Jan. 22, 1929. 1,699,804

W. G. MYLIUS

COVER FOR WATTHOUR METERS

Filed March 28, 1927

Fig 1

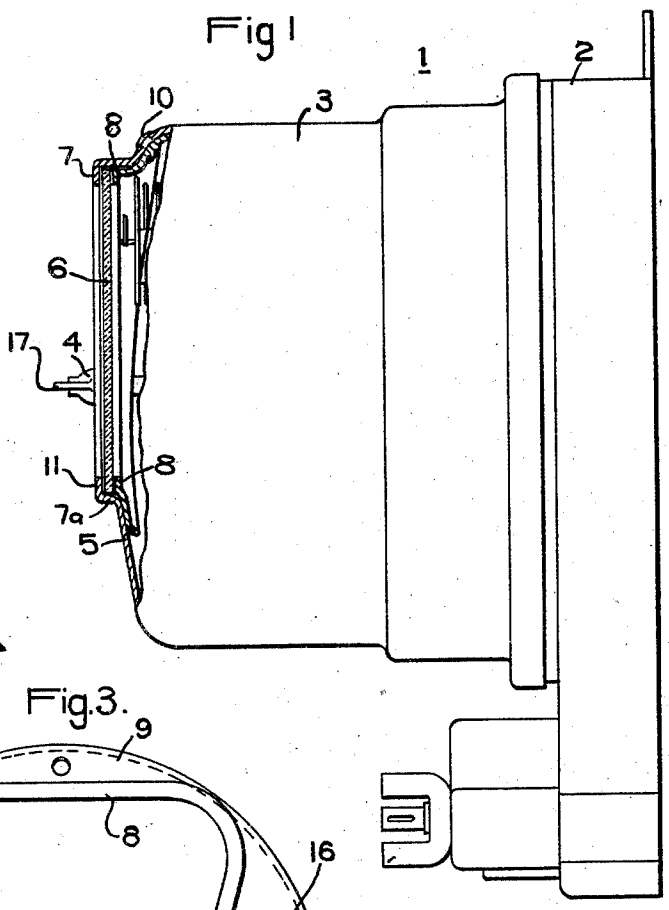


Fig.2.

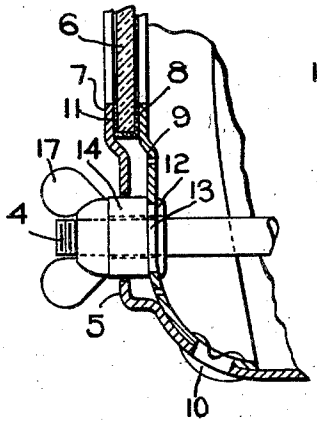


Fig.3.

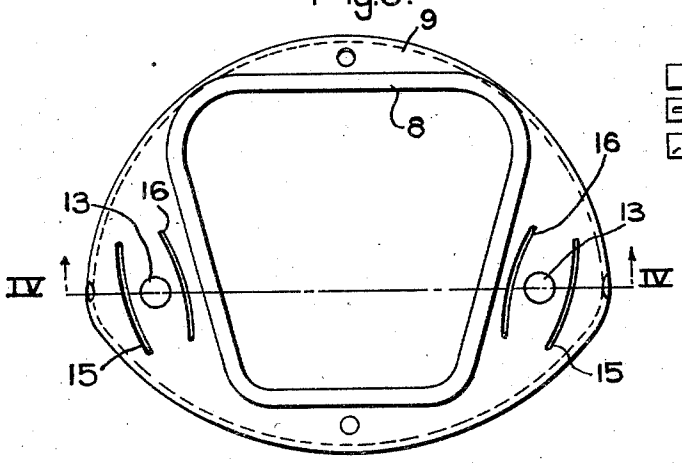
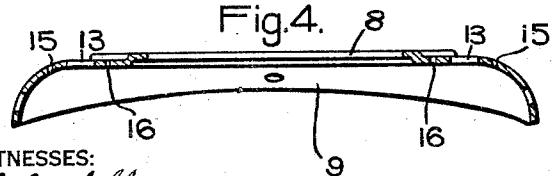


Fig.4.



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UNITED STATES PATENT OFFICE.

WALTER G. MYLIUS, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

COVER FOR WATTHOUR METERS.

Application filed March 28, 1927. Serial No. 178,976.

My invention relates to covers for electrical measuring instruments and more particularly to sheet-metal covers for electric measuring instruments known as watthour meters.

My invention has for an object to provide a cover for a watthour meter wherein breakage of the glass window incident to mounting the cover on the base is substantially avoided.

A further object of my invention is to provide a cover of the character described that shall be relatively cheap to manufacture and relatively simple in construction.

Heretofore, the glass windows mounted in the covers of watthour meters have been subject to breakage because of distortion resulting from the unequal stresses set up in the face of the cover by the pressure of the mounting means. In a well-known type of watthour meter, two rods extend from the base through the cover to hold it firmly against the base by means of wing nuts adapted to fit threaded end portions of the projecting rods. In the cover previously employed, when the wing nuts were inadvertently screwed down too tightly, unequal stresses were set up in the cover and caused distortion therein. These distorting stresses were transmitted to the glass window and, in many instances, caused it to break.

In practicing my invention, I provide means for uniformly distributing the stresses in the cover caused by the rods and the nuts by mounting an auxiliary frame on the cover in such manner that stresses are transferred from the face of the cover to the cylindrical portions thereof. I provide also means in the frame for resiliently absorbing lost motion between the rods and the cover.

