Feb. 10, 1953 B. R. HARDWICK 2,628,050

WALL HANGER FOR ELECTRICAL DEVICES

Filed Oct. 22, 1948

FIG. 1.

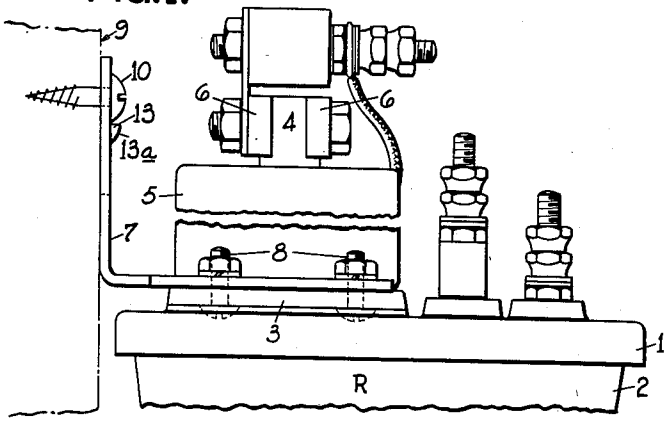



FIG. 3.

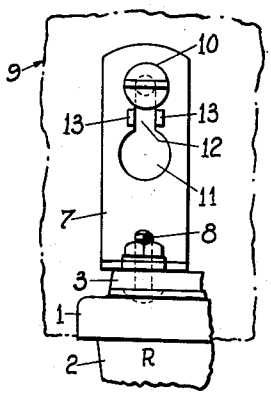



FIG. 2.

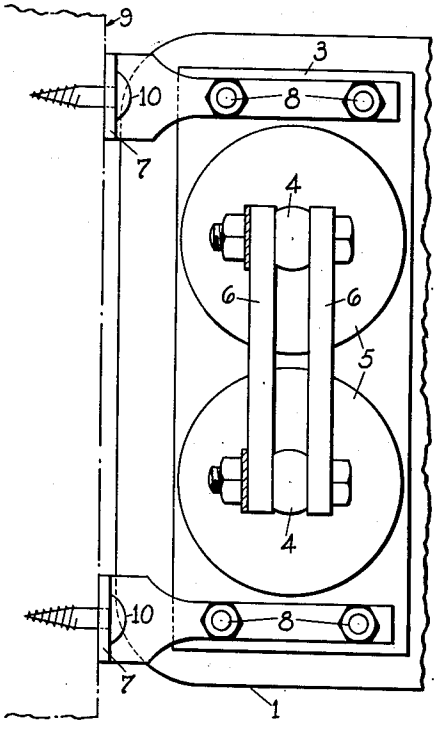



FIG. 4.

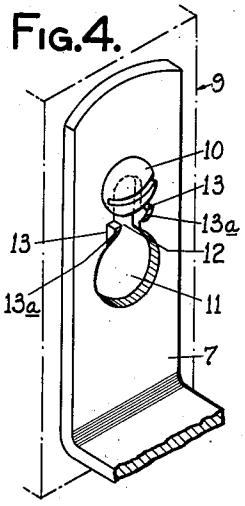



FIG. 5.

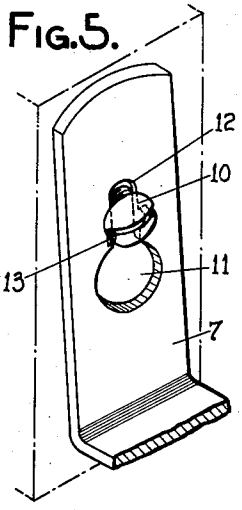
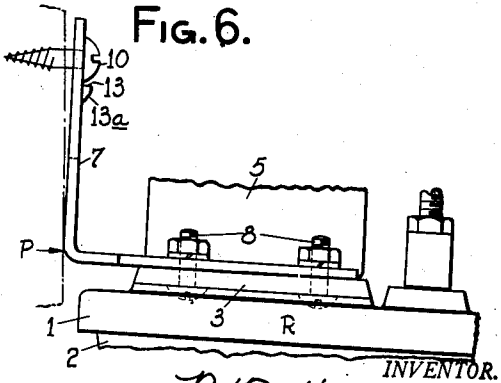



FIG. 6.




