

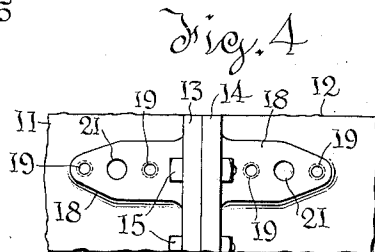
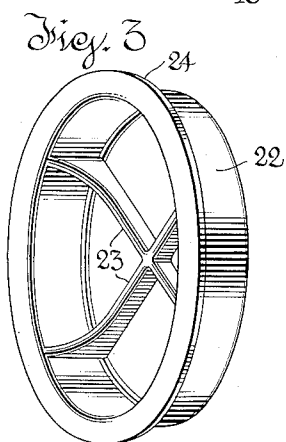
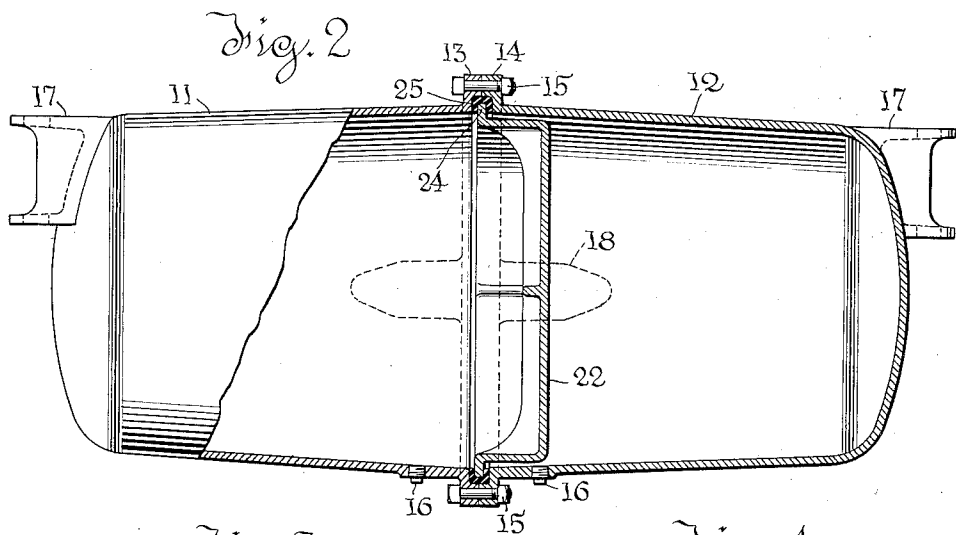
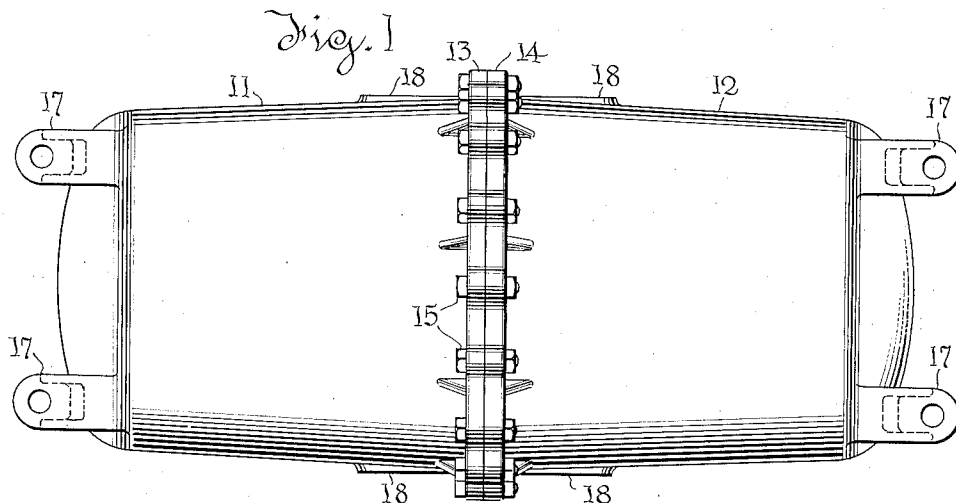
Nov. 19, 1935.

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2,021,255

MULTICHAMBERED RESERVOIRS

Filed Feb. 15, 1934



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UNITED STATES PATENT OFFICE

2,021,255

MULTICHAMBERED RESERVOIR

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Application February 15, 1934, Serial No. 711,447

4 Claims. (Cl. 220—22)

This invention relates to metallic receptacles and particularly to pressure fluid reservoirs for use as the car reservoirs in railway air brakes.

In this industry it has long been the preferred practice to use cored cast iron reservoirs, particularly in freight service. This preference arises from economy in manufacture and maintenance. Since cast iron is not subject to rapid corrosion such reservoirs have long life and do not require the periodic hammer tests prescribed for wrought pressure vessels used in railroad service.

