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PATENTED APR. 21, 1903.

J. H. SCHMAHL & A. ZIMMERMANN.
DOUBLE ACTING VALVE FOR BEER VATS.

APPLICATION FILED MAR. 21, 1902.

NO MODEL.

2 SHEETS--SHEET 1.

Fig. 1.

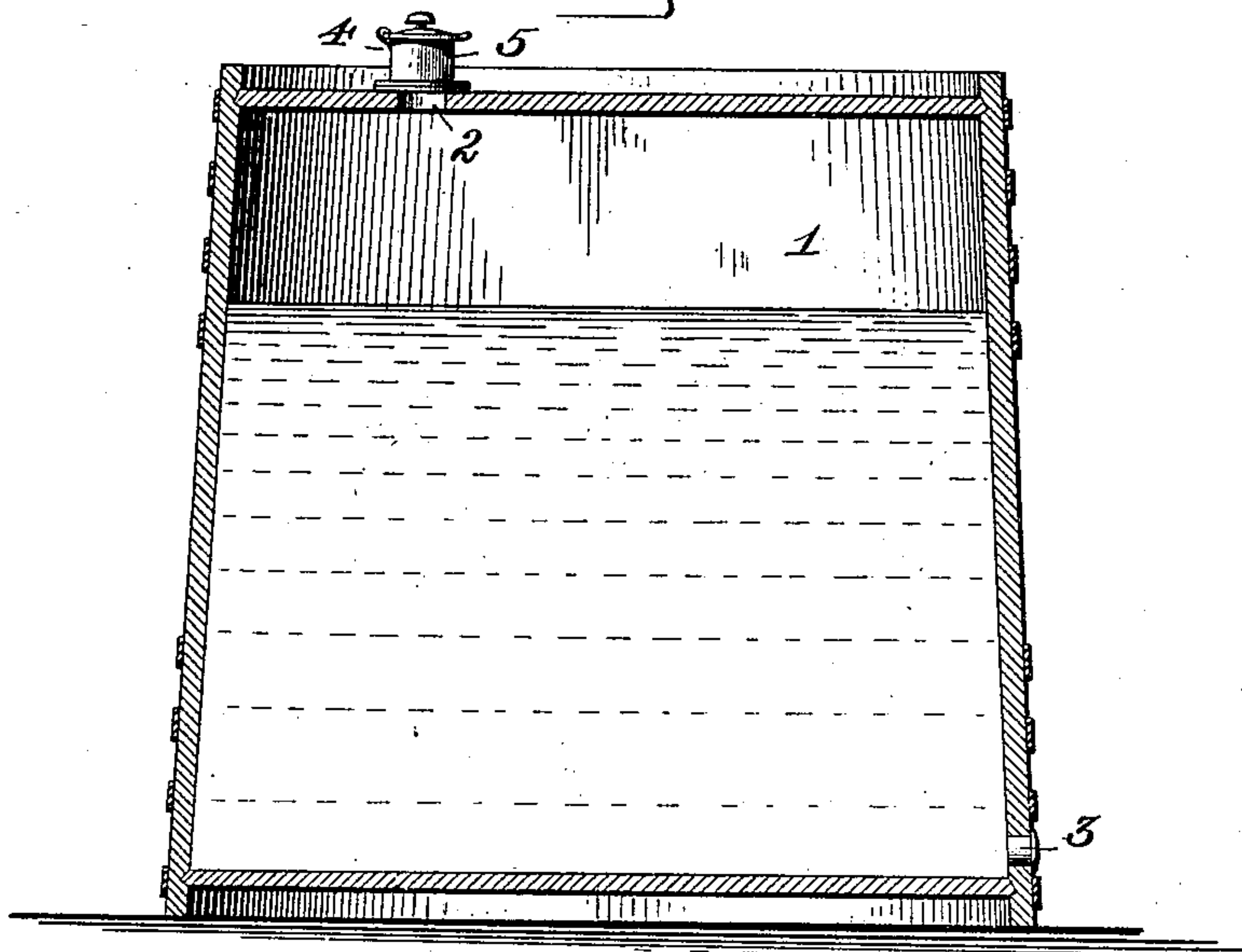
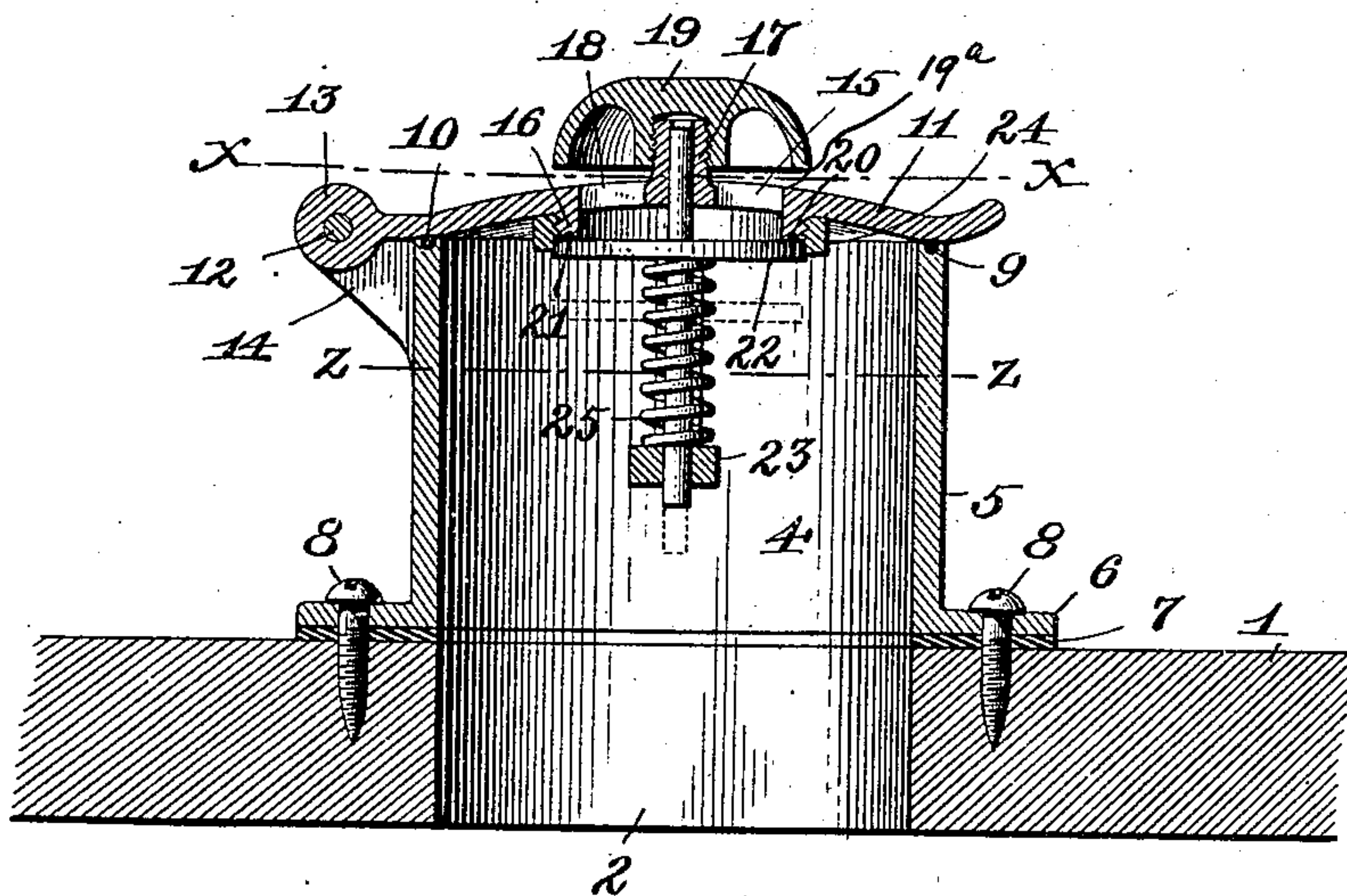


Fig. 2.



