No. 704,292. Patented July 8, 1902.

D. BEEBE.

RACKING APPARATUS.

(Application filed Feb. 1, 1902.)

(No Model.) 2 Sheets—Sheet 1.

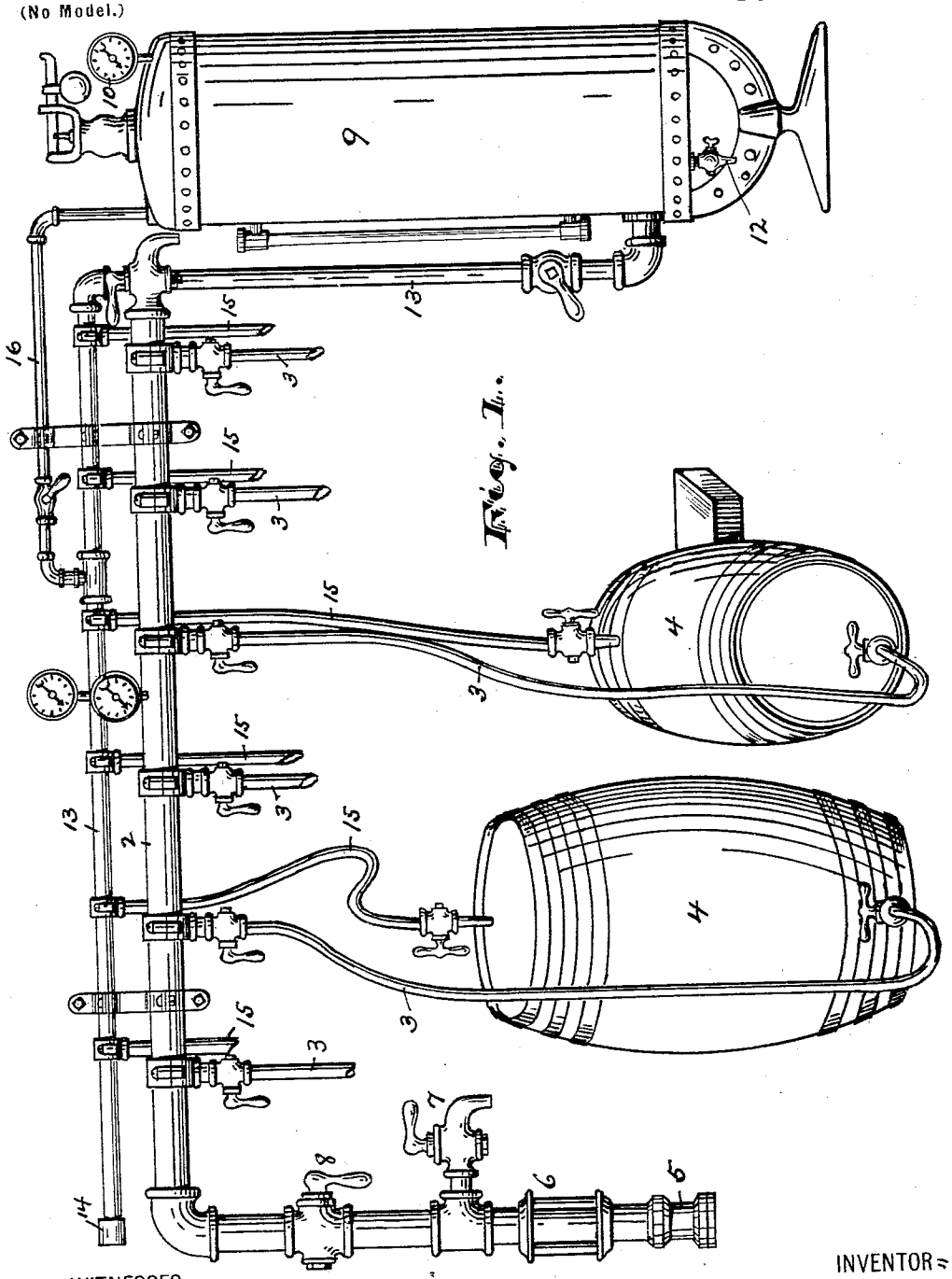


Fig. 1.

