

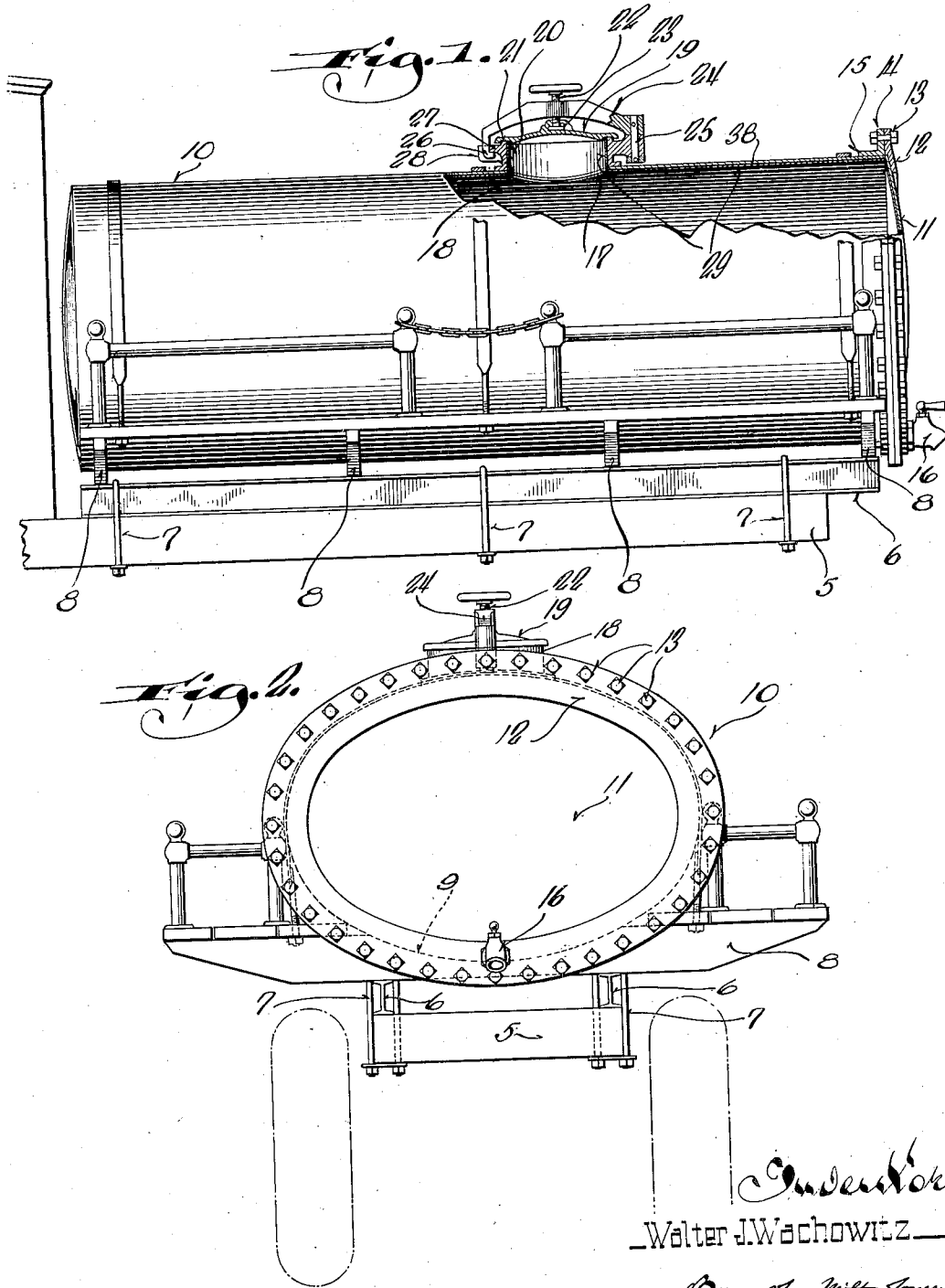
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METHOD OF FORMING TANKS

1,755,416

Filed March 10, 1927

2 Sheets-Sheet 1



Gundlach
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By Ira Milton Jones.
Editor

