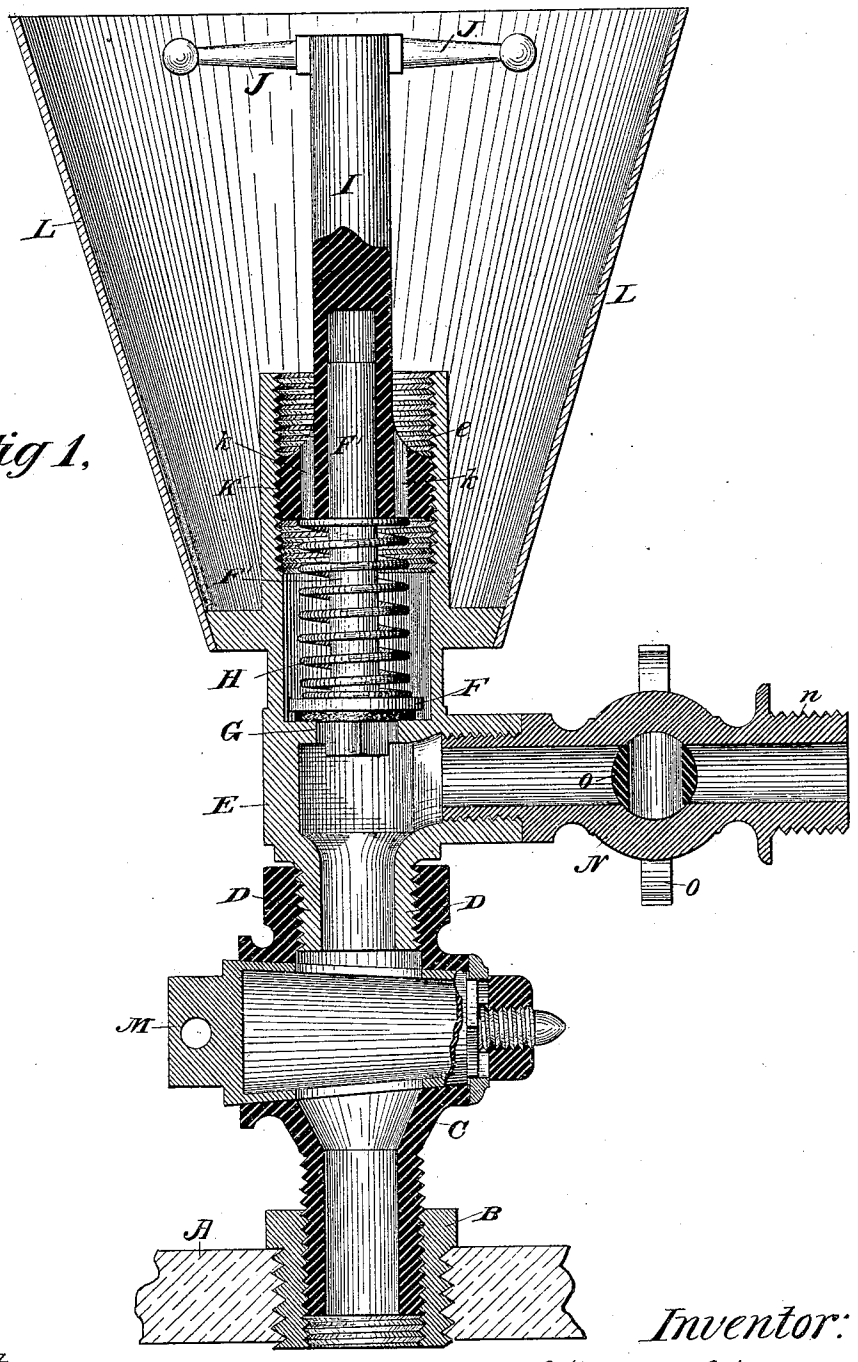
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W. WOERLE.

AUTOMATIC PRESSURE RELIEF APPARATUS.

No. 249,718. Patented Nov. 15, 1881.

Fig 1.



Attest:

Geo. T. Smallwood Jr.

Harry E. Knight

Inventor:

William Woerle

BY Knight Bros

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N. PETERS, Photo-Lithographer, Washington, D. C.

