

(No Model.)

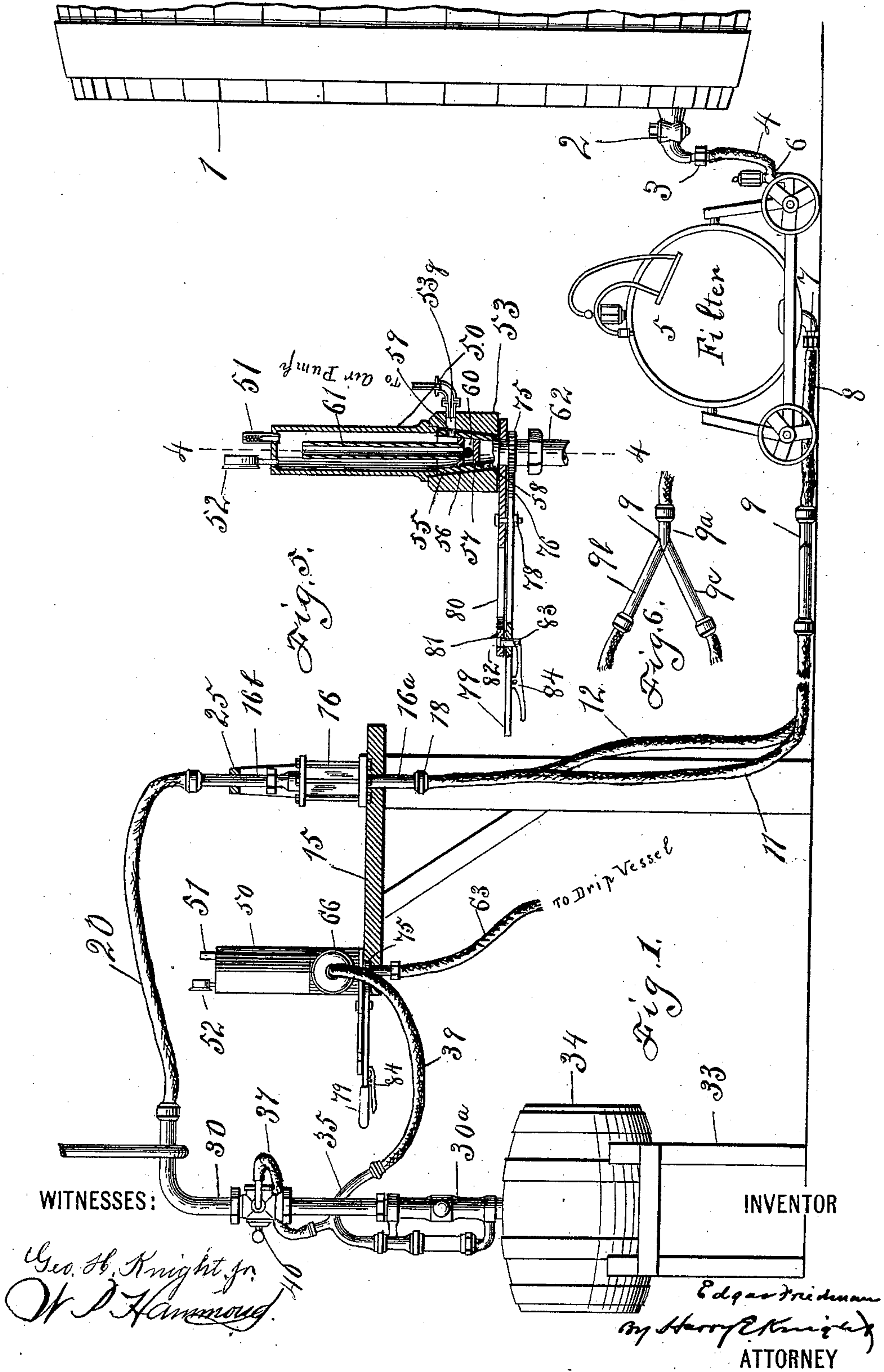
2 Sheets—Sheet 1.

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APPARATUS FOR RACKING BEER, ALE, OR OTHER LIQUORS.

No. 602,256.

Patented Apr. 12, 1898.



