Oct. 30, 1928. 1,689,917

E. E. GEISINGER

CONTAINER

Filed Sept. 25, 1922

Fig. 1

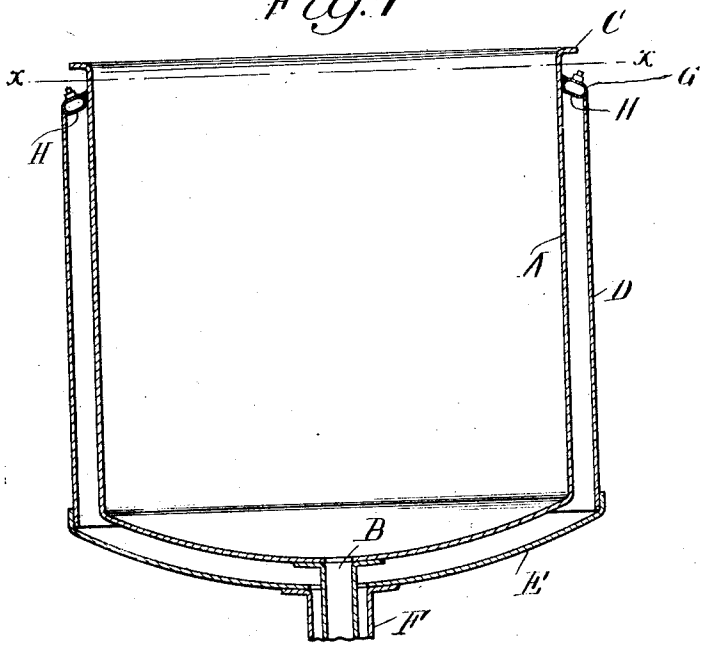


Fig. 4

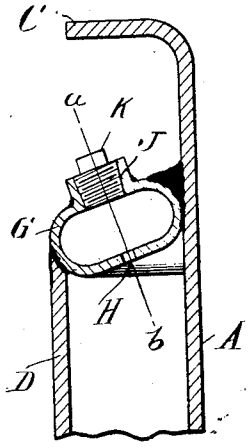


Fig. 2

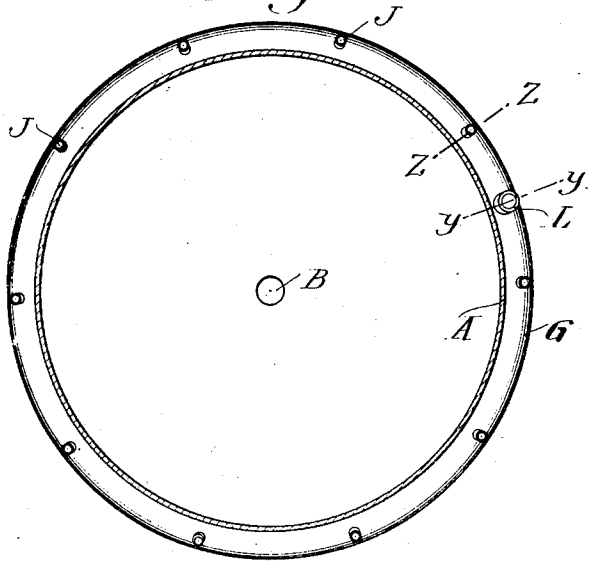


Fig. 3

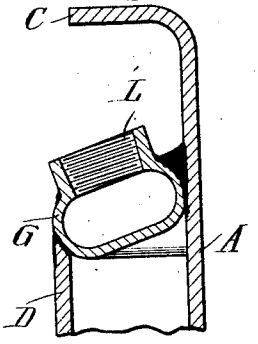
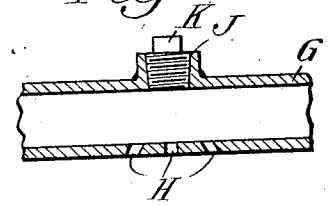


Fig. 5



INVENTOR.

Elliott E. Geisinger

BY

his ATTORNEY

Patented Oct. 30, 1928. 1,689,917

UNITED STATES PATENT OFFICE.

ELLIOTT E. GEISINGER, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE PFAUDLER CO., OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

CONTAINER.

Application filed September 25, 1922. Serial No. 590,304.

My present invention relates to containers or tanks provided with double walls having a space between them for receiving a heating or cooling medium, and particularly to such tanks or vessels, the interior member of which is lined with glass enamel, and it has for its object to improve and simplify not only the method of construction, but also to improve the tank as a whole, rendering it more rigid and capable of sustaining strains and stresses during shipment or installation, without liability of breaking the enamel. The invention further consists in certain improvements hereinafter fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a vertical sectional view of a tank or container constructed in accordance with and embodying the subject matter of my invention;

Figure 2 is a horizontal sectional view on the line *x*—*x* of Figure 1;

Figure 3 is a sectional view on the line *y*—*y* of Figure 2 showing the upper rim of the tank or vessel;

Figure 4 is a similar view on the line *z*—*z* of Figure 2, and

Figure 5 is a sectional view on the line *a*—*b* of Figure 4.