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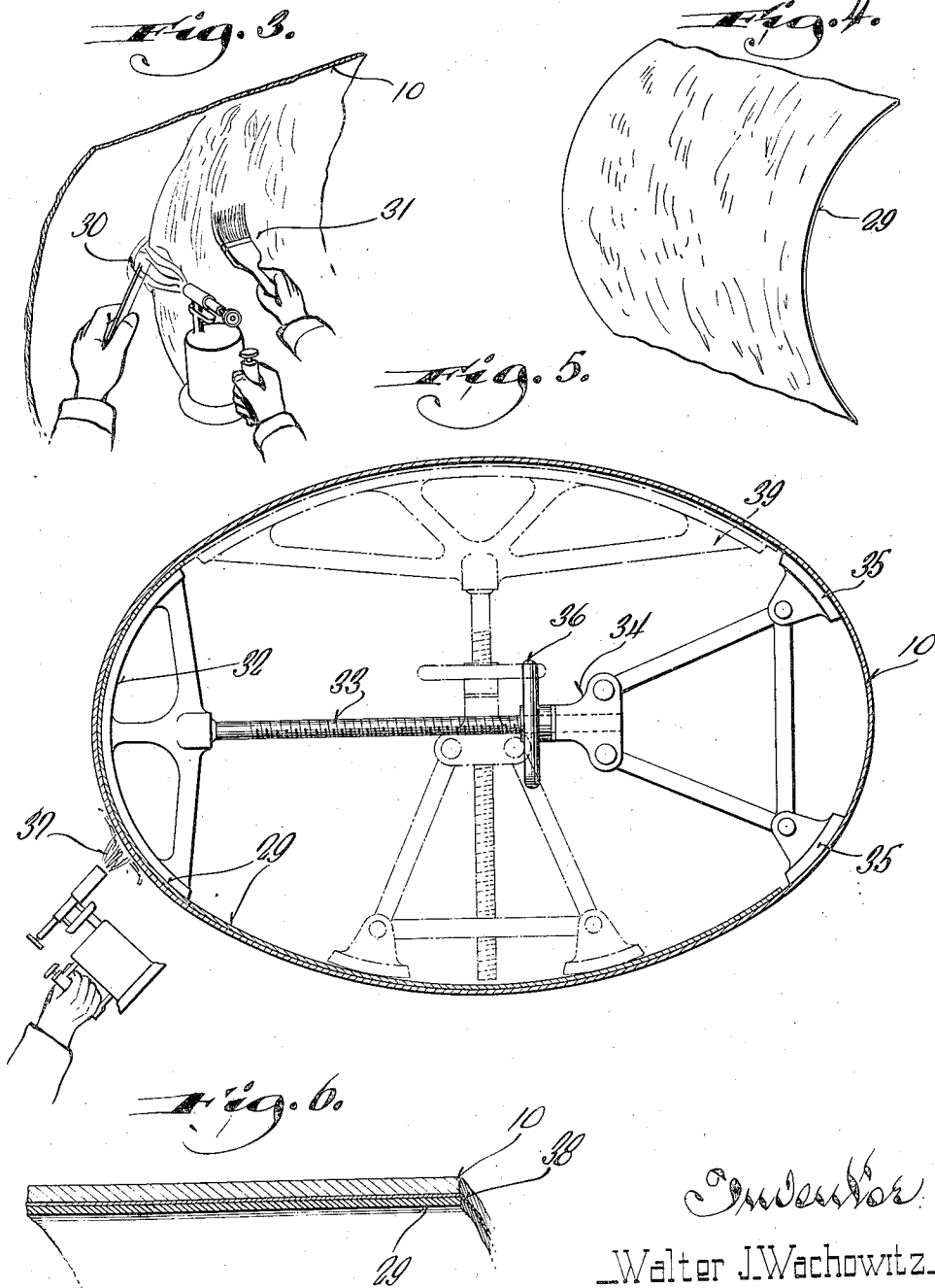
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2 Sheets-Sheet 2



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METHOD OF FORMING TANKS

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This invention relates to certain new and useful improvements in tanks and method of forming the same, and refers more particularly to tanks especially designed for conveying or storing milk and other liquids.

For sanitation purposes, it is impractical to transport or store milk or the like in containers of steel, iron or the like, and, heretofore it has been customary to line the containers with glass which is very objectionable as due to the tortional stresses to which the tank is subjected when mounted on a truck chassis, the glass chips, exposing the metal wall to the milk and also making it necessary to carefully strain the milk to remove the chipped portions of the glass lining.

It is, therefore, an object of this invention to provide an improved tank construction, the interior of which is lined with a metal having the ability to resist the lactic of the milk and which will not chip or flake off irrespective of the tortional stresses to which the tank may be subjected.

Another object of this invention resides in the provision of an improved tank for transporting milk and the like having a removable head at one end thereof carrying a draining valve whereby the wall of the tank proper is unbroken except at a point providing a man-hole through which the tank is filled and access had to the interior thereof for cleaning.

A further object of this invention resides in the provision of an improved tank of the character described consisting of a shell of steel or other metal and an inner lining of non-corrosive metal.

And a still further object of this invention resides in the provision of an improved tank and method of constructing the same whereby an outer shell of steel or the like is provided and an inner layer or lining of non-corrosive metal such as tin or nickel sweated or otherwise secured to the inner surface of the tank whereby an unbroken inner lining of non-corrosive metal is provided for the shell.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and

more particularly defined by the appended claim, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claim.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side elevational view of a tank embodying my invention, parts thereof being broken away and in section;

Figure 2 is a rear end elevational view thereof;

Figure 3 is a fragmentary sectional view of a portion of the tank wall illustrating the manner of tinning the same prior to lining with a non-corrosive metal;

Figure 4 is a fragmentary perspective view of the portion of the inner lining prior to its application to the tank inner wall;

Figure 5 is a transverse sectional view taken through the tank and illustrating the method of sweating the lining in place, and Figure 6 is an enlarged fragmentary perspective sectional view taken through one wall of the finished tank.