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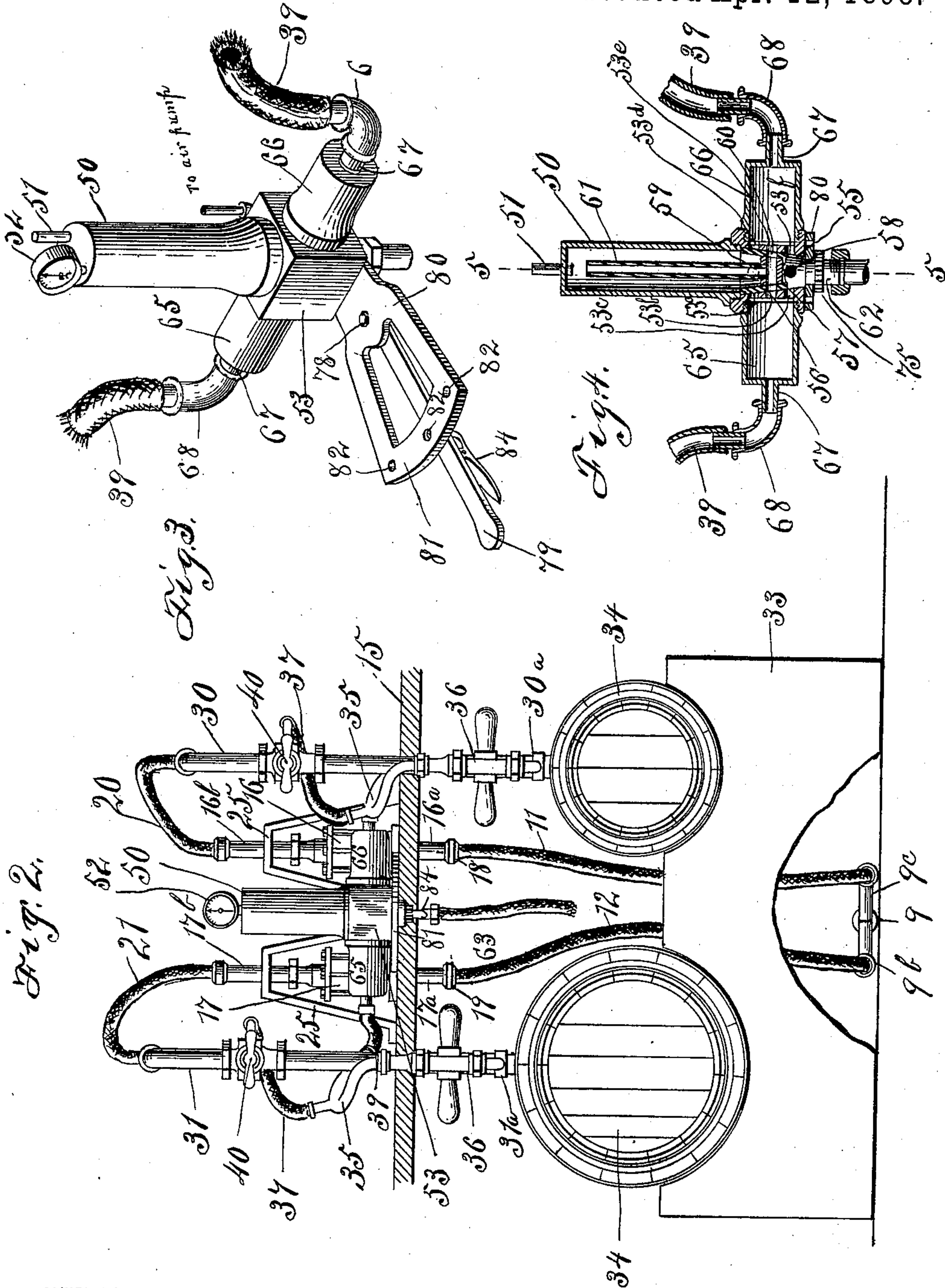
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WITNESSES:

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# UNITED STATES PATENT OFFICE.

EDGAR FRIEDMAN, OF DOBBS FERRY, NEW YORK, ASSIGNOR OF ONE-FIFTH  
TO LOUIS BAEPLER, OF SAME PLACE.

## APPARATUS FOR RACKING BEER, ALE, OR OTHER LIQUORS.

SPECIFICATION forming part of Letters Patent No. 602,256, dated April 12, 1898.

