

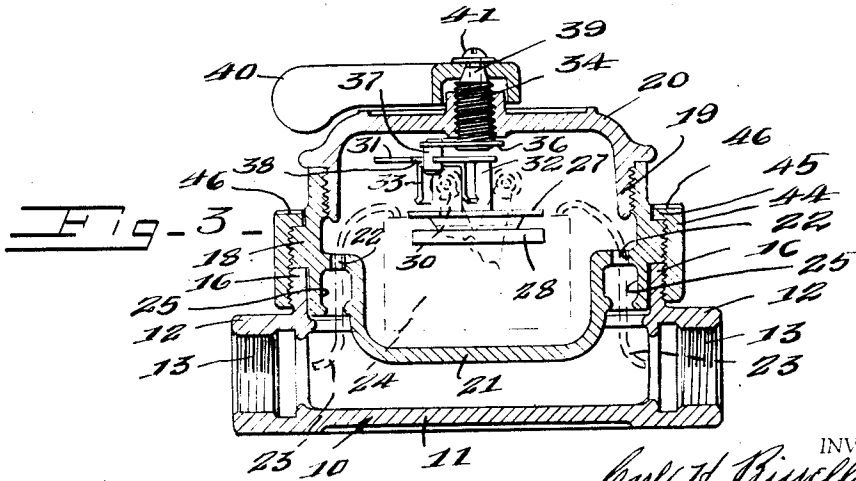
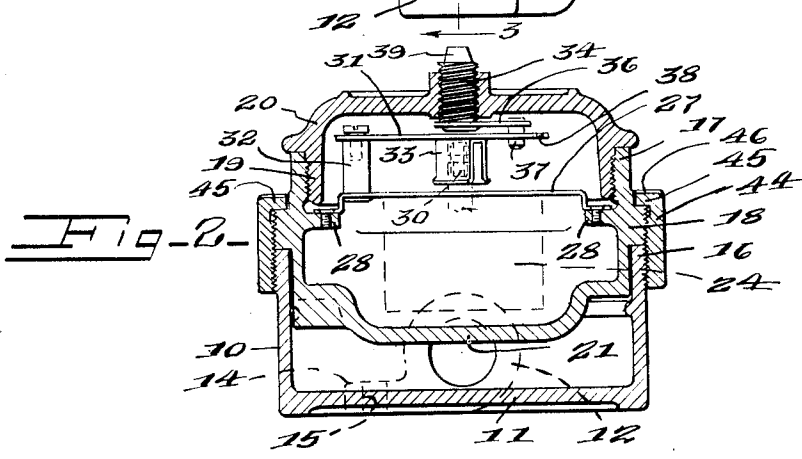
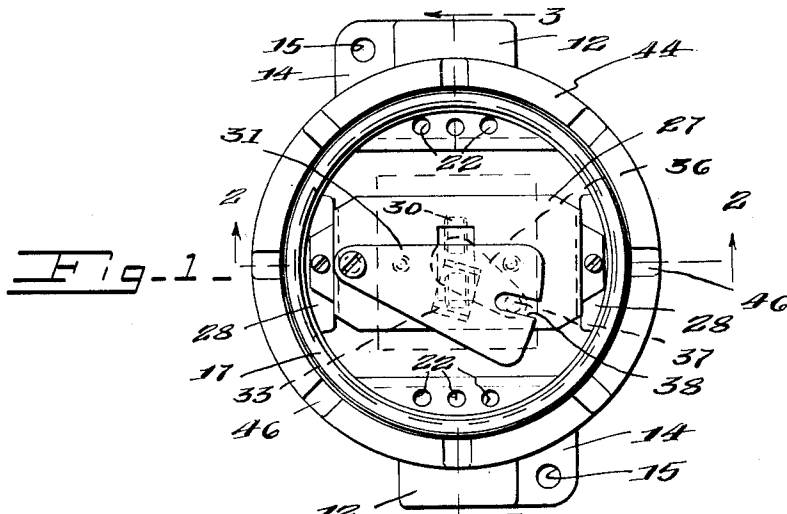
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EXPLOSIONPROOF SWITCH HOUSING

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EXPLOSIONPROOF SWITCH HOUSING

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8 Claims. (Cl. 200—168)

This invention relates in general to explosion-proof switch housings, and has as an object a switch housing embodying a structure comprising a body member for installation in an electrical conduit system, and a switch enclosure unit which is quickly and conveniently attached to the body member in flame tight relation thereto, the switch enclosure unit being effectively sealed off from the interior of the body member thereby eliminating the necessity of any sealing fittings in the conduit system in proximity to the housing.

