J. J. MENDENHALL.

VALVE FOR CHAMBERED HEAT INSULATING WALLS.

APPLICATION FILED JUNE 7, 1918.

1,337,611. Patented Apr. 20, 1920.

Fig. 1.

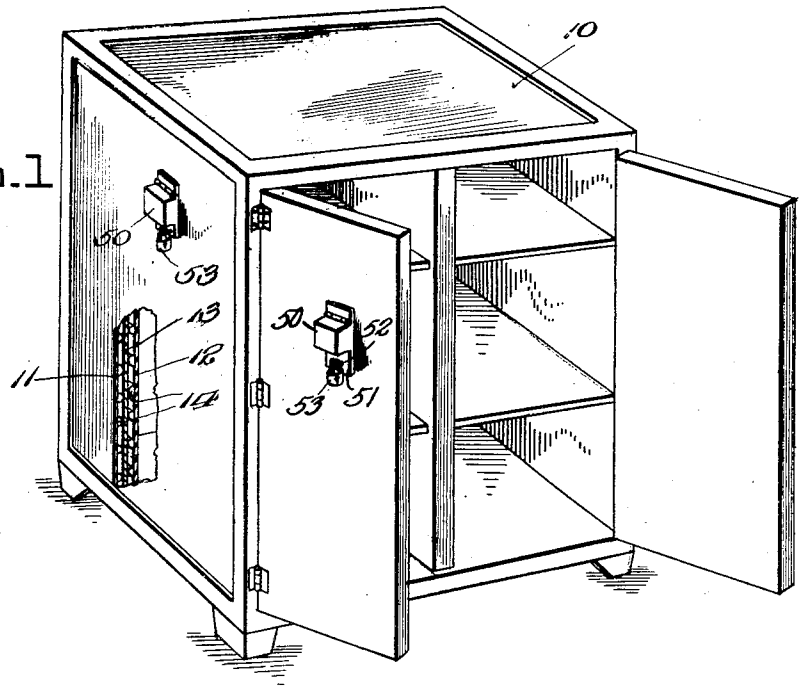


Fig. 2.

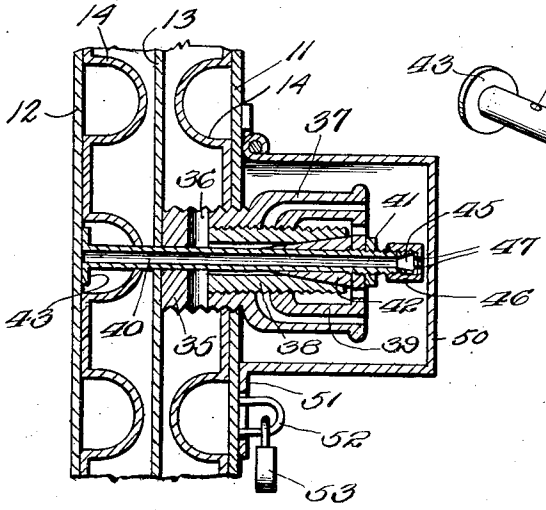
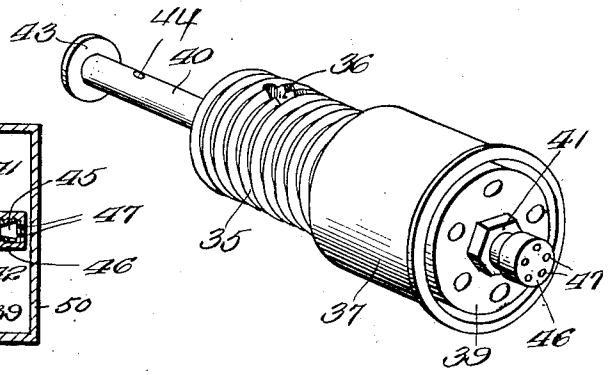


Fig. 3.



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VALVE FOR CHAMBERED HEAT-INSULATING WALLS.

1,337,611. Specification of Letters Patent. Patented Apr. 20, 1920.

Original application filed April 3, 1917, Serial No. 159,459. Divided and this application filed June 7, 1918. Serial No. 238,771.

To all whom it may concern:

Be it known that I, JOHN J. MENDENHALL, a citizen of the United States, and a resident of Raiford, in the county of Bradford and State of Florida, have invented certain new and useful Improvements in Valves for Chambered Heat-Insulating Walls, of which the following is a specification.