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# UNITED STATES PATENT OFFICE

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## WALL HANGER FOR ELECTRICAL DEVICES

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Application October 22, 1948, Serial No. 55,867

1 Claim. (Cl. 248—224)

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This invention relates to wall mounting means for electrical relays or other electrical devices having movable parts such as armatures, contact fingers, counterweights and so forth.

In many applications of devices of this nature, such as power station switch boards and particularly railway signalling control offices and way stations, relays and other devices are required in large quantities; and, where space is limited, said devices are mounted in rows one above the other on the walls or specially provided relay racks. It has also been found convenient and expedient to have these devices mounted in such a way as to have them quickly detachable for repairs and adjustments or replacement.

A common method of such type of mounting is to equip the devices with wall hangers having inverted key hole openings therein, said openings receiving the heads of screws protruding from the wall, as shown for example in the patent to O. S. Field No. 1,824,129 dated September 22, 1931.

In railway signalling practice for example, these devices are mounted in relay houses and mechanism cases which are located along the right of way and are naturally subject to severe shocks and vibrations due to passing trains. For this reason, the above mentioned wall hangers are made of a resilient material so as to absorb these shocks and vibrations and not pass them along to the device supported thereby and cause faulty operation. However, the wall hangers themselves are subject to the shocks and vibrations and when the quick detachable type as mentioned above are used, there is a possibility of the screws or bolts which support the hangers working loose or wearing to the extent that the hanger is not tightly clamped to its supporting wall. Any further shocks or vibrations may cause the hangers to jump off of their supporting screws and cause considerable damage to the device which it is supporting.

The object of this invention is to provide a means whereby the wall hangers are prevented from disengaging their supporting screws due to accidental means, but which may readily be disengaged when necessary for repair or replacement of the device supported thereby.

In describing the invention in detail, reference will be made to the accompanying drawings in which like parts are referred to by like reference characters and in which:

Fig. 1 is a side elevation view showing a wall hanger attached to a wall and supporting a conventional type relay;

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Fig. 2 is a plan view of the organization shown in Fig. 1, with the terminal block removed;

Fig. 3 is a partial front view and showing only one of the wall hangers;

Figs. 4 and 5 are perspective views showing the hanger in its tightened and removable positions, and;

Fig. 6 is a side elevation view showing the supporting screws in a loosened position causing the wall hangers and relay to assume a position sagging outward and downward.

Referring particularly to Figs. 1, 2, and 3, for the purpose of illustration, there is shown partly broken away a conventional type relay R comprising the usual relay top 1 of suitable insulating material, a glass housing 2 and the magnetic structure supporting plate 3 of metallic material which is secured to the relay top 1 in any suitable manner (not shown). The plate 3 carries the usual cores 4 passing through the coils 5, the cores being connected together at their top points by yokes 6. The bottom ends of the cores have enlarged pole pieces which cooperate with the relay armature which carries the contact fingers (not shown), these parts being enclosed by the housing 2, all as shown in the above mentioned Patent No. 1,824,129.

The wall hanger brackets 7 are L shaped and made of a resilient material such as bronze. The horizontal parts of the brackets 7 are securely fastened to the supporting plate 3 by bolts 8 and the usual nuts and lock washers. The vertical part of the brackets 7 are adapted to be fastened to the wall or rack 9 (shown by dot and dash lines) by screws 10 passing through an inverted key hole opening. This key hole opening which extends through the bracket 7 is formed by a round hole 11 large enough to pass over the head of the screw 10 and a vertical slot 12 directly above and running into said hole, said slot being of a width comparable with the diameter of the shank of the screw 10.

