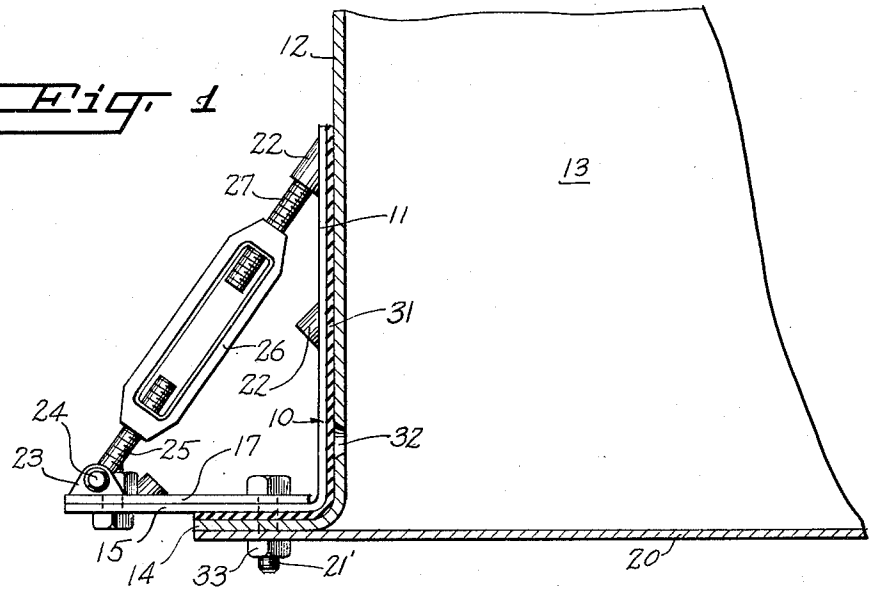
Oct. 2, 1956 H. J. VICK 2,765,095

EXTERNAL TANK PATCH

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Fig. 1



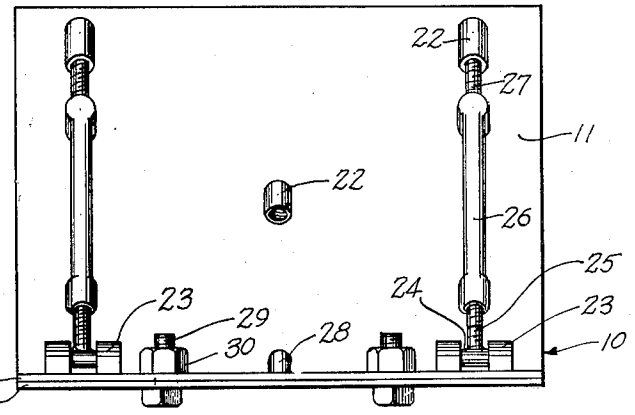


Fig. 2

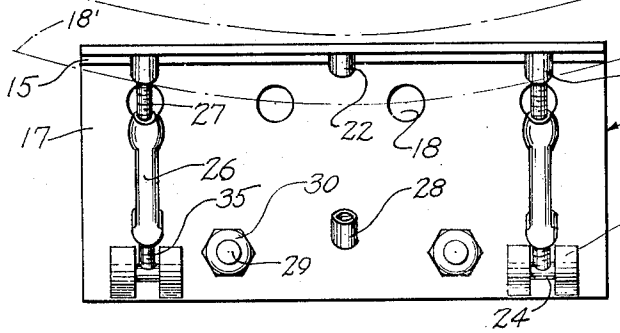


Fig. 3

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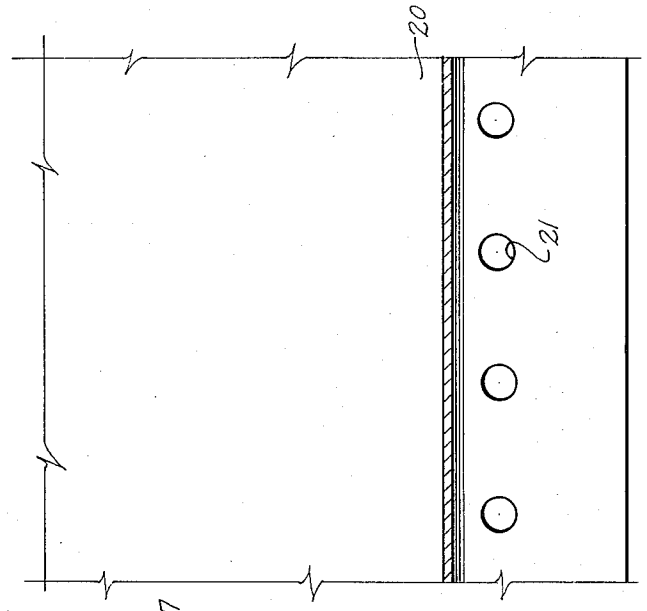


