W. M. STEWART.

TANK CONNECTION.

APPLICATION FILED AUG. 14, 1918.

1,319,124. Patented Oct. 21, 1919.

FIG. 1.

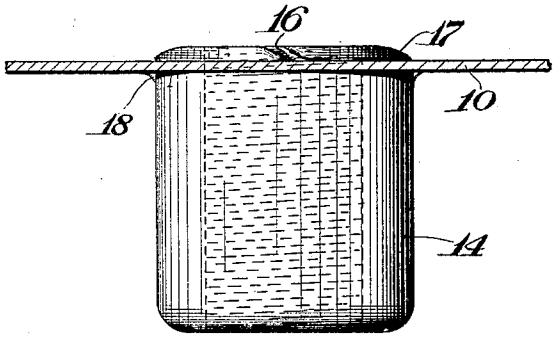


FIG. 2.

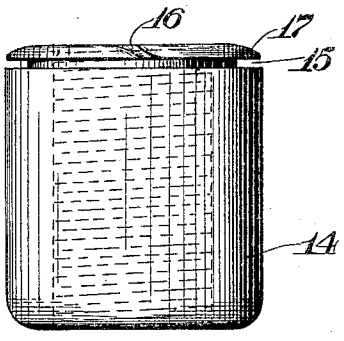


FIG. 3.

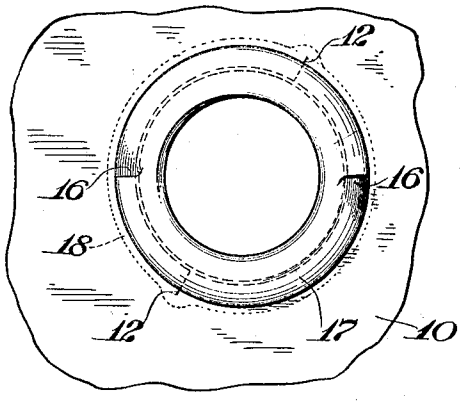
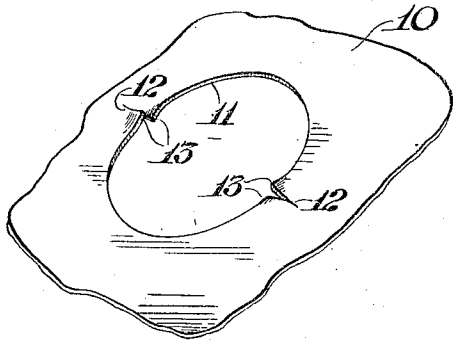


FIG. 4.



WITNESSES.

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TANK CONNECTION.

1,319,124. Specification of Letters Patent. Patented Oct. 21, 1919.

Application filed August 14, 1918. Serial No. 249,842.

To all whom it may concern:

Be it known that I, WILLIAM M. STEWART, a citizen of the United States, and resident of Milwaukee, Milwaukee county, Wisconsin, have invented new and useful Improvements in Tank Connections, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to connectors for tanks such as the gasolene supply tanks of automobiles and has for its object to provide a strong mechanical connection without the use of rivets or similar fastening devices.

Riveted connectors generally used for this purpose require openings through the wall of the tank for the rivets as well as for the passage-way, and these openings have to be spaced some distance apart to avoid weakening the tank. Consequently the connectors have broad flanges to take the rivets and the soldering to prevent leakage is required to extend entirely around the flange and over its contacting surface.

The interior of the tank may be accessible only through the passage-way of the connector and as this is usually small the riveting operation is difficult and takes much time and is liable to be imperfect.

The broad flange, furthermore, increases the difficulty of fitting the connector to the curved wall of a cylindrical tank and renders it liable to become loose when struck a light blow.

The present invention is designed to avoid these difficulties by obviating the necessity for riveting and dispensing with the broad flange, substituting as a mechanical connection a joint formed by the edge of a single opening in the tank wall fitting in a deep annular groove around the connector, the edge of the opening being slit and the wall of the groove being slotted to admit the edge of the opening to the groove.

With the above and other objects in view, the invention consists in the tank connection as herein claimed and all equivalents.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in different views:

Figure 1 is an enlarged view of a tank connection made in accordance with this invention, the metal of the tank being sectioned;

Fig. 2 is a similar view of the connector alone;

Fig. 3 is a plan view of the connection as seen from inside the tank; and,

Fig. 4 is a perspective view of the tank opening.

In these drawings 10 indicates the sheet metal wall of a tank through which an opening 11 is punched with short slits 12 extending therefrom in opposite directions. The points or wings 13 formed by the slits are bent oppositely, that is one is bent down and the other up.

A connector 14 has its bore threaded to receive a conducting tube and is provided near its end with a deep annular groove 15. The connector is of larger diameter than the opening 11 and the diameter of the contracted neck portion formed by the groove is slightly less than the diameter of opening 11. Inclined slots 16 pass through the beveled or rounded flange 17 left between the groove and the end of the connector and the walls of said slots are curved or rounded where they form obtuse angles with the end of the connector and the wall of the groove respectively. Thus one wall of each slot is rounded at its inner end and the opposite wall is rounded at its outer end to make it easy to apply the device.

The connector may be a casting or forging and its body portion may be cylindrical or of the shape of a nut so that it may be readily engaged by a wrench for turning it.

In applying the connector the outwardly bent wings 13 are engaged in the oblique slots 16 and the connector is turned. The slots 16 direct the wings to the groove 15 and on completing a half turn the inwardly bent wings 13 are also drawn into the groove so that the entire flange 17 lies within the tank. The connector is preferably turned more than a half turn so that the slits 12 are carried beyond the slots 16 as shown in Fig. 3. The width of the groove is approximately the thickness of the tank wall 10 so that the turning of the connector causes the wings 13 to be bent back into alinement to close the gap between them.

A fillet of solder 18 may then be made around the connector at the joint between the connector and the outside of the tank wall and covering the slits 12 which will make the connection tight, preventing leak-

ing and also preventing the connector from turning.

Instead of using solder the joint may be sealed by electric welding, in which event the engagement of the flange 17 within the tank will hold the parts firmly together during the welding and greatly simplify the operation.

Much less time is required to provide a tank with this connection than with the connection of the riveted flange type and it is more secure, has less soldered surface, a single opening through the tank wall, no leakage around rivets and is not likely to become loose when struck. The work is entirely on the outside of the tank and is easily done. Its comparatively smaller diameter renders the connector more capable of fitting the walls of cylindrical tanks of small diameter.

The number of slots 16 and slits 12 may be varied without departing from the invention and while the device is primarily intended as a tank connection it is obvious that it may be used in other relations.

What I claim as new and desire to secure by Letters Patent is:

The combination of a sheet metal wall provided with an opening having radially extending diagonally disposed cuts with the edges of the metal at the cuts bent in opposite directions, and a connector member provided with an annular groove to receive the edge of the opening and diametrically disposed oblique slots extending from the groove to the end of the connector member to guide the bent edges of the cuts from the end of the connector into the groove and bring the edges of each cut together within the groove.

In testimony whereof I affix my signature, in presence of a witness.

WILLIAM M. STEWART.

Witness:
R. S. C. CALDWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."