Sept. 16, 1924. 1,508,744

J. O. CARR ET AL

SUPPORTING BASE FOR RELAYS OR OTHER ELECTRICAL UNITS

Filed June 8, 1921 2 Sheets-Sheet 1

Fig. 1

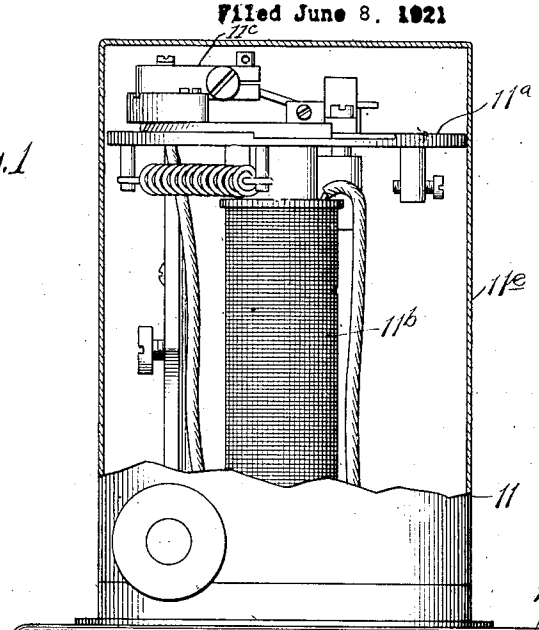


Fig. 7

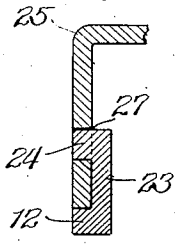


Fig. 2

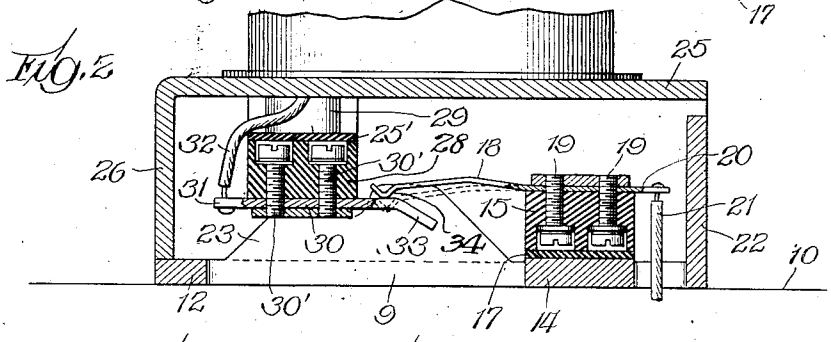


Fig. 5

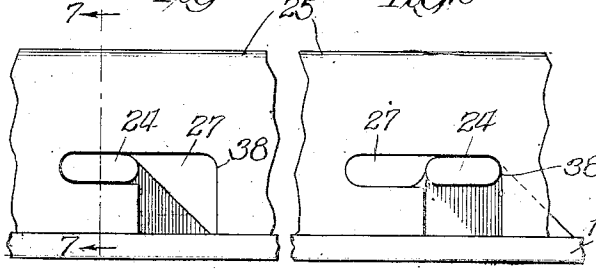


Fig. 6

Inventors
John O. Carr
Howard L. Krum
Fisher, Towle, Clapp & Soans
Attys.

