(No Model.) 2 Sheets—Sheet 1.

W. NICKLAS & E. BEYER.

DEVICE FOR VENTING BARRELS.

No. 387,902. Patented Aug. 14, 1888.

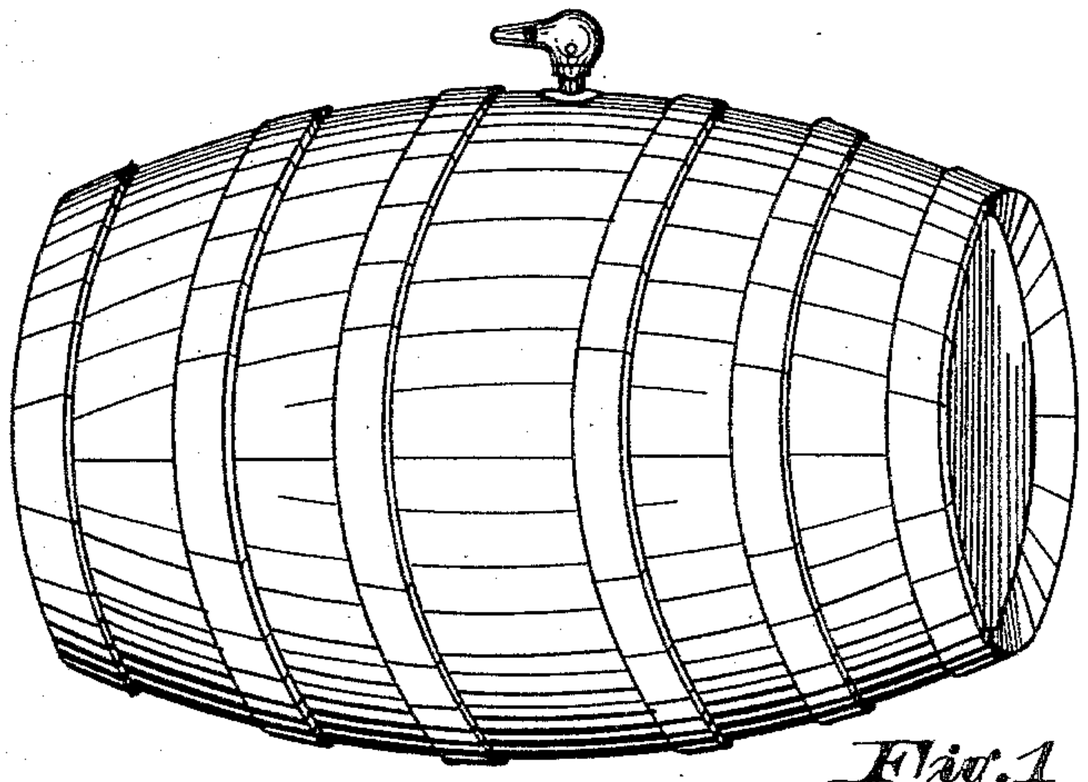

Fig. 1

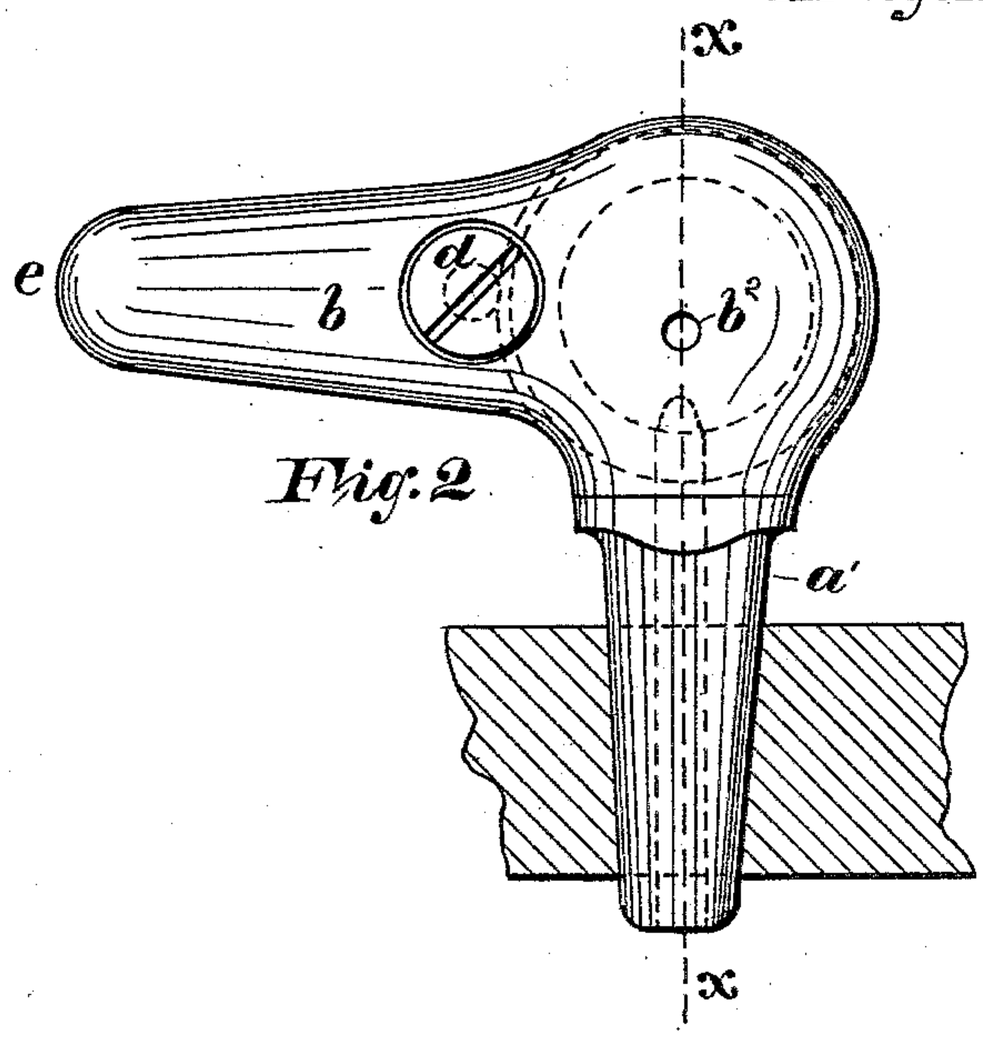

Fig. 2

