely in place thereby. The screw 6 operates on the top of the yielding contact carrying bridge 9 so that by moving the screw up and down by rotation in the proper direction, the arch of said bridge 9 carrying the contact 8 will be correspondingly moved, the spring action of the bridge itself being relied upon to lift the contact 8; the pressure of the screw 6 being relied upon to depress said contact in this particular form. By these means, it will be seen that the two contacts 7 and 8;



when they are once properly positioned opposite one another, never turn independently so as to disturb the corresponding contact faces, excepting as one may be adjusted to and fro relatively to the other. In the preferred form of the particular embodiment disclosed herein, the sides of the contact carrying bridge 9 which project upwardly from the feet 9<sup>a</sup> converge somewhat so as to afford the proper clearance between the sides of the bridge 5, permitting the arch of the bridge to spring properly and at the same time permitting sufficient lateral movement to guarantee the proper alinement at all times of the contact 8 relatively to contact 7. This alinement of said contact points is effected very simply by means of a tapered nose 8<sup>a</sup> on the upper side of the contact 8. The lower end of the screw 6 is provided with a tapered recess as at 6<sup>a</sup> (Fig. 4) serving to receive the nose or projection 8<sup>a</sup>. When the parts are assembled, the nose 8<sup>a</sup> will center in the recess 6<sup>a</sup>, and will be held thereby against any lateral displacement. The original design of these parts being such that when this nose stands in this recess, the contact points 7 and 8 will be in accurate alinement. Obviously, the design of this centering means may be modified in a variety of ways so long as it accomplishes the intended purpose.

By having a portion of the contact point 8 project above and below the bridge 9, it will be seen that the upper part 8<sup>a</sup> may be employed to form a rivet head, whereby said contact 8 will be held with the utmost security, a feature of great desirability in structures of this character. Obviously, the lower contact 7 may be securely riveted to the spring blade of the vibrator 3. By this construction many advantages are gained, some of which have been pointed out, and all of which will be readily apparent to the mechanic skilled in this art.

While I have shown herein a simple and preferred form of my invention, I am fully aware that many modifications may be resorted to, and I intend herein to cover any modification of the apparatus, which operates to attain the chief object of this invention, which is to maintain the contact faces of the contact points against independent rotation or displacement, so that not only is

superior adjustment easily and quickly effected, but also so that after adjustment the contact faces of the companion contact points will face up in such a manner as to resist to the utmost wear occasioned by the hammering action of one on the other incidental to the operation of the vibrator element.

What I claim is:

1. In a vibrator for induction coils, a vibrator element having a fixed contact point, a bridge having a flexible arch, said bridge being mounted at opposite sides of said vibrator element but independent thereof and overstanding the same, a contact point fixedly carried by the arch of said bridge and overstanding the contact point on the vibrator and an adjusting mechanism above the arch of said bridge for adjusting the contact point carried thereby toward and from the vibrator contact point.

2. In a vibrator for induction coils, a vibrator element having a fixed contact point, a bridge having a flexible arch, said bridge being mounted at opposite sides of said vibrator element but independent thereof and overstanding the same, a contact point fixedly carried by the arch of said bridge and overstanding the contact point on the vibrator and an adjusting screw above the arch of said bridge for adjusting the contact point carried thereby toward and from the vibrator contact point.

3. In a vibrator for induction coils, a vibrator element having a fixed contact point, a bridge having a flexible arch, said bridge being mounted at opposite sides of said vibrator element but independent thereof and overstanding the same, a contact point fixedly carried by the arch of said bridge and overstanding the contact point on the vibrator and an adjusting screw above the arch of said bridge for adjusting the contact point carried thereby toward and from the vibrator contact point, the said adjusting screw being provided with means for centering or alining the upper contact point relatively to the lower contact point.

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