

(No Model.)

L. WAGNER.
VENT BUNG.

No. 516,667.

Patented Mar. 20, 1894.

Fig. 1.

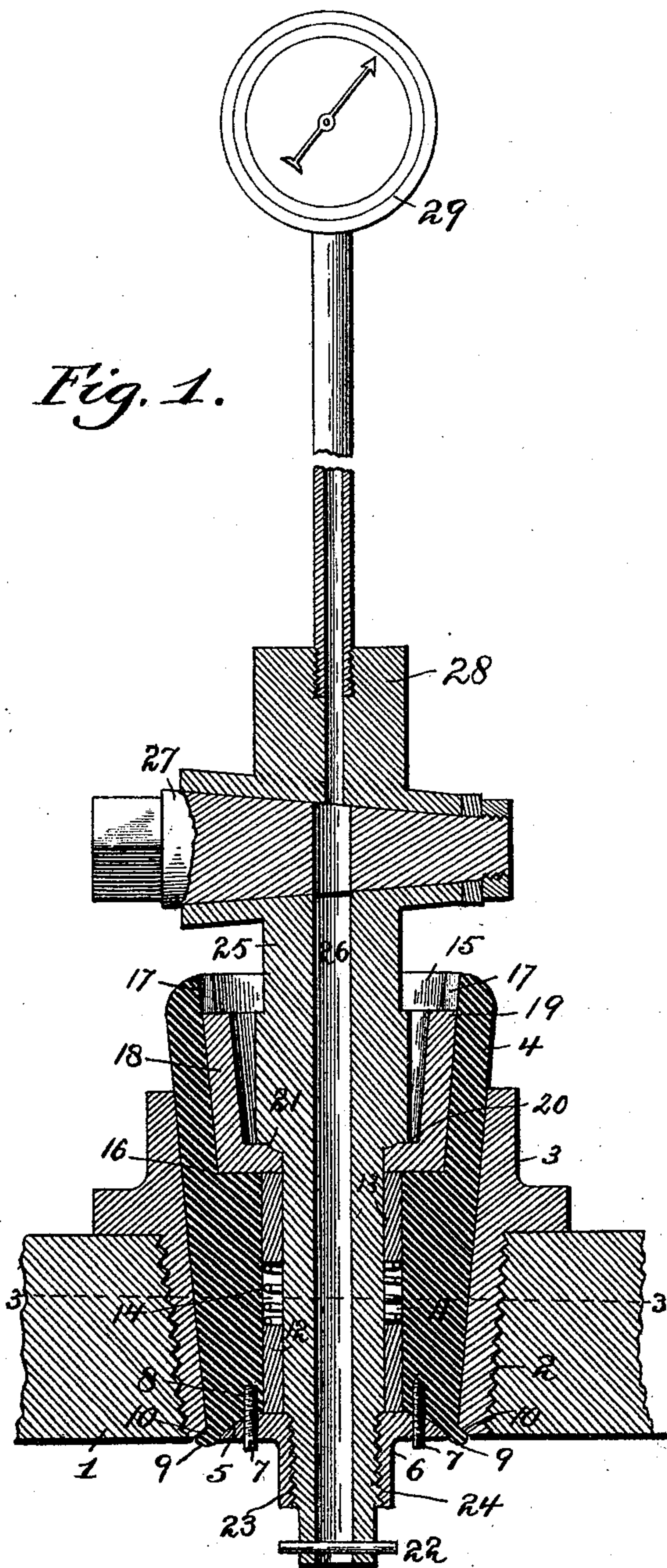


Fig. 2.