Similar reference numerals throughout the several views indicate the same parts.

The tank A embodying my invention is of the usual type constructed of heavy sheet metal as steel, and lined with glass enamel being provided at its lower end with a discharge pipe B and at its upper end with a flange C. D indicates the outer shell of sheet metal constituting the jacket and spaced from the exterior of the vessel A a sufficient distance to afford space for receiving heating or cooling fluids. E indicates the bottom of this outer shell which may be constructed in one piece with the side, but is preferably a separate structure welded or otherwise secured thereto, and having in its bottom a discharge pipe F.

In jacketed or double walled containers of this general type the heating or cooling fluid is sometimes introduced into the exterior chamber by spray pipes or jets discharging against the side of the interior tank and considerable difficulty has been encountered in properly sealing the upper part of the jacket to the tank and in properly positioning and securing the spray pipes in position. In order to overcome these objections and produce a structure which is highly efficient and may be made economically, I form the closure for the upper end of the tank jacket of a tubular ring or conduit G, the inner side of which is firmly united to the inner vessel A near its top and the outer side of which is firmly united to the upper edge of the jacket D so that this ring not only constitutes a sealer for the jacket but a conduit for the fluid to be applied to the space between them. The lower or inner surface of the ring is provided with the spray apertures H, arranged in groups to spray the liquid over the sides of the inner tank, as shown in Figures 4 and 5. The outer side of the ring is provided with larger apertures J in thimbles welded or secured to the pipe and provided with plugs K, one of these openings being adjacent each group of spray apertures H so as to permit access to the latter for cleaning, when the closing plugs or caps K threaded into the apertures J, are removed. The preferred manner of uniting the metal of the ring to that of the tank and jacket, is by electrically or autogenously welding the parts, although they might with some degree of success be otherwise secured as by brazing, but I prefer the former method as the parts are then substantially integral and moreover I am enabled to first weld the inner surface of the ring sealer to the tank A before its interior surface is enameled, and afterwards weld its exterior to the edge of the jacket without liability of cracking the enameled surface, as might happen if subjected to extreme heat. This construction also enables me to facilitate the construction of the container because the sealer conduit rings can be made in quantities from ordinary welded steel tubing, then pressed or flattened somewhat, as shown, to widen them and produce narrower edges which can be more readily welded to the tank and jacket, and these rings thus prepared can be readily fitted and secured to standard sized tanks A. The sealer rings are also provided with a fitting L for the attachment of the pipe conveying fluid to the interior. When in use the fluid introduced in the ring conduit is delivered downwardly from the apertures H in the form of fine jets or sprays upon practically the whole exterior surface of the tank A, thereby heating or cooling the contents quickly and in the event that

the jet openings should become clogged each group can be cleaned by removing the plugs K.

In making these tanks the following method is found advantageous:

First the tank body A is completed in the usual manner; then the previously prepared sealer ring is electrically or autogenously welded to the exterior thereof at the top, then the enamelling glass-mix or similar material is applied to the interior of the tank, and this is suitably melted in the usual manner by placing the tank in a furnace. After removal and cooling, the jacket D which, has its upper edge beveled slightly to fit approximately the lower edge of the ring sealer G, is welded to the sealer and the operation is completed.

While I much prefer to weld the sealer ring to the body of the vessel and the shell by the use of electricity or by an oxy-acetylene blow pipe, as I find this produces a much better connection, the parts could be otherwise welded or even brazed, and I have used the term "united" in the claims to distinguish either of these forms of connection from such detachable connections as might require packing of some nature to make a tight joint. The welded or brazed joints serve to make the whole structure practically integral preventing leakage.

I claim as my invention:

1. A container comprising a metallic vessel, a metallic jacket or shell surrounding and spaced from the vessel and a tubular conduit forming a tight closure for the space between them provided with groups of diverging spray or jet apertures directed toward the vessel and an aperture and a closure therefor opposite each group of jet apertures for permitting access thereto from the exterior.

2. A container comprising a metallic vessel provided on its interior surface with a glass enamel coating fused thereon, said vessel having one end flanged to receive a cover, an exterior metallic shell spaced from the outer side of the vessel and terminating short of said flange, a metallic ring-shaped tube having its inner peripheral wall portion united with the material of the vessel by welding and its other peripheral wall portion similarly united with the metallic shell whereby to form a complete closure for the space between the vessel and upper end of the shell, said tubular ring having jet apertures leading from its interior to the space between the vessel and shell and also having a removable closure for permitting access thereto from the exterior of the vessel.

3. An upright container comprising a metallic vessel, a metallic jacket or shell surrounding and spaced from the vessel and having its upper end terminating short of that of the vessel, a metallic tubular ring surrounding the vessel and bridging the space between the latter and the upper end of the jacket, said tubular ring having its inner and outer peripheral portions directly welded to the vessel and jacket respectively, whereby the ring forms a complete closure for the space between said vessel and jacket, said tubular ring having a plurality of discharge apertures leading to said space and a removable closure for the tubular ring permitting access thereto from the exterior of the vessel.

ELLIOTT E. GEISINGER.