Fig. 3

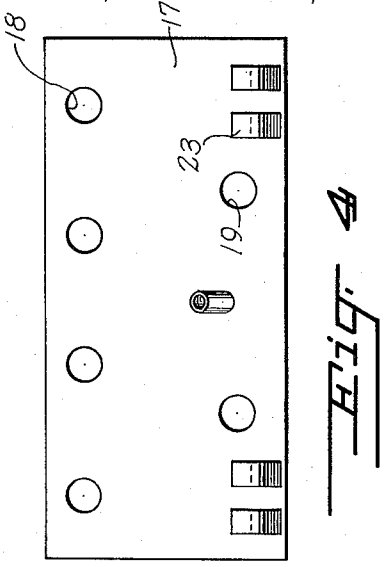


Fig. 4

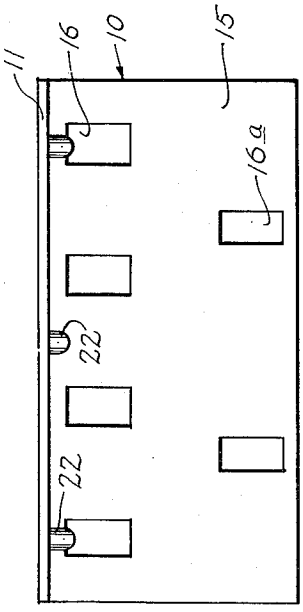


Fig. 5

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EXTERNAL TANK PATCH

Homer J. Vick, Lockhart, Tex.

Application October 8, 1954, Serial No. 461,137

3 Claims. (Cl. 220—24)

The present invention relates to external patches for tanks formed from sheets of metal with the side walls and end plates connected by a chime structure.

The primary object of the present invention is to provide a patch for a circular, square, or oval tank which has its side walls and end plates joined by an outwardly projecting structure known as a chime.

Another object of the present invention is to provide an external patch which has one leg to be fastened to the chime structure and with the other leg forced into abutting leakproof relation with the side wall of a tank to stop a leak in the side wall.

A further object of the present invention is to provide a patch structure of simple and sturdy construction, and one which may be easily asembled and installed on the chime structure of a tank, and one which may be manufactured in many sizes for application to tanks of various sizes and shapes.

These and other objects and advantages of the present invention will be fully apparent from the following description when taken in connection with the annexed drawings, in which:

Figure 1 is a side view in elevation of the present invention secured to the chime structure of a tank, showing the tank side wall and end plate in cross section.

Figure 2 is a front view in elevation of the present invention in assembled condition,

Figure 3 is a top plan view,

Figure 4 is a top plan view of the plate member portion of the present invention,

Figure 5 is a top plan view of the L-shaped member and

Figure 6 is a plan view of the end plate of a tank in unassembled condition.

Referring in greater detail to the drawings in which like numerals indicate like parts throughout the several views, the present invention is seen to consist of a patch formed from an L-shaped member **10** having a vertically extending one leg **11** in abutting leakproof relation with respect to the side wall **12** of a tank indicated by the reference numeral **13** in Figure 1.

As shown in Figure 1, the tank **13** is illustrated as being of square construction for the purpose of simplifying the description and illustration of the present invention. In use, however, the present invention may be applied to square, round, or oval tanks of any dimension and the one leg **11** of the present invention may be curved to conformably fit over the side wall of a tank on which it is to be used.

The tanks on which this invention may be used are all formed with a chime structure indicated generally by the reference numeral **14** in Figure 1. These tanks are formed from side walls having a flange on one end and end plates having a flange abutting the wall flange and secured to the side wall by fastening elements, such as bolts extending through bolt holes and through the chime structure formed by the flanges.

