E. B. JACOBSON.

VIBRATOR FOR SPARK COILS.

APPLICATION FILED NOV. 12, 1907.

950,105. Patented Feb. 22, 1910.

FIG. 1

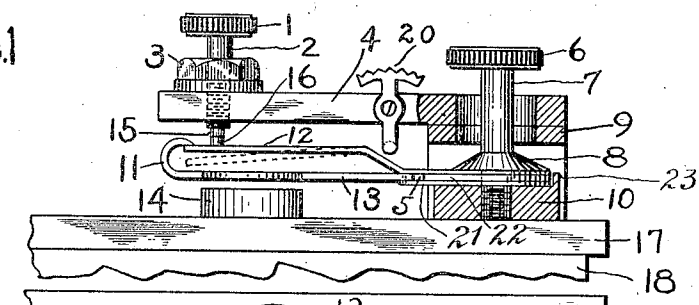



FIG. 2

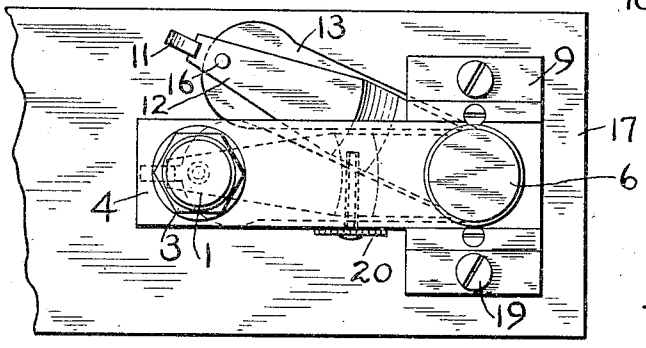



FIG. 5

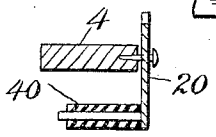



FIG. 6

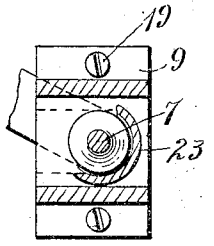



FIG. 3

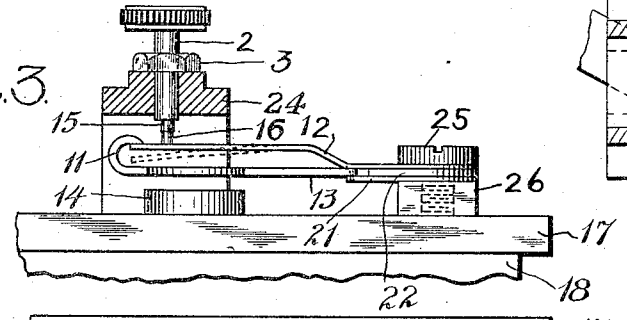
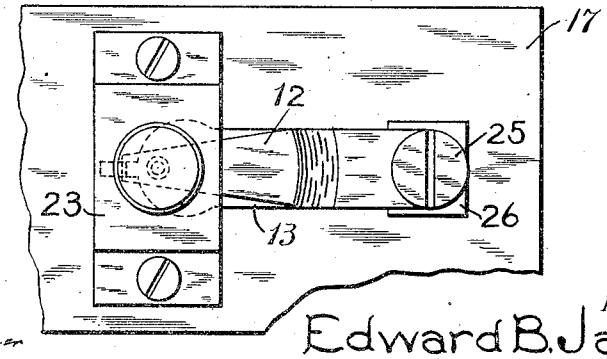



FIG. 4

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# UNITED STATES PATENT OFFICE.

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## VIBRATOR FOR SPARK-COILS.

950,105. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed November 12, 1907. Serial No. 401,830.

*To all whom it may concern:*

Be it known that I, EDWARD B. JACOBSON, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Vibrators for Spark-Coils, of which the following is a specification.

This invention relates to vibratile devices commonly employed in the primary circuit of induction or spark coils, in conjunction with controlling mechanism, for rapidly interrupting the circuit at a predetermined point.

A principal object of my invention is to provide an improved form of vibrator insuring the breakage of the circuit simultaneously with the downward movement of the armature, regardless of prevailing atmospheric conditions or the adhesive state of the contacts resulting from wear or other causes. And a further object is to provide a vibratile element possessing improved flexibility which may be swung out of the path of its normal movement and into position for inspection, and restored to its original position, without necessitating its removal or the readjustment of the contacts. And with the foregoing and other objects in view my invention consists in certain features of construction, arrangement and combination of parts as hereinafter described and claimed, reference being had to the drawings, forming a part of this specification, in which corresponding parts are designated by similar reference characters.

Referring to the drawings, Figure 1 is a sectional side elevation of my device operatively mounted upon an induction coil, also shown in section; Fig. 2 is a plan view of the same, showing the vibratile element swung into position for inspection; Fig. 3 is a view similar to Fig. 1, showing a modified construction of the bridge and vibratile element support; and Fig. 4 is a plan view of the same; Fig. 5 is a detail view of the depending rocker arm; and Fig. 6 is a detail view of the means for alining the vibratile element.