The present invention relates to heat insulated containers of the character provided with hollow wall structures, and has more particular reference to an improved valve for controlling the admission of air to the walls.

The present application is a division of application Serial No. 159,459 filed April 3, 1917, for a heat-insulating container.

An object of the present invention is to provide a valve of double structure adapted to independently control the withdrawal and admission of air to the compartments of a container wall; to provide a structure or valve which may be arranged upon the container wall and supported thereon in close relation against the sides thereof; and to provide means for protecting the valve from damage incident to coming into contact with surrounding objects.

The above, and various other more or less important objects and advantages of this invention will be in part described, and in part understood, from the following detailed description of the present preferred embodiment, the same being illustrated in the accompanying drawing, wherein:

Figure 1 is a perspective view of one form of container provided with walls of hollow construction, with parts of the container broken away, and illustrating the application of the valve of this invention applied thereto.

Fig. 2 is a fragmentary enlarged section taken through one form of valve constructed according to the present invention, and with the adjacent portions of the hollow wall structure and the inclosure for the valve.

Fig. 3 is a perspective view of the valve of this invention removed from the wall.

Referring to the drawing by numerals, 10 designates a container or receptacle of any desired construction and form, and which is provided with walls of hollow construction as specifically described and illustrated in the parent application above referred to. Briefly, each hollow wall comprises outer and inner sheets 11 and 12 suitably spaced apart and provided therebetween with an intermediate sheet 13. The sheets 11, 12 and 13 may be metal or other suitable material, and the intermediate sheet 13 forms independent compartments at the opposite sides of the wall. Braces 14 are preferably provided between the intermediate and opposite side sheets, and may comprise, as illustrated, metallic sheets suitably crimped to provide reinforcing ribs for maintaining the sheets in proper spaced relation.

For the purpose of effecting the desired insulation of the wall, the chambers or spaces in the wall are evacuated, and for the purpose of facilitating the withdrawal and maintenance of air from the chambers, the valve of this invention is provided.

This exhausting and sealing device or double valve comprises a plug 35 which is threaded through one of the sheets 11 of the wall, through the adjacent bracing plate or member 14, and abuts against the adjacent portion of the intermediate sheet 13. The plug 35 is provided near its inner end with a transversely extending opening 36 communicating with the outer compartment of the wall. The plug 35 is also provided with a relatively long internally threaded axial opening extending from the transverse slot 36 outwardly, the plug 35 terminating at its outer end in an enlarged substantially bell-shaped mouth 37.

A tube 38, externally threaded throughout its entire length, is threaded at one end into the axial opening in the plug 35 and is turned therein to lie flush with the inner wall of the transverse passage 36. The axial opening in the tube 38 communicates with the transverse opening 36, and the inner wall of the tube 38 flares at its outer end to provide an interior taper formation to the tube 38. A hollow binding nut 39, having internally threaded end openings of different diameters, is adjustably mounted at one end upon the tube 38 and has screw-threaded engagement at its opposite end with a pipe 40 which extends axially through the tube 38 and beyond the opposite ends of the same. The pipe 40 is externally threaded at that portion extending beyond the tube 38, and a jam nut 41 is threaded on the tube 38 for engagement against the binding nut 39. A conical plug or check valve

42 is fitted in the outer flaring end of the tube 38 and is provided with an axial opening adapted to receive the pipe 40 therethrough. The hollow binding nut 39 is adapted to engage at its reduced end against the outer extremity of the plug 42 for limiting the outward movement of the same, and for holding the plug 42 for binding engagement in the tube 38 when it is desired to secure the valve closed.

The tube 40 extends axially through the plug 35 and through the transverse opening 36, but has no communication therewith. The tube 40 is of less external diameter than the internal diameter of the tube 38 so that an annular passage in the tube 38 is formed about the pipe 40. The pipe 40 projects through the adjacent portion of the intermediate sheet 13 of the wall, and preferably through the remote brace or reinforcing sheet 14, and is provided upon its inner extremity with a foot flange 43 adapted to bear against the inner side of the remote sheet 12. The pipe 40 is provided near its free inner end with one or more lateral openings 44 communicating with the remote chamber or compartment in the wall.

