

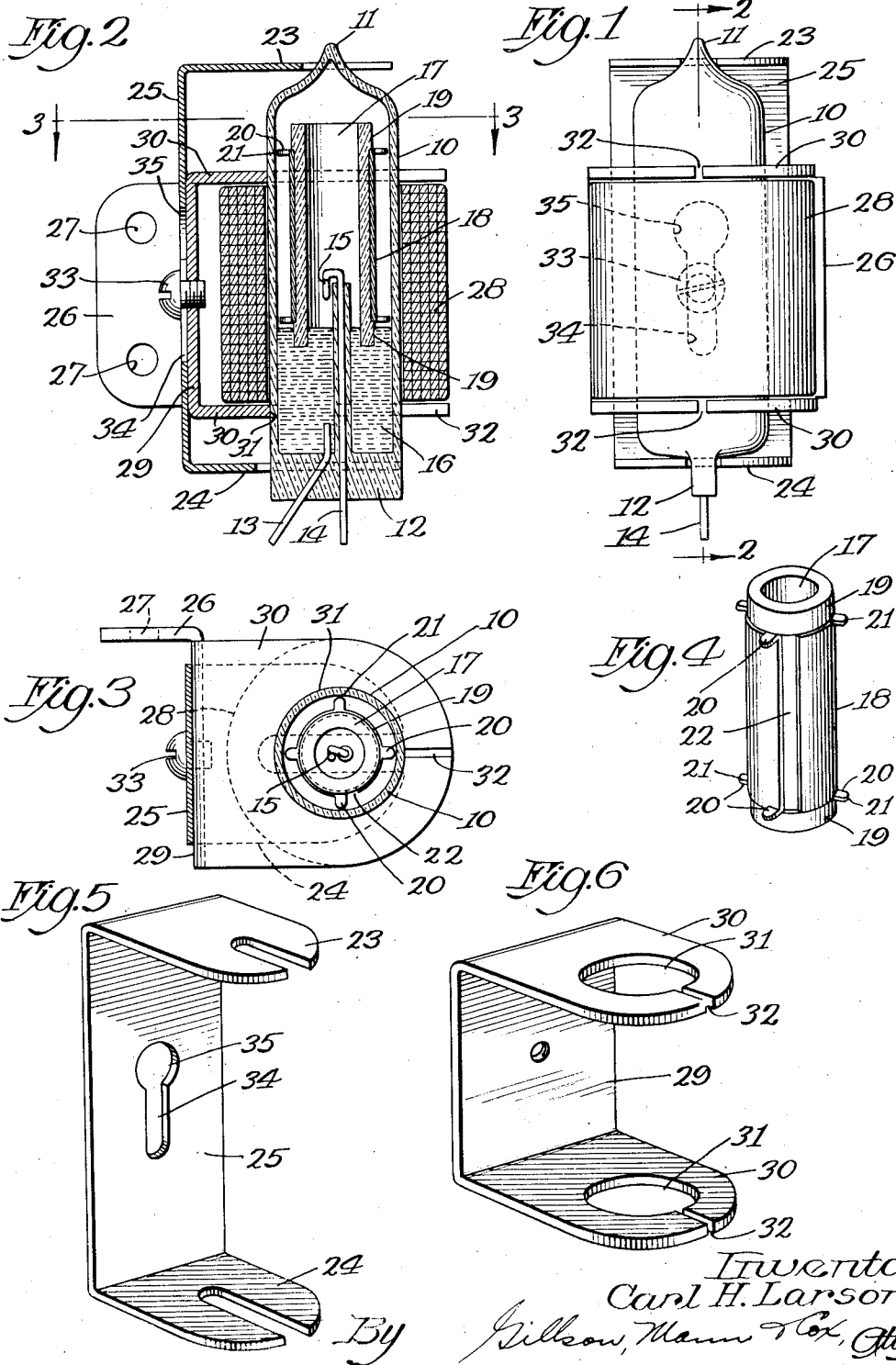
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ELECTRIC SWITCH

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ELECTRIC SWITCH

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7 Claims. (Cl. 200-112)

This invention relates to electric switches of the kind used to control the motor that drives the compressor of a mechanical refrigerator, and the principal object is to provide a simple, inexpensive article that can be easily installed and adjusted, and will endure a long period of service.

Further objects and advantages of the invention will appear as the disclosure proceeds and the description is read in connection with the accompanying drawing, illustrating the preferred embodiments, and in which

Fig. 1 is a front elevation;

Fig. 2 is a vertical section on the line 2-2 of Fig. 1;

Fig. 3 is a plan section on the line 3-3 of Fig. 2.

