May 21, 1940. H. M. JOHNSON 2,201,583

TERMINAL CLAMP

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Fig. 1.

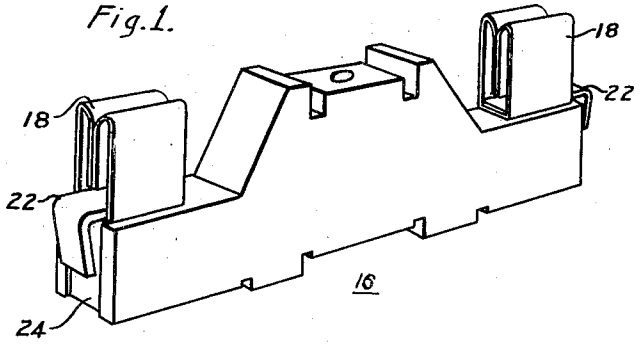
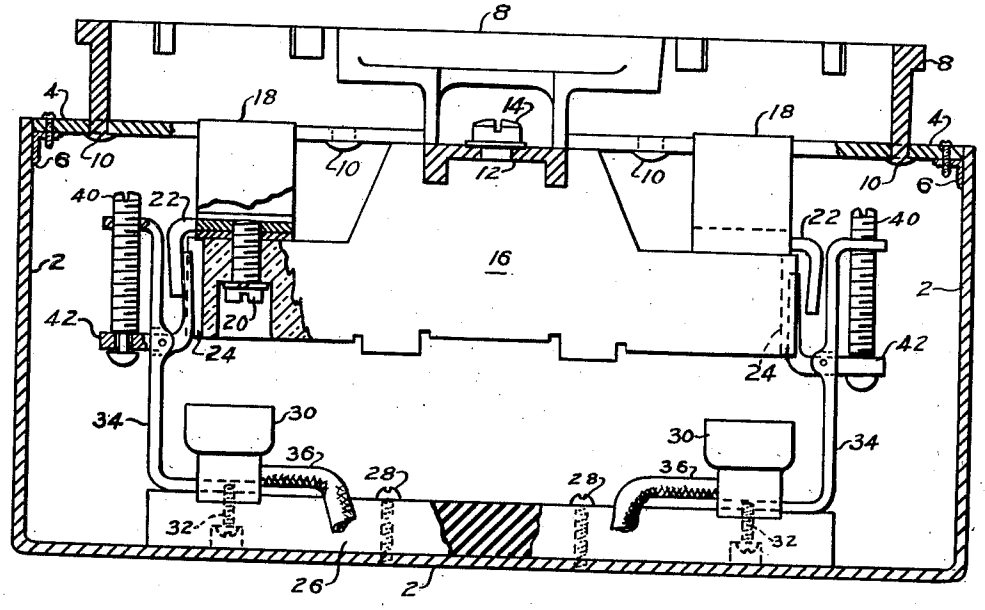


Fig. 2.



WITNESSES:

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TERMINAL CLAMP

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5 Claims. (Cl. 200—158)

The present invention relates to a mounting for watthour meters or other electrical instrumentalities and is concerned particularly with a mounting of an instrumentality housed in the type of casing used for watthour meters of the so-called detachable type.

The detachable type of watthour meter, for example, is shown and described in Patent No. 1,969,499, issued August 7, 1934, to Bradshaw et al. In this type of construction, the meter casing has contact blades projecting from the base of the casing for detachable association with complementary contact jaws which are to be connected to the circuit to be metered.

With specific reference to watthour meters, although it will be obvious that the invention is not limited thereto, it is frequently desired to mount a plurality of meters on a channel or trough to make a compact assembly for the various circuits of a building, and in many cases, it is desirable to mount one of such meters on a receptacle or housing substantially larger than that shown in the above-identified patent, so that other electrical apparatus, or more elaborate circuit connecting devices, may be sealed within such receptacle or housing.

It is an object of the present invention to provide an improved mounting for a meter of the detachable type, or an electrical instrument embodying the detachable type of casing, and includes means for facilitating the connection of such meters to the circuit so that a positive connection and disconnection of the meter with respect to the circuit may be readily effected from the face of the receptacle.