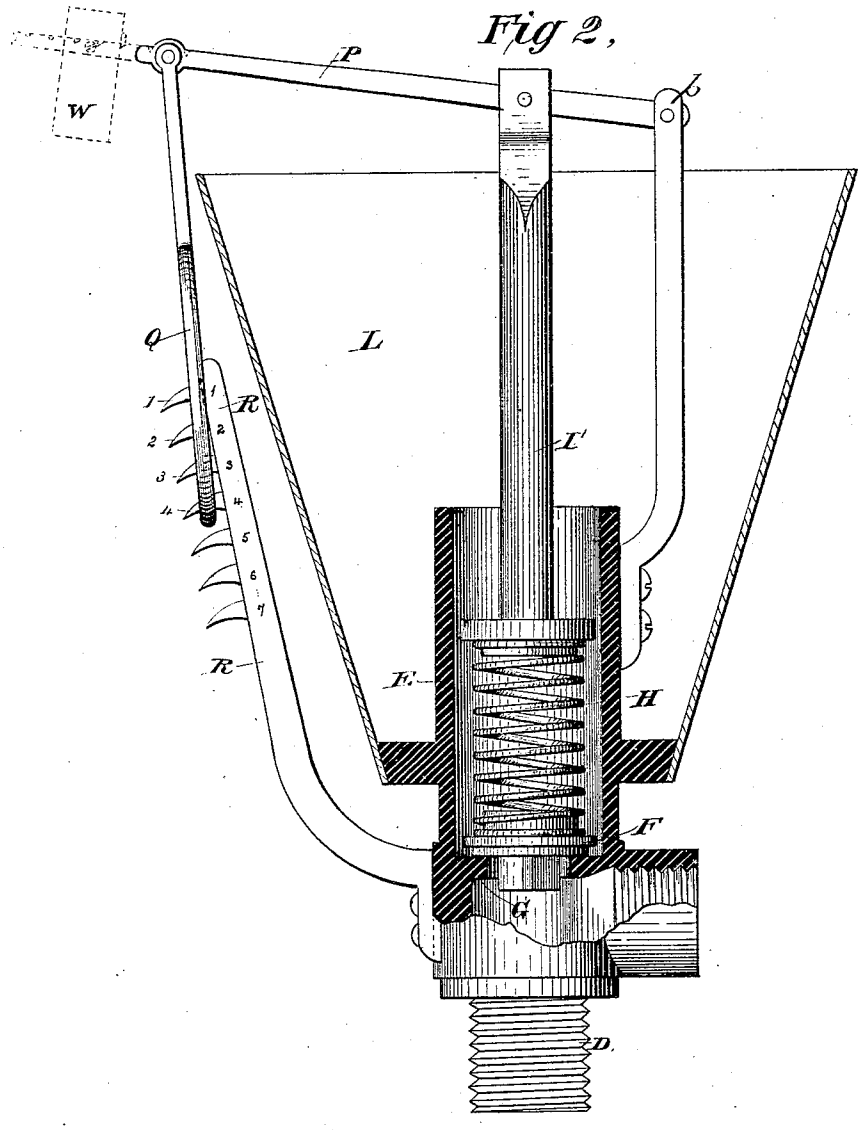
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AUTOMATIC PRESSURE RELIEF APPARATUS.

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Fig 2.



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UNITED STATES PATENT OFFICE.

WILLIAM WOERLE, OF CHICAGO, ILLINOIS.

AUTOMATIC PRESSURE-RELIEF APPARATUS.

SPECIFICATION forming part of Letters Patent No. 249,718, dated November 15, 1881.

Application filed October 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WOERLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Pressure-Relief Apparatus for Beer-Hogsheads and Fermenting-Vats, of which the following is a specification.

The subject of my invention is an apparatus for application to the bung-hole of a beer-hogshead to prevent the escape and loss of the froth and priming which rise out of the hogshead while the beer is passing into its settled and permanent condition after fermentation. To this end I employ a funnel-shaped vessel, connected by a valved stem with a screw-nozzle, for introduction within the air-cock hole, the valve being provided with a spring and a screw or lever, by means of which the pressure applied to the valve may be accurately graduated according to requirement, and the valve rendered automatic in its action.

