July 27, 1937. C. S. FARRELL 2,088,053

DEVICE FOR FORMING TANK VEHICLES

Filed Nov. 30, 1934.

Fig. 1.

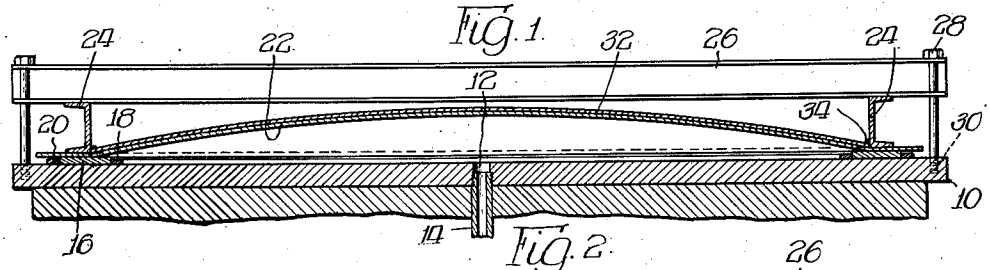



Fig. 2.

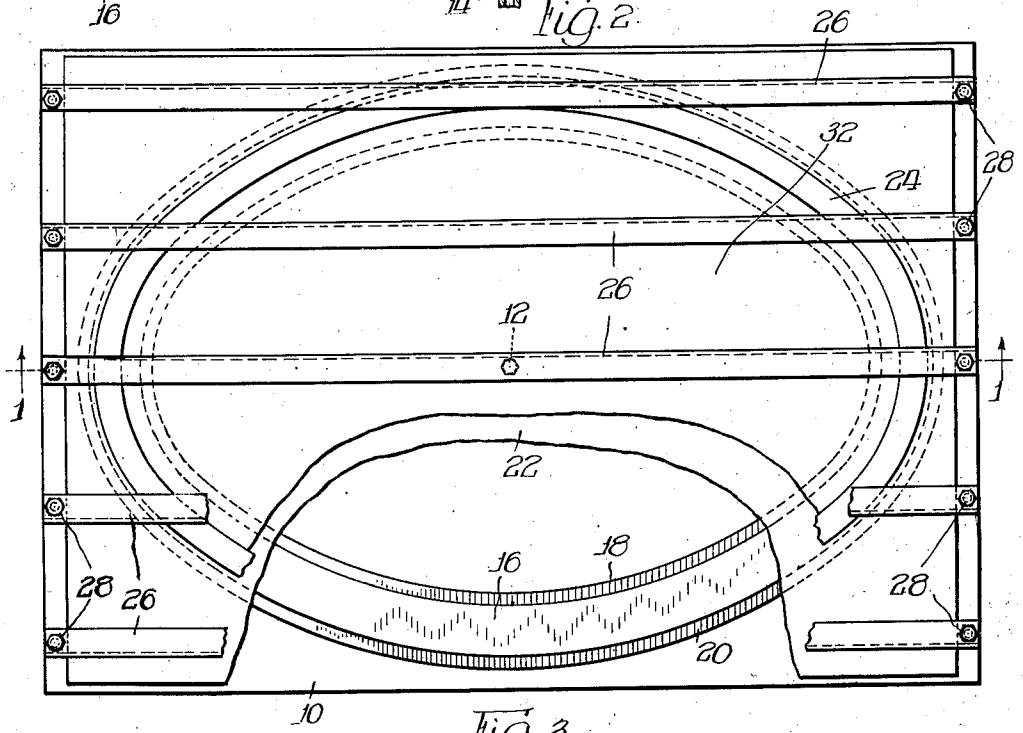
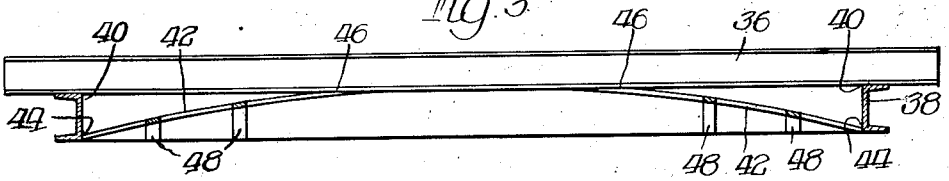



Fig. 3.



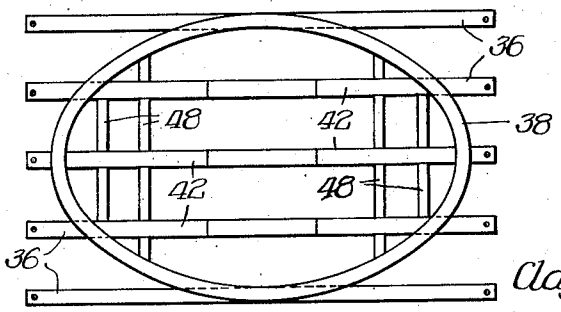




Fig. 4.

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## DEVICE FOR FORMING TANK VEHICLES

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3 Claims. (Cl. 113—44)

This invention pertains to means for forming parts of tank vehicles.

In tank vehicles such as used to deliver gasoline, oil and other fluids to service stations and the like, it is customary to provide the vehicle with a plurality of tanks enclosed in a single continuous shell. The separating bulkheads in such tanks are comparatively large and are necessarily of thin stock in order to make as light a vehicle as possible, and in order not to use any more space than necessary. In certain large tanks it is also sometimes desirable to provide baffle plates.