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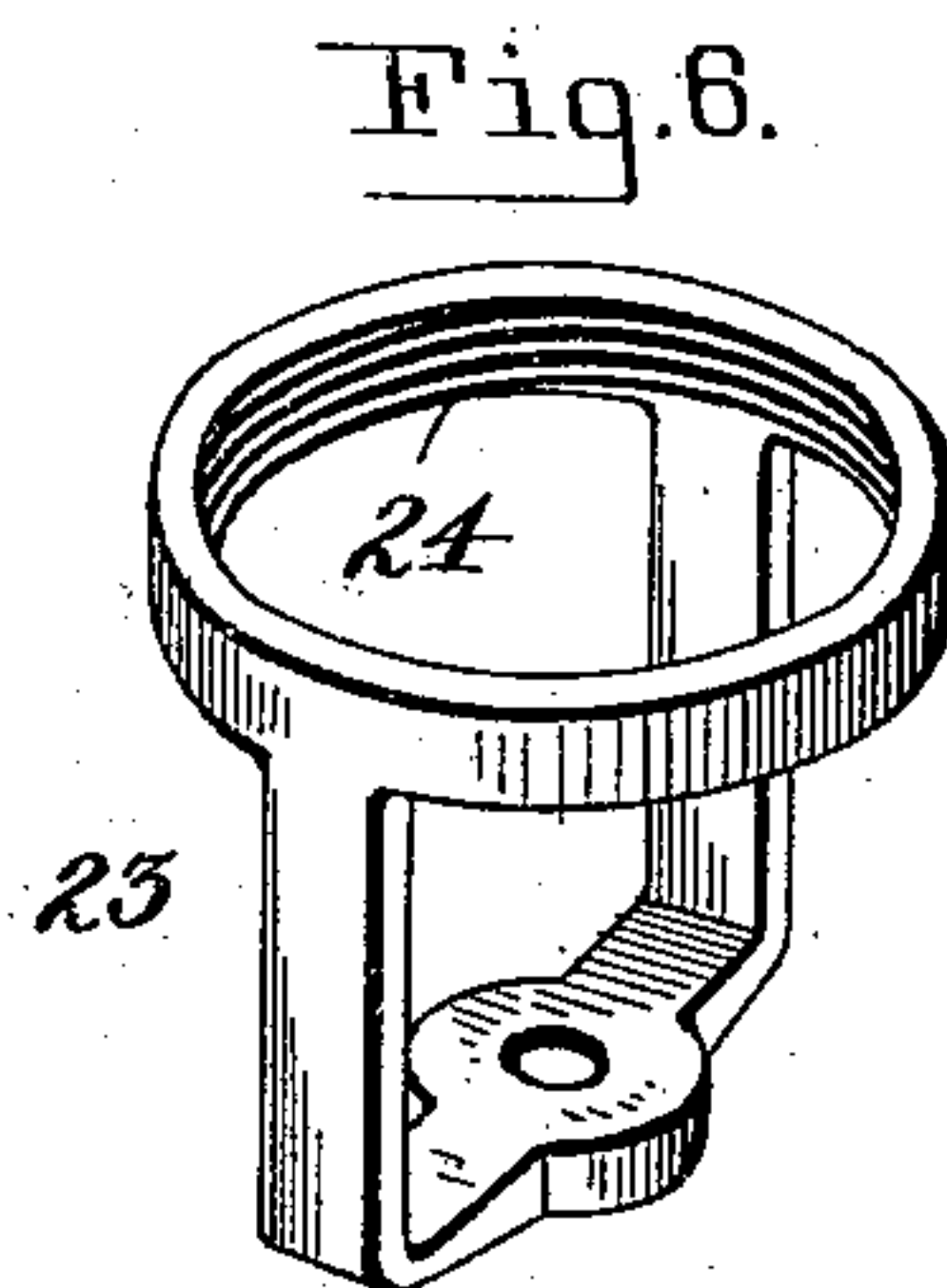
