Feb. 16, 1965 R. F. WALDROP 3,170,090

METER RECEPTACLE WITH MOVABLE METER SUPPORT AND SURGE PROTECTOR

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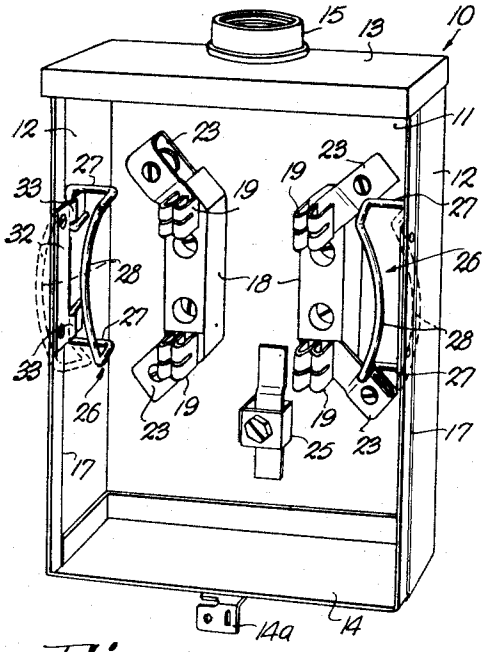


Fig. 1.

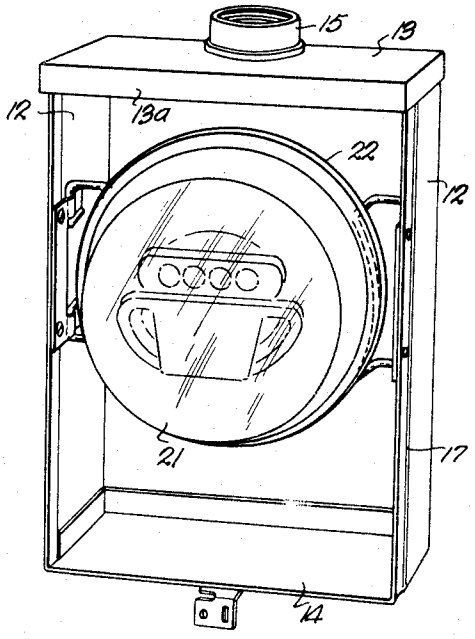


Fig. 2.

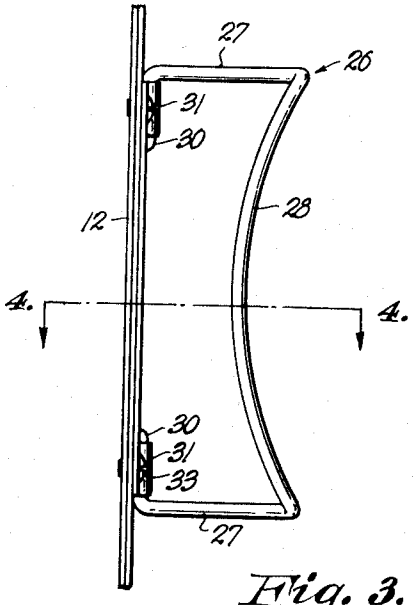


Fig. 3.

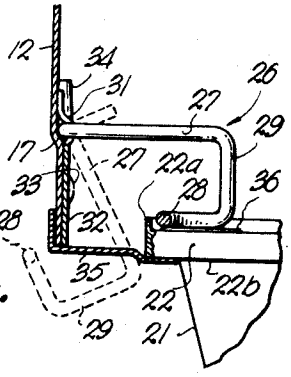


Fig. 4.

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METER RECEPTACLE WITH MOVABLE METER SUPPORT AND SURGE PROTECTOR

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This invention relates generally to electric meter receptacles and refers more particularly to a receptacle for receiving and supporting detachable meters such as watt hour meters.

As is known to those versed in the art, the conventional detachable watt hour meter base is provided with a plurality of projecting contact blades. The usual ringless receptacle or box has mounted on its interior a corresponding number of jaw terminals which are so located as to receive the blade contacts of the meter when the base is properly oriented with respect thereto and moved in a direction to engage the blades in the jaw terminals. To seal the meter in, a cover, apertured to receive therethrough the glass enclosure of the meter, is placed against the outer margin of the base of the meter and secured to the box to complete the installation.