In ordinary practice, the screw 10 is threaded into the wall or rack 9 with a small part of the shank and the head protruding. The relay R, with its wall hanger brackets 7 already attached thereto, is then hung in place on these screws 10, the round hole portion 11 of the inverted key hole opening passing over the head of the screw 10. The assembled unit is then lowered so that the shank of the screw 10 follows through the slot 12 until it comes to rest against the top part of the slot. The screw 10 is then tightened, and the unit is securely fastened in place. The reverse procedure is used to remove the unit.

In accordance with the present invention, it is

proposed to provide a lug or projection 13 on both sides of the slot 12 and adjacent thereto, these lugs to be located at the bottom end of the slot 12 and above the round hole 11, as more clearly shown in Fig. 3. It can thus be seen that, when the screw 10 is tightened in place, the lugs or projections 13 will be directly below the head of the screw 10 when it is seated in the slot 12.

As mentioned above, in ordinary practice without the benefit of the lugs 13, it has been found that the so called jumping off action takes place gradually over a period of time. In the mounted position of the unit as shown in Fig. 1, if the screws 10 become loosened, as shown for example in Fig. 6, the weight of the unit tends to cause the unit itself to sag outward and down, thus creating a pivot point P at the bend in the brackets 7 and keeping the top part of the bracket tight against the head of the screw 10. As each shock or vibration is received, the brackets 7 tend to bounce back against the wall 9 and work upward, so to speak, a little at a time, the brackets being prevented from returning to place by the friction of wedging action created at the pivot point P. This causes the brackets to eventually work their way up the full length of the key hole openings and jump off of the supporting screws 10.

In accordance with the present invention, when the screws 10 become loose due to shocks or vibrations or due to wear, so that the unit may get into the position shown in Fig. 6, the weight of the unit would tend to make the wall hanger brackets 7 bear against the heads of the screws 10 at all times, due to the pivot action at the point P as described above. With the lugs or projections 13 directly under the screw head, any upward movement of the wall hanger brackets 7 due to further shocks or vibrations would be arrested due to the lugs 13 coming in contact with the screw heads.

The lugs 13 are preferably formed with a tapered or curved edge 13*a* on the bottom and front side to facilitate the placing of the hanger 7 on its supporting screw 10. It can be seen that after the head of the screw 10 enters the round hole 11 in the hanger 7 and it is being lowered in place, the tapered edge 13*a* of the lug 13 will engage the head of the screw 10 and force the hanger 7 back against the wall 9 at the same time the shank of the screw 10 is entering the slot 12.

When it becomes necessary to remove the unit for repairs or replacement, the screws 10 are backed off a short distance to an extent that allows the lugs or projections to pass behind the screw heads when said unit is moved in an upward direction, all as clearly shown in Figs. 4 and 5.



From the foregoing, it should readily be seen that a new and novel means has been provided for quick detachable wall hangers of this type for walls or relay racks, which insures against the accidental displacement or dismounting of wall supporting devices.

It is desired to be understood that the invention should not be limited to the form shown and may assume various other forms. Also, instead of two separate brackets for supporting the device as shown, one large bracket or plate the full width of the device may be used, this bracket or plate having two inverted key hole openings therein, located at opposite ends on the vertical portion of the bracket.

Having described my invention in detail and pointing out the various advantages thereof, what I claim is:

A bracket for resiliently supporting electrical devices on a wall to protect such devices from vibration of the wall comprising an L-shaped bracket member of resilient material having a vertical extension for attachment to the wall and a horizontal extension connected to the lower end of the vertical extension for supporting an electrical device, said vertical extension having at its upper end only a circular hole for receiving the head of a conventional round-headed screw protruding from the wall, said vertical extension also having an elongated slot above the hole and connected thereto and closed at its other end and being entirely within the vertical extension, the slot being narrower than the hole, said vertical extension of the bracket member being adapted to be pressed against the wall at its lower end by the weight of the electrical device carried by the horizontal extension of said bracket, and extending projections integral with said vertical extension and located on each side of said slot adjacent its connection to the hole, whereby said bracket can be supported from a protruding screw with the flat under portion of its round head meeting the flat surface of said vertical extension and with said projections preventing direct vertical movement of said bracket under conditions of vibrations even if the screw should become substantially loosened.

BARCLAY R. HARDWICK.


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