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Fig. 3

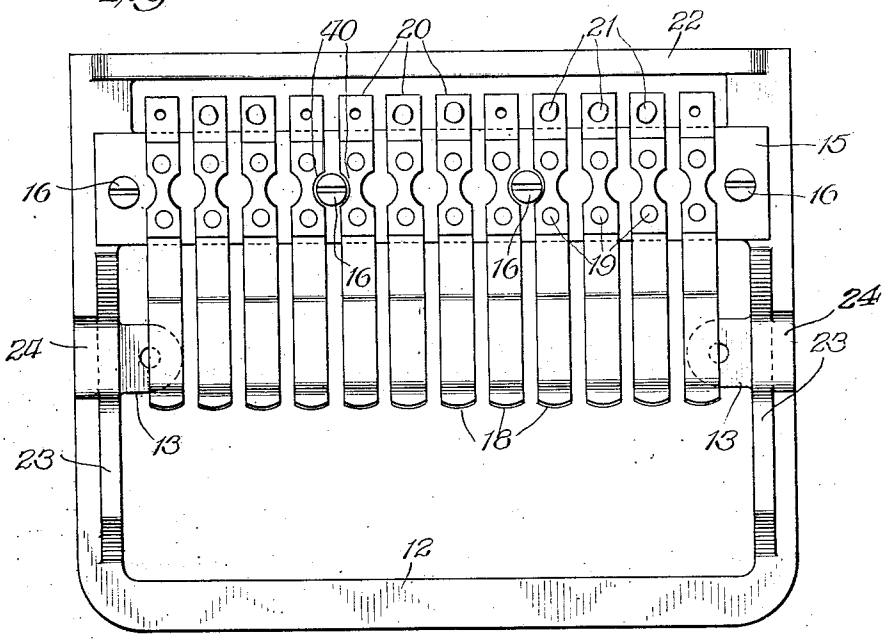
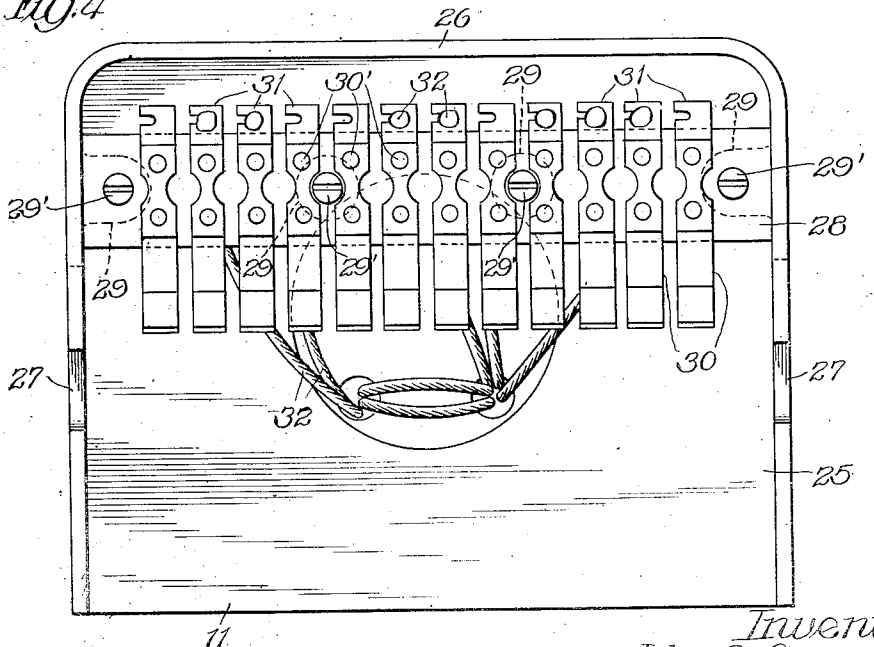


Fig. 4



Inventors
John O. Carr
Howard L. Krum
By Fisher, Towle, Clapp & Sears
Attys

Patented Sept. 16, 1924. 1,508,744

UNITED STATES PATENT OFFICE.

JOHN O. CARR AND HOWARD L. KRUM, OF CHICAGO, ILLINOIS, ASSIGNORS TO MOR-KRUM COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION.

SUPPORTING BASE FOR RELAYS OR OTHER ELECTRICAL UNITS.

Application filed June 8, 1921. Serial No. 475,939.

To all whom it may concern:

Be it known that we, JOHN O. CARR and HOWARD L. KRUM, both citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Supporting Bases for Relays or Other Electrical Units, of which the following is a specification.

This invention relates to supporting bases for relays or other electrical units but more particularly to the slip base type and has for its primary object to provide a new and improved structure which will enable the relay to be more quickly and easily connected to and disconnected from the fixed terminals.

Further objects of our invention are to provide an advantageous interlocking connection between the bracket and the relay to prevent injury to the parts when the relay is being connected or disconnected, to protect the clips and wiring of the bracket and relay, and to provide an improved mounting for the insulating member carrying the clips on the bracket.

The many other objects and advantages of the present invention will be better understood by reference to the following specification when considered in connection with the accompanying drawings illustrating a selected embodiment thereof, in which:—

Fig. 1 is a side elevation partially in section of the relay complete with the parts in the first position of assembly.

Fig. 2 is a partial central vertical section with the parts completely assembled.

Fig. 3 is a top plan view of the connection bracket.

Fig. 4 is a bottom plan view of the relay.

Figs. 5 and 6 are detail views illustrating the assembling operation, and

Fig. 7 is a detail section on the line 7—7 of Fig. 5.

Referring to the drawings, a connection bracket 9 is permanently secured upon a table 10 or other suitable support and a relay 11 is adapted to be detachably connected thereto. While we have embodied our invention in a relay, it is equally applicable to a printer, distributor or other similar electrical apparatus.