The invention has as a further object, an explosionproof switch housing of the type referred to wherein a switch enclosure unit does not interfere with the passage of conductors through the body member of the fitting.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figure 1 is a top plan view of a switch housing embodying my invention with the cover member removed.

Figure 2 is a vertical, sectional view taken on line 2—2, Figure 1.

Figure 3 is a view, similar to Figure 2, taken on line 3—3, Figure 1.

The body member 10 is of substantially cylindrical formation having a bottom wall 11 and one or more radially extending hubs 12 threaded internally as at 13 to receive the ends of the conduit. The hubs 12 are preferably formed with a laterally extending flat portion 14 provided with an aperture 15 to receive a mounting screw to secure the fitting to a wall or similar surface.

One side or end of the body 10 is formed with an opening which is encircled by an externally threaded annular flange 16. The switch enclosure unit consists of a member 17 of general cup formation having an externally threaded peripheral flange 18 arranged intermediate its ends and overlying the edge of the flange 16. The upper or outer end of the cup-shaped member 17 is threaded internally to receive the threaded flange 19 of a cover or closure member 20.

When the cup-shaped member is mounted in or on the body 10, the bottom wall 21 is arranged in spaced relation to the bottom wall 11 of the body 10, as indicated in Figures 2 and 3. This arrangement permits the line conductors to be run through the body 10 without interference. The member 17 is provided with a plurality of apertures 22 through which the lead wires 23 extend from the switch 24 to the interior of the body 10. The cup-shaped member 17 is also formed with sealing compound receiving wells 25 arranged in juxtaposition to the apertures 22.

The switch 24 is secured to a supporting plate 27 extending transversely across the member 17 with the ends of the plate engaging flanges 28 extending inwardly from opposite side walls of the cup-shaped member, the actuating element 30 of the switch extending outwardly through the plate 27.

The switch here shown is of the toggle action type and the element 30 is moved to on and off position by a lever 31 pivoted at one end on a post 32 mounted on the supporting plate 27. The lever 31 is provided intermediate its end with a depending U shaped member 33, the legs of which engage opposite sides of the element 30. The lever 31 is oscillated about its pivot by switch operating mechanism carried by the cover 20 consisting of a stem 34 threaded into the cover 20. The inner end of the stem is provided with an arm 36 having a depending pin 37 arranged to extend in a slot 38 formed in the free end of lever 31. The outer end of the stem 34 is formed with a square portion 39 on which an operating manual 40 is detachably mounted as by screw 41. The pitch of the thread of the stem 34 is complementary to the pitch of the thread between the closure 20 and the member 17.

This structure permits the switch to be mounted in the cup-shaped member and the leads from the switch to be passed through the apertures 22 and sealed. The stem 34 is threaded inwardly an appreciable distance, the pin 37 arranged in the slot 38 and the cover 20 screwed in the member 17. As the cover is threaded toward the member 17, the stem 34 is threaded outwardly so that the pin 37 is maintained in the slot 38 during application of the closure member to the cup-shaped member 17. The cup-shaped member 17 and the closure member form a sealed enclosure for the switch which may be completely assembled and sealed at the factory. The housing is installed by connecting the leads 23 to the conductors of the conduit system and inserting the member 17 in the body. The member 17 is detachably secured to the body by a sleeve 44 of sufficient length to overlap both flanges 16, 18. The sleeve is provided with internal threads complementary to the threads on the flanges 16, 18, and is threaded downwardly on the flanges until the inwardly extending flange 45 of the sleeve engages the flange 18. The upper surface of the flange 45 may be provided with a plurality of ribs 46 for the reception of a suitable tool to tighten or loosen the sleeve.

With the structure described, the switch may be mounted in the cup-shaped member and sealed therein at the factory. The circuit conductors may be conveniently drawn through or manipulated in the body 10. The installation is completed by attaching the lead wires 23 to the line conductors and securing the switch unit to

the body of the fitting by the sleeve 44. It will be observed that when the switch unit is mounted in the body 10, it does not interfere with the passage of the line conductors through the fitting.

What I claim is:

1. An explosionproof switch housing comprising a body formed with an opening in one side thereof, an externally threaded annular flange encircling said opening, a cup-shaped member arranged in the body with the bottom of said member arranged in spaced apart relation from the bottom of said body and having an externally threaded peripheral flange overlying said annular flange, a switch mounted in said cup-shaped member, a closure detachably secured to said cup-shaped member and being provided with switch operating mechanism, and an internally threaded collar encircling said flanges and being operable to detachably secure the cup-shaped member to said body.