Fig. 4 is a perspective view of a displacer for the mercury;

Fig. 5 is a perspective view of the bracket which forms the base and support, and

Fig. 6 is a perspective view of a yoke forming part of the magnet.

But this drawing and the specific description is used for the purpose of disclosure only, and are not intended to impose limitations on the claims.

The mercury tube switch includes the glass tube or envelope 10 sealed off at the top, forming a sort of conical tip 11 and pinch sealed at the bottom forming a flattened projection 12. Conductors 13 and 14 are sealed through the bottom and 14 extends well up into the tube where it is bent over and doubled back on itself to form an electrode 15 for contact with the mercury 16.

The displacer is a hollow cylinder 17 of glass, lava, Alundum, or the like, around which is an armature 18 made of some ferrous material. The cylinder 17 is provided with ribs or flanges 19 to prevent accidental displacement of the armature, although as a rule the clamping friction is sufficient for that purpose. When the cylinder is of glass these flanges can be easily formed by fusing the end portions and pressing the molten material. When it is made of lava, Alundum, or the like, the flanges will be formed in the molding operation.

The armature has fingers 20 at each end bent outwardly to form guides for contact with the inner surface of the tube 10. Their tips 21 are rounded and polished to present as smooth a surface as possible. In this particular embodiment the armature is made from sheet steel having an appreciable percentage of silicon, known to the trade as silicon steel. This material can be hardened and will have sufficient resilience to grip the cylinder 17 while the fingers 20 will be hard

enough to endure a long period of service. Carbon steel can also be used.

As shown in Fig. 4, the armature has a vertical slit 22 to prevent eddy currents when the switch is used with alternating current.

The opposite ends of the tube 10 are received by the forked arms 23 and 24 of a bracket 25, made of spring brass, phosphor bronze, or the like.

A coil 28 surrounds the mercury tube 10, and is supported by a soft iron yoke 29 having arms 30 provided with holes 31 in which the tube is received, and also having slots 32 to prevent eddy currents.

The yoke 29 is fastened to the bracket 25 by a roundhead machine screw 33, which passes through keyhole slot 34 and is screwed into the yoke 29. A flange 26 on the yoke 29 has holes 27 for screws, or bolts, to secure the device in place.

In assembling this device the coil 28 is inserted between the arms of the yoke and the mercury tube switch passed through those arms and the coil.

The ends of the mercury tube are brought between the forked arms 23 and 24, the head of the screw 33 is passed through the large portion 35 of the keyhole slot 34, the yoke and core are slipped downwardly to the correct position with respect to the armature 18, and the screw is set up.

At the time of installation, or whenever the position of the parts has been disturbed, the magnet can be easily adjusted by loosening the screw 33, and slipping the yoke up or down, as the case may be, and tightening the screw.

I claim as my invention:

1. In a device of the class described, a coil, an iron yoke having aligned openings in its arms, a mercury tube switch in the coil and projecting through the openings, a bracket having arms engaging the ends of the switch and means for securing the yoke to the bracket.

2. In a device of the class described, a bracket having upper and lower arms, a mercury tube switch between the arms and resting on the lower one, a coil encircling the switch, a yoke having open pole arms spanning the coil and receiving the switch, and means to fasten the yoke to the bracket.

3. In a device of the class described, a bracket having upper and lower forked arms, a mercury tube switch received at its ends between the forks of the respective arms, a coil surrounding the switch, a yoke spanning the coil and grasping the

switch, and means to fasten the yoke to the bracket.

4. In a device of the class described, a bracket having an arm, a mercury tube switch standing on the arm of the bracket and including an armature, a coil surrounding the switch, an iron yoke spanning the coil and grasping the switch, and means to secure the yoke to the bracket in an adjusted position.

5. In a device of the class described, a bracket having an arm, a mercury tube switch standing on the arm of the bracket and including an armature, a coil surrounding the switch, an iron yoke spanning the coil and grasping the switch, and means to clamp the yoke to the bracket whereby the coil may be adjusted relative to the switch.

6. In a device of the class described, a bracket

having an arm, a mercury tube switch standing on the arm of the bracket and including an armature, a coil surrounding the switch, an iron yoke spanning the coil and grasping the switch, a headed screw on the yoke and a keyhole slot in the bracket to receive the screw.

7. In a device of the class described, a bracket having an arm with a hole through it, a mercury switch including a tube pinch-sealed at the bottom to form a reduced end received in the hole of the bracket arm, a conductor sealed through the reduced end, a coil surrounding the switch, an iron yoke associated with the coil and grasping the switch, and means to fasten the yoke to the bracket.

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