A. J. KLEIN.

VENT BUNGS.

No. 180,479. Patented Aug. 1, 1876.

FIG. 1.

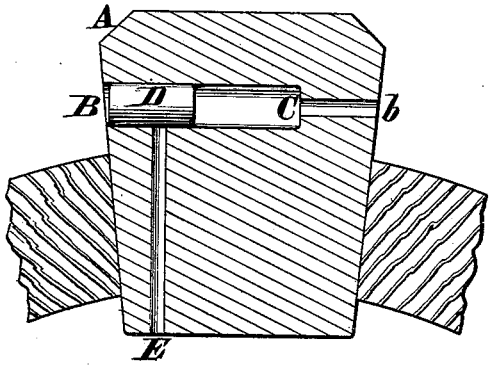


FIG. 2.

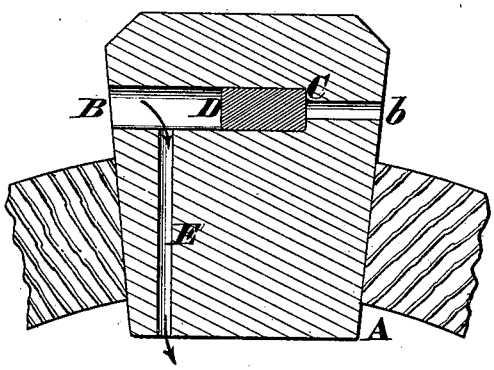


FIG. 3.

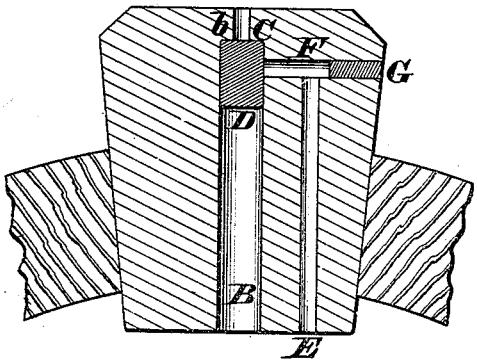


FIG. 4.

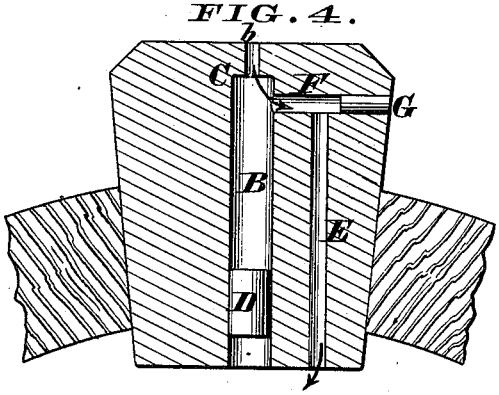


FIG. 5.

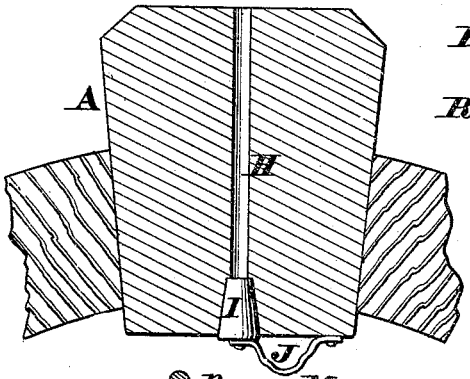


FIG. 6.

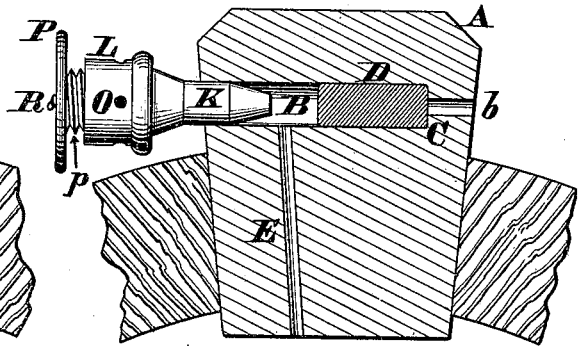
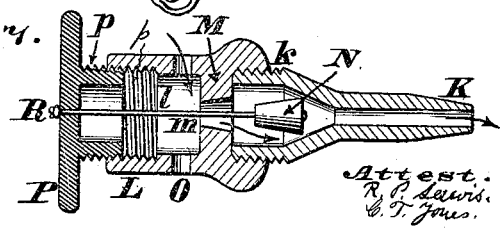


FIG. 7.