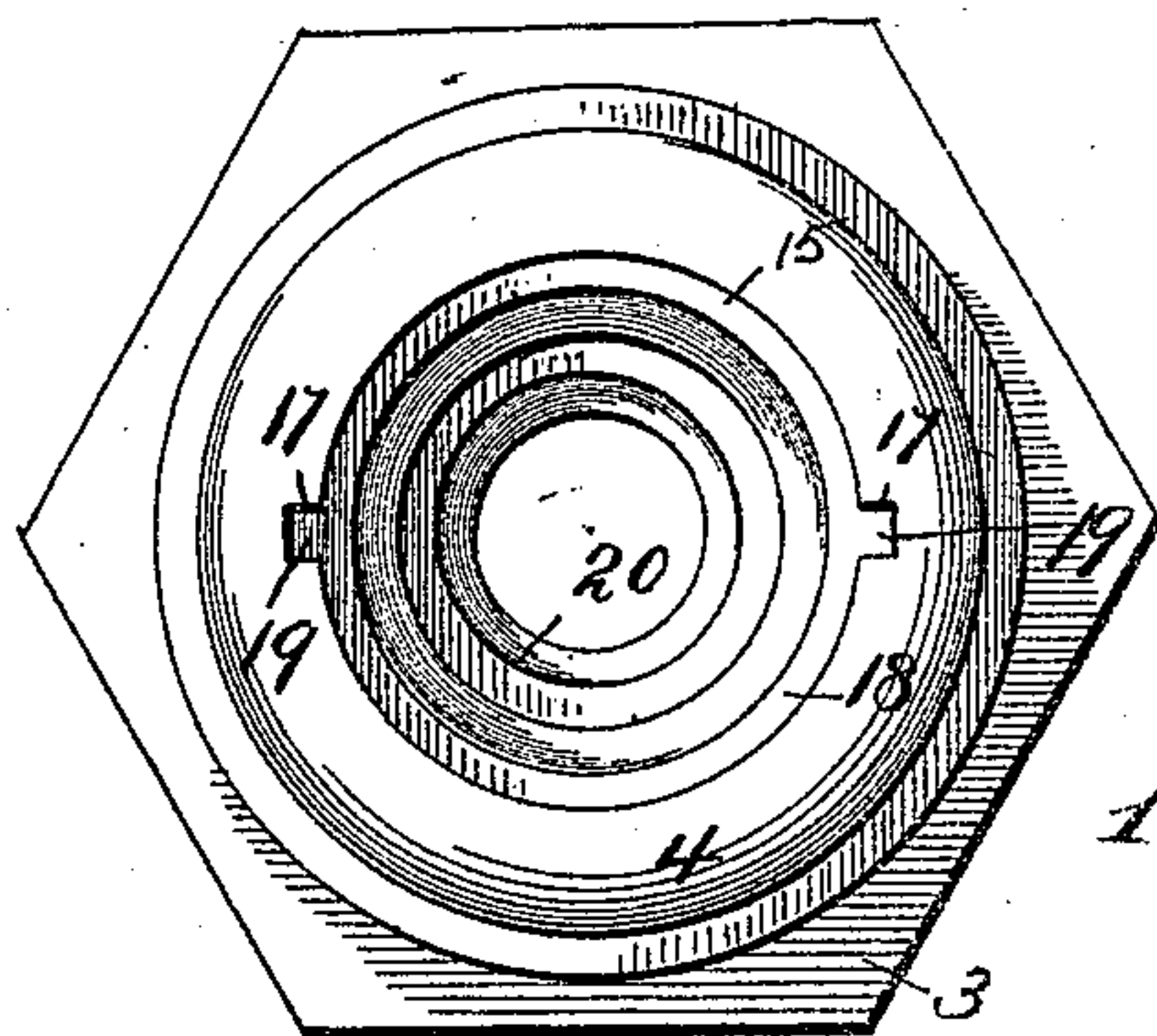
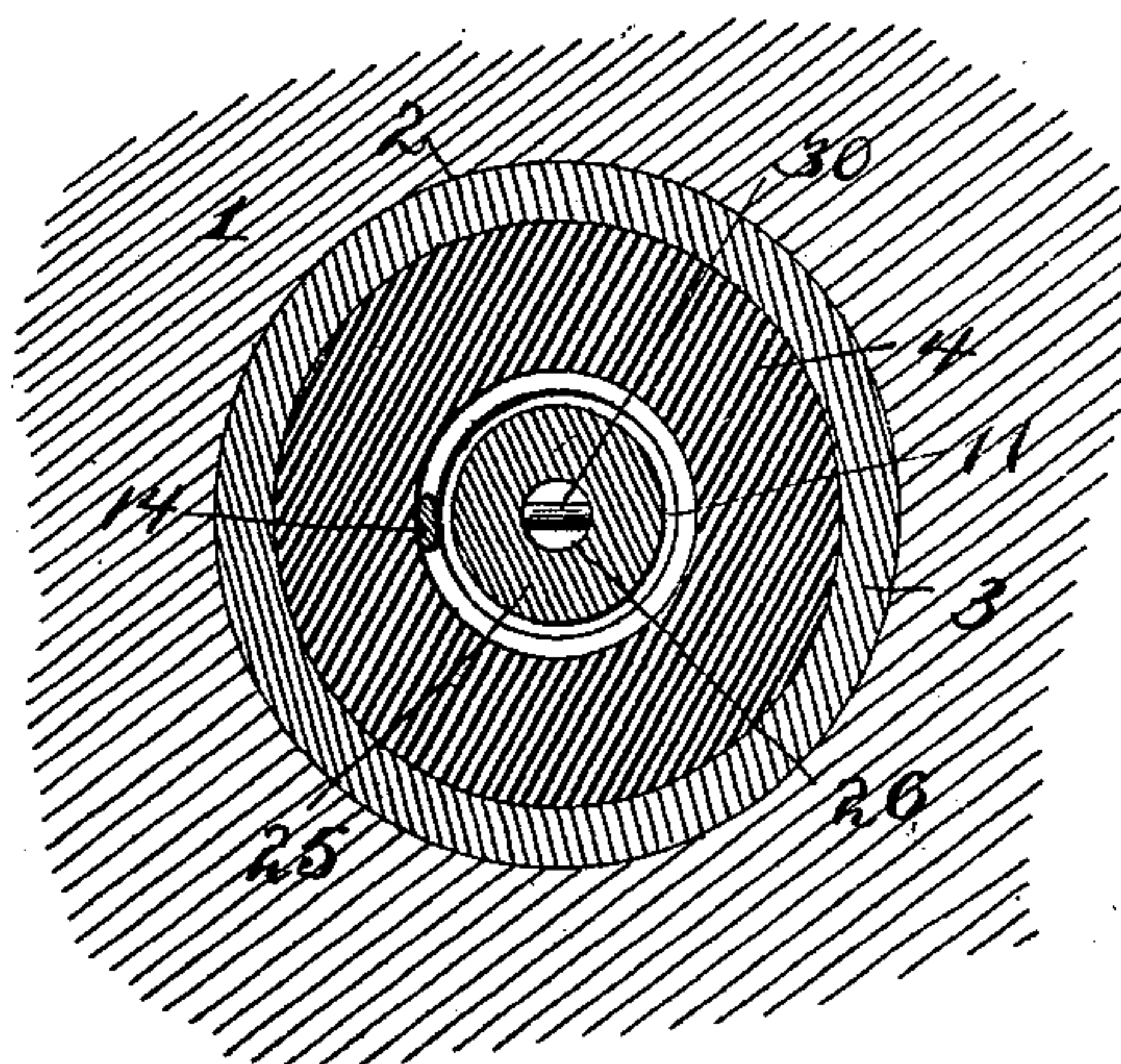