The L-shaped member of the present invention is formed with its other leg **15** extending at a right angle to the leg **11** to form an anchoring device and is provided with a plurality of slotted holes or apertures **16** arranged

in spaced relation extending along and adjacent the end contiguous to said one leg **11** and with spaced slotted holes or apertures **16***a* extending along and adjacent the end remote from said one leg **11**, as seen most clearly in Figure 5.

A plate member **17** is assembled in confronting face to face relation with respect to the leg **15** and is, in turn, provided with a plurality of apertures **18** extending along and adjacent the end contiguous to said one leg **11** of the L-shaped member **10** and with a pair of spaced apertures **19** extending along and adjacent the end remote from the leg **11** of the L-shaped member.

In Figures 1 and 6, the end plate **20** of the tank **13** is seen to be provided with holes **21** by means of which the end plate **20** is connected by bolts **21'** to the side walls **12**.

The holes **18** of the plate member **17** are to be drilled in the plate member **17**, so as to be in registry with the holes **21** in the end plate **20**. While here shown is a square or rectangular tank having straight walls **12** and a rectangular end plate **20**, it is intended that the present invention may be used with round or oval tanks as well, in which case the holes **18** would be set on the proper curvature, so as to register with the holes **21**, the end of the plate member **17** obviously being formed with the proper curvature also.

The one leg **11** of the L-shaped member of the present invention is provided with a plurality of sockets **22** spaced along its free end and with a socket **22** disposed centrally of the one leg **11**, as shown most clearly in Figures 1 and 2.

Anchor means in the form of the upstanding lugs **23** are provided in the plate member to pivotally receive the transversely arranged bars **24** welded or otherwise secured to the ends of the one bolt **25** of the turnbuckle bolt assemblies indicated generally by the reference numeral **26**.

The other end **27** of the bolt portion of the turnbuckle bolt assembly **26** is received in the socket **22**. Another socket **28** is secured to the plate member midway between each of the anchor means, and although not shown in either of the views showing the assembly in installation of the present invention, a shorter turnbuckle bolt assembly may be received by its ends in each of the sockets **22** and **28**. Bolts **29** provided with nuts **30** secure the plate member to the other leg of the L-shaped member after they have been assembled upon the chime structure **14** with the gasket material indicated by the reference numeral **31** in Figure 1 interposed between the one leg **11** and the side walls **12** of the tank **13**.

It is to be understood that the gasket material **31** forms a sealing means and overlies the break or hole indicated by the reference numeral **32** in Figure 1 for the purpose of sealing the tank **13** against escape of liquids therefrom.

In the assembly of the present invention on the side of the tank **13**, the nuts **33** which are used with the bolts **21'** to secure the side walls **12** to the end plate **20** are removed, and the bolts are removed from the holes provided, the L-shaped member is then placed with its one leg **11** in abutting relation to the wall **12** and overlying the gasket material **31** which extends down and is interposed also between the other leg **15** and the chime structure **14**.

The other leg **15** of the L-shaped member **10** is then adjusted toward the tank **13**, the slotted apertures **16** permitting movement relative to the chime structure to form a tight connection of the one leg **11** against the wall **12** before clamping of the plate member **17** to the one leg **15**. The nuts **30** are then tightened on the bolts **29** to secure these elements in tight relationship and the nuts **33** are tightened on the bolts **21'** to secure the assembled device to the chime structure. The turn-buckle bolt assembly **26** is then connected between the sockets **22** and

the anchor means **23** and the ends **25** and **27** of the turnbuckle bolt assembly **26** are then forced away from each other in extended relation to force the one leg **11** into abutting leakproof relation with respect to the side wall **12**, the gasket **31** forming a sealing means therebetween.