In order to limit the degree of entry of the meter base into the box it has become common to include in the box meter supports which engage the base at a predetermined position as it enters the box so as to insure that when the cover is applied the cover will match closely enough with the base of the meter to substantially seal against intrusion of water and dust. However, the inclusion in the box of such supports has resulted in structure which makes it difficult to manipulate the load and supply lines within the box and to easily obtain satisfactory connection of the lines with the jaw terminals, particularly where both sets of lines are introduced at only one end of the box.

It is an important object of the present invention to provide a simple and inexpensive means of affording the necessary base support for the meter to properly position it in the receptacle while at the same time providing for displacement of the support structure out of the way when the meter is removed, and it is desired to work on the internal wiring of the receptacle. It is a feature of the invention in this respect that the support structure remains at all times permanently connected with the receptacle and that the necessary displacement from and back to the support position requires little more than the flick of a finger.

A further object of the invention is to provide a meter support of the character described which operates in the extended position to interfere with and present accidental replacement of the cover, thus insuring against improper practices in the field.

Another object of the invention is to provide a movable support arrangement of the character described in which the support is of one-piece construction and can be formed of wire stock through bending it into the configuration herein disclosed. The support is firmly connected with the receptacle through a simple bracket structure which is easily applied and is strong enough to withstand severe loads on the support.

Still another object of the invention is to provide a support arrangement of the character described in which, despite the movability of the support, the support serves to fully ground the surge links of the meter to the receptacle when the meter is in position in the receptacle.

Other and further objects of the invention together with the features of novelty appurtenant thereto will appear in the course of the following description.

In the accompanying drawings which form a part of the specification and are to be read in conjunction therewith, and in which like reference numerals indicate like parts in the various views;

FIG. 1 is a front perspective view of a typical meter receptacle or socket embodying the invention, the cover and meter not being shown, and the solid lines indicating the normal meter support position for the support member;

FIG. 2 is a view similar to FIG. 1, but showing the meter in position on the support member with the blades of the meter (not visible) inserted in the jaw terminals;

FIG. 3 is an enlarged fragmentary front view of the left-hand support member as viewed in FIG. 1; and

FIG. 4 is a fragmentary sectional view through a support member and adjacent side wall, being taken generally along line 4—4 of FIG. 3 in the direction of the arrows, and also showing a portion of the meter base and cover.

Referring now to the drawings, reference numeral **10** indicates generally the main body of the meter receptacle, or as it is more commonly called, socket. The socket comprises a preferably rectangular housing or box having a back wall **11**, side walls **12**, upper end wall **13**, and bottom wall **14**. An outlet hub **15** may be provided on the upper end wall **13** or on any other wall desired. The vertical side walls **12** are slightly inset near their outer edges as at **17** in the usual fashion, and the upper end wall **13** has the depending lip **13***a* beneath which the upper end of the cover (not shown in full) is fitted. A latch component **14***a* is mounted on the bottom wall **14**. This, of course, matches with a corresponding component on the cover as is conventional in the art.

As best seen in FIG. 1, mounted within the box and secured to the back wall **11** are a pair of parallel insulating blocks **18**. These blocks carry in the usual fashion jaw terminals **19**, in this case four of them. The jaw terminals are so spaced as to receive, when a meter is inserted, the blade terminals of the meter. The front portion of the meter generally is seen in FIG. 2, the transparent enclosure for the rate determining mechanism being shown at **21** and the circular base at **22**. Each jaw terminal has associated with it a laterally extending lay-in terminal **23**, the details as to which play no part in the present invention. The receptacle may also include a ground terminal **25**.

Located in the interior of the box on opposite sides thereof are the meter supports generally indicated at **26**. Since the supports are identical with one another, except for being left-hand or right-hand, the details of only the left-hand one will be given. It will be understood, however, that the description applies to both.

Each support member is formed of wire stock bent into the configuration shown. Vertically spaced arm portions **27** extend inwardly from the side wall **12**, generally parallel with one another and with the plane of the front of the box. Extending between the outer ends of the arms is a meter base engaging section **28** which is joined at its ends with the arms by the short forwardly offsetting portions **29**. The section **28** is arcuate and conforms generally to the curvature of the base **22** of the meter. The section **28** is spaced far enough inwardly from the side wall as to underlie the meter base to the inside of and close to the annular lip **22***a* thereof (see FIG. 4).

The ends of the arm portions **27** adjacent the side wall are provided with vertical continuations **30** which lie against the wall at the inset **17**. The portions **30** are coaxial and are rotatably confined to the wall by overlying strap elements **31** which form a part of a member **32** secured to the side wall in any suitable fashion, as by welding or screws **33**. Extending angularly from the

journaled portions 30 toward the back wall 11 are the stop lungs 34. As will be evident, when the outer support member is in the normal position illustrated in the drawing, the lungs engage the side wall and prevent inward displacement of the meter support past the normal position.

