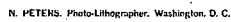


Liquid Measure.

Patented Dec. 19, 1848.



UNITED STATES PATENT OFFICE.

JOHN H. HECKER, OF HINKLETOWN, PENNSYLVANIA.

APPARATUS FOR DRAWING AND MEASURING LIQUIDS.

Specification of Letters Patent No. 5,970, dated December 19, 1848.

To all whom it may concern:

Be it known that I, JOHN H. HECKER, of Hinkletown, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Apparatus for Measuring Liquids, called "Hecker's Self-Operating Measurer," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a perspective view of the apparatus applied to a cask. Fig. 2, is a section of the valve and chamber in which it moves, for stopping off and letting on, the flow of the liquid from the cask. Fig. 3, is a section of the tubes through which the liquid flows, valve and chamber, on the line *x x* of Fig. 2. Fig. 4 is a section of the bell and hammer, and parts for operating the same, for giving an alarm when the measure is filled.

Similar letters in the figures refer to corresponding parts.

The nature of this invention consists in forming in the tubes through which the liquid flows from the cask to the measure, a segment chamber, containing a valve, which is moved up and down, to let on, or stop off, the flow of the liquid, as required, by means of levers, springs, suspended float, and other mechanical contrivances, so combined and arranged, in relation to the valve, as to close said valve and stop off the flow of the liquid from the cask, without the aid of an attendant, by the rising of the liquid in the measure acting on the float, causing the fastening, holding the valve open, to be detached from the lever, to which the valve is secured, and allowing the valve to be forced down, by a spring pressing against said lever. And also, in combining with the apparatus, an alarm bell, which is caused to strike when the valve is closed, in order to call the attention of the attendant to the fact.

A is a cask elevated on a suitable platform 3.

B is a horizontal tube, secured to the lower part of the head of the cask, by a flange B' and screws, and communicating with the interior of the same, and having a flange b, at its outer end, in which is formed a segmental chamber or cavity *a*, a little wider than the diameter of the tube, and more than twice as long.

C is another tube, on the same horizontal line as the last mentioned tube, and forming a continuation of the same, having a flange *c'* on one end, which is screwed to the corresponding shaped flange *b* on the end of the tube B.

D is a sliding valve, curved on its sides and lower edge, to correspond with the bottom and sides of the chamber, and secured to the lower end of a segment rod *d*, passing through a stuffing box in the flange above the segment chamber and connected at its upper end to a curved lever.

E is a curved lever turning on a pin *p*², as a fulcrum, at one end, projecting from the side of a horizontal timber 1, arranged in front of the cask, and under the tubes, so as to form a support for the same. The upper end of this lever is nearer horizontal when down and is arranged immediately over the segment valve chamber, whose sides correspond with circles scribed from the center of the pin or fulcrum upon which the lever moves. F is a spiral spring, attached to the upper edge of the lever, at its curved part, and extending upward on a curved line, scribed from the fulcrum of the lever, and attached at its upper end to an inclined rod *e*, secured to a horizontal timber 2, projecting forward from the platform 3, on which the cask is supported.

G is an upright bar, hinged to the horizontal timber, at its lower end by a butt hinge *t*, or pin, and having a plate or cog *f*, projecting from its face. This cog is inclined on its upper surface which comes in contact with the roller H as seen in Fig. 3.

H is a friction roller, turning in ears rising from the curved lever, near its upper end, and resting on the inclined surface of the cog *f*, for holding the lever and valve up.

I is a horizontal spiral spring, attached at one end to the hinged bar G near its upper end, and at its opposite end to a stationary rod *g* secured to the horizontal timber.

J is a measure of any required capacity, made in the usual manner, except that it has a tubular spout *h*, made flaring at the end, in order to receive the corresponding tapering end of the tube C, and is provided with plates *i*, projecting from its sides, and resting on the timbers 2, 2, projecting from the platform.

K is a circular float, consisting of a cir-

cular hollow tin case filled with cork, and having a flange around its top, which rests on the upper edge of the measure. This float has a staple driven into its center into which is inserted a hook, fastened to the end of a cord *j*, passing over a pulley *k*, turning in ears *l*, secured to the timbers, 2, 2 immediately above the center of the float, and attached to the upper end of the hinged bar *G*, in such a manner that the flange of the float, will rest on the upper edge of the measure, when the curved lever *E*, is raised, and the inclined cog *f*, on the face of the hinged bar, is drawn under the roller *H*, on the same, and when said flange is raised above the edge, so as to bring the lower surface of the float, to the level of the intended line of measure, the cog will be withdrawn from under said roller *H* and the lever left at liberty to descend.