Attest.
R. F. Lewis.
C. T. Jones.

Alois J. Klein.
by Jas. A. Layman
his Attorney.

UNITED STATES PATENT OFFICE.

ALOIS J. KLEIN, OF CINCINNATI, OHIO.

IMPROVEMENT IN VENT-BUNGS.

Specification forming part of Letters Patent No. **180,479**, dated August 1, 1876; application filed May 22, 1876.

To all whom it may concern:

Be it known that I, ALOIS JOSEF KLEIN, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Vent-Bungs, of which the following is a specification:

This invention relates to that class of devices which are employed for admitting air to the interior of barrels or others vessels containing liquor of any kind "on tap;" and my improvements comprise an arrangement of devices whereby the bung may be made available, either for kegs to be used in gardens and other popular places of resort where liquor is consumed very rapidly, or the bung may be fitted to kegs that are supplied to small saloons, &c., where the consumption is comparatively limited.

When applied to kegs furnished to gardens and other large and popular establishments, the bung is made to admit air constantly, but when the bung is fitted in kegs for saloons and other places where the beer or other liquor is drawn off only at intervals, said bung is constructed so as to admit air when the faucet is opened.

In the former case the bung is traversed with an internal bore or channel, into which channel a plug or stopper is inserted when the keg is first filled at the brewery, which plug is either knocked bodily out of the bung, or else shifted in said channel in such a manner as to admit air continuously when the keg is tapped. In the latter case, or for saloon purposes, the bung has a detachable tube applied to it, which tube has a valve that automatically opens and admits air to the interior of the keg the instant the bung-plug is knocked out or shifted, and the faucet opened.

Figure 1 is an axial section of one form of my vent-bung, the air-inlet of said bung being shown closed with the shiftable plug. Fig. 2 is a similar section, but showing said plug shifted, so as to admit air to the interior of the keg. Figs. 3 and 4 are axial sections, showing the closed and opened conditions, respectively, of a modification of the invention. Fig. 5 is an axial section of another modification. Fig. 6 is a section showing the detachable air-tube applied to the bung; and Fig. 7 is an enlarged section, showing the air-tube detached from the bung.

When especially adapted for application to kegs or barrels that are intended to be quickly emptied of their contents, the bung is constructed as represented in Figs. 1 and 2, and by referring to these illustrations it will be noticed that the bung A is provided with a bore, B, that is circular in its transverse section. This transverse bore B passes completely through the bung; but it is not of an uniform diameter, being diminished at *b*, so as to form a seat, C, for the sliding plug, stopper, pin, or cork D, which plug is of cylindrical shape, and adapted to fit snugly within the enlarged portion of said bore. This sliding plug may be composed of wood, metal, leather, india-rubber, or any other material. Communicating with this horizontal bore B is a longitudinal channel, E, of relatively less diameter than inlet B.

Said channel may intercept the transverse bore at any suitable place, and the former may be either perfectly vertical or inclined; but in either case its upper end must be situated so as to be closed with the plug D when the keg or barrel is first filled at the brewery.

The operation of this form of the devices is as follows: When the keg is filled at the brewery, and the bung A driven into the customary bung-hole, the plug D occupies that end of bore B with which channel E communicates, and as said plug is long enough to cover the inlet of said channel, it is evident that air cannot enter the keg, neither can gas escape therefrom through passage E. The plug D is maintained in position by its snug fit, and also by the gas which passes up through channel E, and presses against a portion of the under side of said plug. As soon now as the keg is placed on tap the sliding plug D is driven in with any convenient implement until said plug strikes against the seat C. This act uncovers the upper end of channel E, and allows air to enter the keg, as indicated by arrows in Fig. 2. By this means air is kept constantly in contact with the liquor in the keg, which is not an objectionable arrangement

when the entire contents of the keg are drawn off in half an hour or so, as is frequently done in popular places of resort.