18 represents an induction coil unit supposed to contain the usual primary and secondary windings and provided with a cover 17, preferably of insulating material, through which projects one end of a core or magnet 14. A vibratile element comprising an armature 13 and a contact-supporting spring 12 is pivotally secured at its rear end to one side of the cover 17 and projected freely over the core 14. The armature preferably consists of a strip of readily magnetized metal having an enlarged area directly over the core and provided at its free end with an upwardly extending hook 11, the point of which is turned rearward and bears movably upon the free end of the spring 12. The rear end of the armature is riveted or otherwise firmly secured to a metal strip or spring 21 movably supported on a metal block or standard 10 provided on the cover. The spring 12 is secured at its rear end to the block 10 and projected forwardly over the armature, the free end of the spring being provided with a contact 16 adapted to engage with a separate contact 15 supported independently of the vibratile element. Said spring 12 is preferably bent centrally at a point over the rear end of the armature, upon which the spring bears movably, so as to assume at its free end a spaced position in parallel with the free end of the armature. An intermediate plate of metal 22 is preferably interposed between the spring 21 and the rear end of the spring 12 to maintain the parallel relation thereof, and, together with said springs, is provided with a suitable aperture for the reception of a post 7 which secures said parts to the block 10. Said post 7 is threaded at its lower end to engage with a threaded aperture provided in the block 10 and is further preferably provided with a knurl head 6 at its other end and centrally with a flange 8 having an even surface on its under side which is adapted to hold the parts composing the vibratile element in rigid engagement with the block 10 when rotated downward. An interstice at 5 is provided between the rear end of the armature and the plate 22 for the purpose of improving the flexibility of the vibratile element at this point. Said block 10 is preferably further provided with a vertical flange or shoulder 23 engaging one side of the vibratile element and extending around the rear end thereof, the latter being rounded as shown, whereby when the post 7 is rotated slightly upward the vibratile element may be swung to one side away from the flange 23 and into position for inspec-

tion, as shown in Fig. 2, and when returned to operative position the flange 23 serves to restore its true alinement by stopping the movement of the armature at a point where the contacts 15, 16, are in the same vertical line, thus obviating the necessity of readjusting the contacts 15, 16.

As shown, the contact 15 is provided at one end of an adjusting screw 2 carried by a bracket 4 which is projected laterally from a bridge 9 secured to the cover 17 by screws 19. Said adjusting screw 2 is preferably operated by a knurl head 1 and secured in the desired position by a nut 3. Said bracket 4 is provided with a depending rocker-arm 20 suspended over the spring 12 at a point near the rear end of the armature 13. Said rocker-arm is provided, as shown, with a serrated head and an insulated shoulder 40 (see Fig. 5), at its lower end which projects under the bracket 4. By slightly rotating the rocker-arm the shoulder thereon is brought in contact with the spring 12 thereby depressing the same and causing the contacts 15, 16, to be separated and the circuit broken without disturbing their adjustment or the position of the armature. When the armature 13 is drawn downward by the attraction of the magnetized core 14 the hook 11 which bears upon the free end of the spring 12 causes the latter to move in synchronism with the armature, thus effectually breaking the circuit at the contacts 15, 16, at the commencement of the movement of the armature. Upon the release of the armature the reflex action of the spring 21 is assisted by the spring 12 which accelerates the movement of the armature upward through the medium of the hook 11. When, however, the armature reaches its true position, which it assumes when at rest, further upward movement is opposed by the spring 12 where it bears upon the rear end of the armature. It will be seen that the limit of upward movement of the spring 12 is determined by the engagement of the contacts 15, 16.

As a modified construction of the vibrator device I provide a bridge 24 disposed over the free end of the vibratile element for the support of the adjusting screw 2 held in the adjusted position by a nut 3. Although the bridge 24 is shown as provided with two legs it is apparent that one end of such bridge may be cut away thus leaving an opening on one side of the vibratile element which will enable the operator to swing the vibratile element into a position for inspection similar to that heretofore described and shown in Fig. 2. The provision of a bracket 4 being unnecessary where the bridge is placed over the vibratile contact 16, a flat head screw 25 is substituted for the post 7 to engage the rear end of the vibratile element, in conjunction with a block or standard 26.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. In a vibrator, the combination of a contact point, a vibratile element a contact point supported thereon, a pivotal mounting for said vibratile element to permit lateral movement, and a stop to hold the vibratile element in its normal position.

2. In a vibrator, the combination of a vibratile element pivotally secured at one end and supporting a contact-point at its opposite end, a separate contact-point, and means on one side of the vibratile element for insuring alinement of the same in the path of its normal movement whereby the vibratile element when swung to one side for inspection may be returned to its original position without requiring readjustment.

3. In a vibrator, a fixed support, a spring and an armature secured at their ends to said support, the spring extending over the armature and the armature having means for engaging the end of the spring, said spring being constructed to bear movably at a point near its fixed end upon the rear portion of the armature.

4. In a vibrator, the combination with a pivotally mounted vibratile element of means comprising a shouldered block to automatically insure alinement of the vibratile element in the path of its normal movement, substantially as described.

5. In a vibrator, the combination of a support, a spring having its rear end secured to said support, a contact point near the free end of said spring, a separate independently supported contact point, an armature flexibly secured to said support and having its free end engaging the end of the spring, and means for downwardly displacing the free end of said spring in such a manner that the circuit may be disrupted independently of the armature.

6. In a vibrator, the combination of a support, a spring having its rear end secured to said support, a contact point near the free end of said spring, a separate independently supported contact point, an armature flexibly secured to said support and having its free end engaging the end of the spring, and a rocker-arm arranged to engage when rocked, the free end of said spring in such manner that the circuit may be disrupted independently of the armature.

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

EDWARD B. JACOBSON

Witnesses:
WILLIAM E. BAGG,
CARL E. COZZIO.