T. J. HUGHES.

COLLAPSIBLE RIVET MOLD.

APPLICATION FILED MAY 22, 1920.

1,353,813. Patented Sept. 21, 1920.

Fig. 1.

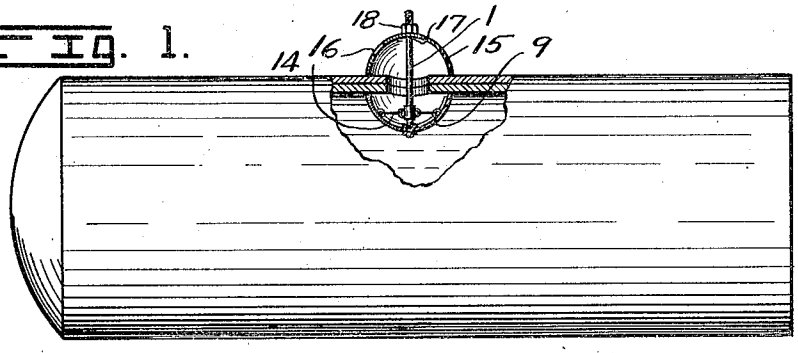


Fig. 2.

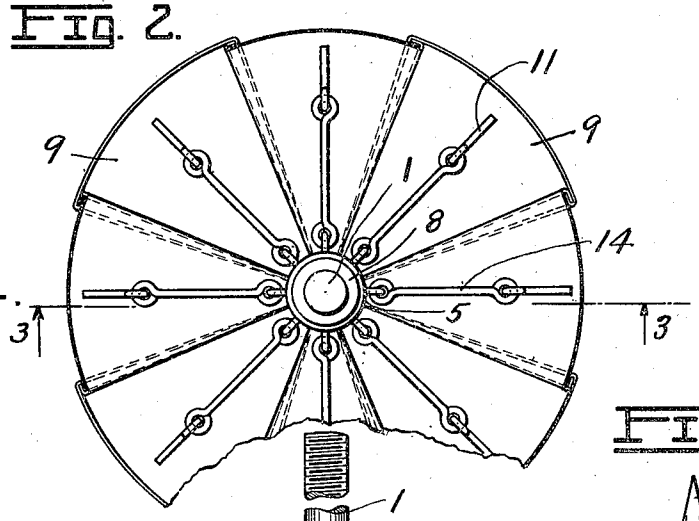


Fig. 4.

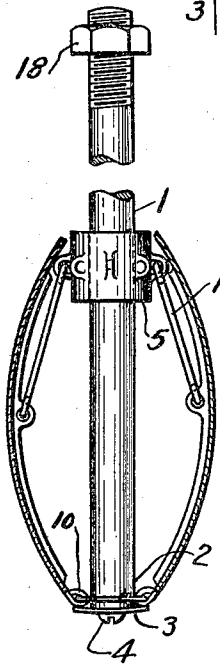
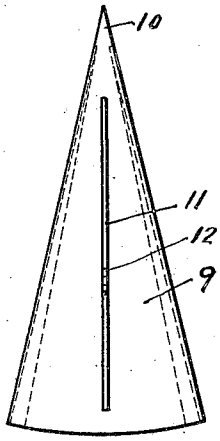


Fig. 5.



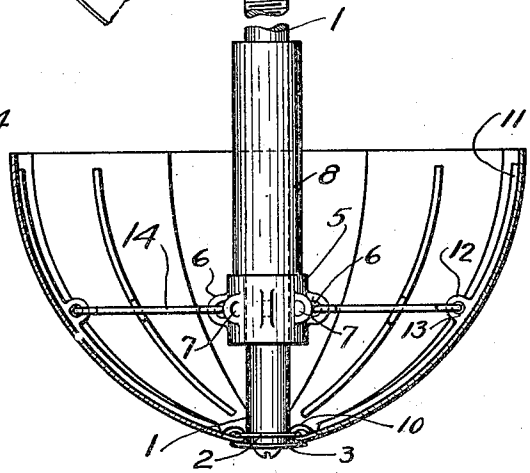


Fig. 3.

Inventor

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COLLAPSIBLE RIVET-MOLD.

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Application filed May 22, 1920. Serial No. 383,521.

To all whom it may concern:

Be it known that I, THOMAS J. HUGHES, residing at Seattle, in the county of King and State of Washington, a citizen of the United States, have invented a new and useful Collapsible Rivet-Mold; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to molds and, more especially, to molds in which are cast metal bodies which serve in lieu of rivets in the walls of tanks or other vessels whose interiors are inaccessible.

The object of my invention is to provide inexpensive and efficient devices of this character.

The invention consists in the novel construction, combination, and arrangement of features as more fully herein after described and claimed.

In the accompanying drawings, Figure 1 is a side elevational view of a tank, partly in section, with a mold embodying the present invention applied thereto.

