Sept. 14, 1943. E. G. JOHANSSON 2,329,349

METAL BOX

Filed Jan. 6, 1942

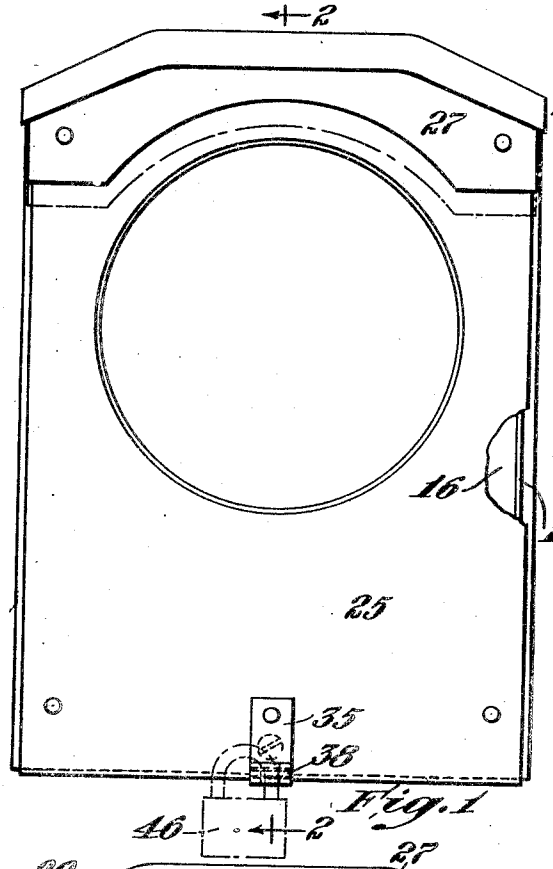


Fig. 1

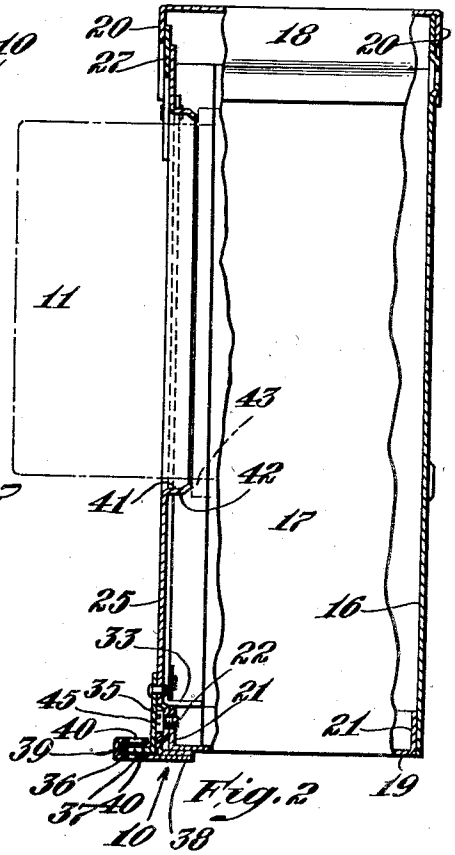


Fig. 2

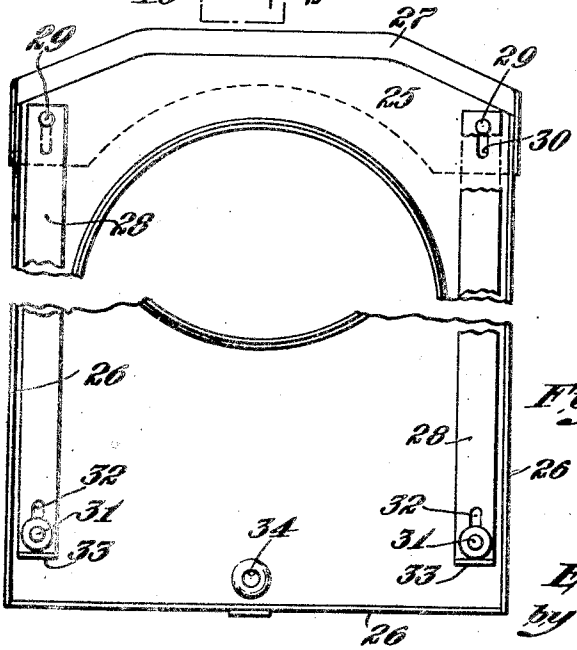


Fig. 3

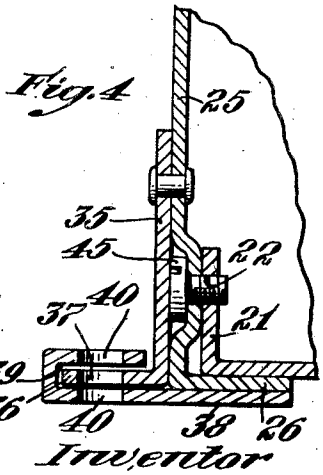


Fig. 4

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METAL BOX

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16 Claims. (Cl. 220—55)

In meter boxes and the like it is necessary to seal the enclosure to prevent tampering with the contents and when the boxes are located outdoors or in exposed positions, it is also necessary to make them weather-proof. In order to afford free access to the interior while the box is mounted on the wall it is desirable to make the front of the box removable. Inasmuch as most meter boxes have cylindrical glass covers projecting forwardly beyond the front of the box, it is necessary to provide an opening in the front to accommodate the projecting cover glass and also to remove the cover by sliding it forward off the cover glass instead of swinging it to one side. Heretofore it has been customary to provide separate locks for the cover at the top and bottom of the box, these locks usually including lugs on the box which project forwardly after the front of the box has been removed. This arrangement has not been satisfactory because of the duplicate locks and also for the reason that the projecting lugs on the box interfered with free access to the interior of the box after the front had been removed.

The objects of the present invention are to provide an arrangement whereby the front of a meter box or the like may be locked in position with a single lock and yet be removed by sliding it forwardly off the projecting portion of the meter or other part projecting from the box. Another object is to provide a box which is simple in construction and yet weather-proof and proof against tampering. Still another object is to provide a lock which leaves no part projecting from the box after the cover has been removed.