Fig. 3.



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UNITED STATES PATENT OFFICE.

LOUIS WAGNER, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO
JOHN MARR, OF SAME PLACE.

VENT-BUNG.

SPECIFICATION forming part of Letters Patent No. 516,667, dated March 20, 1894.

Application filed June 23, 1893. Serial No. 478,593. (No model.)

To all whom it may concern:

Be it known that I, LOUIS WAGNER, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Vent-Bungs; and I do 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.

In the manufacture of beer it is necessary, when the product has reached a certain stage, and is ready for what may be termed its second fermentation, to perform the operation which is called "bunging." That is to say the beer is placed in a large cask and tightly closed so as to confine all of the generated gas, or so as to permit such gas to escape only when a sufficiently high pressure has been reached.

It is the object of my present improvements to enable the bunging to be performed readily and without that injury to the cask which results in driving in the bung with a heavy sledge, and also so as to facilitate the connection of the cask with a neighboring cask for the interchange of the carbonic-acid gas, at the same time insuring that the bung shall be sufficiently gas tight and secure to resist the heavy pressure generated within the cask.

Having such objects in view my invention consists in the parts and combinations thereof hereinafter more particularly set forth and claimed.

In order to make my improvement more clearly understood I have shown in the accompanying drawings means for carrying the same into practical effect, without however limiting the invention in its useful applications to the particular construction which, for the sake of illustration, I have delineated.

In said drawings—Figure 1 is a vertical sectional view showing a portion of a cask having a bung embodying my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a horizontal section on line III—III of Fig. 1.

Referring to the drawings, 1 indicates a portion of the cask provided with an aperture 2, in which is preferably fitted an iron bushing 3. The latter is screwed into the cask and its central aperture forms the bung hole thereof.

This aperture tapers slightly inward as shown in Fig. 1.

4 is a bung of elastic material such as vulcanized india-rubber or its equivalent, adapted to fit neatly in the tapered bung bushing, being to that end correspondingly tapered as indicated. The lower end of this elastic bung is provided with a seat 5, preferably cone-shaped as indicated in which is adapted to fit a spreading plate or boss 6 which is preferably of corresponding conical shape. Said boss is formed with one or more projections 7 adapted to enter a recess or recesses 8 formed in the elastic bung, to prevent the rotation therein of the said spreading boss. The latter serves, when pressure is applied longitudinally of the bung as hereinafter more particularly explained, to expand the bung and spread its lower end or lip 9 outward into or over the slightly countersunk edge 10 of the bushing.

Above the seat 5 the bung is formed with a chamber 11 in the lower portion of which is situated a ring 12, in the upper part of which is contained a similar ring 13, and in the middle portion of which and between said rings is arranged a spring 14. The ring 12 rests upon the spreading plate 6, and the spring serves to separate the two rings when longitudinal compression upon the latter is removed or relaxed. These rings serve to prevent the inward collapse of the bung when its ends are forced together, and compel the middle portion of the bung to be compressed tightly against the interior of the bushing 3.

