Jan. 5, 1932. W. A. GOWER 1,839,875

CUSHIONING MEANS

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Fig. 1

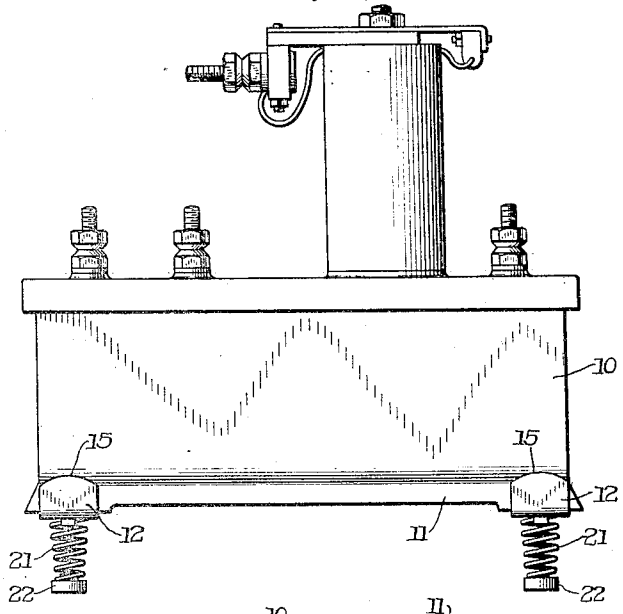


Fig. 2

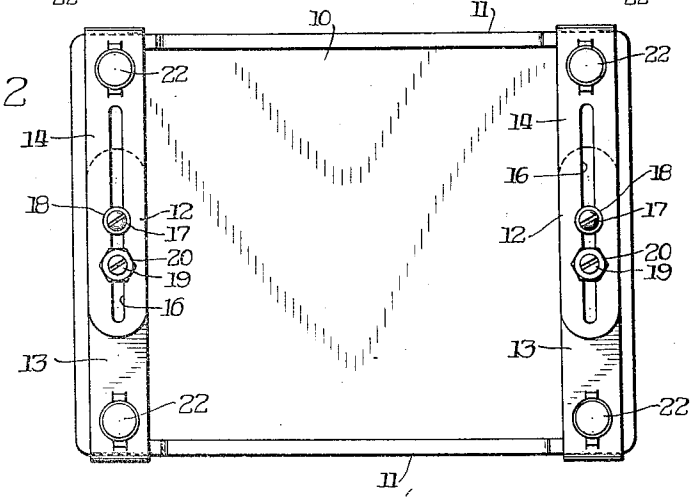
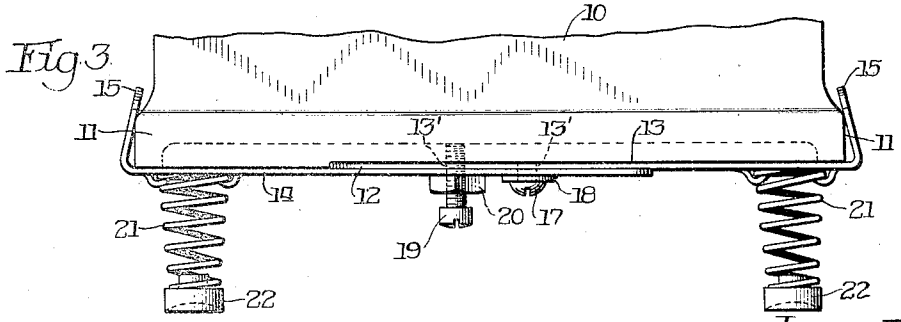