L is an eccentric wheel, arranged immediately below the upper end of the lever, and turning on a pin *v* inserted in the upright *w* secured to the platform 3, and having a pin or crank *m* projecting from its side, for turning the same. *M* are parallel plates, set on edge, and secured to the head of the cask, and connected together by pillows, in a similar manner to the plates of a clock.

N is a horizontal cylinder, turning on journals in the plates, around which is wound a cord *n* having a weight *o*, suspended to its lower end.

O' is a crank on the end of the cylinder shaft for turning the same to wind the cord *n*.

P is a notched or cogged wheel, secured on the cylinder shaft *N*, inside the plates.

Q is a curved bar, bent to correspond with the form of the pallet of a clock, and secured at its center to a horizontal shaft *p*, vibrating in boxes in the plates, in the same relation to the edge of the notched or ratchet wheel as the pallet of a clock is to the ratchet wheel, so as to receive a vibratory motion when the notched wheel is revolved, and to prevent said wheel from turning, when held stationary.

*Q*² is an upright rod, passing through the vibrating shaft *p* and extending below and above the same, and having a metallic bar or hammer *q*, secured, at right angles, to its lower end, which vibrates with the rod, and strikes a semispherical bell *r* secured to one of the upright timbers of the frame.

R is a lever, turning on a fulcrum *t* near one end, and perforated with an opening, into which the upper end of the upright rod *Q*² is inserted, for preventing the shaft from vibrating.

S is a cord attached to the end of the lever *R*, and to the upper end of the curved lever *E*, which cord is slack when the lever *E* is raised; and becomes taut when the lever has

descended half its traverse causing the lever *R* to vibrate on its fulcrum and become disengaged from the hammer rod *Q*².

When it is desired to draw a given quantity of the liquid contained in the cask, the measure to receive the same is suspended on the timbers 2, 2, by the projecting plates *i*, on its sides, and its spout *h*, connected with the tube *C*, in the manner represented in Fig. 1, and the eccentric wheel *L* turned so as to raise the upper end of the curved lever *E*, and cause the valve *D*, to be raised in its chamber *a*, and open the communication between the cask, and the measure, to allow the liquid to flow from the cask into the measure. The hinged bar *G* is then brought forward, and the cog *f*, (on its face) forced under the friction roller *H*, turning in ears on the upper surface of the lever, and held in that position by the float *K*, suspended in the upper end of the measure, attached to the upper end of the hinged bar, by the cord *j*, said float being of sufficient specific gravity to more than counteract the elasticity of the spiral spring *I*. The cord *s*, attached to the outer end of the lever *R*, is then tied to the end of the curved lever *E* and the eccentric wheel *L*, turned and removed from contact, with the end of the curved lever. When the liquid in the measure reaches the bottom of the float, it will cause the float to rise with it, the required distance, and allow the cog *f* on the hinged bar, to be forced from under the roller, by the spring *I*, pressing against the face of the hinged bar, and the valve to be forced down, by the spiral spring *F*, pressing against the upper surface of the curved lever, and the supply of liquid to be cut off; and at the same time cause the lever *R*, to be disengaged from the upright rod *Q*² and the notched wheel *P*, to vibrate the hammer *q*, and ring the bell *r*, to call the attention of the attendant to the fact that the measure is made.

The alarm bell and mechanism for operating the same, may or may not be combined with the measurer, as preferred. For drawing molasses during the winter season, when it flows so slowly, or drawing liquids from casks, situated in dark places, the combination of the two, is deemed indispensibly necessary. In the former case, the attendant, after opening the valve to allow the flow of the molasses, can leave the cask, and attend to other business until he hears the alarm bell.

Instead of applying the spring for moving the hinged bar a weight may be used suspended to a cord passed over a pulley affixed to the end of the cask, or other more convenient place and conveyed thence to the top of the hinged bar to which it may be secured.

Now what I, JOHN H. HECKER, claim as

my invention and desire to secure by Letters Patent is—

1. The before described mode of measuring liquids by means of the combination
5 of the measure J, tubes B, C, valve D, lever E, hinged bar G, catch or cog F, roller H, springs F, I, cord I, and float K, arranged and operated in the manner and for the purpose herein fully set forth.

10 2. I also claim the combination of the alarm with the measuring apparatus by

means of the lever R and chain S for giving notice when the measure is filled and the valve or gate is shut as described.

In testimony whereof I have hereunto
signed my name before two subscribing witnesses this 3rd day of February, 1848. 15

JOHN H. HECKER.

Witnesses:

EDMUND MAHER,
WM. G. AMRVEG.