Referring now more particularly to the accompanying drawings, in which like numerals designate like parts throughout the several views, the numeral 5 designates a chassis or body frame of an automotive truck to the side sills of which I-beams 6 are secured by U-bolts or the like 7, transverse beams or cradles 8 bridging the beams 6 and having their intermediate portions shaped, as at 9, to conform with the bottom of the tank or container 10 supported thereon.

The tank 5 is preferably of elliptical shape in transverse section with its widest point horizontal and the outer or rear end thereof is closed by a removable head 11. The head 11 consists of a concave plate having a flange 12 welded or otherwise secured to its marginal portion and bolted or otherwise secured, as at 13, to the lateral flange portion 15 of a ring or collar member 15 welded or otherwise secured to the tank proper at its rear mar-

ginal edge portion. The head 11 being removable facilitates lining of the tank, as later described, and also permits ready access to the interior of the tank for the purpose of cleaning or repair. A suitable draining or discharge valve 16 communicates with the interior of the tank through the end head, being preferably carried by the flange 12 thereof, as illustrated, and the top wall of the tank is apertured at an intermediate point, as at 17, in register with a collar 18 providing a man-hole adapted to be normally closed by a cover 19.

The cover 19 has an annular recess or channel 20 in its under surface to receive the up-standing bead or rib 21 of the collar, and a threaded shaft 22 is rotatably secured to the cover, as at 23, and threaded in a cover supporting arm or bracket 24 with an operating wheel 25 on its outer end. One end of the bracket 24 is swiveled to the collar 18, as at 25, and its other end is provided with a downwardly and then inwardly extended part 26 receiving the peripheral flange portion 27 of collar 18 when the cover is in place over the manhole so that the turning of the wheel 25, to thread the shaft 22 through the bracket arm 25, firmly secures the cover in place as illustrated in Figure 1.

When the cover is closed, the free end portion 26 of the arm 24 engages a stop 28 on the collar to permit the movement of the arm and cover to opening position in but one direction and limit its movement toward closing position to prevent its over shooting the mark. With this construction, an operator turning the wheel 25 to disengage the cover normally exerts a pressure on the arm 24 in a direction to swing it to a position free of the manhole and likewise the operator grasping the wheel 25 to close the cover swings the bracket arm 24 and the cover over the manhole until the free end of the arm 24 engages the stop 28. The cover is then in position so that continuous turning of the wheel 25 secures the same in place.

As the tank 10 is best constructed of sheet steel, which is impractical for use in connection with the transporting of liquids such as milk due to its corrosive nature, it is essential that the same be lined with a non-corrosive material. A glass lining has been used heretofore, but actual experience has proven this type of lining to be impractical. This invention contemplates the lining of the tank with a non-corrosive metal lining 29 fused or otherwise secured to the tank inner surface to prevent the liquid being conveyed from working between the lining and the tank, and contacting with the metal base of the tank shell.

In Figures 3 to 5, is illustrated the improved method employed to line the tank, which consists in thoroughly tinning the inner surface of the tank with solder or other suitable flux 30, one manner of tinning being

to apply heat thereto from a blow torch and spreading the flux by a brush or other means 31. The outer surface of the lining 29 is likewise tinned and clamped against the tank wall by a bridge head 32 conforming with the interior contour of the tank and having a screw shaft 33 working in a jack member 34 consisting of two feet 35 engaging the opposite wall of the tank so that an end wheel 36 may be actuated to force the bridge head 32 outwardly and rigidly secure the lining in engagement with the tank wall at all points. While the lining is thus held in place, heat is applied by a torch or other means 37 causing the tinned surfaces of the tank and lining 29 to fuse, as at 38, thus securing the lining section in place. In practice, it has been found desirable to provide two bridging heads 32, one fitting the narrow portion of the tank oval and the other 39 conforming with the larger portion of the oval, the same jack structure being utilized with each head.

It will thus be seen that a lining 29 of any thickness may be readily applied to the tank 10 which is constructed of two metals fused together whereby a very strong structure is provided which will withstand all of the torsional stresses to which it is subjected.

What I claim as my invention is:

The hereindescribed method of lining a tank of one metal with a lining of another metal which consists in tinning the inner surface of the tank, in tinning the outer surface of a section of lining, in securing the lining section in contact with the tank surface at all points by means of a pressure applying member of a shape to conform with the contour of the tank and of a size sufficient to engage the entire section and in applying heat to the outer surface of the tank to fuse the tinned surfaces of the tank and the lining.

In testimony whereof I hereunto affix my signature.

WALTER J. WACHOWITZ.