Fig. 3



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Fig. 4

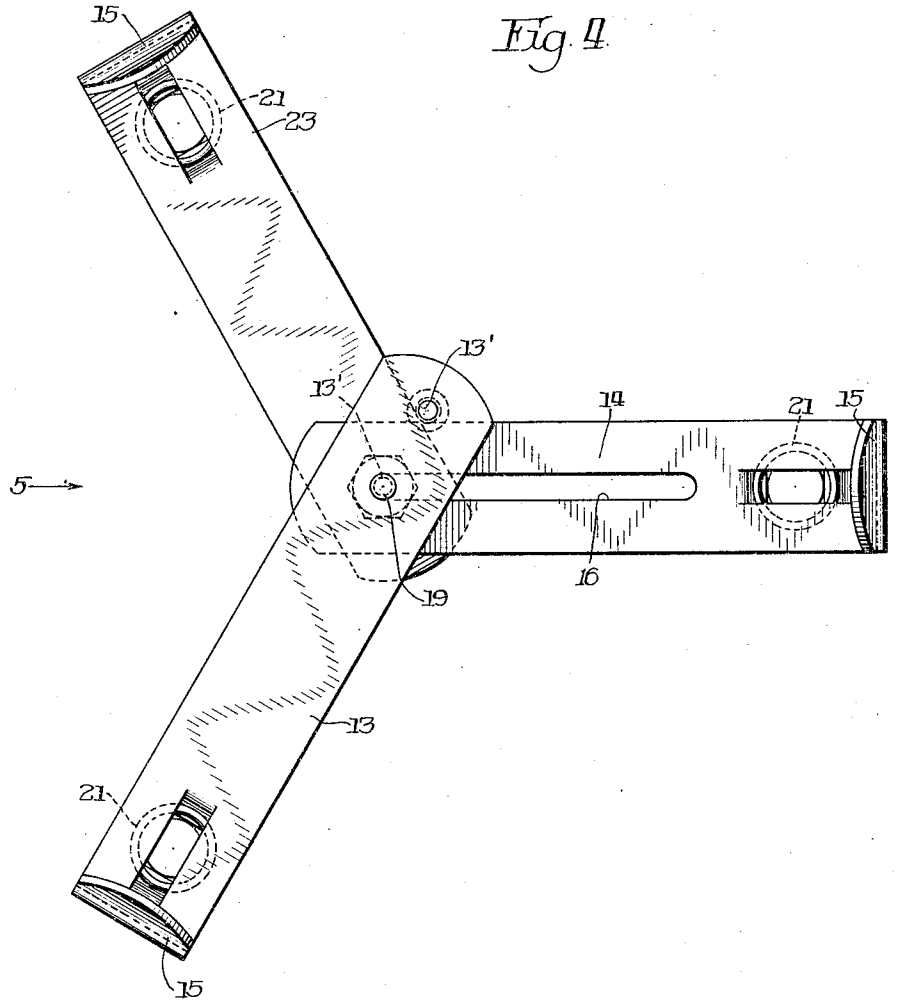
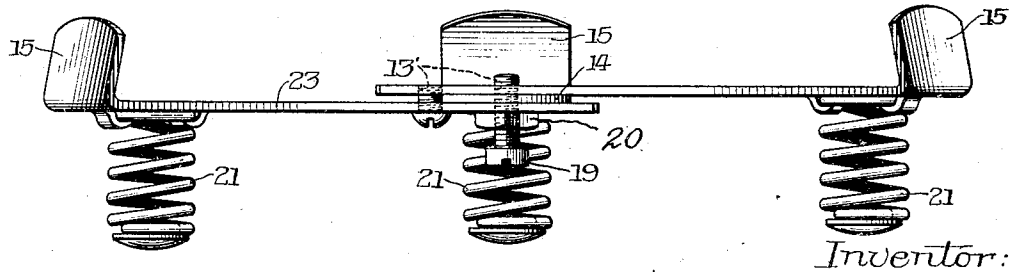


Fig. 5



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UNITED STATES PATENT OFFICE

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CUSHIONING MEANS

Application filed May 15, 1930. Serial No. 452,798.

The present invention relates to cushioning means.

The invention has been illustrated and will be described in connection with cushioning means or shock absorbers for electrical relay mechanism. The present invention is particularly useful in connection with such mechanism, though as the description proceeds it will be clear that the invention has a broader application.

An object of the present invention is to provide a cushioning means or shock absorber readily applicable to electrical relays such as are now commonly in service, or to other relatively delicate mechanism.

A further object is to provide reliable cushioning means which is simple and easy to install.

A further object is to provide cushioning means or shock absorbers which may be readily clamped to devices already in service, though said devices should vary in size.

Further objects will appear as the description proceeds.

Referring to the drawings—

Figure 1 represents a relay having shock absorbing or cushioning means applied thereto, which means embody the principles of the present invention;

Figure 2 is a bottom plan view of the structure shown in Figure 1;

Figure 3 is a side view, parts being broken away, illustrating the structure shown in the preceding figures; and

Figures 4 and 5 are views in plan and side elevation, respectively, showing a modified embodiment of the present invention adaptable to relays or the like having round bases.

Referring first to Figures 1, 2 and 3, the numeral 10 indicates a relay, the base of which is provided with two parallel side edges, indicated by the numerals 11—11. Said relay is provided with a pair of cushioning means or shock absorbers, indicated by the numerals 12—12, which members 12—12 are adapted to be clamped to said relay 10, the clamping force being applied to the parallel side edges 11—11 of said relay 10. The members 12—12 may be identical with one another, and a description of one will suffice for both.

