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MEANS FOR VENTING CASKS AND OTHER VESSELS.

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922,198. Patented May 18, 1909.

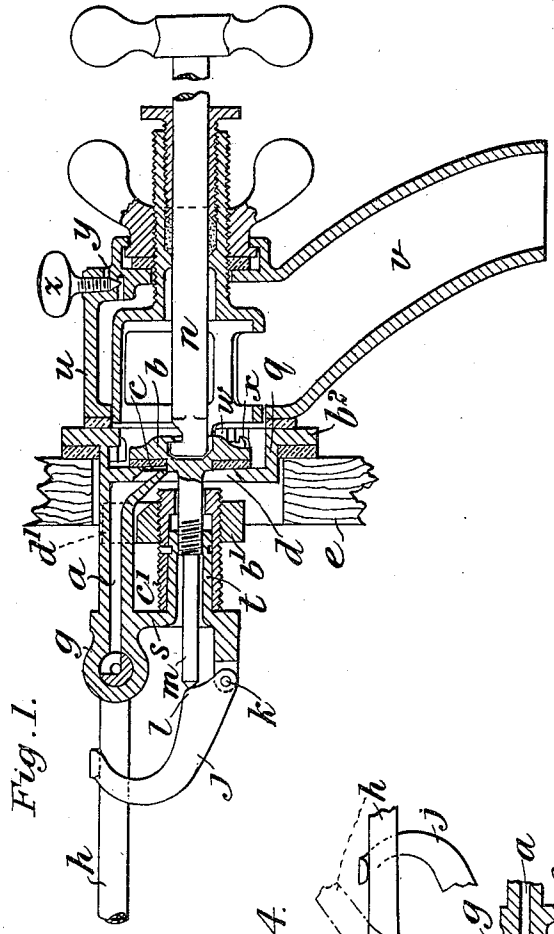


Fig. 1.

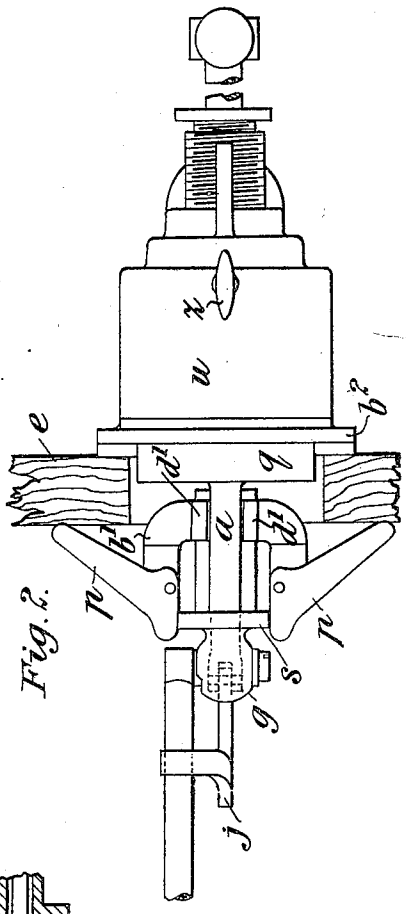


Fig. 2.

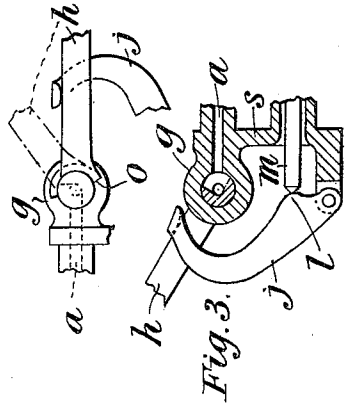


Fig. 4.

Fig. 3.

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MEANS FOR VENTING CASKS AND OTHER VESSELS.

No. 922,198. Specification of Letters Patent. Patented May 18, 1909.

Application filed August 12, 1907. Serial No. 388,260.

To all whom it may concern:

Be it known that I, LEWIS ERNEST SAUNDERS, a subject of the King of Great Britain, residing at 9 Shore road, South Hackney, London, England, have invented new and useful Improvements in Means for Venting Casks and other Vessels, of which the following is a specification.

