July 4, 1939. A. O. MILLER 2,164,660

TANK REINFORCING RING

Filed Oct. 30, 1936

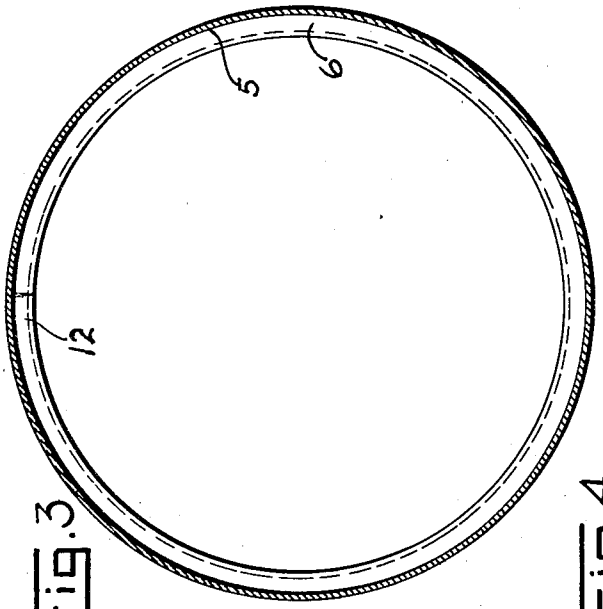



Fig. 3.

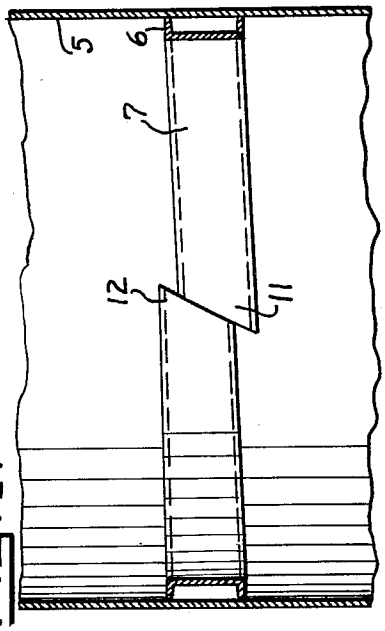



Fig. 4.

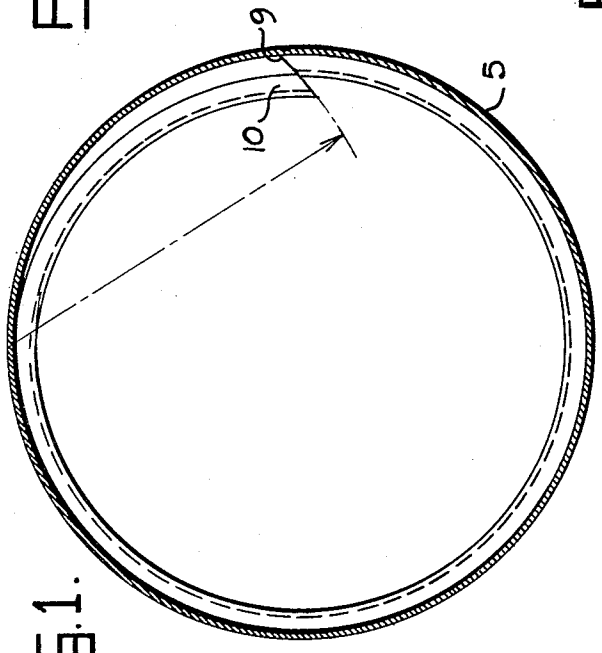



Fig. 1.

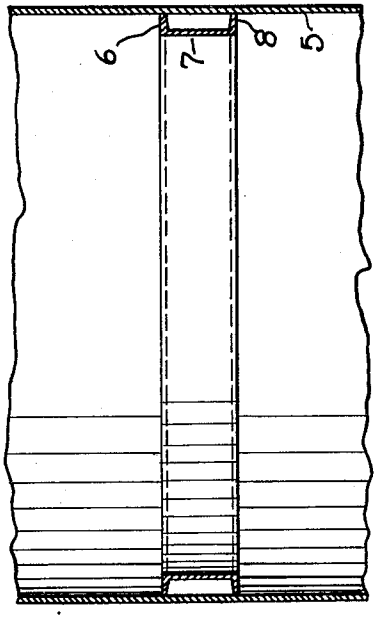



Fig. 2.

