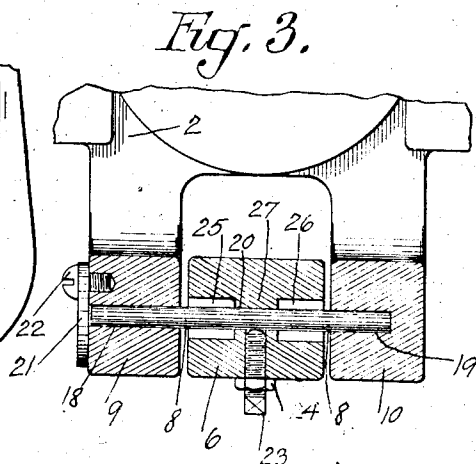
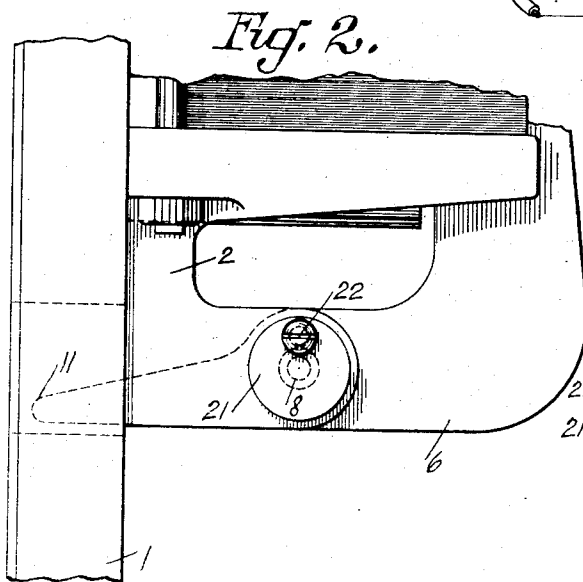
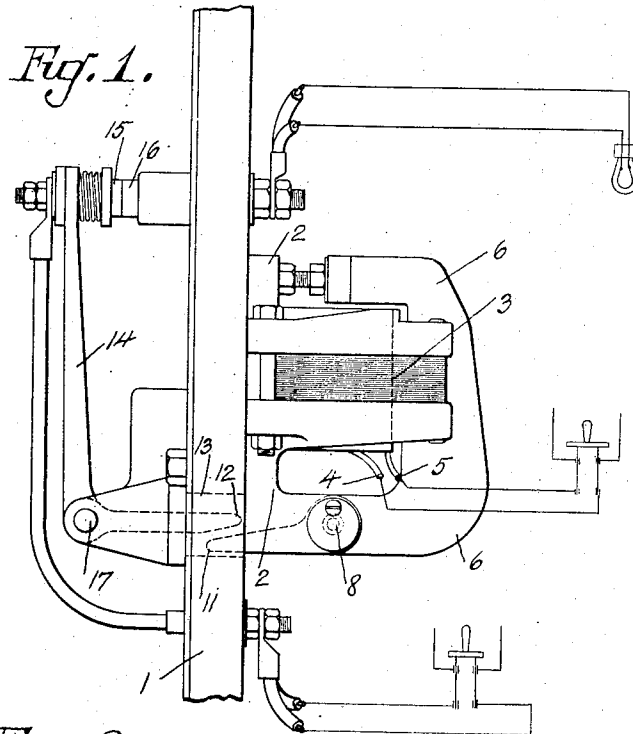


D. LARSON.
 ARMATURE LEVER PIVOT FOR ALTERNATING CURRENT MAGNETS.
 APPLICATION FILED NOV. 14, 1908.

1,062,017.

Patented May 20, 1913.



Witnesses:
 Arthur C. Mason
 James E. Bethune

David Larson Inventor
 By his Attorney J. F. Rude.

UNITED STATES PATENT OFFICE.

DAVID LARSON, OF YONKERS, NEW YORK, ASSIGNOR TO OTIS ELEVATOR COMPANY,
OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ARMATURE-LEVER PIVOT FOR ALTERNATING-CURRENT MAGNETS.

1,062,017.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed November 14, 1908. Serial No. 462,615.

To all whom it may concern:

Be it known that I, DAVID LARSON, a subject of the King of Sweden, residing at Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Armature-Lever Pivots for Alternating-Current Magnets, of which the following is a specification.

My invention relates to an improved form of pivot especially adapted for use with armature levers of alternating current magnets, and one of the objects of the invention is to provide an improved means of support for the armature of an alternating current magnet.

A further object is to provide an improved pivot which cannot be too tightly or too loosely set by inexperienced attendants.

A further object is to provide an improved pivot adapted for use with alternating current mechanism, and which shall satisfactorily take up the vibrations due to current alternations.

A further object is to provide a simple, durable and cheap pivot of this character which shall be easily accessible and effective and efficient in operation.

For the attainment of these ends and the accomplishment of other new and useful objects, the invention consists of the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully and completely described, and claimed in the appended claims.

Referring to the accompanying drawings, Figure 1 is a sectional elevation of an electric switch and its operating magnet with its pivoted armature, in which my invention is applied; Fig. 2 is an enlarged detail view of Fig. 1; and Fig. 3 is a cross-sectional view showing the bearing rod in position.