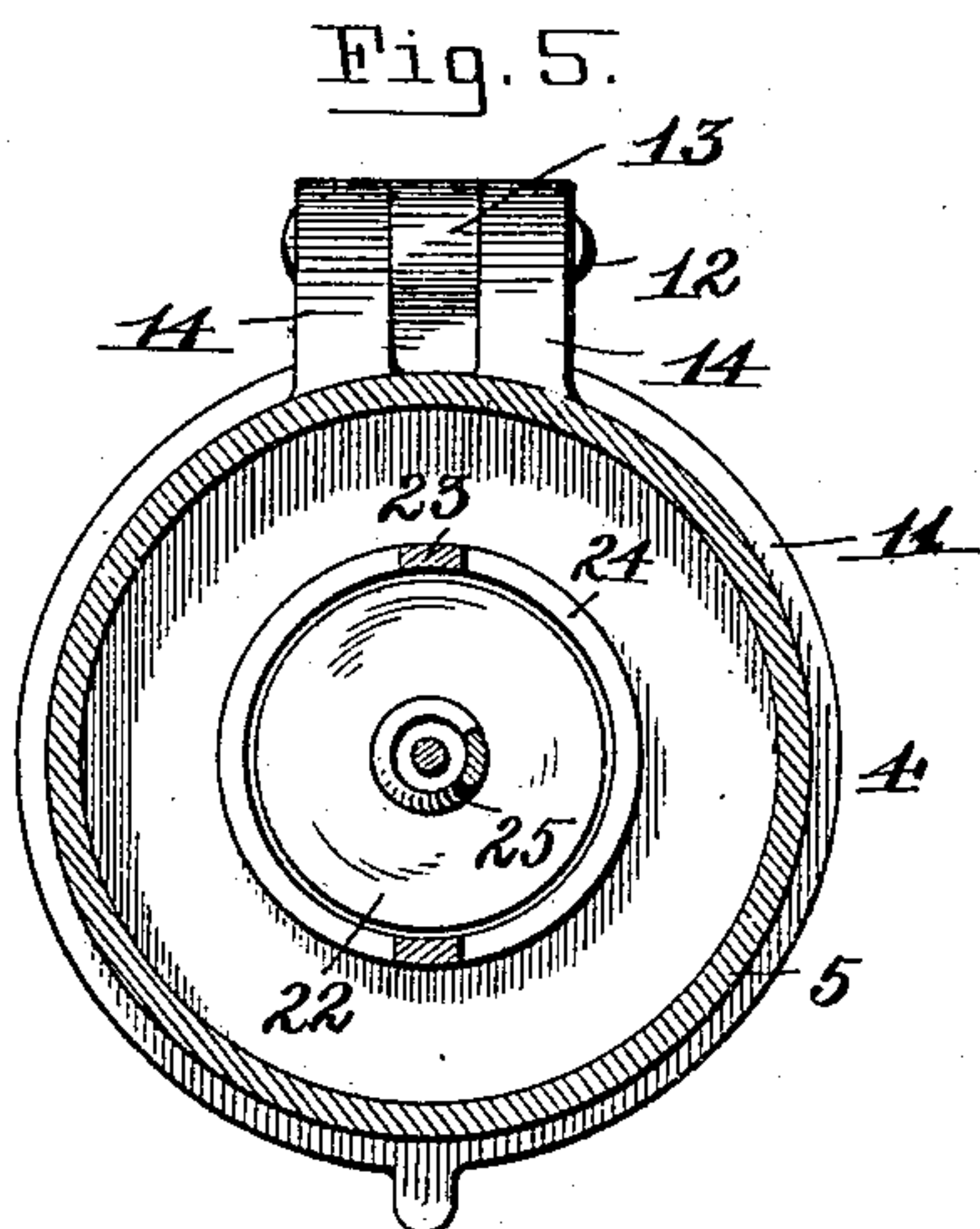