Application filed September 14, 1897. Serial No. 651,600. (No model.)

*To all whom it may concern:*

Be it known that I, EDGAR FRIEDMAN, a citizen of the United States, residing at Dobbs Ferry, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Apparatus for Racking Beer, Ale, or other Liquors, of which the following specification, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in the style of beer-racking machines employing two filling-tubes communicating with a common supply-tube leading from the settling and dispensing storage casks or tanks. With this style of machine the barrels or packages are alternately filled, one package being filled while another is bunged and removed and another empty package put in place, so that no time is lost in manipulating the packages.

The object of my improvements is similar to the main object of all recent improvements in beer-racking apparatus—namely, to insure rapidity in filling the barrels or packages without loss of any of the valuable properties of the beer and with as little as possible of the deleterious foaming or frothing of the liquor.

To this end my invention consists, first, in arranging the twin coupling which communicates between the storage-supply pipe and the pair of filling-tubes below the level of and at considerable distance from the discharge end of the filling-tubes, thereby providing independent vertically-extending tubes from the coupling to the filling devices which will support equalizing-columns of liquid in the separate filling branches, causing the rapid steady flow of the liquor when one of the filling-cocks is opened and preventing the interruption of the filling operation by the collection of bubbles of gas at the highest points in the filling-tubes.

My invention consists, secondly, in combining with the filling-tubes arranged as described suitable filling devices constructed, preferably, as shown and described in Patent No. 553,709, granted to me January 28, 1896, and in providing a back-pressure device comprising a pressure-chamber and a valve mechanism adapted to open up communication be-

tween the pressure-chamber and the overflow-passage of the filling devices so constructed and arranged that the overflow-passage of one filling device may be placed in communication with the pressure-chamber while the other is in communication with the open air, or both overflow-passages of the filling devices may be placed in communication with each other and with the pressure-chamber. The pressure-chamber is for the purpose of maintaining the proper back pressure upon the beer or other liquor in the barrels or packages to prevent the foaming or frothing, and by my peculiar arrangement I am enabled to provide an equal pressure in each barrel or package to be filled irrespective of the size of the package. I also provide a pressure-chamber with a safety puppet-valve and a pressure-gage, and in order that the pressure in the pressure-chamber may not fall below a certain minimum amount I provide means for periodically placing the pressure-chamber in communication with an air-pump or other device for supplying said chamber with air or gas under pressure.

In order that my invention may be fully understood, I will first describe the same with reference to the accompanying drawings, and afterward point out the novelty with more particularity in the annexed claims.

In said drawings, Figure 1 is a side elevation illustrating my improved beer-racking apparatus. Fig. 2 is a front elevation of the same. Fig. 3 is a front perspective view of the back-pressure apparatus. Fig. 4 is a vertical sectional view of the same, taken on the line 4 4 of Fig. 5. Fig. 5 is a vertical sectional view taken on the line 5 5 of Fig. 4. Fig. 6 is a detail plan view of the twin coupling-tube, which communicates between the main supply-pipe and the branch filling-tubes.

1 represents the settling and dispensing storage casks or tanks, adapted to contain the beer or other liquor to be barreled. Projecting from the forward end of the cask 1, adjacent to the bottom, is a discharge-cock 2, provided with a coupling 3, which couples thereto a flexible rubber hose or pipe 4.

5 is the beer-filter, of any suitable construction, provided with inlet-tube 6, to which



the rubber hose 4 is coupled, and the outlet-tube 7, to which the main supply-hose 8 is coupled.

9 is the twin coupling, formed with supply branch 9<sup>a</sup> and the filling-tube branches 9<sup>b</sup> and 9<sup>c</sup>. The twin coupling 9 is designed to rest in horizontal position upon the floor or ground of the plant or upon as low an elevation as it can be conveniently arranged, as shown in Figs. 1 and 2. The supply branch 9<sup>a</sup> is coupled to the flexible hose or pipe 8, leading from the filter 5, while the branches 9<sup>b</sup> and 9<sup>c</sup> are independently coupled to the independent vertically-extending flexible filling-tubes 11 and 12.

15 is a suitable supporting frame or bench, and 16 and 17 are observation or sight-feed glasses of any improved construction mounted upon the bench or support 15.