The bracket 9 comprises a rectangular frame 12 provided with inwardly projecting perforated lugs 13 to enable the same to be secured by screws or other similar means upon a table. An integral web 14 connects the side members of this frame. A clip support 15 of fibre or other suitable insulating material is secured upon this web by screws 16. A plurality of resilient clips 18 are secured upon the support 15 by means of screws 19 before the support is attached to the web and the heads of these screws are preferably countersunk in the under face of this support. A thin strip 17 of insulating material is interposed between the web and the clip support to protect the countersunk heads of the screws 19. The outer end 20 of each of the clips 18 preferably projects beyond the corresponding edge of the support and is provided with a perforation or slot to permit a terminal wire 21 to be connected thereto. An upright guard plate 22 is preferably formed on the rear edge of the frame 12 to protect these terminals. Each of the side members of the frame 12 is provided with an upwardly projecting flange 23 on which is formed an outwardly projecting stud 24. The upper edge of this flange is preferably above the level of the clips to act as a protector for these clips when the relay is detached therefrom.

The relay 11 comprises a suitable frame 11^a, coils 11^b and contacts 11^c. These parts are mounted on a base 11^d and enclosed by a removable cover 11^e. The base 11^d comprises a base plate 25 having a depending flange 26 extending along its front and side edges. This flange preferably projects beneath the other parts of the relay to protect the clips and terminals. The side portions of this flange 26 are provided with oppositely disposed L-shaped slots 27 communicating with the bottom edge of the flange and adapted to interlock with the corresponding studs 24 on the brackets 23 to form a detachable connection between the relay and the bracket. The bottom edge of the flange 26 rests on the frame 12 when the relay and bracket are in their assembled position. The side members of this frame 12 and the flanges 23 form guides for the relay during the assembling operation, as will be more fully set forth hereinafter. A clip support 28 preferably of fibre is secured on raised shoulders 29 on the under face of the base plate 25 by screws 29′ and a plurality of rigid clips 30 are attached to

this support by screws 30' in the same manner as the clips 18 on the support 15. The outer ends 31 of these clips 30 project beyond the corresponding edge of the bar 28 and the various relay conductors 32 connect these clips with the relay coils and contacts.

A strip 25' of insulating material is preferably interposed between the support 28 and the shoulders 29 to protect the countersunk heads of the screws 29'. The inner ends 33 of the clips 30 are bent downwardly to engage the under face of corresponding ends 34 of the clips 18 and force these ends 34 upwardly, as the relay is moved into its assembled position. The position of the clips 18 prior to engagement with the clips 30 is indicated in dot in Fig. 2. These clips 18 should preferably be of stiff spring metal in order to insure the proper contact with their respective rigid clips.

To mount the relay upon the bracket, it is first held in the relative position indicated in Fig. 1 of the drawings, with the open ends of the slots 27 directly above the corresponding studs 24. The relay is then pressed downwardly to bring the studs and slots into the relative position indicated in Fig. 6. In this position, the inner faces of the side portions of the flange 26 fit closely against the corresponding outer faces of the flanges 23 and the bottom edges of these side portions rest upon the side members of the frame 12. The relay is then slid rearwardly until the studs reach the ends of their respective slots 27. During this rearward movement, the relay is guided by the side members of the frame 12 acting as tracks, and by the flanges 23. The relay is held in engagement with these side members by the studs in the slots and it is desirable that these studs fit closely their respective slots to prevent any upward movement of the relay resulting from the engagement of the clips.

To remove the relay, it is drawn forwardly on its guides until the studs 24 strike the corresponding shoulders 38 at the end of the horizontal portions of the slots 27, as indicated in Fig. 6 of the drawings. The relay is then lifted to withdraw the studs from the slots. The connecting of the relay is accomplished by successive vertical and horizontal movements. The disconnection is performed by a reversal of these movements. On account of the resistance produced by the pressure of the clips 18 on the clips 30, considerable force must be exerted to disengage these parts and the sudden release of the relay while subject to this force would be liable to cause injury to the parts of the relay or the bracket if their relative movement was not limited and controlled. The clips 18 are drawn entirely clear of the clips 30 before the studs 24 permit the relay to be raised. This is important as it prevents distortion of the flexible clips which would subsequently result in imperfect contact between the clips.

The web 14 connecting the side members of the bracket frame greatly strengthens the insulating support 15 as this support may be attached thereto at short intervals. The clips are preferably cut away at 40 to admit the heads of the screws 16 therebetween.

It will therefore be readily evident that the relay may be quickly and easily connected to or disconnected from the connection bracket without possibility of injury to the parts of either the relay or the bracket. The terminals are permanently connected to the bracket and the relay may be changed without disturbing these connections. These terminals are protected at all times by the guard plate. The hollow base projecting below the clips on the relay fully protects these clips and enables the relay to stand in an upright position when detached from the bracket. The insulated supports for the clips are strongly supported to prevent rupture resulting from the torsion produced therein by the engagement of the clips.