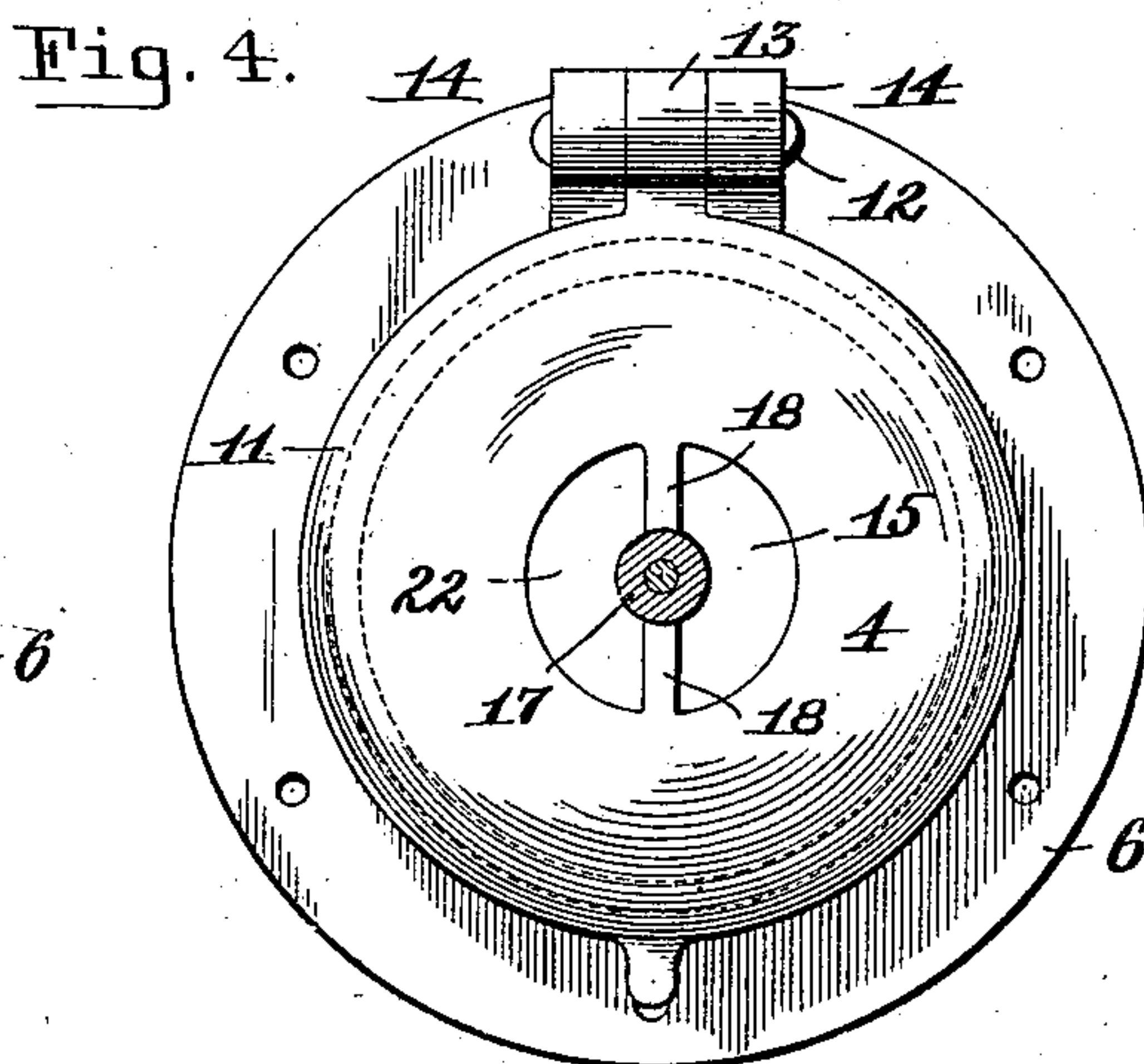
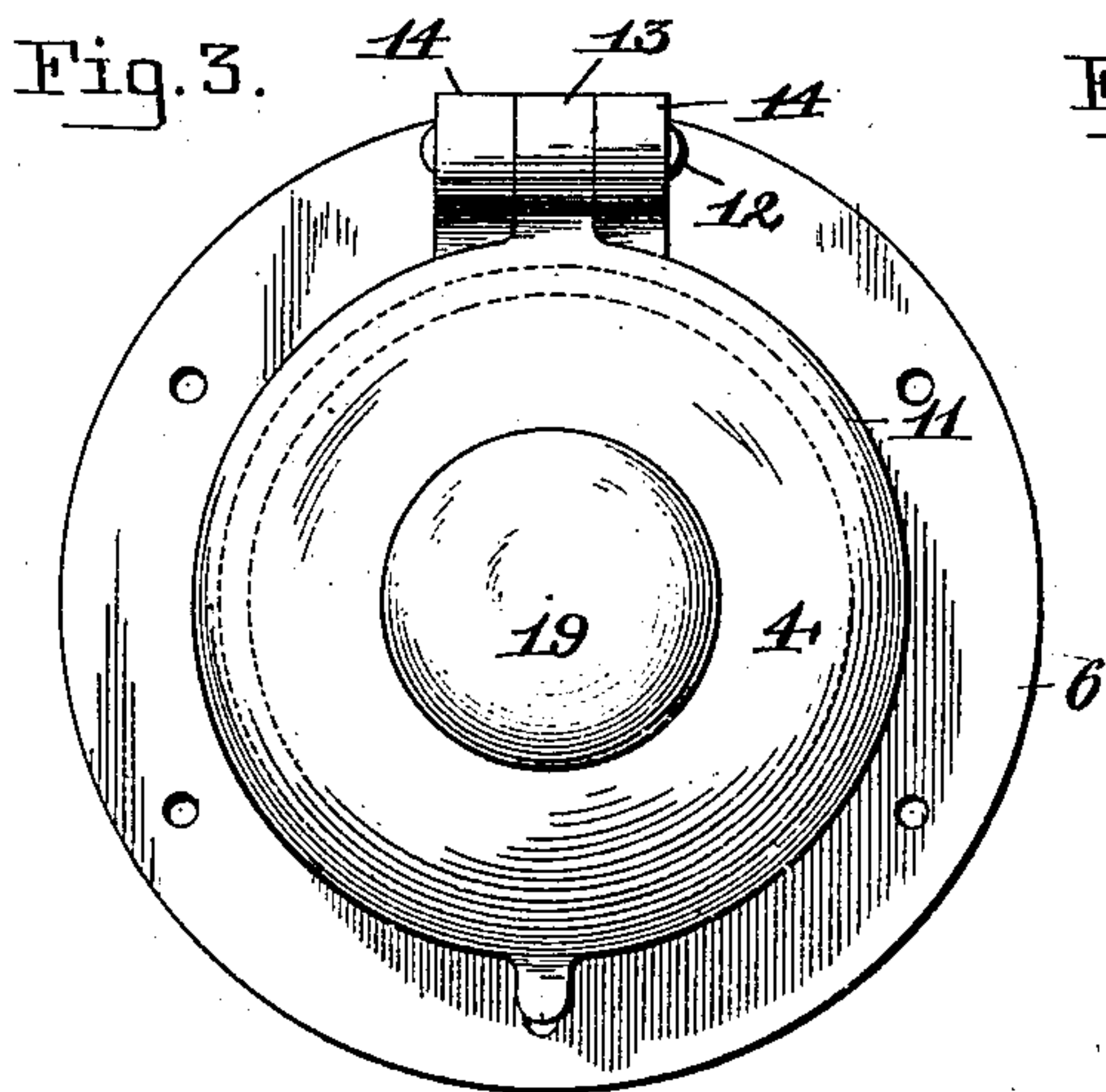
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UNITED STATES PATENT OFFICE.