16<sup>a</sup> and 17<sup>a</sup> are tubes projecting from the observation-glasses through the supporting-frame 15, and 18 and 19 are couplings coupling the upper ends of the branch tubes 11 and 12 to the tubes 16<sup>a</sup> and 17<sup>a</sup>, respectively.

16<sup>b</sup> and 17<sup>b</sup> are metal tubes projecting upwardly from the observation-glasses, and 20 and 21 are flexible pipes or hose coupled to the tubes 16<sup>b</sup> and 17<sup>b</sup>, as shown.

25 are suitable metal braces rigidly secured to the supporting-bench 15 and engaging the tubes 16<sup>b</sup> and 17<sup>b</sup> for holding them in proper position.

30 and 31 indicate the individual filling devices, connected, respectively, with the flexible filling-tubes 20 and 21. The filling devices 30 and 31 may be of any approved construction; but I prefer to employ the filling devices constructed as described and claimed in Patent No. 553,709, granted to me January 28, 1896. A detailed description of the individual filling devices will be unnecessary in the present specification, as their exact construction and operation is fully explained in my above-named patent.

33 is a barrel stand or rack supported on the ground or floor of the plant, and 34 indicates the barrels or packages in place upon the stand or rack and supported thereby in position to be filled. The discharge ends of the fillers 30 and 31 are supported by the heads 30<sup>a</sup> and 31<sup>a</sup>, through which the filling-tubes slide, the ends of the filling-tubes resting during the filling operation near the bottoms of the barrels or packages in a manner well understood. It will be observed by reference to the drawings that with this arrangement the twin coupling-tube 9 is supported below and at considerable distance away from the ends of the filling-tubes, thereby insuring equalizing liquid columns in the independent filling branches leading from the twin coupling, which equalizing liquid columns insure the rapid and steady operation of the machine.

As explained in my above-named patent, the three-way coupling-pipes 35 of the filling devices communicate with overflow-passage

36 in the heads 30<sup>a</sup> and 31<sup>a</sup>, leading from the barrel or package, and also with flexible pipes 37, which communicate with the air-openings of the main three-way cock of valve 40.

39 are the overflow-pipes leading from the third branch of the three-way coupling-pipes 35, and suitably connected with the overflow-pipes 39 is my improved valved back-pressure device, which I will now proceed to describe.

50 is a vertical pressure-cylinder provided at top with a safety puppet-valve 51 and a pressure-gage 52. The pressure-cylinder 50 is mounted upon a valve-casing 53, which is in turn supported upon the bench or platform 15. 55 is a conical valve-plug rotatably mounted in a conical seat formed in the valve-casing 53. The valve-plug 55 is formed with two horizontal partitions 56 and 57, a valve-port 58 through one side of the plug below the partition 57, a valve-port 59 through the opposite side of the valve-plug above the partition 56, and a port 60 extending entirely through the valve-plug between the partitions 56 and 57 in a direction at right angles to the plane of the ports 58 and 59.

61 is a tube extending up from the partition 56 and forming open communication between the valve-port 60 and the interior of the pressure-cylinder 50. The hollow valve-plug 55 is in open communication with the cylinder 50 above the partition 56 and in open communication with an overflow-tube 62 below the partition 57, the tube 62 forming a continuation of the valve-plug.

63 is a flexible overflow-pipe coupled to the overflow-tube 62 and adapted to direct any overflow liquid to a suitable drip vessel placed in any convenient position.

65 and 66 are auxiliary pressure cylinders, or chambers extending horizontally from the valve-casing 53, and 67 are tubular nipples to which are attached the couplings 68, which connect the overflow-pipes 39 of the filling devices to said auxiliary pressure-chambers.

The valve casing or seat is formed with seven ports or passages, three of which, 53<sup>a</sup>, 53<sup>b</sup>, and 53<sup>c</sup>, are arranged vertically at one side in communication with the auxiliary pressure-chamber 65, and three others, 53<sup>d</sup>, 53<sup>e</sup>, and 53<sup>f</sup>, are arranged vertically upon the opposite side of the valve-seat in open communication with the auxiliary pressure-cylinder 66. The seventh port, 53<sup>g</sup>, extends from the back of the valve-casing 53 in a plane at right angles to the plane of the ports 53<sup>a</sup>, 53<sup>b</sup>, 53<sup>c</sup>, 53<sup>d</sup>, 53<sup>e</sup>, and 53<sup>f</sup>, and is in communication with a pipe leading from an air-pump or other pressure-supplying device for keeping up the pressure within the device at the proper degree.