In order to provide bulkheads and baffle plates of adequate strength and stiffness, and also in order to prevent vibration of said bulkheads or plates, it is sometimes desirable to corrugate or dish these plates. Where end plates are provided the configuration applied to the plates should be as fair or accurate as possible, and the plates should not be locally dented in forming the configurations on account of the unsightly appearance, and also because this locally weakens the plates. As tank wagons are of different sizes, it is not possible in all cases to provide expensive dies for the formation of these plates. Also, such dies are not altogether practical as the various companies ordering tank vehicles may desire a difference in the configuration of the end plates.

It is thus an object of this invention to provide means for dishing or corrugating a plate in any convenient shape or shapes.

Another object is to provide means for forming configurations in a plate without the necessity of providing a die for such configurations.

Still another object is to provide means for forming configurations in a plate, which means may be operative on a cold plate.

Still a further object is to provide means for dishing a plate, which means may readily be changed by the workmen.

A further object is to provide fluid means for forming configurations in plates.

A yet further object is to provide means for rapidly forming configurations in a metallic plate, which means is inexpensive to operate and maintain, and fulfills all requirements of manufacture and service.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation as will be more fully described and particularly pointed out in the specification, drawing and claims appended hereto.

In the drawing, which illustrates embodiments of the device and wherein like reference characters are used to designate like parts—

Figure 1 is a transverse sectional elevation through a means for dishing a plate, the section being taken substantially in the plane as indicated by the line 1—1 of Figure 2;

Figure 2 is a top plan view, with a portion broken away, of the forming means illustrated in Figure 1;

Figure 3 is a transverse sectional elevation corresponding to Figure 1 showing a modified form of device for forming dished portions in a metallic plate;

Figure 4 is a bottom plan view of the device illustrated in Figure 3.

Referring first of all more particularly to the construction illustrated in Figures 1 and 2, the bed plate 10 is provided with the aperture 12 extending through said plate, compressed air or other fluid being adapted to be introduced through the aperture by means of the pipe 14 connected to a suitable source of fluid supply readily controllable by the operator, such as through a valve (not shown).

In the illustrations shown, the device is contemplated as being used to provide a substantially oval dished portion in a plate. The bed plate 10 is provided with a gasket 16 of the same contour as the configuration to be applied to the plate, the gasket being secured by spaced inner and outer metallic bands 18 and 20 forming a channel therebetween, though it is to be understood that the channel might be provided in the bed plate 10. The bands of steel, when used, are adapted to be fastened to the bed plate by means of tack welding. The channel formed by the bands in the present instance is oval in shape, though of course it is to be understood that any convenient shape desired may be used.

The plate 22 which is to be dished is placed in its substantially flat form on the gasket and is clamped down by means of the clamping ring 24 which, in the form shown, is of channel shape and of the same general contour as the gasket, the clamping ring being maintained in place by means of the clamping grid or spaced strong backs 26 fastened down to the bed plate by means of the headed bolts 28 suitably threaded into the bed plate 10 as at 30.

In order to limit the amount of dishing, or the depth of the configuration to be formed in the plate 22, there is provided a stop plate 32 which is disposed inside of the clamping ring 24 and is welded to the clamping ring as at 34. Compressed air or other fluid is then introduced be-

tween the bed plate 10 and the plate 22 through the pipe 14 and aperture 12, causing the plate 22 to assume the configuration of the plate 32, the plate 22 being readily set to that configuration as it is formed cold.

In the modification illustrated in Figure 3 it is understood that this modification is adapted to be used with the bed plate 10. In this modification the spaced strong backs 36 are secured to the clamping ring 38 such as by means of the welding 40, and longitudinal strips 42 are welded as at 44 to the clamping ring 38 near the base thereof, and extend upwardly and are welded as at 46 to the respective strong backs 36, the strips 42 being curved or otherwise formed to the desired configuration. The configuration is also simulated by means of the transversely disposed spaced strips 48 suitably secured as by welding to the clamping ring 38 and to the longitudinal strips 42, this cross arrangement of forming strips 42 and 48 simulating the desired form and serving substantially the same purpose as the single plate 32.

With the device described a very simple and inexpensive means is provided for dishing a plate without the use of expensive dies, the device being very flexible as plates of different sizes may be readily used on the same clamping or bed plate. It is of course understood that the gasket may be omitted, in which case a basin may be formed below the plate 22, or the bands 18 and 20 may be omitted if a sufficiently strong clamping means is provided. Also, mold means separate from the clamping ring or strong backs may be used, as where it is clamped between the plate and ring, or strongback, or otherwise held.

It is to be understood that I do not wish to be limited by the exact embodiments of the device shown, which are merely by way of illustration and not limitation, as various and other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. In a forming device, the combination of a bed plate, a gasket secured to said bed plate, said gasket being substantially of the same contour as the conformation to be provided in a plate, a clamping ring for securing a plate to said bed plate, a plurality of strips on said clamping ring, certain of said strips being disposed at an angle to other of said strips to form stop means and to simulate the configuration to be provided in said plate, and means for introducing fluid under pressure between said bed plate and the plate whereby said plate is forced to assume the configuration of said stop means.

2. In a forming device, the combination of a bed plate, a clamping ring for securing a plate to said bed plate, spaced strips on said clamping ring forming stop means and simulating the configuration to be provided in said plate, and means for introducing fluid under pressure between said bed plate and the plate whereby said plate is forced to assume the configuration of said stop means.

3. In a device for forming configurations in a plate, the combination of a bed plate, a gasket provided on said bed plate and of substantially the same contour as the outline of the configuration, means for securing a plate to be formed to said bed plate, mold means on said first named means and including spaced and separate joined strips disposed adjacent said second named plate, and means for introducing fluid between said bed plate and plate to cause said second named plate to conform to the shape of said mold means.

CLAYTON S. FARRELL.