The position of the transverse base engaging section 28 is such that it engages and supports the base 22 when the meter has been inserted to a predetermined position relative the front edge of the socket. This is to insure that the outer marginal face 22*b* of the base will lie in a plane which permits cooperation of the cover therewith for sealing around the meter. This may best be understood by referring to FIG. 4 where a portion of the cover is seen at 35. In other words, the depth to which the meter may be inserted in the socket is determined by the location of the transverse sections 28 of the meter supports. It will be understood that the relationship of the blades of the meter with the jaw terminals is such that the sections 28 stop inward movement of the meter before the ends of the blades reach the bottoms of the jaw terminals.

The providing of the section 28 with a curved or arcuate configuration closely conforming to the lip 22*a* of the base, but slightly inwardly thereof, assists in properly locating the meter in the socket. If the meter is too high or too low, there will be interference between the transverse section and lip, thus providing an indication that adjustment is required. Furthermore, should the meter be left at an interfering position, the base will lie too far from the back wall to permit complete closing of the cover.

The section 28 also serves to contact the usual surge link 36 on the rear of the meter base, thus providing surge protection for the meter as well as support. The sections 28 of the respective meter supports contact the surge links to close the surge gap.

When the meter is removed, or before installation of the meter, the support members 26 can be displaced to an out-of-the-way position by simply drawing them outwardly toward or past the broken line position illustrated. The portions 30 define the pivot axes for the support members. Once displaced, the spaces in the box between the insulating blocks 18 and side walls 12 are open to easy access for the laying-in of wires and the like. Once the wires (not shown) have been properly positioned, the support members can be returned toward the back wall of the meter and will be stopped at their normal position by engagement of the lugs 34 with the side walls. Thereafter the receptable is ready for insertion of the meter and closing of the cover.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

As many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In a receptacle for an electrical instrument of the type having a circular base surmounted on one face by an instrument enclosure, the base having on its exposed face axially projecting contact blades, the combination of an open front box having a back wall and side walls and in which said base can be positioned, insulation blocks mounted on the back wall of the box, jaw terminals mounted upon said insulation blocks, a pair of electrically conductive base contacting members respectively supported from opposite side walls of the box, each said contacting member including an arm portion pivotally connected at one end with a side wall at a location spaced from the outer edge of the box and normally extending inwardly away from said wall and a base contacting portion extending from said arm outwardly toward the front of said box and adapted to contact a portion of said base when the instrument is inserted in said box, each arm portion including stop means cooperating with said wall to prevent pivotal motion of said arm inwardly in said box past said normal position, each arm being capable of pivotal movement outwardly of the box from said normal position whereby to swing said base contacting portions in a direction away from the center of the box toward said side walls when said instrument is removed.

2. The combination as in claim 1 wherein each said base contacting member is of generally U-shaped configuration, having a bight portion which is spaced from said side wall and spaced arms connected therewith which extend toward said wall, and including means respectively connecting said arms with the side wall.

3. In a receptacle for an electrical instrument of the type having a circular base surmounted on one face by an instrument enclosure, the base having on its exposed face axially projecting contact blades, the combination of an open front box having a back wall and side walls and in which said base can be positioned, insulation blocks mounted on the back wall of the box, jaw terminals mounted upon said insulation blocks, a pair of electrically conductive base contacting members respectively supported from opposed side walls of said box and having base engaging portions normally spaced inwardly from said side walls and adapted to engage portions of said base as the instrument is inserted in said box, each said member comprising a rod-like element bent to form a pair of spaced coaxial wall attaching portions adjacent the side wall, parallel arms extending from said respective portions inwardly of the box way from said side wall and a transverse section integral with and linking the outer ends of said arms and forming said base engaging portions, means rotatably connecting said attaching portions with the adjacent side walls whereby to provide for swinging movement of said members from said normal position toward the front of the box whereby to cause said base engaging portions to be shifted laterally toward the planes of the respective side walls, and stop means operable to prevent the movement of said members back toward the rear wall of the box past said normal position.

4. The combination as in claim 3 wherein each said transverse section is spaced forwardly of its connected arm portions.

5. The combination as in claim 4 wherein each said transverse section is arcuate and lies in a plane parallel with the front of the box.

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