When the keg is returned for refilling, the brewer first knocks out the bung in the usual manner, and then inserts a small rod, wire, or nail into the diminished portion *b*, and forces plug D outwardly, until it is restored to its original position, when the bung is at once ready for use again. By this means one bung will suffice for use for a great length of time, and, in case its plug should accidentally become lost, another one can be fitted in the bore B at a very trifling expense.

In the modified form of my invention, as represented in Figs. 3 and 4, the bore B, that contains the sliding plug D, is disposed longitudinally of bung A, as is also the channel E, which latter is about parallel with said bore. This channel E communicates with a short passage, F, whose outer end is securely closed with an immovable plug, G. Furthermore, said passage F communicates with the bore B.

The operation of this modification is essentially the same as that of the device previously described, with the exception that in the latter case the plug D is driven downwardly from the seat C when it is desired to admit air into the keg. (See Fig. 4.)

This arrangement of bore and channel is especially reliable, because the pressure of gas on the lower end of the plug maintains the latter securely against seat C, and thus prevents leakage of gas through the small bore *b*.

The simplest modification of the device is seen in Fig. 5, in which illustration the bung is shown as traversed with a single longitudinal channel, H, into whose lower end a plug, I, is inserted, said plug being secured to the bung with a strap, or chain, or other flexible coupling, J. When this plug I is dislodged by forcing a wire down through the channel H the connection J prevents said plug falling into the liquor in the keg.

When adapted for application to kegs from which liquor is drawn only at intervals the bung is arranged to admit air when the faucet is opened, and at no other time. This arrangement is represented in Figs. 6 and 7; and, by referring to these illustrations, it will be noticed that the outer end of bore B has a tube, K, forced into it, which tube is composed of any suitable material. The aforesaid tube is screw-threaded at *k*, to engage with a short cylinder, L, whose head M is perforated at *m*, to serve as a seat for any suitable form of valve, N, which latter may be composed of any appropriate material. This cylinder is pierced with one or more apertures or slots, O, to admit air through tube K as soon as valve N is withdrawn from its seat *m*, as seen in Fig. 7. Furthermore, said cylinder has a female thread, *l*, tapped in it to receive the screw-threaded stem *p* of cap P, to which cap one end of an elastic thong or spring, R, is attached, the other end of said thong being connected to valve or plug N. By properly manipulating this adjustable cap P *p*, more or less tension can be imparted to the spring R, so as to regulate the action of valve N.

The tube K, with its accessories, can be applied with equal facility either to the horizontal or vertical bore of the bung after the plug D has been forced against the seat C; and in either case said tube acts to automatically admit air to the keg or other vessel the moment the faucet is opened. This admission of air results from the partial vacuum produced in the keg by the escape of liquor therefrom, which vacuum draws valve N away from its seat *m*. The very moment, however, that the faucet is closed the pressure of gas within the keg coacts with the tension of closing device R to instantly seat the valve N, and prevent any further entrance of air.

The members M and P may be varied in their construction, or else entirely omitted, in which case the valve must be applied to the end of tube K.

I claim as my invention—

1. A barrel-bung provided with a channel, within which is fitted a sliding plug that is shifted or dislodged from said channel for the purpose of admitting air to the liquor-receptacle by a force applied externally with reference to said receptacle, substantially as herein described.

2. A barrel-bung provided with bore B *b*, seat C, sliding plug D, and channel E, which latter communicates with said bore B, substantially as herein described.

3. The detachable air-tube K and automatically-operating valve N, for application to the bore B of a vent-bung, substantially as herein described.

4. The combination of air-tube K *k*, cylinder L *l* M *m* O, valve N, retracting device R, and adjustable cap P *p*, as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

ALOIS J. KLEIN.

Witnesses:
JAMES H. LAYMAN,
S. F. STURDEVANT.