My invention relates to means for venting casks and the like the venting device being connected to and removable with the draw-off device of the vessel where the latter is removable.

It has before been proposed to vent vessels by using a small tube the top end of which stands above the liquid in the vessel while the other end is connected with the tap or draw-off at a point above the draw-off and is opened to the atmosphere by the act of opening the same. In the case of fermenting liquids this arrangement would immediately allow the escape of the natural gases which it is important should be conserved; otherwise this arrangement would be satisfactory if the small tube could at all times be kept free from liquid. But this is not always possible and the object of my invention is to remedy this defect by providing means for automatically emptying the vent tube of liquid under all conditions. For this purpose I employ a vent tube leading to the surface of the liquid in the vessel and adapted to rise and fall with the level of the said liquid, the vent tube being so connected to the bung, tap or draw-off device that its lower end is at an appreciable height above the highest point of the draw-off, so that when the vent and draw-off are both open to the atmosphere there will be less pressure at this point due to the height of the liquid inside the vessel than at the draw-off opening.

To enable my invention to be fully understood I will describe it with reference to the accompanying drawing, in which:—

Figure 1 is a section of a draw-off tap suitable for thin liquids and provided with my improved means for venting casks and other vessels the venting device being in the position which it occupies when the tap is closed. Fig. 2 is a plan of the same. Fig. 3 is a section partly in elevation of a detail illustrating the position of the venting device when the tap is partly opened. Fig. 4 is an elevation seen from the opposite side to Fig. 3 and showing a stop for limiting the downward movement of the vent-tube.

In Figs. 1 and 2 *a* is the vent tube of the closing appliance, and *b* is the valve which when screwed in closes thec entral aperture *d* which is the combined outlet for the liquid contents of the cask (a portion of which is shown at *e*) and inlet *c* of air to the vent tube *a*. From where the vent tube *a* joins the air inlet *c* I carry it horizontally, as clearly shown in Fig. 1, to a convenient distance and swing, by means of a swivel joint *g* which gives a full passage way at all angles, another tube *h* to the top of which I fasten a float *i* which will naturally carry this tube to the surface or as near as possible to the surface of the liquid inside the vessel. In some cases I prefer to fasten the float *i* so as not to let the venting tube *h* rise above the surface, thereby insuring the natural gases being retained in the case of fermenting liquids; but in the case of other liquids it is better to have the mouth of the tube *h* just above the level of the liquid. By this arrangement the atmosphere will empty the vent tube of liquid under all conditions because even if the vent tube should become filled with liquid when not working, directly the vent and draw-off are opened to the atmosphere and the pressure of air in the vessel begins to fall, the outside air will force the liquid in the tube right out into the barrel and the liquid in the horizontal portion *a* of the tube, when it passes the angle into the upwardly extending portion, cannot increase the height of the column of liquid in the latter, as it would do if this stood much above the level of the liquid. If it were possible for the height of this column of liquid to increase and equal the height of a column of liquid measured from any point of the draw-off to the level of the liquid inside the vessel the vent would never empty itself and would therefore be useless. For this reason a rubber or other flexible tube is useless if by any chance the vent tube should become full of liquid for even if the top of it were kept just under the level of the liquid, as soon as the tube sagged or dropped, owing to the fall of level of the liquid, the vertical column would never empty itself.

I provide for locking the swinging tube *h* of the vent so that it will not become damaged by swinging about when in transit or not in use, and this I preferably effect automatically by the act of closing the valve or

plug of the draw-off. This locking device advantageously consists of a curved arm *j* hinged at *k* to the casting of the closing device and clipping the tube *h*, the said arm being formed with a swell or projection *l* on which the spindle *m* of the valve *b* acts so as to draw down the swinging tube *h* into the horizontal position shown in Fig. 1 when the valve is screwed home by means of the key *n*. It is obvious that, in this position, the tube *h* and float *i* of the venting device are fixed so that they cannot swing about. When the valve *b* is opened to draw off the liquid in the cask the spindle *n* is of course withdrawn, thus allowing the curved arm *j* to move upward, as shown in Fig. 3, so that the float *i* will carry the open end of the tube *h* to the surface of the liquid and the vent passage through the tubes *h* and *a* will be open to the atmosphere. The casing of the fixed member at joint *g* is formed with a stop notch or shoulder *o*, Fig. 4, with which a corresponding shoulder on the movable member H engages, to prevent the swinging tube *h* from falling below the horizontal position.

