No. 618,740. Patented Jan. 31, 1899.

# H. L. SCHROEDER.

## ALARM FOR BEER CASKS.

(Application filed Mar. 16, 1898.)

(No Model.)

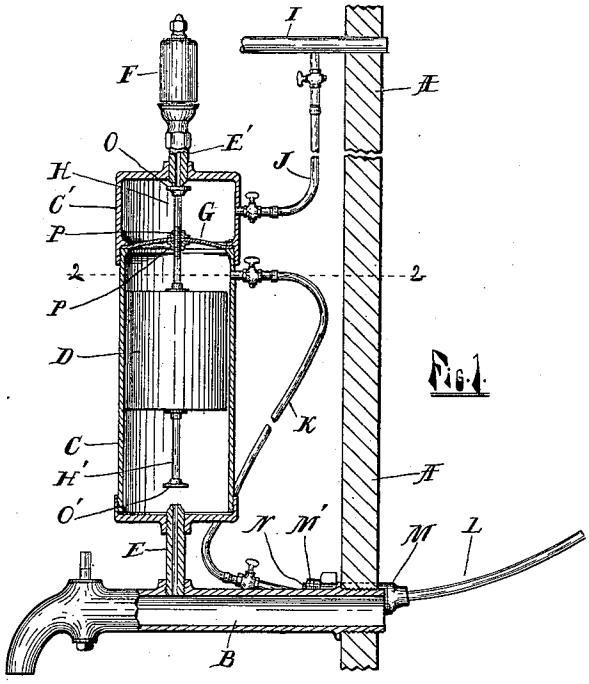



Fig. 1.

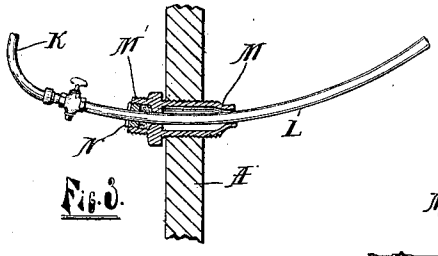



Fig. 3.

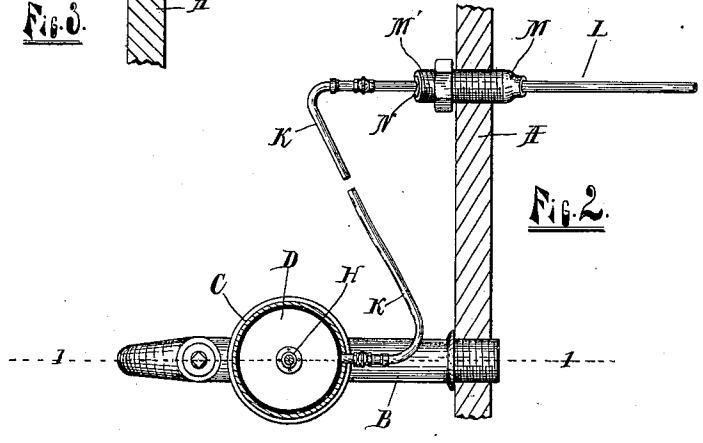



Fig. 2.

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# UNITED STATES PATENT OFFICE.

HENRY L. SCHROEDER, OF GRAND RAPIDS, MICHIGAN.

## ALARM FOR BEER-CASKS.

SPECIFICATION forming part of Letters Patent No. 618,740, dated January 31, 1899.

Application filed March 16, 1898. Serial No. 674,025. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY L. SCHROEDER, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Alarms for Beer-Casks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved alarm for beer-casks; and its object is to provide a device that will sound an alarm when the beer in the cask has been drawn down to a predetermined limit and to provide the same with certain other new and useful features hereinafter more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a device embodying my invention, taken on the line 1 1 of Fig. 2; Fig. 2, a horizontal section of the same on the line 2 2 of Fig. 1, and Fig. 3 a detail of the adjustable air-tube.

Like letters refer to like parts in all of the figures.

A represents the wall of the cask or vessel containing the beer; B, a cock for drawing off the beer; C, a cylindrical chamber above the cock B and connected therewith by a tube E, and G a flexible diaphragm, preferably of rubber, forming a head to the cylindrical chamber C to retain the liquid therein and prevent its passing to the air-chamber C′ above the same. In the cylinder C is a float D, to which is attached a valve-stem H, projecting upward through the diaphragm G and terminating in a pad of rubber or other soft material to close the end of the tube E′, extending upward from the air-chamber C′ and surmounted by a whistle F. Lock-nuts P P secure the middle of the diaphragm to the valve-stem H and form a tight joint. From the lower end of the float D projects another valve-rod H′, having a similar head O′ on its lower end to close the pipe E, and said rods are so adjusted for length that when the float rises the pipe E′ is closed and the pipe E opened and when it descends the pipe E is closed and the pipe E′ is opened.