The outer end of the tube 40 has an enlarged, preferably flaring, axial opening into which is fitted a tapering plug 45 held within the tube 40 by means of a cap 46 provided with perforations in its outer portion, and which is suitably spaced from the plug 45 by projections 47 carried upon the end of the plug 45. When the cap 46 is unscrewed to a slight extent upon the end of the pipe 40, the plug 45 is permitted to move sufficiently out of the axial opening in the pipe 40 to admit the passage of air about the plug 45, the projections 47, and into the tube 40, the projections 47 maintaining the outer end of the plug from contact with the cap and for sealing the openings or perforations formed therethrough. A relatively small annular space is formed between the bell-shaped mouth 37 of the plug 35 and the binding nut 39, the space being adapted to receive the end of a hose or pipe of an exhauster which may be used for withdrawing air from the walls of the container.

As shown in Fig. 1, one of these valve devices may be arranged upon each wall of the container, or as shown in the parent application above referred to, the walls of the container may be of inter-communicating construction and but one valve device need be employed.

The valve may be located as is found desirable upon the wall or side of the container in an out of the way position, and the outer projecting portions of the valve may be protected and sealed against unauthorized opening or adjustment by a hinged cap or cover 50 mounted on the adjacent exterior surface of the wall, such as the adjacent sheet 11, and provided with an apertured hasp portion 51 receiving a staple 52 therethrough which projects from the wall and which is adapted to receive a pad lock 53 or the like therethrough.

When it is desired to use the container, it is only necessary to exhaust air from the inner and outer chambers thereof by connecting an exhauster to the valve device, the exhauster being provided with an enlarged pipe adapted to fit in the annular passage within the bell 37. The exhauster withdraws air from the outer chamber of the wall through the transverse passage 36 and plug 35, and may be provided with an independent small detachable pipe section adapted to fit over the cap 46 to exhaust the pipe 40 and the inner chamber of the wall when the cap is partly open. It is of course understood that the application of a large pipe to the bell 37 may be made for exhausting both of the inner and outer wall chambers simultaneously, the adjusting nut 39 and the cap 46 being prior opened. The exhausting of the air from the chambers causes the check valves 42 and 45 to automatically seat and seal the chambers when the pressure of the pump is released.

The present invention admits of various changes and modifications in the detailed construction of the valves and the parts thereof, the changes and modifications being restricted only by the scope of the following claims.

I claim:

1. In a heat-insulating container, the combination of a wall provided with a chamber therein, a tube projecting through the wall and opening into the chamber, a valve carried upon the outer end of the tube for sealing the same to prevent entrance of air to the chamber, and a cap carried by the wall for engagement over the valve to protect the same.

2. In a heat-insulating container, the combination of a wall provided with non-communicating compartments therein, a valve secured through the wall and comprising concentrically arranged members independently communicating with said compartments, and independent means carried by the valve for closing the concentric portions thereof independently one of the other.

3. In a heat-insulating container, the combination of a wall provided with separate chambers therein, a valve device carried by the wall and having independent parts communicating with the chambers in the wall, and means for closing said valved parts for independently sealing said chambers.

4. In a heat-insulating container, the combination of a wall provided with separate compartments therein, a pipe projecting

through the wall and communicating with one of the compartments, a plug surrounding the pipe and having an opening therethrough communicating with the other compartment, valves in said plug and pipe for independently controlling the closing of the same, and means for securing said valves independently in closed position.

5. In a heat-insulating container, the combination of a wall provided with independent chambers therein, a valved device including separate parts independently communicating with the chambers, valves independently closing said parts to seal the chambers, and independent locking means for the valves to secure the same in closed position.

6. In a heat-insulating container, the combination of a wall provided with separate chambers therein, a valved device carried by the wall and having independent parts communicating with the chambers in the wall, means for closing said valved parts for independently sealing said chambers, and means carried by the wall and inclosing the outer end of the device for protecting the same.

7. In a heat-insulating container, the combination of a wall provided with independent chambers therein, a valved device including separate parts independently communicating with the chambers, valves independently closing said parts to seal the chambers, independent locking means for the valves to secure the same in closed position, a cover removably mounted upon the exterior surface of the wall over said valved device, and means for sealing said cover in closed position.

8. In a heat insulating container, the combination of a wall provided with independent chambers therein, a valved device including separate parts independently communicating with the chambers, and valves independently closing said parts to seal said chambers.

9. In a heat insulating container, the combination of a wall provided with independent chambers therein, a valved device including separate parts independently communicating with the chambers, valves independently closing said parts to seal said chambers, a cover removably mounted upon the exterior surface of the wall over said valved device, and means for sealing said cover in closed position.

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