JOHN H. SCHMAHL AND ADOLPH ZIMMERMANN, OF BUFFALO, NEW YORK.

DOUBLE-ACTING VALVE FOR BEER-VATS.

SPECIFICATION forming part of Letters Patent No. 725,782, dated April 21, 1903.

Application filed March 21, 1902. Serial No. 99,273. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. SCHMAHL and ADOLPH ZIMMERMANN, citizens of the United States, and residents of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Double-Acting Valves; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention has for its object to provide a simple, effective, and cheaply-constructed double-acting valve particularly designed for use on beer-vats in which beer is stored and the generated gases discharged through said valve when they exceed a certain pressure. It is also designed to permit air to be drawn into the vat when the beer is drawn from the lower end thereof; and it consists in certain peculiarities of construction and combination of parts, as will be hereinafter described, and particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a central vertical section of a storage-vat for beer having our improved double-acting valve secured thereto. Fig. 2 is a central vertical section through the valve taken as a whole. Fig. 3 is a plan view thereof. Fig. 4 is a horizontal section taken on line *xx*, Fig. 2. Fig. 5 is a horizontal section taken on line *zz*, Fig. 2, looking up. Fig. 6 is a detached perspective view of the guide-yoke in which the stem of the valve is guided.

Referring to the drawings in detail, like numerals of reference refer to like parts in the several figures.

The numeral 1 designates a storage-vat in which beer is stored to age, and it is provided in its head with a bung-hole 2, in which it is customary to loosely fit a bung, which will be driven out of its seat when gas is generated in the vat; but as this is not only uncertain as to the pressure required to drive the bung from its seat, but also uncertain as to the time when the gases are generated to a pressure which is sufficient to do so, it is very unsatisfactory and requires continual attention, since it is essential that the bung-hole be closed at all times to prevent the foul air from coming in contact with the beer, and more particularly to prevent the germ-infected drippings of the ice-covered pipes

from entering the vat and carrying dirt and other foreign matter with it. The vat is also provided with an outlet 3 near its lower end, from which the beer is drawn or through which, if desired, the vat may be filled under pressure.

To overcome the objections above stated, we provide the double-acting valve 4, considered as a whole, which we secure to the vat to cooperate with the bung-hole 2 of the same. This valve consists of a casing 5, preferably cylindrical in form and open at both ends, and it has a flange 6 at its lower end, by means of which it is secured to the vat. A rubber gasket 7 or other suitable packing is interposed between said flange and the vat to prevent the escape of gas from the latter, it being essential that a certain amount of carbonic-acid gas be retained in the vat—say, for instance, one-half pound per cubic inch. Screws 8 pass through the flange 6 and gasket 7 and enter the head of the vat to firmly secure and pack the casing at this point. If desired, the casing may be provided with an external thread at its lower end, which may be screwed directly into the head of the vat, and thus the gasket 7 may be dispensed with.

In the upper edge of the casing a groove 9 is formed, and therein an annular gasket 10 is fitted. The groove is preferably semicircular in section, and the gasket circular, so as to extend above the edge of the casing.