According to this invention the improved box comprises a removable front closure having an opening to accommodate a forwardly projecting portion of a meter or the like, the box having an inwardly facing surface at the upper end of the closure and the closure having a slide movable up behind said surface, together with a detent connected with the slide and extending downwardly into juxtaposition with an obstruction inside the box to prevent the slide moving downwardly until the lower end of the closure has swung forwardly enough to permit the detent to clear the obstruction, and means for locking the lower end of the closure in closed position, whereby the closure can be removed only by first unlocking it, then swinging its lower end forwardly until the aforesaid detent clears the obstruction, then moving the slide downwardly and finally moving the closure forwardly off the projecting portion of the meter. While the inwardly facing surface at the upper end of the closure may be on any part of the top of the box, it preferably comprises a front wall depending a short distance from the top of the box. In a more specific aspect the invention comprises means for locking the closure in closed position, including a screw or other fastener extending through the closure into interlocking engagement with the box, a retainer movably mounted on the cover to prevent the fastener from being unfastened, and means for locking the retainer in operative position. The retainer is preferably in the form of a cover for covering the outer end of the fastener when the fastener is in locked position.

For the purpose of illustration a typical embodiment of the invention is shown in the accompanying drawing in which:

Fig. 1 is a view in front elevation of a box embodying this invention;

Fig. 2 is a longitudinal section taken along the line 2—2 in Fig. 1, with parts broken away;

Fig. 3 is a view with parts broken away of the inner face of the separable front wall of the box; and

Fig. 4 is an enlarged sectional view illustrating a detail of the box.

The meter box 10 illustrated in the drawing comprises a body and a separable front closure 25. The provision of the separable front wall of the body permits easy mounting and removal of the electric meter, and such wall has an opening through which extends the forwardly projecting cylindrical cover 11 of glass or other transparent material whereby the register and rotatable disk of the meter can be inspected without disturbing the box.