The tap to which my improved venting device is shown applied in Figs. 1 and 2 is of the kind in which grippers *p* are employed carried by a hub or nut *b'*, actuated by a screw threaded member *c'* somewhat similar to the tapping appliances described in Patent No. 757641, but the bushing *q*, the cap or flange b^2 of which makes the joint with the vessel, differs from that patent in that it contains the hereinbefore described central opening *d* closed by the valve *b* and has cast on its upperside the vent tube *a* on which is formed a plate *s* which acts on the grippers *p* to spread them and cause them to grip the cask. Besides this, the screw threaded member *c'* for operating the nut *b'* is a piece which is separate and independent from the shell or casting. It may be provided with a socket as shown, to receive the operating key *n* of Fig. 1 and turn upon a spindle *t*. This spindle *t* is preferably tubular as shown and internally threaded to receive the stem *m* of the valve *b* which also has a socket into which the key *n* fits. The air tube *a* is connected to the bushing *q* in such a way that while one end stands above the level of the bung inside the vessel the other end may be effectually closed by the valve when the latter is screwed down on to its seat.

The tapping appliance consists of a cap *u* provided with a draw-off nozzle *v* and adapted to be fixed to the bushing *q* when required, by suitable means such as a bayonet joint *w*, *x*. The key *n* passes through a gland in the cap and is used to open the valve to allow the liquid to pass out through the nozzle, and to again close the valve. A vent hole *y* is provided in the cap *u* and, when required, for example in the case of beer casks, I provide the air hole with a valve *z* whereby the hole can be entirely closed when first tapping the cask.

It is of advantage to prevent the nut *b'* from turning as it is liable to do when introduced into the cask and operated by the screw-threaded member *c'* in order to spread the grippers *p*. For this purpose I make use of the vent tube *a* to form a guide for the nut which is cast with projections *d'* embracing the guiding tube *a* and thereby preventing the nut from turning.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a draw off tap for casks and like receptacles, the combination with a fixed member, having a passage for the admission of air to said receptacle, and a passage for the egress of liquid, of a rigid member movably connected to said fixed member and having a passage registering with the air passage of the fixed member, a float connected with said movably connected member, means for preventing said movably connected member from descending below the plane of the air passage of the fixed member, and a valve for closing the air and liquid passages, said valve being provided with a stem for securing the valve and operating the said depressing means, substantially as described.

2. A draw off tap for casks and similar receptacles, comprising a fixed member, provided with a passage for the admission of air to the receptacle, and a passage for the egress of liquids therefrom, a movable member connected to the fixed member, provided with a float, and having a passage connected to the air passage of the fixed member, means for opening and closing the passages in the fixed member and means for forcing the movable member into substantially the same plane as the fixed member and locking it in such position, substantially as described.

3. A draw off tap for casks and similar receptacles, comprising a fixed member provided with a passage for the admission of air to the receptacle, and a passage for the egress of liquid therefrom, a movable member connected to the fixed member, provided with a float and having a passage connected to the air passage of the fixed member, means for simultaneously opening and closing both of said passages in the fixed member, and for forcing the movable member into substantially the same plane as the fixed member and locking it in such position, substantially as described.

4. In a draw off tap for casks and similar receptacles, the combination with a fixed member having a portion adapted to be inserted within the cask or other receptacle, said portion being provided with a passage

for the admission of air to the receptacle, and a passage for the egress of liquid therefrom, a valve adapted to close both the air and liquid passages, said valve having a threaded inwardly extending stem, engaging a threaded part of the fixed member within the cask or receptacle and removable means for operating said valve, substantially as described.

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