A cover 11, which is concavo-convex and circular in form and somewhat larger in diameter than the casing, is hinged to the latter by a pivot-pin 12, passing through ears 13 and 14, formed on the cover and casing, respectively. This cover acts as the outwardly-moving valve and is normally held against the annular gasket 10; but when the gases in the vat exceed a certain pressure—say, for instance, one-half pound per cubic inch—it is swung open and allows the excess pressure to escape. The cover or outwardly-moving valve has a central aperture 15, and on its inner side it has an annular flange 16, bounding said aperture. A centrally-bored boss or hub 17 is positioned centrally in said aperture and connected to the main portion of the cover by radial arms 18. Said boss projects above the convex surface of the cover and is externally threaded to receive a

correspondingly-threaded hood or shield 19, which is preferably bell-shaped and larger than the aperture in the cover 11 which it is designed to cover. An air-passage 19^a is formed between the lower end of the hood and the outwardly-opening valve, and this passage permits the escape of gases and admits air therethrough. It also prevents drippings, dirt, or other foreign matter from entering the vat through the aperture in the outwardly-opening valve. As the drippings from the ceiling strike the hood or shield the water is shed onto the cover and from the cover directed over the projecting edge thereof to the top of the vat. The annular flange 16 is provided with a groove 20, in which a rubber gasket 21 is held, and this flange, with the gasket, acts as a valve-seat, against which a disk valve 22 is seated.

The numeral 23 designates a guide-yoke having at its upper end an internally-threaded annulus 24, designed for connection with the flange 16 of the cover 11, which is externally and correspondingly threaded. The guide-yoke is thus firmly held in proper position with relation to the valve 22, which latter has a valve-stem projecting from opposite sides, and which stem is guided in the centrally-bored hub 17 of the cover 11 and in the lower end of the guide-yoke 23. A spiral spring 25 surrounds the stem below the disk valve and bears with one end against the under side of the latter and with its other end against the guide-yoke, thus serving to keep the valve seated under normal conditions. It is thus seen that the inwardly-opening valve is carried by the outwardly-opening valve, and it is actuated when beer is being drawn from the vat, which allows air to enter the same and prevents the forming of a vacuum, which is also detrimental to the proper treatment of beer.

It is obvious that this invention is as readily applicable to any other vats or tanks in which such a device is desirable and that it is susceptible to minor details of construction without departing from the essence of our invention.

Having thus described our invention, what we claim is—

1. The combination of an outwardly-opening valve having an aperture therein, an inwardly-opening valve designed to close said aperture, and a shield secured to said outwardly-opening valve, said shield being po-

sitioned above the said aperture and separated from the outwardly-opening valve by a passage, substantially as set forth.

2. The combination of an outwardly-opening valve having an aperture and a hub located in the center of said aperture and connected to the main portion of the valve by arms, a shield secured to said hub and designed to prevent the entrance of foreign matter through said aperture, and an inwardly-opening valve carried by said outwardly-opening valve and designed to close said aperture, substantially as set forth.

3. The combination of an outwardly-opening valve having an aperture therein and an annular externally-threaded flange on its inner side, a guide-yoke having an internally-threaded annulus at its upper end designed for connection with said flange, an inwardly-opening valve seated against said flange and having a stem guided in said guide-yoke, and a spiral spring surrounding said stem and bearing with one end against said valve and with its other end against said guide-yoke, and serving to keep the said inwardly-opening valve normally against its seat, substantially as set forth.

4. The combination with the casing, of a cover hinged thereto and serving as an outwardly-opening valve, said cover having an aperture and a centrally-bored hub located in the center of said aperture and connected to the main portion of the cover by radial arms, and having also an externally-threaded annular flange on its under side bounding said aperture, of a guide-yoke having an internally-threaded annulus at its upper end adapted for connection with said annular flange, and an inwardly-opening disk valve having a stem projecting from opposite sides which is guided in the centrally-bored hub of the cover and in the guide-yoke, and a spiral spring surrounding said stem and being interposed between the valve and the guide-yoke, said spring serving to keep the said valve against the said annular flange, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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Witnesses:

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