Fig. 2 is an end elevation of the collapsible member of the mold when it is opened ready for use.

Fig. 3 is a cross section on line 3—3 of Fig. 2, showing the umbrella like braces and a sleeve on the stem for forcing the mold open.

Fig. 4 is a similar cross section showing the collapsible core member closed so that it may be inserted in a rivet hole.

Fig. 5 is a detail view of one of the segments of the collapsible mold member.

In the drawings, in which similar reference characters denote similar parts throughout the several views, the numeral 1 represents a rod or stem, one end of which is threaded and on the other end is a ring 2, which is held in place by a washer 3, which in turn is held by a screw 4, which is screwed into the end of the stem 1. On the stem is also a collar 5 having ears 6 in which are holes 7. Also a sleeve 8 is shown on the stem which is a small tube that slides over the stem and forces the collar 5 into the expanded position shown in Fig. 3.

To the ring 2 are hingedly connected the ends of the triangular shaped segments 9 by bending the respective points 10 around the ring as shown in Fig. 3. The lateral edges of the segments 9 are folded as shown in Fig. 2, one-half of them being bent inward and the other half being bent outward, so that when these are placed in the mold they will engage each other as shown in Fig. 2 and stop the opening movement of the mold. To each of these segments is welded a reinforcing rod 11, the middle of which is formed to provide an ear 12, in which is a hole 13. 14 represent braces, one for each of the segments 9, serving to connect the same with the collar 5 by having looped ends which respectively engage in the holes 13 of ears 12 and in the holes 7 of said collar.

When it is desired to produce a rivet within a hole in a tank, or any other vessel of which the interior is inaccessible, the collapsible mold member, as shown in its closed position in Fig. 4, is inserted in the rivet hole and the stem 1, which will project through the hole, is held in one hand while the sleeve 8 is put on the stem and pushed through the hole against the collar 5, which is thereby forced along the stem by this action, at the same time forcing the braces 14 from the positions shown in Fig. 4, to those shown in Fig. 3, which motion opens the mold until the edges of the segments engage and stop this motion as hereinbefore described. The sleeve 8 is then removed and a cup shaped mold 15 provided with a feed hole 16 and a stem receiving hole in the center 17, is put on the stem 1 and pushed against the tank. The nut 18 is then screwed on the end of the stem and as this is turned down it forces the edges of the outer cup shaped mold 15 against the outside of the tank and also the edges of the segments 9 against the inside of the tank, forming non-leakable joints. The molten metal is then poured into the hole 16 until the entire mold is filled and as soon as the metal cools and hardens, the nut 18 and the outer mold member 15 are removed, and the stem 1 filed so that it is flush with the head of the rivet.

This mold may also be used by omitting the outer mold 15, and filling the mold with any pliable substance, such as amalgam, cement, or any similar substance by forcing it through the hole, shaping the outside to conform with the head of a rivet and allowing it sufficient time to set and harden.

I do not wish to be understood as limiting myself to the specific details of construction and arrangement as herein described and illustrated, as it is manifest that varia-

tions and modifications may be made in the features of construction and arrangements in adaption of the mold to the various conditions of use without departing from the spirit and scope of my invention and improvements. I therefore reserve the right to all such variations and modifications as properly fall within the scope of my invention and the terms of the following claims.

What I claim is:—

1. In a rivet-mold of the character described, a stem, a collapsible mold member comprising a plurality of segments hingedly connected to an end of said stem, a sliding collar on the stem, and braces connecting said collar with the respective segments whereby movements of the collar axially of the stem will effect the expansion of said member.

2. In a rivet-mold of the character described, a stem, interengaging metal mold segments hinged to said stem, a collar sliding on said stem, operative connections between said segments and the collar, and detachable means provided on the stem for actuating said collar to effect relative expansible movements of the mold segments.

3. In a rivet-mold of the character described, a collapsible mold member having a stem, means operable upon said stem for expanding said member, a cup shaped mold member provided with a feed hole, and means for detachably securing the second named member to said stem.

4. In a rivet-mold of the character described, a stem, a collapsible cup-shaped mold member comprising a plurality of interengaging segments hingedly connected to said stem, a non-collapsible cup-shaped mold member, and means for detachably securing the second named mold member to said stem and also serving to retain the first named member in its expanded condition.

5. The combination with the work having a rivet hole therein, of a mold comprising a member having a stem element, and a plurality of casing elements hingedly connected with said stem and adapted when collapsed about the stem to be inserted through said rivet hole, means insertible in said hole for effecting the expansion of said member, a second mold member adapted to be placed upon said stem at the opposite side of the work from the first named member, and means engageable with said stem and acting through the instrumentality of the second named member to cause both members to be held in juxtaposition with the work, said second named member being provided with an aperture through which molten metal may be supplied to fill the spaces within both mold members and into the communicating rivet hole in the work.

THOMAS J. HUGHES.