I is a pipe through which air is pumped into the cask to provide pressure therein, and from this pipe a tube J leads to the chamber C′ to supply the same with air. From the upper part of the chamber C an air-pipe K extends downward to near the level of the cock B and terminates in a metallic tube L, upwardly curved at its ends, which tube is inserted in a bushing M, screwed into an opening in the side of the cask and provided with a gland N, surrounding the tube L, and having the outer end M′ of said bushing screw-threaded to apply a cap when the tube L is removed.

The operation of my device is as follows: The cask being filled with beer, the beer will flow into the cylinder C and raise the float D, thus closing the passage through E′. The inner end of the tube L may be vertically adjusted to the level at which the alarm is to be sounded by adjusting said tube longitudinally in the bushing M. Air-pressure being supplied through the pipe I, a portion of the air will flow through the tube J and supply the chamber C′, ready to sound the whistle F whenever the float D descends. As the level of the beer falls below that in the chamber C no air can get into said chamber until the level within the cask reaches the inner end of the tube L. The float thus remains supported regardless of the relative levels of the liquid in the cask and chamber C. When air enters the inner end of the tube L, the beer in the chamber C is at once released, flows out, and allows the float D to descend and open the passage E′, thus allowing air to escape from the chamber C′ and sound the whistle. It is evident that instead of the whistle any electric bell might be used and the operating-circuit closed by the descent of the float; so, also, that this device might be readily applied to steam-boilers, affording an adjustable alarm for the same.

Having thus fully described my invention, what I claim, and wish to secure by Letters Patent, is—

1. In combination with a vessel to contain liquid, and a chamber, and a float in said chamber, and an alarm operated by said float; a pipe connecting the lower end of said chamber with the interior of said vessel, and a pipe extending from the upper end of said chamber to the interior of said vessel and having its inner end located below the water-level

and vertically adjustable, substantially as described.

2. In combination with a vessel to contain liquid, a chamber, a float in said chamber, and an alarm operated by the descent of said float, a pipe connecting the lower end of said chamber with the interior of said vessel below the water-level, a curved tube extending through the wall of the vessel and longitudinally adjustable, and a flexible tube from the curved tube to the upper end of the chamber, substantially as described.

3. In combination with a vessel to contain liquid, a chamber located above the alarm-level of the liquid, a float in said chamber, a pipe connecting the lower end of said chamber to the interior of the vessel below said level, and a pipe from the upper end of said chamber to the said level, whereby the liquid contents of said chamber is suddenly released, and an alarm mechanism, substantially as described.

4. In combination with a vessel to contain a liquid in its lower part and a fluid in its upper part, a chamber to contain liquid and connected by pipes at its respective ends to the liquid-space of said vessel, a chamber to contain fluid and connected by a pipe to the fluid-space of said vessel, a float in the liquid-chamber, a whistle connected to the fluid-chamber, and a valve opening the passage from the fluid-chamber to the whistle and operated by the float, substantially as described.

5. In combination with a vessel containing a liquid and a fluid under pressure, a fluid-chamber and a liquid-chamber, a flexible diaphragm between said chambers, a rod extending through said diphragm and operating an alarm-whistle, a float in the liquid-chamber attached to said rod, pipes connecting the upper and lower ends of the liquid-chamber to the lower part of the vessel and a pipe connecting the fluid-chamber to the upper part of the same, substantially as described.

6. In combination with a beer-cask having an inlet-pipe for air and cock for drawing off the beer, a chamber having an opening at the bottom extending to the cock and connected at the top to a tube inserted in said cask near the level of the cock, an air-chamber above the first-named chamber, a whistle above the same and an opening from the same to the whistle, a float having oppositely-extended rods having pads to alternately close the said openings, and a pipe from the upper chamber to the upper part of the cask, substantially as described.

7. In combination with a beer-cask, an air-pipe inserted in its upper part, a cock and bushing inserted in its lower part, a curved tube in said bushing, a fluid-chamber having an opening at the bottom extending to the cock, a flexible tube extending from the top of said chamber to the curved tube, an air-chamber above the fluid-chamber, a whistle above the same and a passage from the same to the whistle, a pipe connecting the air-chamber with the air-pipe, a flexible diaphragm between said chambers, a float in the fluid-chamber, oppositely-extended rods on said float having pads at the ends and alternately closing the passages to the whistle and to the cock, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY L. SCHROEDER.

Witnesses:
LUTHER V. MOULTON,
LEWIS E. FLANDERS.