The body, in which the base and connections of the meter are mounted, comprises a back wall 16 to which such base and connections are secured in any suitable manner (not shown), forwardly projecting side walls 17 which may be integral with the back wall 16, a top wall 18 and a bottom wall 19. The edges of the top and bottom walls are flanged, the flanges 20 of the top wall surrounding and the flanges 21 of the bottom wall being surrounded by the adjacent top and bottom edges of the back and side walls and permanently secured thereto by soldering, welding or the like. The plane of the front flange 20 of the top wall 18 is in advance of the plane of the flange 21 of the bottom wall (see Fig. 2). In the front flange 21 of the bottom wall is formed a threaded aperture 22.

The front closure 25 is provided at its side and bottom edges with rearwardly extending flanges

26 and the edges of the side walls 17 are offset inwardly and enclosed by the side flanges of the plate 25. Upon the outer surface of the front closure at the upper end thereof is mounted a slidable plate 27 and on its inner surface are mounted straps 28 which are parallel to and adjacent the side flanges 26. The plate 27 is attached to the upper ends of the straps 28 by studs or rivets 29 which pass through vertical slots 30 in the front wall 25. The lower ends of the straps are attached to the front wall 25 by studs or rivets 31 which pass through vertical slots 32 in the straps. The straps terminate in inwardly extending flanges 33. The slots 30 and 32 are so positioned relative to each other that the plate 27 and straps 28 are free to reciprocate vertically, whereby the plate 27 is movable from the upper position shown in full lines in the drawing to that shown in dotted lines in Fig. 1, as will be described hereinbelow.

In the front closure 25 is formed an aperture 34 which is normally covered by a tongue 35 pivoted at its upper end to the front wall 25. The tongue terminates at its lower end in an outwardly extending flange 36 having a hole 37 therein. Mounted on the bottom flange 26 of the wall 25 is a strip or bracket 38 which extends outwardly from the wall and is bent back on itself to form a pocket 39. The pocket 39 is adapted to receive the flange 36 of the tongue 35, and through its walls are holes 40 which register with the hole 37 in the flange 36, when the latter is in the pocket as shown in Fig. 3. At the center of the front wall is a circular opening 41 bounded by an inwardly extending flange 42 through which the cylindrical meter cover 11 projects.

After the meter base and connections have been mounted in the body 15, the front closure 25 is assembled with the body to complete the box. The front closure 25 with the plate 27 in the retracted lower position shown in dotted lines in Fig. 1 is slipped over the cover 11. When the plate 27 is retracted, the flange 21 of the body will be in the path of the flanges 33 of the strap 28 so that the upper end of the wall must be tilted inwardly a trifle. The plate 27 is then moved into the advanced position behind the flange 20 of the top wall 18 by applying pressure to the plate either directly or through the straps 28. The flanges 33 of the straps 28 are so located that when the plate 27 is fully advanced, they will slide over the upper edges of the flange 21 and thus permit the front closure to be brought into contact with that flange (see Fig. 2). When this takes place the plate 27 will be positively held in the advanced position by the coaction of the flange 21 with the flanges 33.

A gasket ring 43 of rubber or similar material at the base of the cover 11 is engaged by the flange 42 to seal the opening 41 against the entry of water. The flanges 26 of the front closure overlie the side and bottom walls of the body, and the flange 20 of the top wall overlies the upper edge of the front closure so that the meter is fully protected.

The front closure 25 is secured to the body 15 by a set screw 45 or similar means passed through the aperture 34 in the wall 25 and threaded into the aperture 22, those apertures being so located that they are in register when the closure 25 is in closed position. The tongue 35 which was swung out of the way while the screw 45 was set is now returned to the position shown in Figs. 1 and 2 with its flange 36 in the pocket 39 of the strip 38. A padlock 46 or other sealing means is passed through the holes 37 and 40 so that the screw 45 is only accessible after the sealing means has been removed.

When the meter box is to be opened, the padlock 46 is removed and the tongue 35 swung out of the way to allow removal of the screw 45. The lower edge of the front wall 25 is then raised enough to disengage the flanges 33 from the flange 21 whereupon the plate 27 will be withdrawn to the retracted position below the flange 20 so that the front wall is now completely disengaged from the body 15 and can be removed without difficulty, thus affording access to the meter and connections.