The freight brake which was standard until recently required only one reservoir, and this was cast in one piece around a dry sand core. The standard brake recently adopted requires two reservoirs of unequal volumes. There has recently been invented by another a multi-volume reservoir for this new brake, such reservoir comprising two differently dimensioned cup-shaped end sections, connected by mating flanges, and isolated from one another by a separator member clamped between the portions of the mating flanges.

This new reservoir has the advantages that the three main components can be cast wholly in green sand molds made on molding machines, and that the components can be readily cleaned of adhering sand prior to assembly.

The object of the present invention is further to simplify this new multi-volume reservoir by permitting the use of two identical cup-shaped end sections in conjunction with a separator member offset to provide the necessary difference in volumes. Reversal of the separator member permits the larger volume to be located at either end, should this be desirable for any reason.

A preferred embodiment of the invention, employing desirable features of said prior invention, is illustrated in the accompanying drawing, in which:—

Fig. 1 is a plan view of the complete reservoir structure.

Fig. 2 is a view of the same, chiefly in vertical axial section.

Fig. 3 is a perspective view of the separator member.

Fig. 4 is a fragmentary view showing the finished pads on the near side of the reservoir as viewed in Fig. 2.

The reservoir structure comprises two slightly tapered (frusto-conical) cup-shaped shells 11 and 12 with rounded heads, as shown. These shells are substantially identical. They are provided with mating flanges 13 and 14 which at

their outer periphery are held in metal-to-metal contact with one another by means of bolts 15.

Each shell has a drain plug 16 and two supporting lugs or brackets 17. In cases where it is not essential that the two shells be duplicates of each other one may be formed with two lugs and the other with one lug, giving a three-point suspension for the reservoir structure as a whole, this arrangement being characteristic of the multi-volume reservoir upon which the present invention is an improvement. So far as the present invention is concerned, it is not strictly necessary that there be two lugs on each section. The lugs 17 are preferably formed integrally on the ends of the shell and their draft is aligned with the draft afforded by the taper of the shells. The purpose of this is to permit the formation of green sand molds on molding machines.

Each shell preferably has two pads 18, only one of which is drilled and tapped at 19 and drilled at 21 (see Fig. 4). The two pads are on opposite sides of each shell and when finished afford connection for a pipe flange which is held by screws or studs screwed into the tapped holes 19, and connects an attached pipe to the port 21.

The provision of two pads for each shell permits both pipe connections to be made on one side of the complete reservoir. If only one pad were provided on the side, and if the shells were duplicates, it follows of necessity that the two pipe connections must be on opposite sides of the complete reservoir. This is not ordinarily desirable. If the pads be located on the top or bottom or ends of the shells one pad per section would suffice and the shells could be identical, but these locations are not usually desirable. To meet existing standards the illustrated arrangement was adopted.

The spaces within the shells 11 and 12 are separated from each other by a dished or offset separator 22, the offset providing the desired difference of volumes. This separator is stiffened by ribs 23, and has a peripheral rim or bead 24.

An annular gasket 25, U-shaped in cross section and composed of a suitable rubber compound, is snapped around rim 24 and is held under compression in a relief groove formed at the inner periphery of the mating flanges 13 and 14 (see Fig. 2). This gasket arrangement is the invention of another and is illustrated merely as typical of a suitable gasket construction. Other arrangements for clamping and sealing the separator may be substituted.

In its broader aspects the invention provides a three-part cast reservoir which may be produced

by the use of only two patterns and finished by the simplest machining operations.

What is claimed is,—

- 5 1. A multi-chambered pressure fluid reservoir comprising in combination, two substantially identical cup-shaped members having marginal connecting flanges; a separator member interposed between said flanges, said member having a supporting rim and a middle portion offset from the plane of said rim on one side only of said rim, whereby it divides the aggregate space within said members into two unequal volumes; and means for clamping said flanges in sealing relation with said separator member.
- 10 2. A multi-chambered pressure fluid reservoir comprising in combination, two substantially identical cup-shaped members having marginal connecting flanges; a separator member interposed between said flanges, said member having a supporting rim and a middle portion offset from the plane of said rim on one side only of said rim, whereby it divides the aggregate space within said members into two unequal volumes, and the
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member being reversible to permit the larger of said two unequal volumes to be located at either end; and means for clamping said flanges in sealing relation with said separator member.

- 5 3. A fluid pressure reservoir comprising a pair of duplicate casing sections adapted to be secured together, and a reversible, bowl-like wall section adapted to be secured between said casing sections to define two unequal volumes of fixed ratio therebetween and providing for interchange of position of said volumes when reversed.
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- 15 4. A multiple compartment reservoir comprising a pair of compartment defining sections, each of said sections having an open end and an outwardly extending flange circumscribing said end, the flange of one section being complementary to the flange of the other section, and a dome-like wall member adapted to be secured between said flanges to form two pressure tight volumes of different capacity, said dome-like wall member being reversible between said flanges to interchange the positions of said volumes.
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