

S. McQUIRNS.
SHEET METAL VESSEL.
APPLICATION FILED JUNE 5, 1919.

1,370,983.

Patented Mar. 8, 1921.

FIG. I.

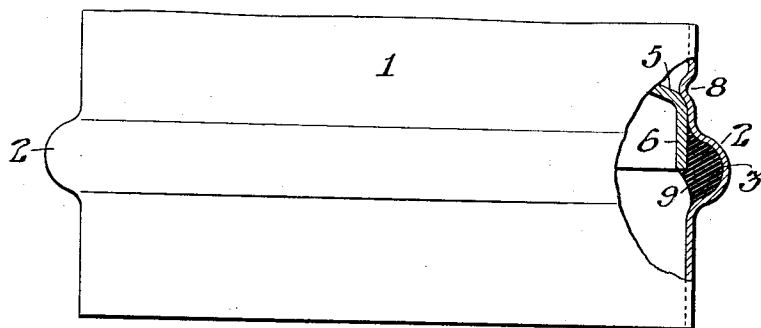
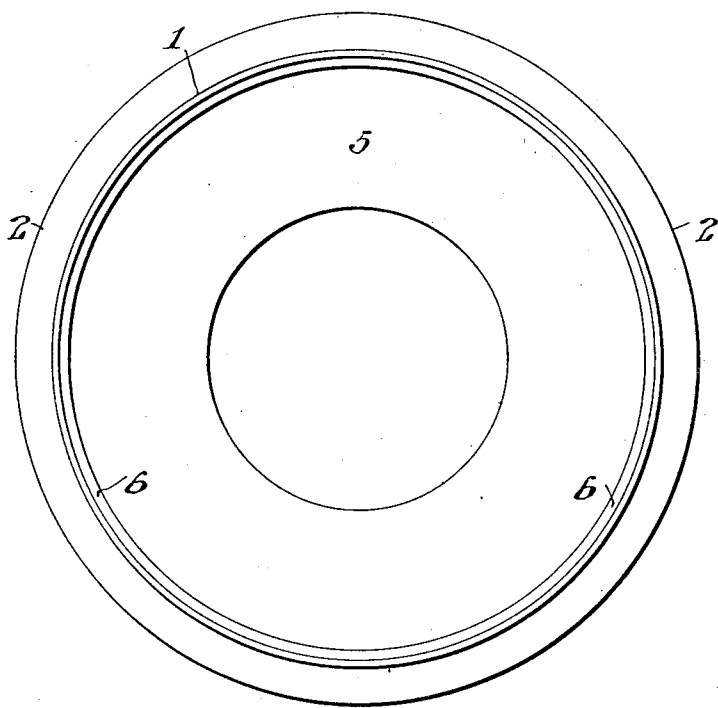


FIG. II.



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UNITED STATES PATENT OFFICE.

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SHEET-METAL VESSEL.

1,370,983.

Specification of Letters Patent.

Patented Mar. 8, 1921.

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To all whom it may concern:

Be it known that I, STEWART McQUIRNS, a citizen of the United States, residing at Conshohocken, in the county of Montgomery and State of Pennsylvania, have invented a certain new and useful Improvement in Sheet-Metal Vessels, whereof the following is a specification, reference being had to the accompanying drawing.

My invention is particularly applicable to water containers of gas water heaters, of the type including an outer cylindrical shell having a bottom closure which is spaced above the bottom edge of said shell to such an extent as to form a combustion chamber in which the gas burner is inclosed, except at the bottom. As ordinarily constructed, such a closure has a downwardly depending cylindrical flange, tightly fitted in the outer shell and connected therewith by rivets extending through said flange and shell. However, it is difficult to maintain such a joint tight, owing to the irregular expansion and contraction of said members when subjected to the heat from the burner. Although attempts have been made to make a permanently tight joint by welding such a closure flange to such a shell; the heat of the welding operation leaves a zone of distorted metal in the outer shell, which is, of course, visible and unsightly.

Therefore, it is the principal object of my invention to provide a method and means for making such a joint permanently tight without riveting or welding and, as hereinafter described, my invention includes the provision of an annular channel in said shell, by pressing the latter outwardly, in a narrow zone, of smoothly continuous configuration, and in such position that it will hold an annular band of fusible metal, which is fused therein, between the inner face of said shell and the outer face of the flange on the closure, at the lower edge of the latter.

My invention includes the various novel features of construction and arrangement hereinafter more definitely specified.

In said drawing: Figure I is a fragmentary vertical sectional view of the lower end of a vessel embodying my improvement.

Fig. II is an inverted plan view of said vessel.

In said figures: 1 is a cylindrical tubular shell, having an outwardly projecting zone 2, conveniently formed by a rolling operation, to form the internal channel 3 which is smoothly continuous. The closure 5 is conveniently formed of a pressed sheet metal plate having the downwardly depending flange 6 tightly fitted in said shell 1, so that its lower edge overhangs said channel. Although I have shown said shell 1 provided with the annular inwardly extending bead 8, also conveniently formed by a rolling operation, to serve as a stop limiting the position to which said closure may be forced into said shell; such limiting means may be omitted.

As indicated in Fig. I; said channel 3 holds a band of fusible metal 9, which may be brass spelter, or other suitable material which has been fused so as to extend into and seal the joint between said shell 1 and closure 5.

Although I have shown said closure flange 6 extending only part way across said channel 3; because I find it convenient to thus permit the operator to inspect the fusible element of the joint, while it is being fused, and thus be certain that a continuous seal is made; it is to be understood that said flange may extend entirely across said channel and thus entirely conceal the fusible metal band therein, if desired. Moreover, although I have found it convenient to illustrate my invention as embodied in a water receptacle of the specific type above contemplated; it is to be understood that I do not desire to limit myself to vessels of that specific type, as my invention may be advantageously employed in forming such closures in sheet metal vessels of any kind.

Therefore, I do not desire to limit myself to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein, without departing from the essential features of my invention, as defined in the appended claims.

I claim:

1. A sheet metal vessel comprising an outer shell of circular form; a closure for said shell, comprising a plate having a flange fitted to said shell; means limiting the relative position of said shell and closure plate,

including an inwardly extending annular bead on said shell; an annular channel in said shell, at the region of said closure flange, formed by a smoothly continuous outward extension of the metal of said shell; and sealing means in said channel, including an annular band of fusible metal engaging the inner surface of said shell, and the outer surface of said closure flange, and sealing the joint between them.

2. A sheet metal vessel comprising an outer shell; a closure for said shell, comprising a plate having a flange fitted to said shell; an annular channel in said shell, at the region of said closure flange, formed by an outward extension of the metal of said shell; and sealing means in said channel, including an annular band of fusible material engaging the inner surface of said shell, and

the outer surface of said closure flange, and sealing the joint between them.

3. A sheet metal vessel comprising an outer shell; a closure for said shell, comprising a plate; a channel in said shell, at the region of said closure; and sealing means in said channel, inside of said shell and outside of said closure, including fusible material engaging the inner surface of said shell, and the outer surface of said closure, and sealing the joint between them.

In testimony whereof, I have hereunto signed my name at Conshohocken, Pennsylvania, this 28th day of May, 1919.

STEWART McQUIRNS.

Witnesses:

FRANK C. HAMILTON,
JOSEPH W. WINTER.