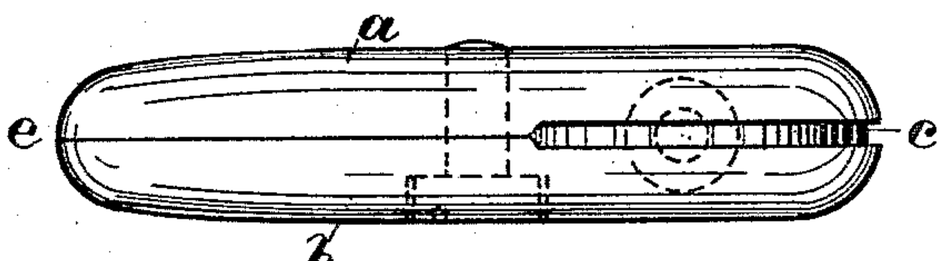

Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

W. NICKLAS & E. BEYER.

DEVICE FOR VENTING BARRELS.

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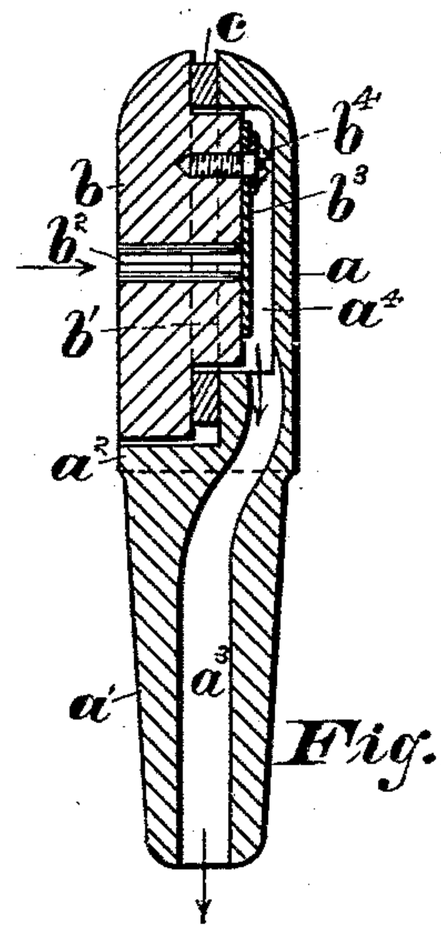