From the foregoing it will be evident that the parts 28—33 constitute detent means cooperating with the obstruction 21 inside the box to prevent the slide 27 from moving downwardly from behind the surface 20 until the lower end of the closure 25 has been swung forwardly far enough to permit the inturned ends 33 of the detent to clear the obstruction 21, whereupon the slide may be moved downwardly from behind the surface 20 and the entire closure then slips forwardly off the projection portion 11 of the meter. The inwardly facing surface of the flange 20 may if desired be inclined outwardly from top to bottom to facilitate the entry of the slide 27 and to produce a slight wedging action as the slide reaches its uppermost position.

While one embodiment of this invention has been shown and described in detail, it will be understood that the invention is not limited thereto and that other embodiments thereof may be made without departing from the spirit and scope of the invention as set forth in the following claims.

I claim:

1. A box comprising a body having back, side, top and bottom walls and a separable front wall, means for removably securing said front wall to the body of the box, a tongue pivotally mounted at one end on said front wall and movable over said securing means, a strip fixed to said front wall, and means for connecting said strip to said tongue when the latter covers said securing means whereby said securing means are inaccessible and the box is sealed.

2. A box comprising a body having back, side, top and bottom walls and a separable front closure, said front closure including a plate slidable relative to one edge of the front closure, which plate in one position permits assembly of the front closure with the body and in another position engages a wall of the body and completes the closure of the box, and means movable relative to the front closure which means engage the wall of the body opposite the wall engaged by the plate to hold the plate in the second-named position.

3. A meter box comprising a body having back, side, top and bottom walls and a separable front closure, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front closure having a suitably formed opening which surrounds the projecting portion of the meter, and a slidable plate which in one position permits assembly of the front closure with the meter and body and in another position completes the closure of the box, said slidable plate being offset relatively to said opening so that it may be moved back and forth between said two positions while the meter projects through the opening.

4. A meter box comprising a body having back,

side, top and bottom walls and a separable front closure, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front closure having a suitably formed opening which surrounds the projecting portion of the meter, the top wall terminating at the front of the box in a downwardly projecting flange and the front closure including a slidable plate which in one position extends behind such flange to complete the closure of the box, said slidable plate being offset relatively to said opening so that it may be moved back and forth between said two positions while the meter projects through the opening.

5. A meter box comprising a body having back, side, top and bottom walls and a separable front closure, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front closure having a suitably formed opening which surrounds the projecting portion of the meter, the top wall terminating at the front of the box in a downwardly projecting flange and the front closure including a slidable plate which in one position extends behind such flange to complete the closure of the box, and means for holding the plate in such position.

6. A meter box comprising a body having back, side, top and bottom walls and a separable front closure, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front closure having a suitably formed opening which surrounds the projecting portion of the meter, the top and bottom walls terminating at the front of the box in flanges, the flange of the top wall projecting downwardly and the flange of the bottom wall projecting upwardly and the front closure including a slidable plate which in one position extends behind the flange of the top wall to complete the closure of the box, and means carried by said plate which engage the flange of the bottom wall to hold the plate in such position.

7. A meter box comprising a body having back, side, top and bottom walls and a separable front wall, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front wall having a suitably formed opening which surrounds the projecting portion of the meter, the top and bottom walls terminating at the front of the box in flanges, the flange of the top wall projecting downwardly and the flange of the bottom wall projecting upwardly and the front wall including a plate slidable over its outer surface at the top thereof, which plate in one position extends behind the flange of the top wall to complete the closure of the box, and a pair of straps on the inner surface of the front wall and connected at one end to the plate through vertical slots in the front wall which straps engage the flange of the bottom wall to hold the plate in such position.

8. A meter box comprising a body having back, side, top and bottom walls and a separable front wall, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front wall having a suitably formed opening which surrounds the projecting portion of the meter, the top and bottom walls terminating at the front of the box in flanges, the flange of the top wall projecting downwardly and the flange of the bottom wall projecting upwardly and the front wall including a plate slidable over its outer surface at the top thereof, which plate in one position extends behind the flange of the top wall to complete the closure of the box, and a pair of straps on the inner surface of the front wall and connected at one end to the plate through vertical slots in the front wall which straps terminate at the other end in inwardly extending flanges that rest against the flange of the bottom wall to hold the plate in such position.