The present invention is a modification and an improvement over the construction shown in my copending application Serial No. 100,840, filed September 15, 1936, and a modification of and an improvement on the construction disclosed in copending application Serial No. 118,590, filed December 31, 1936, on behalf of Bradshaw et al.

Other objects of the invention will be apparent from the following description and the accompanying drawing, in which:

Figure 1 is a view in perspective of a terminal block of the type used for receiving the blades of a detachable meter type of casing; and

Fig. 2 is a view in lateral section of a mounting including the jaw assembly of Fig. 1.

Referring to Fig. 2, the meter mounting receptacle may be a member 2 of channel shape having a cover portion 4 secured thereto, as by brackets 6, and a circular meter receiving ring 8 secured to the cover 4, as by upsetting portions 10 depending from the ring 8 through holes in the cover 4.

The ring 8 has a diametrically extending cross-piece 12 from which are suspended, by screws 14, blocks 16 of insulating material.

As indicated in said copending applications, at least two blocks 16 are provided, each of which is grooved across the upper face thereof to cooperate with the cross-piece 12 to prevent turning of the block about the axis of the screw 14. Also, each block is provided at its free ends with contact jaws 18 suitably secured to the block 16, as by a screw 20 extending upwardly through the block, through the base of the jaw and into threaded engagement with a conducting strap 22. The free ends of the straps 22 are bent downwardly, confronting recesses 24 formed in the ends of the blocks 16.

In the base of the channel 2, a terminal block 26 is secured to the base as by screws 28, or in any other suitable manner, and is provided with terminal clamps 30 which are secured in position, as by screws 32 extending upwardly through the block, through the base of the clamp and into threaded engagement with conducting straps 34. The type of clamp is not shown in detail, but is clearly illustrated in pending application Serial No. 80,968, filed May 21, 1936, on behalf of W. G. Mylius. Such clamps are to receive conductors 36, which may be the line and load conductors of a circuit to be metered. Four of such terminals usually are employed.

In accordance with the present invention, the conducting straps 34 are elongated and extend upwardly terminating adjacent to, but out of contact with, the depending portions of the straps 22, and the free ends of the straps are bent outwardly to receive screws 40 in threaded engagement.

An angle member or lever 42 is pivotally mounted on each of the straps 34 in any desired manner as by having one leg extend through an opening in the strap and a pin extend through adjacent portions of the legend strap, as shown. The horizontally extending leg of the lever 42 loosely receives the lower end of screw 40, which is reduced in diameter to extend through an opening in such leg and enlarged beyond the leg by an upsetting operation so that it cannot be removed therefrom. The horizontally extending leg may, therefore, be moved positively in both directions under the influence of screw 40.

The vertically extending leg of the lever 42 extends toward and lies behind the depending end of the strap 22, so that as the screw 40 is

rotated, the vertical leg will be brought into or out of engagement with said depending end in accordance with the direction of rotation of the screw. As shown, a recess 24 may be provided in the block 16 to receive such leg when it is out of contact with strap 22 to provide as much clearance as possible between the conducting elements.

In practicing the invention, it is contemplated that before the meter receiving parts are placed in position, the wiring to the terminal clamps 30 will be completed. The ring 8 with its contact jaws will then be placed in position and the cover 4 will maintain it in that position by the fastening means 6. When the ring is placed in position, the ends of straps 22 and 34 will be in the position shown at the right in Fig. 2. The screw 40 may then be turned down to force the vertical leg of the lever 42 into engagement with the depending end of strap 22 to complete the electrical circuit to the jaws 18, as shown at the left of Fig. 2. The screws 40 may be turned down just sufficiently to obtain good electrical contact between the leg and the strap 22, but in many cases the screw will be turned down even further to actually clamp the depending part of strap 22 between the vertical arm of the lever 42 and the upper end of the strap 34, the resilience of strap 34 being sufficient to permit it to move toward the strap 22 into contact with it.