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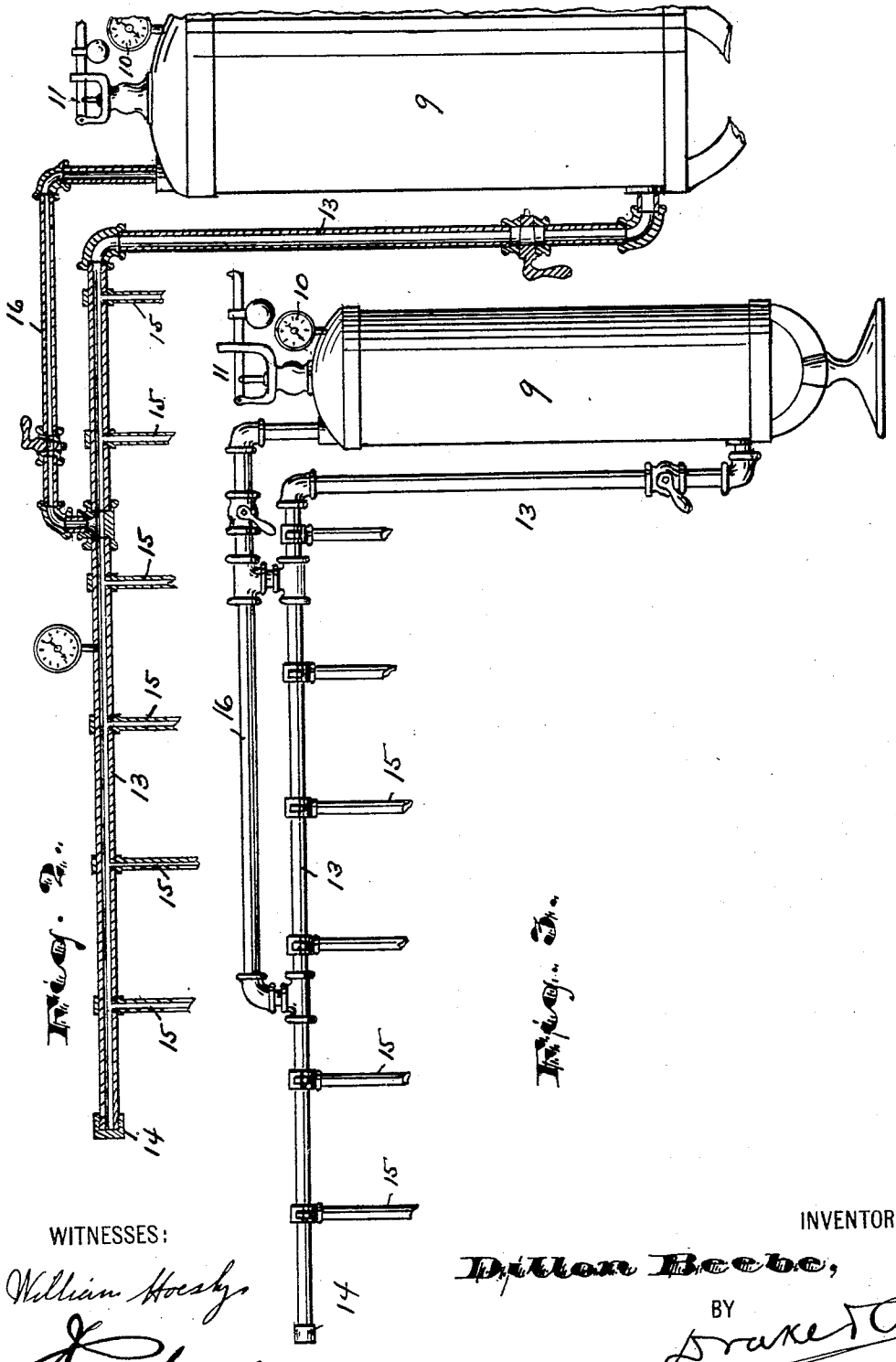


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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RACKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 704,292, dated July 8, 1902.

Application filed February 1, 1902. Serial No. 92,156. (No model.)

To all whom it may concern:

Be it known that I, DILLON BEEBE, a citizen 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 Racking Apparatus; and I 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 figures of reference marked thereon, which form a part of this specification.

The objects of this invention are to secure a more perfect venting in racking beer or similar gas-impregnated liquids under pressure, to retard the escape of foam through the back-pressure pipes from the package being filled, and to thus lessen the waste of beer as well as prevent the back-pressure tank from filling with foam, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved racking apparatus, and more particularly in the arrangements and construction of back-pressure pipes therefor, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like figures of reference indicate corresponding parts in each of the several figures, Figure 1 shows a complete racking apparatus of my improved construction. Fig. 2 is a sectional view of the venting or back-pressure device, and Fig. 3 illustrates a modified form of connections in said back-pressure device.

In said drawings, 2 indicates the main liquid-supply or flow pipe of a racking apparatus of my improved construction, said supply-pipe 2 being preferably supported in horizontal position, as usual, and provided with any number of branch tubes 3, of flexible hose, each adapted to connect with a package 4 in any known way, as indicated. At its end, as at 5, the said supply-pipe 2 is adapted to connect with a hose or other duct leading from the source of supply, and just back from said connection the supply-pipe is provided with a sight-glass 6 and test-cock 7, by which the flow of clear beer can be ascertained after connection has been made, as will be understood by one skilled in the art.