As shown in Figure 3, if the present invention were applied to a curved tank, the one leg **11** of the L-shaped member **10** of the present invention would have a curvature greater or lesser than the curve indicated by the dotted line **11'** and the holes **18** would be disposed upon a line indicated by the dotted line **18'**.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. For use with a tank having a side wall and an end plate connected together by bolts extending through bolt holes in a chime structure formed by the side wall and the edge of the plate, a device for closing leak holes in said wall comprising an L-shaped member having one leg adapted to overlie said wall over the leak hole therein and having the other leg provided with a plurality of slotted apertures extending along and adjacent the end contiguous to said one leg and with slotted spaced apertures extending along and adjacent the end remote from said one leg, a plate member disposed in confronting face to face relation with respect to said other leg, said plate member being provided with a plurality of apertures extending along and adjacent the end contiguous to said one leg of said L-shaped member and with spaced apertures extending along and adjacent the end remote from said one leg of said L-shaped member, the plurality of apertures of said plate member extending along the end contiguous to said one leg of said L-shaped member and the slotted apertures of said other leg extending along and adjacent the end contiguous to said one leg being in registry with said bolt holes and surroundingly receiving said bolts with the apertures of said plate member extending along and adjacent the end remote from said one leg of said L-shaped member being in registry with the slotted apertures of said other leg extending along and adjacent the end remote from said one leg of said L-shaped member, bolts extending through the registering slotted apertures and apertures of said other leg of said L-shaped member and said plate member, respectively, and securing said other leg to said plate member, sealing means interposed between said one leg of said L-shaped member and said wall, and extensile means having one end connected to said one leg of said L-shaped member adjacent the free end thereof and having its other end pivotally connected to said plate member adjacent the end remote from said one leg of said L-shaped member for forcing said one leg of said L-shaped member into leakproof abutting relation with respect to said wall.

2. For use with a tank having a side wall and an end plate connected together by bolts extending through bolt holes in a chime structure formed by the side wall and the edge of the plate, a device for closing leak holes in said wall comprising an L-shaped member having one leg adapted to overlie said wall over the leak hole therein and having the other leg provided with a plurality of slotted apertures extending along and adjacent the end contiguous to said one leg and with slotted spaced apertures extending along and adjacent the end remote from said one leg, a plate member disposed in confronting face to face relation with respect to said other leg, said plate member being provided with a plurality of apertures extending along and adjacent the end contiguous to said

one leg of said L-shaped member and with spaced apertures extending along and adjacent the end remote from said one leg of said L-shaped member, the plurality of apertures of said plate member extending along the end contiguous to said one leg of said L-shaped member and the slotted apertures of said other leg extending along and adjacent the end contiguous to said one leg being in registry with said bolt holes and surroundingly receiving said bolts with the apertures of said plate member extending along and adjacent the end remote from said one leg of said L-shaped member being in registry with the slotted apertures of said other leg extending along and adjacent the end remote from said one leg of said L-shaped member, bolts extending through the registering slotted apertures and apertures of said other leg of said L-shaped member and said plate member, respectively, and securing said other leg to said plate member, connected sealing means interposed between said one leg and said wall and between said other leg and said structure, socket means carried by said one leg adjacent the free end thereof, and extensile means having one end received in said socket means and being pivotally connected by the other end to said plate member adjacent the end remote from said one leg of said L-shaped member for forcing said one leg of said L-shaped member into leakproof abutting relation with respect to said wall.

3. For use with a tank having a side wall and an end plate connected together by bolts extending through bolt holes in a chime structure formed by the side wall and the edge of the plate, a device for closing leak holes in said wall comprising an L-shaped member having one leg adapted to overlie said wall over the leak hole therein and having the other leg provided with a plurality of slotted apertures extending along and adjacent the end contiguous to said one leg and with slotted spaced apertures extending along and adjacent the end remote from said one leg, a plate member disposed in confronting face to face relation with respect to said other leg, said plate member being provided with a plurality of apertures extending along and adjacent the end contiguous to said one leg of said L-shaped member and with spaced apertures extending along and adjacent the end remote from said one leg of said L-shaped member, the plurality of apertures of said plate member extending along the end contiguous to said one leg of said L-shaped member and the slotted apertures of said other leg extending along and adjacent the end contiguous to said one leg being in registry with said bolt holes and surroundingly receiving said bolts with the apertures of said plate member extending along and adjacent the end remote from said one leg of said L-shaped member being in registry with the slotted apertures of said other leg extending along and adjacent the end remote from said one leg of said L-shaped member, bolts extending through the registering slotted apertures and apertures of said other leg of said L-shaped member and said plate member, respectively, and securing said other leg to said plate member, connected sealing means interposed between said one leg of said L-shaped member and said wall and between said other leg and said structure, a plurality of sockets carried by said one leg adjacent to the free end thereof, anchor means carried by said plate member adjacent the end remote from said one leg of said L-shaped member, and a turnbuckle bolt assembly pivotally connected by one end to each of said anchor means and being receivably engaged by the other end in the adjacent one of said sockets for forcing said one leg of said L-shaped member into leakproof abutting relation with said wall.

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