My invention may be better understood from the following description, taken in connection with the accompanying drawings:

Fig. 1 is a view, partially in side elevation, and partially in section, of a watthour meter having a cover constructed in accordance with my invention;

Fig. 2 is a view, partially in section and partially in elevation, of a portion of the watthour meter shown in Fig. 1;

Fig. 3 is a view, in front elevation, of an auxiliary frame, and

Fig. 4 is a view, in section, taken on the line IV—IV of the frame shown in Fig. 3.

A watthour meter 1 is provided with a base 2 having a cover 3 of substantially cup shape mounted thereon by means of rods 4 projecting from the base 2 and extending through the face 5 of the cover 3. A glass plate or window 6 is supported in the face 5 of the cover 3 between an inwardly extending flange 7 and seat 7ª on the face 5 and a similar flange 8 in an auxiliary frame 9 that is secured inside the cover 3 by rivets 10. The glass plate 6 is held firmly between the flanges 7 and 8 by means of a filler 11 preferably of resilient material, such as rubber or cork.

A bushing 12 is spun over in an opening 13 of the frame 9 in such manner that it is rigid with respect to the frame 9. The bushing 12 is adapted to guide the rod 4 through the opening 13 in the frame 9 and a registering opening 14 in the face 5 of the cover 3. The bushing 12 is movable with respect to the face 5 of the cover 3 and also with respect to the rod 4.

Portions of the frame 9 adjacent to the openings 13, in which the bushings 12 are mounted, are given some degree of flexibility with respect to the remainder of the frame 9 by slots 15 and 16.

The projecting rods 4 are provided with threaded end portions to receive wing nuts 17. By turning the wing nuts 17, pressure is applied, through the bushings 12, to the frame 9, and from the frame 9 stresses are uniformly distributed around the window 6 by the rivets 10 and thence, through the cylindrical portion of the cover 3, to the base 2. Any lost motion between the cover face 5 and the rods 4 is absorbed by the yielding resistance of that portion of the frame between the slots 15 and 16.

By virtue of the auxiliary frame 9, strains that would otherwise tend to break the glass 6 are uniformly distributed around the casing behind the face 5. By relieving the glass plate 6 from such strains, it becomes substantially free from any possibility of damage incident to the mounting of the cover on the base.

Various changes may be made in my invention without departing from the spirit thereof and I desire, therefore, that all such modifications shall be included within the scope of the appended claims.

I claim as my invention:

1. The combination with a base, of a cover for said base provided with a window and a plurality of holes, a plurality of supporting members extending from said base through the said holes, a frame having a window and a plurality of holes corresponding to those in the cover, a plurality of bushings secured in the holes to the said frame and extending through the holes in the cover, wing nuts adapted to cooperate with the supporting member to secure the cover to the base, a glass plate mounted between the cover and the frame in the windows thereof, and means for absorbing motion between the frame and the bushing consisting of a portion of the frame in proximity to the holes containing the bushings slotted to thereby provide relative freedom of movement for that portion of the frame with respect to the remainder of the frame.

2. The combination with a cover mounted on a base by means of a rod extending from the base through the cover, of means for substantially avoiding stresses on a glass window therein consisting of a member mounted on the cover having a resilient portion for absorbing lost motion between the rods and the cover.

3. The combination with a base, of two projecting rods secured to said base, a cover of substantially cup-shape mounted on the said base by the cooperation of said projecting rods therewith, the rods passing through the face of the cover, a glass plate mounted in a window in the said cover, and a frame mounted on the cover adapted to yieldingly transmit stresses incident to the cooperation of the rods and cover to the cylindrical portion of the cover to thereby relieve the face of the cover of unequal stresses.

4. A cover for a watthour meter comprising a cover member of substantially cup-shape provided with an auxiliary frame to cooperate with the cover to secure a glass plate in a window therein, and to uniformly distribute stresses around the said window to thereby substantially avoid stresses upon the said glass plate.

5. The combination with a base and a cover having an opening therein provided with a glass plate, of means including a member secured to the cover for holding the glass plate in position, said member having a resilient portion for mounting the cover on the base.

6. The combination with a base and a cover having an opening therein, of means for supporting a transparent member in said opening comprising a member secured to the said cover, said member having an opening corresponding to the opening in said cover and a plurality of holes, a bushing disposed in each of said holes and engaged by said member adjacent said holes, a plurality of rods mounted on the base having end portions extending through the said bushings, and means cooperating with said end portions for exerting a pressure on each of said bushings.

7. The combination with a base, of a plurality of rods secured to said base, a cover of substantially cup-shape for said base, a glass plate disposed in an opening in said cover, and means for mounting the cover on the base comprising a frame co-operating with said rods and said cover to distribute the stresses in the cover uniformly around said glass plate and to resiliently absorb motion between the cover and the rods.

8. The combination with a base and a meter cover having an opening therein, of means for supporting a transparent member in said opening and for retaining said cover to said base comprising a member secured to said cover, said member having an opening conforming to the opening in said cover, and means connecting said member and the base together.

9. The combination with a base and a cover of substantially cup-shape, a flat portion in said cover having an opening therein provided with a glass plate, of means for mounting the cover on the base comprising members mounted on the base and extending through the flat portion of the cover, a member secured to the cylindrical portion of the cover having resilient force-transmitting sections embracing said members, and means cooperating with said members for exerting a pressure on said sections.

10. The combination with a base and a cover of substantially cup-shape, a flat portion in said cover having an opening therein provided with a glass plate, of means for mounting the cover on the base comprising members mounted on the base and extending through the flat portion of the cover, a member secured to the cylindrical portion of the cover having resilient force-transmitting sections embracing said members, said member having a portion thereof co-operating with said cover in holding said glass plate in position, and means co-operating with said members for exerting a pressure on said sections.

In testimony whereof, I have hereunto subscribed my name this 23rd day of March, 1927.

WALTER G. MYLIUS.