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2,164,660

## TANK REINFORCING RING

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1 Claim. (Cl. 220—71)

The invention relates to means for reinforcing tanks and similar cylindrical structures. In the construction of cylindrical vessels subject to external pressure it is commonly necessary to provide reinforcing bands or rings on the interior of the tank which should be forced into close contact with the interior of the structure in order to withstand strains exerted against the outer side of the structure. Such reinforcing means must be of fairly strong material. Steel and angle iron rings of different construction are employed. Frequently a channel type of ring is used. It has been customary to split these rings at one point on a radial plane and then expand the ring against the wall so that the ends may be snapped together. This is a very difficult operation for the reason that the ring must be forced into a rigid engagement with the wall of the tank or other structure before the ends can be brought together. Also, clearance must be allowed between the abutting edges to allow them to pass each other; consequently, after insertion, the edges do not butt metal to metal, which is unsatisfactory.

It is an object of the invention to form the division along the split portion of the ring so that they may be easily expanded into supporting position.

I contemplate cutting the band longitudinally on an inclined plane so that when the ends of the rings are forced together so as to expand the ring against the walls of the tank a wedging action can be obtained without material difficulty.

In the drawing herewith, Fig. 1 is a plan view in transverse section through a tank having one form of my reinforcing ring therein.

Fig. 2 is a broken longitudinal section through a tank or container with the reinforcing ring in operating position.

Fig. 3 is a top plan view of my ring taken through a section of the tank and showing a slightly different embodiment of the ring.

Fig. 4 is a longitudinal section through a portion of the tank showing the manner in which the ring is moved into reinforcing position.

In Figs. 1 and 2 I have shown at 5 a cylindrical tank or container made up of sheet metal. This tank is shown as being reinforced internally by a band 6 of structural steel, the present ring being made up of channel iron having an interior longitudinal web 7 and outwardly projecting radial flanges 8 at each end of the ring.

The ring 7 is shown in Fig. 1 as being divided longitudinally of the ring as indicated at 9. The line of division thus formed is on an inclination relative to the radius of the ring or the container. In forming this ring the cut longitudinally of the ring is made so that one end, indicated at 10, may be moved inwardly so that the ring can be slightly contracted when the said ring is positioned at the proper point within the tank. When thus positioned it may be wedged tightly into reinforcing position by forcing the end 10, which is sprung inwardly, into wedging engagement with the adjacent end indicated at 9. With reference to Fig. 1, it will be seen that when the ends are in this position a blow delivered radially outward against the end 10 of the ring will wedge it easily into firm reinforcing position.

In Figs. 3 and 4, I have shown the ring 7 as being formed of a similar channel iron construction but the line of division where the ring is split is on a plane inclined relative to a longitudinal diametrical plane passing through the ring. When the split is thus formed, one end, indicated at 11, may be forced downwardly relative to the adjacent end 12 to allow the ring to be contracted when it is inserted into working position. When thus placed in position it may be wedged tightly against the walls by driving the end 11 upwardly, or the end 12 downwardly, or both, until the ring is in proper supporting position.

It will be observed that in both the embodiments of my invention the line of division where the ring is cut is formed on an inclined plane instead of on a diametrical plane of the ring. This allows the ends of the ring to be moved apart so as to position the ring at the proper point within the tank and when in such position the ends may be wedged together in an obvious manner to tighten the ring into position. The forming of the ring in this manner makes it possible to assemble the parts in position without difficulty and materially decreases the cost of assembling the structure.

What is claimed as new is:

In combination with a cylindrical structure, an inner reinforcing ring comprising a circular band of heavy resilient material the outer diameter of which is the same as the inner diameter of said structure, said ring being split longitudinally of the ring at one point, the split being on a plane inclined relative to a diametrical plane of the ring whereby the ends of said band may be sprung together while said ring is inserted into working position and the ends at the split portion then wedged together with force to expand said ring into reinforcing position.

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