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MOUNTING MEANS FOR REGULATORS

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FIG. 1

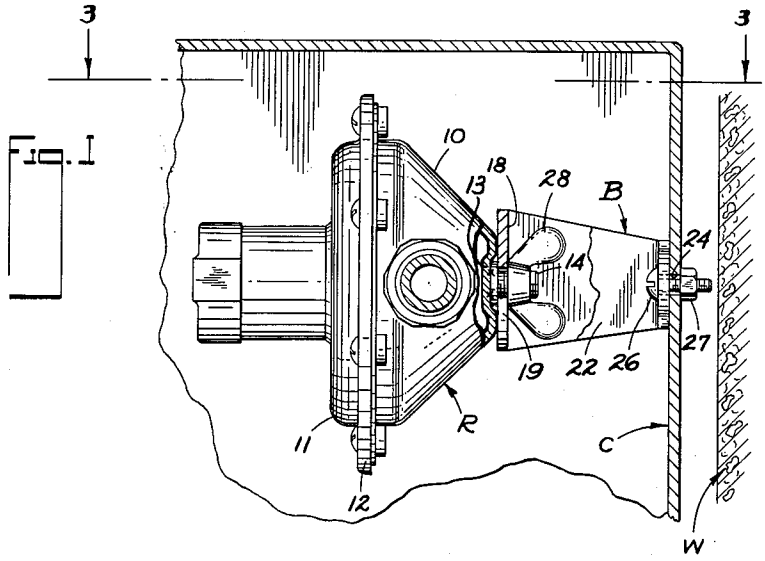


FIG. 2

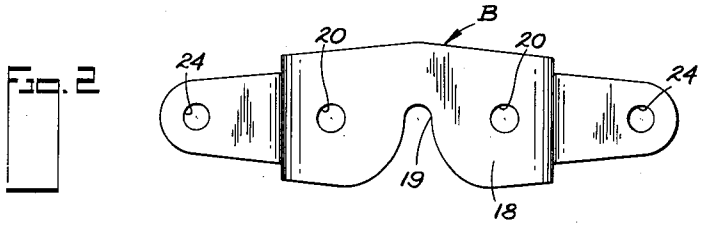
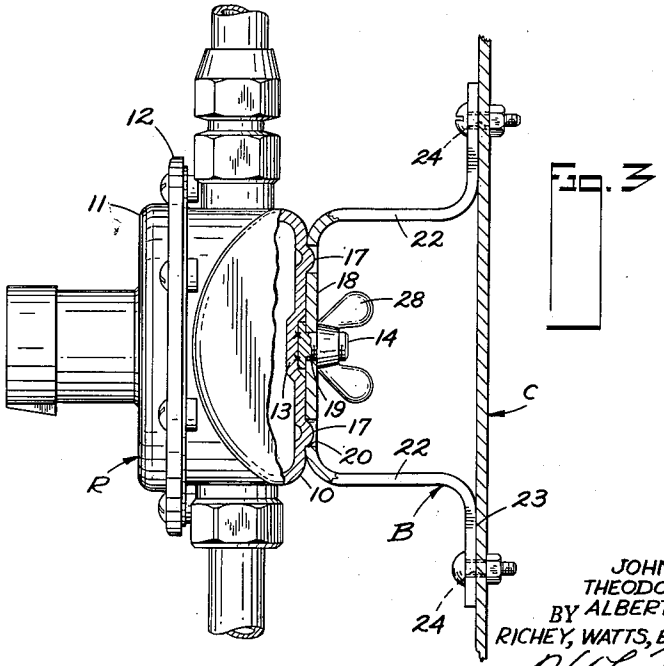


FIG. 3



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MOUNTING MEANS FOR REGULATORS

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2 Claims. (Cl. 248—300)

This invention relates to means for mounting pressure regulators, and more particularly to the mounting of such regulators in cabinets in conjunction with containers and dispensing apparatus for liquefied petroleum gas. As an example of an application of the invention, in the art of dispensing liquefied petroleum gas, a common type of installation includes a cabinet containing one or more cylinders in which the liquid gas is stored, shut-off valves, and a pressure regulator for cutting the gas pressure down to that required by the appliances.

The cylinders must ordinarily be removed from the cabinet for re-charging, whereas the regulator is usually mounted on a wall of the cabinet and the lines leading thereto are disconnected upon removal of the cylinders. It has been customary to provide the regulator with an integral mounting bracket and to bolt the bracket to the back of the cabinet. These cabinets are commonly installed against the wall of a building or the like and therefore the bolt and nut assemblies used to mount the bracket and the regulator cannot readily be removed unless the cabinet is shifted to give access to the back thereof. Since removal of the regulator for repair and service is required from time to time, it is desirable to facilitate this operation without requiring shifting of the cabinet. According to the instant invention, the mounting bracket is generally U-shaped and is made as a separable unit from the regulator and is permanently bolted to a vertical wall of the cabinet housing the containers. A vertically disposed wall portion of the regulator carries a stud and at least one aligning projection spaced from the stud. A vertically disposed central portion of the U-shaped bracket has a slot opening to the edge of the bracket to receive the stud and an aperture for receiving the spaced projection. The regulator is clamped on the bracket by a thumb or wing nut and may therefore be readily removed by simply loosening the clamp nut and lifting the regulator clear, as permitted by the slot in the bracket. In this way, the regulator can be quickly removed or replaced without requiring shifting of the cabinet which, when containing the tank or tanks is relatively heavy and cumbersome.