9. A meter box comprising a body having back, side, top and bottom walls and a separable front wall, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front wall having a suitably formed opening which surrounds the projecting portion of the meter, a slidable plate on the outer surface of the front wall and straps on the inner surface thereof connected to the plate through vertical slots in said wall, which plate in one position permits assembly of the front wall with the meter and body and in another position engages a wall of the body to complete the closure of the box, and which straps engage another wall of the body to hold said plate in the last mentioned position.

10. A meter box comprising a body having back, side, top and bottom walls and a separable front wall, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front wall having a suitably formed opening which surrounds the projecting portion of the meter, a slidable plate on the outer surface of the front wall, and straps on the inner surface thereof connected to the plate through vertical slots in said wall, which plate in one position permits assembly of the front wall with the meter and body and in another position engages a wall of the body to complete the closure of the box and which straps terminate in flanges which engage the wall of the body opposite that engaged by the plate to hold said plate in the last mentioned position.

11. A meter box comprising a body having back, side, top and bottom walls and a separable front wall, said body being adapted to contain a meter fixed therein and having a portion which projects from the front of the box and said front wall having a suitable formed opening which surrounds the projecting portion of the meter, the lower wall of the body terminating at the front of the box in an upwardly projecting flange having a threaded aperture therein against which flange the separable front wall of the box rests, said wall having an aperture which registers with the aperture in the flange, said apertures being adapted to receive a screw by which the front wall and box are connected, a tongue pivotally mounted near one end on said front wall and movable over the head of the screw, a strip fixed to said front wall and having a pocket therein which receives the other end of the tongue when the latter is over the head of the screw, and means for removably connecting said tongue and strip thereby sealing the meter box.

12. A meter box comprising a removable front closure having an opening to accommodate a forwardly projecting portion of a meter, the box having an inwardly facing surface at the upper end of said closure, a slide on the closure slidable relatively to the closure upwardly behind said surface, a detent connected with the slide and

extending downwardly into juxtaposition with an obstruction inside the box to prevent the slide from moving downwardly until the lower end of the closure has swung forwardly enough to permit the detent to clear the obstruction, and means for locking said lower end of the closure in closed position, whereby the closure can be removed only by unlocking the closure, swinging its lower end forwardly until said detent clears said obstruction, moving said slide downwardly and then moving the closure forwardly off said projecting portion of the meter.

13. A meter box comprising a removable front closure having an opening to accommodate a forwardly projecting portion of a meter, the box having an inwardly facing surface at the upper end of said closure, a slide on the closure slidable relatively to the closure upwardly behind said surface, a detent connected with the slide and extending downwardly into juxtaposition with an obstruction inside the box to prevent the slide from moving downwardly until the lower end of the closure has swung forwardly enough to permit the detent to clear the obstruction, and means carried by the closure for locking said lower end in closed position, said means including a fastener extending through the closure into interlocking engagement with the box, a retainer movably mounted on the cover to prevent the fastener from being unfastened, and means for locking the retainer in operative position.

14. A meter box comprising a removable front closure having an opening to accommodate a forwardly projecting portion of a meter, the box having an inwardly facing surface at the upper end of said closure, a slide on the closure slidable relatively to the closure upwardly behind said surface, a detent connected with the slide and extending downwardly into juxtaposition with an obstruction inside the box to prevent the slide from moving downwardly until the lower end of the closure has swung forwardly enough to permit the detent to clear the obstruction, and means carried by the closure for locking said lower end in closed position, said means including a fastener extending through the closure into interlocking engagement with the box, a cover for the outer end of said fastener movably mounted on the closure, and means for locking the cover in position to cover the outer end of the fastener.

15. A meter box comprising a removable front closure having an opening to accommodate a forwardly projecting portion of a meter, means for locking the closure in closed position, said means including a fastener extending through the closure from the outside into detachable interlocking engagement with the box, a retainer movably mounted on the cover to prevent the fastener from being unfastened, and means for locking the retainer in operative position.

16. A meter box comprising a removable front closure having an opening to accommodate a forwardly projecting portion of a meter, means for locking the closure in closed position, said means including a fastener extending through the closure from the outside into detachable interlocking engagement with the box, a cover for the outer end of said fastener movably mounted on the closure, and means for locking the cover in position to cover the outer end of the fastener.

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