Each of the members 12 includes a pair of elongated sheet metal clamping members 13 and 14, which clamping members are adapted to lie flatwise and have sliding engagement relative to one another. Said members 13 and 14 are provided with the jaw portions 15—15 adapted to engage and overlie the side edges 11—11 of the base portion of the relay 10. The member 14 is provided with the slot 16, and the member 13 is provided with a pair of tapped holes 13′—13′ disposed preferably along the longitudinal center line of said member 13. The numeral 17 indicates a setscrew threaded into one of said tapped holes. Said setscrew 17 in cooperation with the washer 18 is adapted to clamp the members 13 and 14 together. The other of said tapped holes in the member 13 is provided with the machine screw 19 adapted to extend through the member 13 a sufficient distance to engage the bottom of the relay 10. A lock nut 20 locks the machine screw 19 in adjusted position. It will be clear without detailed explanation that after the clamping members 13 and 14 have been disposed in position upon the relay 10 and have been secured together by means of the setscrew 17, the machine screw 19 may be turned up to exert a clamping action against the bottom of the relay 10 for securing members 13 and 14 in clamping relationship with the relay 10.

The members 13 and 14 are provided with coil springs 21—21 having the feet 22—22. Said coil springs 21—21 may be secured to the members 13 and 14 by any preferred means. According to the illustrated embodiment of the present invention portions of said members 13 and 14 are swedged out to form clips for securing said springs 21—21.

Referring now to the structure illustrated in Figures 4 and 5, cushioning mechanism is illustrated adapted to be clamped to a relay or other device having a round base. The structure illustrated in Figures 4 and 5 includes the members 13 and 14, similar to those described above in connection with Figures 1, 2 and 3. A further sheet metal member is provided, indicated by the numeral 23, which may be similar in size and shape to the member 13; or, if preferred, said member 23 may be provided with an untapped hole of sufficient size to take the machine screw 19.

The members 13, 14 and 23 will be disposed with their jaws 15—15 in clamping relationship with the circular base of the relay or other device, and the machine screw 19 (which is threaded into one of the tapped holes 13′ of the member 13), in cooperation with the lock nut 20, will hold said members 13, 14 and 23 in rigid clamping relationship with its relay.

The present invention has the advantage that the shock absorber or cushioning means may be applied to relays or other devices which are already in service, it being unnecessary to do any drilling or tapping on the relays or to disconnect said relays from their electric circuits.

Though certain preferred embodiments of the present invention have been described in detail, many modifications will occur to those skilled in the art. It is intended to cover all such modifications that fall within the scope of the appended claims.

What is claimed is—

1. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means comprising a pair of flat strips, said strips having jaws adapted to engage and overlie side edge portions of said member, one of said strips being provided with a slot, the other of said strips being provided with a pair of tapped holes, a screw disposed within one of said tapped holes and extending through said slot whereby said strips may be rigidly secured together, and a second screw extending through the other of said tapped holes, said second screw being disposed intermediate of said jaws and adapted to engage said member to apply a clamping force to said jaws.

2. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means including a pair of strips, each having a clamping jaw, said jaws being adapted to engage and overlie an edge portion of said member to exert a clamping force in a common plane, each of said strips having a cushioning means secured thereto, one of said strips being provided with a slot and the other of said strips being provided with screw means extending through said slot for securing said strips in adjusted relationship relative to one another, and means carried by one of said strips adapted to engage said member to apply a clamping force to said jaws in a direction at right angles to said plane.

3. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means including a pair of strips adapted to lie flatwise upon one another, each of said strips being provided with a cushioning means secured thereto and with a clamping jaw, said jaws being adapted to exert a clamping force in a common plane and to engage and overlie side portions of said member, means for adjustably securing said strips together, and screw means cooperating with said strips for exerting a force intermediate of said jaws against said member to be supported in a direction at right angles to said plane.

4. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means comprising a plurality of flat strips, each having a clamping jaw at one of its extremities, said jaws being adapted to engage and overlie side portions of said member, said strips being disposed flatwise upon one another whereby said jaws may exert a force in a common plane, one of said strips being provided with a pair of tapped holes, another of said strips being provided with a slot, and a pair of screws disposed within said tapped holes and extending through said slot, one of said screws being adapted to engage with said member to apply a clamping force at right angles to said plane, each of said strips being provided with cushioning means.

5. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means comprising a plurality of flat strips, each having a clamping jaw at one of its extremities, said jaws being adapted to engage and overlie side portions of said member, said strips being disposed flatwise upon one another whereby said jaws may exert a force in a common plane, means for holding said strips in cooperative relationship with each other and with said member, one of said strips being provided with a tapped hole, and screw means extending through said tapped hole and engaging said member to be supported to exert a force at right angles to said plane.

6. In combination, a member to be resiliently supported, cushioning means for supporting said member, said cushioning means comprising a plurality of flat strips, each having a clamping jaw at one of its extremities, said jaws being adapted to engage and overlie side portions of said member, said strips being disposed flatwise upon one

another whereby said jaws may exert a force in a common plane, one of said strips being provided with a tapped hole, screw means extending through said tapped hole and engaging said member to be supported to exert a force at right angles to said plane, and means cooperating with said screw means for holding said strips in rigid relationship with one another.

Signed at Silvis, Illinois, this first day of May, 1930.

WILLIAM A. GOWER.