Fig. 4

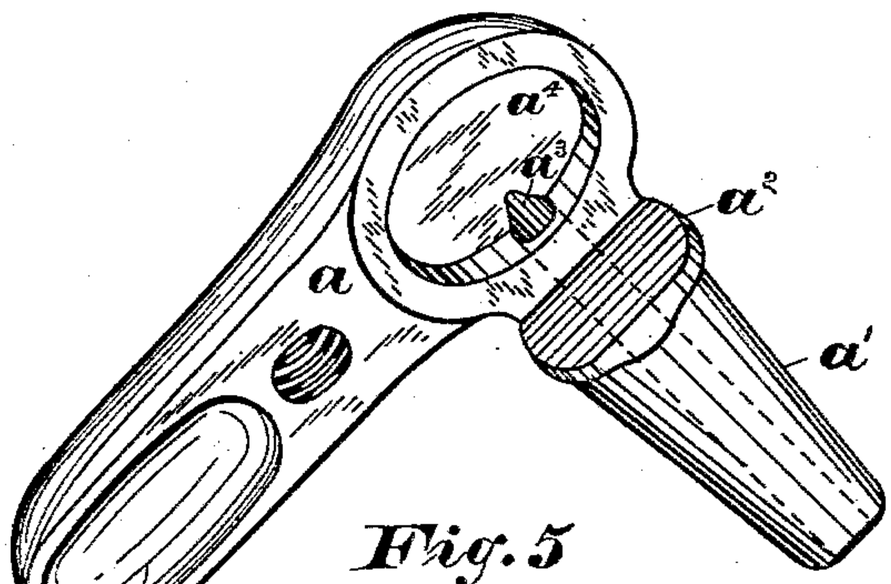

Fig. 5

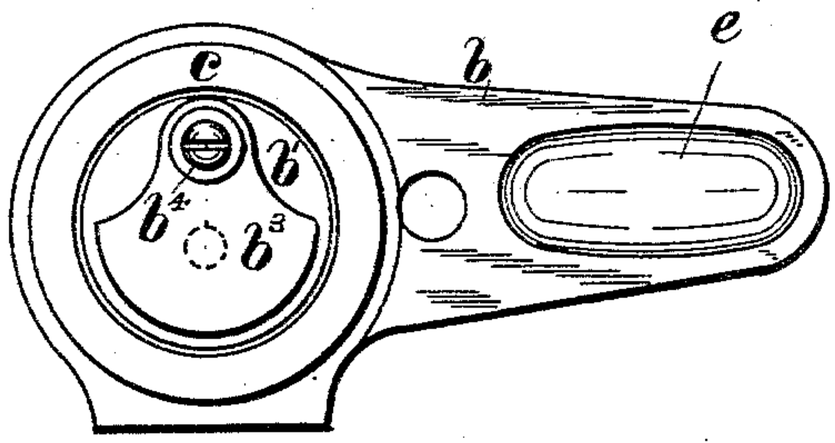

Fig. 6

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UNITED STATES PATENT OFFICE.

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DEVICE FOR VENTING BARRELS.

SPECIFICATION forming part of Letters Patent No. 387,902, dated August 14, 1888.

Application filed November 2, 1886. Serial No. 217,763. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM NICKLAS and EMIL BEYER, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Devices for Venting Barrels; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention is designed to provide a venting device for barrels containing beer and other liquors, to equalize the air-pressure within and without said barrel, and thereby permit the proper flow of the liquid, of simple construction, so that the same may be readily cast and put together with but little labor and expense; also one that, because of its simplicity, is not liable to become disarranged and which will not become foul and dirty, but still may be readily cleaned should it be desirable.

The invention is further designed to provide a vent which may be readily inserted in a barrel without cutting away any considerable portion of the same, and which also may be easily loosened and withdrawn from the barrel.

In the views shown in the accompanying two sheets of drawings, Figure 1 is a perspective view of a barrel to which is attached the improved vent. Fig. 2 is an enlarged side elevation of the vent and a section of the barrel. Fig. 3 is a top view of the vent. Fig. 4 is a section of the vent, taken through line x in Fig. 2. Fig. 5 is a perspective view of one of the separable sections of the vent, and Fig. 6 is a plan of the other of said separable sections.

Similar letters of reference indicate corresponding parts in each of the several views.

The venting device shown in the above-described views consists of two separable portions, $a\,b$, one of which, a, is angularly formed, having a tapering tubular portion, a', on which is a shoulder, a^2, and through which extends the venting-duct a^3, as shown in Figs. 4 and 5, which opens into a chamber, a^4.

The portion b of the vent is formed as indicated more especially in Figs. 4 and 6, and is provided with a raised portion, b', having an opening, b^2, therethrough, said raised portion projecting into the chamber a^4 in the larger portion of the vent, leaving a space between the bottom of said chamber and the top of the raised portions with which the duct a^3 communicates, as shown in Fig. 4.

A rubber valve-piece, b^3, covers the opening b^2 in the raised portion, being secured to the top of said portion by a washer and screw, b^4. Around said raised portion is arranged an annular rubber packing-ring, c, which protects the joint when the separable parts of the vent are screwed together by means of the screw d.

When the vent is applied to a barrel, the tapering tubular portion is driven into the barrel at the bung-hole, or at any suitable point, as indicated in Fig. 1, with but little difficulty, the peculiar shape of the said tubular portion readily allowing the insertion of the same.