2. An explosionproof switch housing comprising a body formed with an opening in one side thereof and having an externally threaded annular flange encircling said opening, a cup-shaped member arranged in the body with the bottom of said member arranged in spaced apart relation to the bottom of the body, said member being formed with a peripheral flange overlying said annular flange, a member cooperable with said flanges to detachably secure said cup-shaped member to the body in flame tight relation, a switch mounted in said cup-shaped member, a closure for the open end of said cup-shaped member, and means operable to detachably secure said closure to said member in flame tight relation, and switch actuating mechanism carried by said closure member.

3. An explosionproof switch housing comprising a body formed with conduit receiving apertures and having an opening in one side and being provided with an annular flange encircling said opening, a cup-shaped member arranged in said opening with the bottom wall of said member arranged in spaced relation to the bottom wall of the body, a switch mounted in said cup-shaped member, said member being formed with apertures opening into said body, the conductors connected to said switch extending through said apertures, and a compound receiving well being arranged in juxtaposition to said apertures whereby the interior of said cup-shaped member may be effectively sealed off from the interior of said body, a cover for said cup-shaped member and means operable to detachably secure said cover to said cup-shaped member in flame tight relation, switch actuating mechanism carried by said cover and a member cooperable with said cup-shaped member and the body to detachably secure the same together in flame tight relation.

4. An explosionproof switch housing comprising a body formed with conduit receiving passages and having an opening in one side thereof, an annular flange encircling said opening, a cup-shaped member arranged in said opening with the bottom wall of said member arranged in spaced relation from the bottom wall of the body, said member being formed with an externally threaded peripheral flange overlying said annular flange, an internally threaded collar encircling both of said flanges and being operable to detachably secure the cup-shaped member to the body in flame tight relation, the open end of said cup-shaped member being threaded internally, a closure member threading into said cup-shaped

member, a switch mounted in said cup-shaped member, a stem threaded in said closure with a thread complementary in pitch to the thread between the closure member and said cup-shaped member, said stem being provided at its inner end with switch actuating mechanism and being provided with a manual operable exteriorly of said closure.

5. An explosionproof switch housing comprising a body having an opening in one side thereof, an externally threaded annular flange encircling said opening, a cup-shaped member arranged in said opening with the bottom wall of said member arranged in spaced relation to the bottom wall of the body, said member being formed with an externally threaded peripheral flange arranged intermediate its ends and overlying said annular flange, a switch mounted in said member, a closure detachably secured to the open end of said member in flame tight relationship thereto, switch actuating mechanism carried by said closure member, an internally threaded sleeve encircling the annular flange of the body and the peripheral flange of said cup-shaped member and said sleeve being formed with an inwardly extending flange overlying the peripheral flange of said cup-shaped member.

6. An explosionproof switch housing comprising a hollow body formed with an opening in one side thereof, a flame tight switch enclosure, a switch mounted in said enclosure, lead conductors extending from the terminals of the switch through the wall of the enclosure and externally thereof, switch operating mechanism carried by the enclosure and operable externally thereof to move the switch into on and off positions, said conductors and switch operating mechanism being sealed in flame tight relation in the wall of the enclosure, and means cooperable to detachably secure the enclosure in the body in flame tight relation thereto.

7. An explosionproof switch housing comprising a hollow body formed with an opening in one side thereof, a flame tight switch enclosure, a switch mounted in said enclosure, lead conductors extending from the terminals of the switch through the wall of the enclosure and externally thereof, switch operating mechanism carried by the enclosure and operable externally thereof to move the switch into on and off positions, said conductors and switch operating mechanism being sealed in flame tight relation in the wall of the enclosure, means cooperable to detachably secure the enclosure in the body, and said enclosure serving as a flame tight closure for the opening in the body.

8. An explosionproof switch housing comprising a hollow body formed with an opening in one side thereof and being provided with conduit receiving passages, a flame tight switch enclosure, a switch mounted in said enclosure, lead conductors extending from the terminals of the switch through the wall of the enclosure and externally thereof, switch operating mechanism carried by the enclosure and operable externally thereof to move the switch into on and off positions, said conductors and switch operating mechanism being sealed in flame tight relation in the wall of the receptacle, and means operable to detachably secure said enclosure in the body in flame tight relation thereto and to maintain said enclosure in spaced relation from the bottom wall of the body.

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