The manner in which these advantages may be attained will be apparent from the following detailed description of a preferred embodiment of the invention.

In the drawings:

Fig. 1 is a vertical section through a cabinet showing the regulator mounted therein;

Fig. 2 is an elevation of the U-shaped bracket made according to this invention; and

Fig. 3 is a plan view partially in section of the assembly.

As seen in Figs. 1 and 3 the regulator R is mounted on a bracket B which is in turn mounted in a cabinet C having a vertically disposed back wall which may be close to the building wall indicated at W. The regulator comprises a casing having a portion **10** formed of sheet metal with a substantially flat vertically disposed wall and a complementary casing portion **11**. The portions **10** and

11 are flanged as at **12** so that they may be bolted together against the usual regulator diaphragm. The usual inlet and outlet nipples are provided for the regulator casing and internal valve mechanism is also provided and controlled by the diaphragm. Since the internal structure of the regulator forms no part of the invention, it is omitted from the drawings for clarity.

The vertically disposed wall of the regulator portion **10** as noted in Figs. 1 and 3, may be depressed as at **13** to receive a mounting stud **14** having a flange **16** thereon fitting within the depression. The stud is welded or brazed to the vertical wall portion of the regulator. Aligning projections **17** in the form of dimples are provided by indenting or punching the vertical wall portion of the regulator casing at each side of the stud **14**.

The U-shaped bracket B has a flat central portion **18** with a vertically disposed slot **19** formed therein. Preferably the mouth of this slot is widened and curved as shown in Fig. 2 to guide the regulator stud **14** into its final position for mounting. Two apertures **20** are formed in the central portion of the bracket at each side of the slot **19** to receive the dimples **17** of the regulator casing. A pair of legs **22** extend angularly from the central portion of the regulator and merge in the mounting feet **23** generally parallel to the central portion of the bracket. Mounting apertures **24** are formed in the bracket feet. The bracket is mounted on the cabinet C before the cabinet is placed in its final position against the wall W. Bolts **26** extend through the apertures **24** in the bracket feet and through the vertical wall of the cabinet C and nuts **27** are applied to permanently mount bracket B in place. The stud **14** is provided with a wing nut **28** which need not be removed in order to mount or dismount the regulator. It will be observed that when it is desired to mount the regulator on the bracket, the nut **28** need only be loosened sufficiently to permit the projections **17** to clear the edge of the bracket. With the nut **28** loosened the regulator carrying the stud **14** may be moved vertically into the slot **19** as facilitated by the curved mouth of the slot and the nut thereafter is drawn up to pull the projection **17** into the openings **20** of the bracket.

When the dimples **17** are disposed in the apertures **20** the drawing up of the nut **28** is facilitated by access through the space provided between the cabinet wall and the central portion of the bracket. The fluid connections to the regulator may now be made. When it is desired to remove the regulator from the cabinet, the pipes are disconnected from the regulator nipples and the nut **28** loosened to permit the dimples to clear the bracket and the regulator may then be lowered from the bracket.

The orientation of the slot **19** is selected to insure enough clearance between the regulator and adjacent parts so that the regulator can be removed by sliding the stud **14** out of the slot **19**. Thus, with the invention, the servicing of the regulator is facilitated in that not only is removal from the regulator easier because the cabinet need not be shifted but the operation can also be performed more rapidly than in installations wherein the bracket and regulator are integral.

Having completed a detailed description of a preferred embodiment of the present invention so that others skilled in the art may be able to understand and practice the same, we state that what we desire to secure by Letters Patent is not limited by said preferred embodiment but rather is defined in what is claimed.

What is claimed is:

1. A pressure regulator assembly comprising a regulator casing having a substantially flat vertically disposed wall portion, a threaded stud fixed to and extending horizontally from said wall portion, a pair of spaced aligning projections extending from said wall, a U-shaped bracket having a flat central portion, legs extending angularly

from said central portion and mounting feet extending from said legs parallel to said central portion, said central portion having a slot opening inwardly from one edge of the bracket to receive said stud, a clamp nut on said stud, and a pair of spaced apertures in the central portion of said bracket receiving said spaced aligning projections, said aligning projections and spaced apertures co-operating to orient said regulator and prevent all movement thereof relative to said bracket in the plane of said flat central portion.

2. A pressure regulator assembly comprising a regulator casing having a substantially flat vertically disposed wall, a threaded stud fixed to and extending horizontally from said wall, a pair of fixed spaced projections extending outwardly from said wall, a U-shaped bracket having a flat central portion, legs extending angularly from said central portion adapted to be mounted on a mounting surface, said central portion being spaced from said mounting surface by said legs, said central portion having a slot opening inwardly from one edge thereof to receive said stud, a clamp nut on said stud between said central portion and said mounting surface, a pair of spaced apertures in said central portion of said bracket receiving said spaced projections, said apertures and said projections providing engaging surfaces spaced from said slot whereby movement of said regulator with respect to the bracket is prevented.

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