In driving the vent the projecting portion e, formed by the united separable portions, serves as a handle by which the vent may be held, both in driving in the vent and twisting the same from the barrel. The projecting portion e extends preferably at right angles from the tubular portion to secure the most powerful leverage in twisting and loosening the vent from the barrel.

As indicated in Figs. 5 and 6, the extension of the portions a and b which form the handle e are cavities e', which are formed by removing the surplus metal, thereby materially lightening the weight of the vent without lessening its strength to withstand the force necessary to drive it into the barrel or to withdraw it therefrom. As will be understood, the nearer the holding-screw is to the valve-chamber so much greater will be the pressure of the separable portions upon the packing washer or ring c, thereby preventing any leakage at the joint.

From Fig. 4 it will be apparent that the air and gases from the barrel cannot escape through the duct a^3 and opening b^2, as the rubber valve closes the mouth of said opening, and the increased pressure from the barrel only acts to close the valve more tightly, as the pressure is upon the top thereof; but the air can read-

ily flow into the barrel through said opening and duct, as the valve may easily be raised by the inflowing air which passes through the vent, as indicated by the arrows in Fig. 4.

Any suitable material other than rubber, which possesses the requisite qualities, may be used for the valve.

The form of construction of the separable portions of the vent, as hereinbefore described and as illustrated, in which a raised portion free from any thread on one of said portions projects into a cavity in the other of said separable portions, greatly simplifies and cheapens the construction of the vent, as all of the parts may be cast completely finished, with the exception of forming a small thread to receive the holding-screw *d*, which is independent of and separate from the venting-chamber. This construction has a manifest advantage over those vents in which the valve is attached to a threaded cap which screws into the venting-chamber, since the thread is certain to become worn, and consequently not air-tight, thereby rendering the vent useless. In my construction the portions which form the venting-chamber do not screw one into the other, being smooth and devoid of any thread, but are held together by the screw *d*, the joint between said engaging and entering portions being made air-tight by the packing-ring *c*. This arrangement also saves much time and labor in putting the parts together and in separating the same for cleaning.

Another feature of the vent is the relation of the valve to the duct which connects the venting-chamber with the interior of the barrel. By reference to Fig. 4 it will be seen that the valve does not extend at right angles to the said duct, but in a line therewith and opens toward the same, the holding-screw b^4 being on the opposite side of the valve, so that while the pressure from the barrel that holds the valve over the valve-opening b^2 strikes directly upon the top of said valve, thus preventing the inflow, upon the reduction of the said pressure below one atmosphere the valve opens on the side toward the mouth of the venting-duct, and thus acts more promptly and effectually. The valve which covers the valve-opening consists of an unslited plate or piece of flexible material, and is fastened to the raised projection b' at but one point, leaving the same free on every other side thereof, as indicated in Figs. 4 and 6.

As thus constructed and arranged the valve may be readily cleaned without removing the same entirely, because of its being attached on but one side or at one point, so that it may be raised or lifted from the plate to which it is attached and cleaned on both sides thereof. This arrangement of the valve is also more satisfactory in the results obtained, as it responds immediately to any difference in pressure, while in those valves formed by drawing or stretching a piece of rubber or a rubber disk over the valve-opening the tension and elasticity of the rubber, because of its being fastened all around the outside edge thereof, or at two points on opposite sides of the valve-opening, causes a resistance which must be overcome before the valve responds to the difference in pressure; hence, owing to this slow action of the valve, much difficulty is experienced in drawing off the liquor. In fact, where vents having valves of this description have been used, it has been found necessary when the barrel has been about half empty to pull out the vent to allow the liquor remaining in the barrel to flow freely, the valve acting as a hinderance, rather than an aid, to the venting process.

By the use of the valve employed in our vent the liquor flows as freely as if the interior of the barrel communicated directly with the surrounding air until all of the liquor has been drawn off, while at the same time the valve effectually prevents the escape of the liquor from the barrel through the vent.

Having thus described our invention, what we claim is—

In a vent, the combination of an angular portion, *a*, having a tapering portion adapted to be driven into a barrel, and a chamber into which the duct in said tubular portion opens, a portion, *b*, adapted to be secured to said portion *a*, forming a handle, *e*, which projects at right angles from said tubular portion, and provided with a raised portion having an opening therethrough and projecting into the chamber in the portion *a*, leaving a space therein, a valve arranged in said space and covering the opening in said raised portion, a packing-washer, and a fastening device, *d*, for holding said separable portions together, for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 29th day of October, 1886.

WM. NICKLAS.
EMIL BEYER.

Witnesses:
FREDK. F. CAMPBELL,
FREDK. C. FRAENTZEL.