The general arrangement of the several parts of a magnet to which my invention may be applied is shown by Fig. 1 of the accompanying drawing, in which 1 is the board or base to which an electromagnet frame or bracket 2 is attached. The magnet winding, of which 4 and 5 are the terminals, is adapted to be placed upon the bracket 2, and the laminated core 3 is secured to the bracket 2. The armature lever 6 is pivoted between the bifurcated extremities or lugs 9, 10 of bracket 2 by a bearing rod 8. The board 1 is provided with an opening 13 to

receive an extension 11 of the armature lever 6. A switch lever 14 pivoted at 17 has an arm 12 projecting into the opening 13 in the path of movement of the extension 11. When the lever 6 is moved about its pivot the extension 11 operates the lever 14 and separates the switch contacts 15 and 16. The said pivot pin or bearing rod 8 is fitted loosely in the holes 18, 19 in the bifurcated extremities 9, 10 of bracket 2, and also extends loosely through a hole 20 in the armature lever 6. The hole 19 does not extend entirely through the extremities 10, and hence the movement of the bearing rod 8 is limited in this direction. The hole 18 extends through the extremity 9 so that the pivot pin 70 may be readily removed. After the pin 8 has been placed in position, longitudinal movement thereof is limited or prevented by a cover plate 21 secured by a screw 22, or some other suitable means, to the extremity 9.

The armature lever 6 being loosely mounted upon the bearing rod 8, may be so adjusted as to turn freely between the extremities 9, 10, and may be secured to the said rod 8 by means of a set-screw 23 and lock nut 24. The armature lever 6 has openings 25, 26 bored out on opposite sides so that only the portion 27 is left for the hole 20 through which the bearing rod 8 passes. This improved construction allows the bearing rod 8, which is preferably made of spring steel, phosphor bronze or some suitable elastic material, to take up the vibration of the magnet in a way that is entirely satisfactory. The lever 6 being centered between the extremities 9 and 10 and out of contact therewith, transmission of vibrations between the armature lever and magnet frame directly are prevented. It is also evident that with this improved construction and arrangement it is practically impossible, even for an inexperienced attendant, to set the pivot too tightly or too loosely.

I wish not to be limited to the particular construction or arrangement of the bearing rod and armature lever pivot herein described and shown, as various changes may be made in the said construction and arrangement of parts without departing from the spirit and scope of the invention. It is to be understood also that although my invention is herein shown and described as

applied to alternating current electromagnetic apparatus, it may have a much more general application both to electrical and purely mechanical apparatus.

5 What I claim as new and desire to secure by Letters Patent of the United States is:—

1. In an electromagnetic device, the combination with a member provided with a cylindrical opening, of a pivot rod rotatable in the opening, a removable stop in position to prevent longitudinal movement of the rod, said member being also provided with a cylindrical bore forming a bearing and an abutment for the end of the rod opposite said stop, a second member provided with an opening through which the rod extends, and a set screw securing said second member to the rod.

2. In an electromagnetic device, the combination with a bifurcated member having alined openings in the bifurcations, of a pivot rod journaled in the openings, one of said openings extending only part way through the bifurcation and forming an abutment to limit the movement of the rod in one direction, a stop device for preventing or limiting longitudinal movement of the rod in the opposite direction, but permitting the removal of the rod, and a second member secured to the rod between the bifurcations.

3. In an electromagnetic device, the combination with a bifurcated member having an opening extending through one of the bifurcations and a second opening in alignment therewith and extending into but only part way through the other bifurcation, a pivot rod in said openings, a stop device movable over the end of said first named opening and preventing longitudinal movement of the rod, a pivot member mounted on the rod between the bifurcations and adjustable longitudinally of the rod, and means for securing it in adjusted position.

4. An alternating current electromagnet having a pivoted armature, the pivot rod of

which is of elastic material to prevent the transmission of vibrations.

5. In an electromagnetic device, the combination with a magnet frame provided with spaced lugs or bifurcations formed with alined openings one of said openings extending part way through the lug, a pivot rod journaled in said openings, an armature lever mounted on the rod between the lugs and spaced therefrom, a set-screw securing the lever to the rod, and a removable stop covering one of said openings and preventing longitudinal movement of the rod.

6. The combination with an electromagnetic armature lever formed with a hole therein, of an elastic bearing rod extending loosely through said hole, a magnet frame having a bifurcated extremity, the ends of said rod being mounted in the bifurcations, a device for adjustably securing the lever to the rod after the rod has been mounted in the bifurcations, and means for limiting the longitudinal movement of the rod in said bifurcations.

7. The combination with an electromagnetic frame provided with spaced bearing lugs, of an elastic pivot rod journaled in said lugs, and an armature lever mounted on the rod between said lugs, said rod and lever being formed to prevent contact between the lever and rod adjacent to the lugs.

8. The combination with an electromagnetic frame having a bifurcated portion, of a pivot rod mounted in the bifurcations, an armature lever mounted on the rod between the bifurcations, said lever being recessed to prevent contact with the rod adjacent the bifurcations.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

DAVID LARSON.

Witnesses:

SAMUEL McCORMICK,
EDWARD H. STEELE.