When it is desired to disconnect a customer's service, in the case of a watthour meter, or to disconnect the circuit to the jaws 18 for any reason in the case of a watthour meter or other type of instrument, the screws 40 may be released, after removing the meter or the instrument from the ring 8, and backed off to positively effect a disconnection between the strap 34, the lever 22 and the vertical arm of lever 42. In this operation the vertical leg of the lever 42 will be forced back into its recess in the block 16 and, bearing against such block, a positive movement of the strap 34 away from the strap 22 is effected. The meter or other instrument may then be replaced and sealed in position to avoid unauthorized operation of the circuit breaking means.

It should be obvious from the foregoing that the present invention provides a rugged and inexpensive structure for positively controlling the circuit connections between the terminals of the ring 8 and the terminal clamps disposed in the receptacle 2. It is contemplated that modifications of the structure shown will be apparent, and it is intended that the invention be limited only by the scope of the appended claims.

I claim as my invention:

1. In an electric circuit terminal clamping device, a terminal clamp for receiving a circuit conductor, a terminal jaw spaced therefrom for receiving another conductor, supports for said clamp and jaw and means for securing them thereto including two conducting members secured at one end respectively to said clamp and jaw, the free ends of said members extending toward each other in parallel relation and terminating adjacent to each other, a lever pivoted intermediate its ends to one of said members with one end of the lever disposed adjacent to the other member, and screw-operated means for positively moving the other end of said lever to positively engage and disengage said one end of the lever and to said other member.

2. In an electric circuit terminal clamping device, terminal clamp for receiving a circuit conductor, a terminal jaw spaced therefrom for receiving another conductor, supports for said clamp and jaw and means for securing the clamp and jaw together including two conducting members secured at one end respectively to said clamp and jaw, the free ends of said members extending toward each other in parallel relation and terminating adjacent to each other, a lever pivoted intermediate its ends to one of said members with one end of the lever disposed adjacent to the other member, and means for moving the other end of said lever to positively engage and disengage said one end of the lever and said other member, said means being carried by the member to which the lever is pivotally mounted and comprising a screw in threaded engagement with the member and secured to but rotatable with respect to said other end of said lever.

3. In an electrical instrument installation including a receptacle having terminal clamps mounted therein and an instrument support having terminal jaws for connection with the terminals of an instrument; a releasable clamping device for electrically connecting a terminal clamp to a terminal jaw comprising conducting members secured at one end to said clamp and jaw, respectively, and having free ends extending adjacent to each other, means for releasably clamping said free ends together comprising a screw and screw actuated member including means for drawing said free ends together when said screw is rotated in one direction and for forcing them apart when the screw is rotated in the reverse direction.

4. In a mounting for an electric instrument, a receptacle having a terminal block mounted therein and a terminal clamp mounted on said block, an instrument supporting appliance mounted on said receptacle including a terminal jaw, a pair of conducting straps extending from said clamp and jaw, respectively, and having free ends terminating adjacent to each other in confronting relation, an angular lever pivoted to one of said straps and having an end lying behind the free end of the other strap, a screw in threaded engagement with a portion of the strap carrying said lever and rotatably secured to the other end of said lever to positively rock said lever into engagement with the strap and extending from said jaw when the screw is rotated in one direction, and to positively move it away from said strap end when the screw rotation is reversed.

5. In a mounting for an electric instrument, a receptacle having a terminal block mounted therein and a terminal clamp mounted on said block, an instrument supporting appliance mounted on said receptacle including a terminal jaw, a recess in said appliance adjacent to said jaw, a rigid conductor extending from said jaw and terminating adjacent to said recess but spaced therefrom, a resilient conducting strap extending from said terminal clamp and terminating adjacent to the free end of said conductor, an angular lever pivoted to said strap having one arm extending at right angles to the strap and another extending parallel thereto into said recess beneath the end of said rigid conductor, a screw threaded through a portion of said strap into engagement with the lever arm extending at right angles to the strap, and means for rotatably securing an end of the screw to said last-mentioned lever arm.

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