In the upper portion of the bung is formed a chamber 15, of slightly conical or tapering form as indicated, and of greater diameter than the chamber 11 from which it is separated by a horizontal shoulder 16. The chamber 15 is provided with one or more grooves 17.

18 is the upper spreading plate or device consisting preferably of a hollow conical shell adapted to fit the chamber 15 and having external ribs 19 which are received in the grooves 17. In the spreading device 18 is formed a seat 20 on which is adapted to rest a shoulder 21 formed on a longitudinal shaft or sleeve 22. The lower end of the latter is formed with a screw thread 23 adapted to engage a corresponding thread 24 in the lower spreading

plate 6. The sleeve 22 is formed with a squared head 25 or other equivalent means for turning it. I may also make the sleeve 22 hollow, when the bunging device is to be used to connect the cask with another cask, or as a means of exit when the beer is racked off, such aperture of the sleeve being indicated as 26, and at its upper end I provide the sleeve with a shut off cock 27, and above the latter with a screw-threaded extension 28 for the connection of a pipe, coupling or hose for conveying the gas or beer. I also prefer to provide the sleeve 22 with a pressure gage 29 which will serve, when the extension 28 is connected with a suitable gas-controlling apparatus and the cock 27 opened, to indicate the gas pressure in the cask to which the bung is applied.

A gas-controlling apparatus suitable for connection with the extension 28 forms the subject of another application of even date herewith, in which I am a joint applicant.

In order to prevent the shaft 22 from being screwed upward so far as to entirely release the plate 6 I provide a stop of suitable character such as a transverse pin 30 passing through the lower end of the shaft 22 and adapted to engage the under side of the part 6 when the shaft or sleeve 22 is in its uppermost position and the bung unexpanded.

Such being the preferred construction of my improved bung, although such construction may be departed from in many respects, as will occur to those skilled in the art, while still preserving the essential features and the spirit of my invention, its mode of operation is as follows: To bung a cask the device is inserted in the bushing 3 and the head 25 is turned by hand or with a wrench sufficiently to draw slightly together the parts 6 and 18. This causes the lip 9 of the bung to be spread outward so as to engage the countersunk edge 10 of the bushing and keep the bung from outward movement. The further turning of the shaft 22 forces the spreading device 18 still more firmly down upon the shoulder 16 of the bung so as to compress and expand outward that part of the bung which surrounds the chamber 11. The spring 14 is thereby necessarily compressed between the rings 12 and 13. The conical part 18 is at the same time carried downward in the conical bushing 3 and tightly presses against the latter that portion of the bung which surrounds the chamber 15.

I thus provide a bung the bottom edge of which is not only expanded slightly within the cask, but all portions of which are tightly

forced against the interior of the cask bushing thereby enabling the bung to remain secure and gas tight under a very heavy pressure. At the same time the bung may be quickly applied and removed by a slight turn of the shaft 22 with little expenditure of force. When it is desired to remove the bung the said shaft is turned backward, whereupon the spring 14 will force apart the upper and lower spreading or expanding devices and the bung will become loose in the bushing 3.

Having thus described my invention, what I claim is—

1. In a bunging apparatus the combination with the expansible bung, of spreading plates or devices at or near the inner and outer ends of the bung, one of said plates having a screw thread and engaging the bung by suitable projections to prevent rotation, and a hollow rotary shaft having a transverse cock and a screw thread engaging the said screw threaded plate and engaging by a suitable shoulder the other plate, substantially as set forth.

2. In a bunging apparatus the combination with a conical expansible bung, adapted to fit within a bushing or bung-hole, of a spreading plate engaging the outer end of the bung and having a seat 20, a spreading plate having a screw-thread 24 and engaging the inner end of the bung, and the sleeve 22 having the shoulder 21, the duct or aperture 26, the transverse cock 27, and the screw thread 23 at its inner end, substantially as set forth.

3. The combination with the internally tapered bushing 3, of the externally tapered elastic sleeve 4 having the chamber or recess 15 and shoulder 16, the conical spreading plate 18 in said recess, resting on said shoulder and parallel with and entering within said bushing the plate 6 having a screw thread and engaging the bung to prevent rotation, and the hollow shaft 22 having the shoulder 21 and the screw thread 23, substantially as set forth.

4. The combination with an elastic bung having a recess at its outer end, and a central chamber 11, of a conical spreading plate in said recess, a spreading plate at the inner end of the bung, means for forcing said plates together, and a ring 13 in said chamber between the plates, substantially as set forth.

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

LOUIS WAGNER.

Witnesses:

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CHAS. W. PARKER.