We are aware that many changes may be made in the form and arrangement of the various parts without departing from the spirit of our invention, and we reserve the right to make all such as fairly fall within the scope of the following claims.

We claim as our invention:

1. In combination, an electrical apparatus, a supporting base therefor, a table bracket, and cooperating sets of connector clips mounted respectively on said base and bracket and adapted to be engaged by the relative horizontal movement of said parts, said base and bracket having cooperating lugs and grooves for preventing relative vertical movement of said parts when said connector clips are engaged.

2. In combination, an electrical apparatus, a supporting base therefor, a table bracket, cooperating sets of connector clips mounted respectively on the lower face of said base and upon the upper face of said bracket and adapted to be engaged by the relative horizontal movement of said parts, said base and bracket having cooperating portions for guiding the relative horizontal movement thereof and having cooperating lugs and grooves for preventing the relative vertical movement thereof when said connector clips are engaged.

3. In electrical apparatus, a fixed bracket, a unit separate from said bracket and having a base plate provided with depending side flanges adapted to fit over corresponding upright flanges on said bracket, L-shaped slots in said unit flanges adapted to receive outwardly projecting studs on said bracket flanges to form a locking en-

gagement between said base and said unit, and connection clips on said bracket adapted to engage corresponding clips on said unit.

4. In electrical apparatus, a fixed bracket provided with parallel, upright side flanges, a unit separate from said bracket and having a base plate provided with depending side flanges fitting corresponding side flanges on said bracket, an elongated stud on each of said bracket flanges co-acting with a corresponding substantial L-shaped slot in the opposing unit flange to form a locking engagement between said unit and said bracket, and connection clips on said bracket engaging corresponding clips on said unit when said bracket and said unit are in their locked position.

5. In electrical apparatus, a fixed bracket provided with parallel upright side flanges, a unit separate from said bracket and having a base plate provided with depending side flanges fitting over the corresponding side flanges on said bracket, L-shaped slots in each of the side flanges of said unit communicating with the bottom edge thereof, elongated studs on the outer faces of said base flanges adapted to enter the corresponding slots in said unit and be advanced therein by successive vertical and horizontal movements of said unit relative to said base to form a locking connection between said unit on said base, guides on said base for directing the horizontal movement of said unit, and connection clips on said bracket engaging corresponding clips on said unit when said bracket and said unit are in their locked position.

6. In electrical apparatus, a bracket comprising a frame, a clip support on said frame, connection clips secured on said support and having their terminal ends projecting beyond the corresponding side edge thereof, and a guard plate disposed opposite to said ends.

7. In electrical apparatus, a bracket comprising a frame, a web formed integral with said frame and connecting the side members thereof, a clip support extending longitudinally of said web and secured thereto at short intervals, connection clips secured on said support and having their terminal ends projecting beyond the corresponding side edge thereof, and a guard flange on said frame extending longitudinally of said support opposite to the terminal ends of said clips.

8. In combination, an electrical apparatus, a supporting base therefor, a table bracket, cooperating sets of connector clips mounted respectively on the lower face of said base and on the upper face of said bracket and adapted to be engaged by the relative horizontal movement of said parts, said base having depending side flanges extending downward below the connector clips thereon, and said bracket having means cooperating with said flanges to guide the horizontal movement of the base thereon.

9. In combination an electrical apparatus, a supporting base therefor, a table bracket, cooperating sets of clips mounted respectively on the under side of said base and on the upper side of said bracket and adapted to be engaged by the horizontal movement of said base on said bracket, said base and bracket having side flanges for guiding the horizontal movement of said base and between which flanges the corresponding sets of clips are arranged.

10. In electrical apparatus, a bracket member, a unit member, a series of horizontally disposed connection clips on each of said members arranged to be engaged with the corresponding clips on the other member by relative horizontal movement of said members, the unit clips underlying the bracket clips and retaining said unit member firmly in place upon said bracket, and shaped slots on one of said members engaging corresponding lugs on the other member to prevent relative vertical movement of said members except when the connection clips are disengaged.

11. In combination, an electrical apparatus, a supporting base therefor, a table bracket, two horizontally arranged sets of connector clips mounted respectively on the under side of said base and the upper side of said bracket and adapted to be engaged by the horizontal movement of said base on said bracket, said base and bracket having side flanges for protecting said connector clips and said flanges having cooperating lugs and grooves for preventing the vertical movement of said base when said connector clips are engaged.

JOHN O. CARR.
HOWARD L. KRUM.