In my improved construction I place in the supply-pipe 2 close to the test-cock 7 and at the side thereof next the branch tubes 3 a valve or stop-cock 8, which in operation remains closed until clear beer is obtained at the test-cock 7. The branch tubes 3 are then connected to the packages to be filled and their usual controlling valves or cocks left open, so that free communication is established between the packages and supply-pipe. The back-pressure gas is then introduced into the packages, as will be hereinafter described, and immediately fills not only said packages, but also the branch tubes 3 and main supply-duct 2. The valve 8 is then opened and the liquid enters the supply-pipe 2 and branch tubes 3 against back pressure, thus avoiding foaming upon such entrance. Of course this needs to be done only once at each racking—viz., at its commencement—in order to fill the supply-pipe 2 and tubes 3.

The back-pressure gas or compressed air above referred to is contained in a closed tank or reservoir 9 of any common construction, having a pressure-gage 10 and relief-valve 11 at the top and a drain-cock 12 at the bottom. From said reservoir 9 a main back-pressure pipe 13 leads, preferably from the lower part of the reservoir, although I may connect it at another point. An outer portion of the pipe 13 (which is closed at its extreme end 14) is for greater convenience disposed parallel to the main liquid-supply pipe 2, and from this portion extend flexible branch tubes 15, adapted to be connected to the packages, as usual. When such connection is made and liquid afterward admitted to the packages, as common, the back-pressure gas recedes from the packages back through the pipes 15 13 to the tank 9. A certain amount of foam also rises from the packages into the main back-pressure pipe 13 and because of its extreme lightness is carried along said pipe to the tank 9 by the above-mentioned passage of gas back to said tank. In this way large quantities of foam collect in the back-pressure reservoir as racking is done at the present time and which, because of its lightness and slowness

to condense, is not easily removed through the drain-cock 12 and is apt to flow out at the relief-valve 11, causing great inconvenience and detriment. To remedy this, I provide in my improved construction an auxiliary back-pressure pipe 16, branching from the main back-pressure pipe 13 and leading from thence to the tank 9. Preferably this auxiliary pipe 16 opens upwardly out of the upper side of the main back-pressure duct 13, either at one point of the length thereof, as shown in Fig. 1, or at two or more points, as shown in Fig. 3, and leads into the top of the reservoir 9 or enters the same at a considerably higher point than the main back-pressure pipe 13. Furthermore, the auxiliary pipe 16 is preferably smaller than the main pipe 13, the former being in practice only about one inch in diameter, while the latter is three or three and a half inches in diameter. By this construction as the foam collects in the main back-pressure pipe 13 the gas instead of forcing said foam ahead of itself through the whole length of said pipe 13 and out into the reservoir 9 frees itself from said foam and escapes by the auxiliary pipe 16 to the reservoir. This retards the foam or leaves it to a large extent dead or inert in the main pipe 13, and, moreover, the gas which escapes to the upper part of the tank 9 creates an increasing pressure against which the foam must enter the bottom of the tank. More or less condensation of foam results, and when a new or empty package is coupled on the contents of the back-pressure pipe are to a greater or less extent blown back into such package, as usual. It has been found that by the use of this apparatus in practice only a very small amount of foam collects in the tank or reservoir 9 in proportion to the quantity of liquid racked.

Having thus described the invention, what I claim as new is—

1. In a racking apparatus, the combination with liquid-supply means, of a back-pressure tank, and a branched or bifurcated vent-duct having its branches opening into upper and lower points of the back-pressure tank and both providing simultaneously open gas connections between the tank and a package being filled.

2. In a racking apparatus, the combination with a liquid-supply duct, of a back-pressure tank, a vent-duct connecting with the lower part of said tank, and an auxiliary vent-duct of smaller capacity than the first said vent-duct branching therefrom and opening into the upper part of the back-pressure tank, both said ducts permitting simultaneously an escape of gas from a package being filled to the back-pressure tank.

3. In a racking apparatus, the combination of a main liquid-supply pipe and branch tubes, a back-pressure tank, a main back-pressure pipe connected to the said tank and having branch tubes leading from itself and adapted to be connected to packages, and an auxiliary back-pressure duct leading from said main back-pressure pipe, at a point thereon adjacent to its branch tubes, to a point of said tank above its connection with the main back-pressure pipe, said ducts presenting equally available alternative passages for the escape of gas from a package to the back-pressure tank.

4. In a racking apparatus, the combination with suitable liquid-supply means, of a back-pressure tank or reservoir, a main back-pressure pipe leading from said tank and having a plurality of branch tubes adapted to be connected to packages, and an auxiliary back-pressure duct leading from said tank at a higher point than the main pipe and connecting with said main pipe at a plurality of points adjacent to the said branch tubes thereof, both said main pipe and auxiliary duct affording simultaneously open communication with the back-pressure tank.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of January, 1902.

DILLON BEEBE.

Witnesses:
ROBERT WEIGET,
CHARLES H. PELL.