In the accompanying drawings, Figure 1 is a vertical section of an apparatus illustrating my invention, showing the pressure on the spring-valve controlled by a screw-collar. Fig. 2 is a sectional elevation, illustrating the combination with the spring-valve of an adjusting-lever.

A represents a part of the bung-stave of a beer-hogshead, and B a threaded metallic bushing applied thereto.

C is a hollow stem, adapted to be screwed within the bushing B, and threaded at its upper end for the reception of a screw-nozzle, D, formed on the lower end of the casing E of my automatic relief-valve.

F is the valve proper, G its seat, and H a spring by which the said valve is held down on its seat G. In Fig. 1 the valve is represented with a stem, F′, extending upward within a socket prepared for it in a vertical shaft, I, which is provided at its upper end with a hand-wheel or cross-bar, J, for readily turning it, and at its lower end with a screw-collar, K, engaging within a threaded socket, *e*, in the casing E, so that by turning the said collar K down or up the spring H, which bears upward against the bottom of said collar, may be made to bear with greater or less force on the valve F. The pressure of the said valve on its seat may thus be readily graduated, so as to permit a pressure of one, two, three, or more pounds to the square inch within the hogshead or fermenting-vat before the valve will be opened by said pressure.

k k represent vertical apertures in the collar K, to permit the passage of gas or liquid which may rise from the cask.

L is a funnel-shaped receptacle surrounding the casing E, and employed to contain water for the purpose of checking the escape of gas, or, in the event of the foam or priming from the barrel rising completely through the valve-casing E, to catch and retain the beer which would otherwise be wasted.

The supplemental stem C is provided with a stop-cock, M, by which the barrel may be temporarily closed when the automatic relief-valve is removed while a supply of ice is dumped over the barrel, or for any other purpose.

N is a horizontal nozzle, provided with a stop-cock, O, and a screw-collar, *n*, for the reception of an air-pressure hose, which is used for forcing air into the hogshead during the racking off of the beer.

In Fig. 2 I have shown my valve F and spring H under a slightly-modified construction, in connection with a stem, I′, which is held down by a horizontal beam or lever, P, fulcrumed at *p*, and provided at its outer end with a link, Q, adapted to be caught in any of the teeth 1 2 3 4, &c., of a rack, R, in order to accurately graduate the pressure of the spring. The teeth of the rack R may be marked with numbers indicative of the number of pounds pressure which will be applied to the valve through the medium of the spring by the catching of the link Q in the respective teeth of the rack.

If preferred, a sliding weight, W, as illustrated in dotted lines in Fig. 2, may be substituted for the link Q and rack R, for graduating the pressure applied to the spring-valve.

The funnel-shaped receptacle may be used alone without any cock or valve, and being applied to any aperture in the cask will form a water-tight connection therewith, and will serve to retain the froth which rises out of the cask and permit the beer to run back into the cask when the swelling subsides.

I am aware that pressure-relief apparatus for beer-vats have been devised in which the froth and gases escaping from the vat are caught in a cup or reservoir held by weights against the mouth of the relief-pipe; but in these devices the beer escaping is either thrown away or the apparatus must be removed for its introduction into the vat, no provision being made for its return thereto. With my apparatus, when the pressure of beer through the valve ceases beer and water held above the valve within the casing forms a hydraulic seal, and prevents the entrance of air into the barrel, and when the beer has completely subsided the valve may be raised, and the liquor in the casing and funnel allowed to flow into the cask to fill the space left, thus reducing the amount of beer exposed to the air to that immediately under the bung-hole.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a funnel-shaped overflow-reservoir for vats, an automatic relief-valve, and a casing, E, so arranged that an excess of pressure within the vat will cause the valve to rise and the liquor and gas to escape around the valve and through the casing in which its stem works into the funnel-shaped reservoir.

2. The combination of funnel L, check-valve F, working in casing E, spring H, and valve-stem F′, sliding in socketed shaft I, having perforations *k*, substantially as and for the purpose set forth.

WM. WOERLE.

Witnesses:
OCTAVIUS KNIGHT,
HARRY E. KNIGHT.