Keyed to the overflow-tube 62, which constitutes the valve-stem on the plug 55, is a small gear-wheel 75, with which meshes a segment-rack 76, pivoted upon a bolt 78 and formed with an operating-handle 79. The bolt 78 is supported in a plate or bracket 80, which is formed with a guide-plate 81 at its



forward end, formed with holes 82, with which a securing-pin 83, carried by an operating-lever 84, is adapted to engage. The lever 84 is pivotally mounted upon the handle 79 and is adapted to hold the segment-rack in central or either side position.

In filling the barrels or packages with my improved mechanism the barrels are placed upon the stand or rack and the filling-tubes inserted in the customary manner. The handle 79 is then moved to central position, which throws the valve-plug 55 into central position, opening up communication between the pressure-cylinder 50 down through tube 61, through ports 60, 53<sup>b</sup>, and 53<sup>c</sup>, auxiliary pressure-chambers 65 and 66, and the overflow-passages of both of the filling devices to the barrels. This will supply an equal pressure in both barrels or packages. One of the cocks 40—say, for instance, the left-hand one in Fig. 2—is then opened to allow the beer to enter the package through the filling-tube. The beer is allowed to flow into the single package until it is filled, when the beer will appear at the sight-glass in the overflow-passage 36. The cock 40 controlling the left-hand passage is then immediately turned off and the handle 79 thrown over to the right for cutting off communication between the two auxiliary pressure-cylinders 65 and 66, throwing the cylinder 66 into open communication with the main pressure-cylinder 50 through valve-ports 59 and 53<sup>a</sup> and the other auxiliary pressure-cylinder 65 in communication with the overflow-tube 62 through the port 58 and port 53<sup>c</sup>. As soon as this has been accomplished the filling-cock 40 of the other or right-hand filling device is opened to allow the flow of beer into the empty barrel or package. While the second or right-hand barrel or package is filling, the operator removes the filling device from the filled package at the left, the free supply of air up through the drip-pipe 63, port 58, chamber 65, overflow-tube 39, and coupling 35 relieving the filled package of superfluous pressure and allowing the easy removal of the filling-tube and the flowing out of the tube of the beer contained therein to fill the space occupied by the filling-tube in the package. The barrel at the left is then bunged and removed from the rack and another empty package put in place for filling. As soon as the now empty package has been put in place at the left and just before the other package is completely filled the handle 79 is moved over to central position, throwing the overflow-passages of both filling devices into communication with the main pressure-cylinder to get up the proper back pressure in the now empty package at the left. The valve is allowed to remain in this central position for a moment until the right-hand package is completely filled, when the handle 79 is shifted to the left to throw the filled package on the right into open communication with the air through the drip-pipe 63, port 58,

chamber 66, overflow-tube 39, and coupling 35 and the empty package at the left in direct communication with the pressure-chamber 50 through ports 59 and 53<sup>a</sup> and auxiliary chamber 65. The cock 40 on the right, controlling the supply to the filled package, is of course previously shut off. The cock 40 of the filling-tube on the left is then opened and the operation repeated. It will be observed that when the valve is in central position with the overflow-passages of both filling devices in direct communication with the pressure-chamber the port 53<sup>c</sup> of the air-supply device will register with the port 59 of the valve-plug, thereby supplying any deficiency in pressure in the pressure-cylinder.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an apparatus for racking beer, &c., the combination of a supply-pipe, two independent filling-tubes communicating with the supply-pipe, and a twin coupling between the independent filling-tubes and supply-pipe located below the level of and at considerable distance from the discharge ends of the filling-tubes, and thereby providing independent equalizing liquid columns in said filling-tubes, substantially as set forth.

2. In an apparatus for racking beer, &c., the combination of a supply-pipe, two independent fillers, a twin coupling attached to the supply-pipe, and independent vertically-extending tubes communicating between the branches of the twin coupling and the independent fillers; the twin coupling being located below the level of the discharge ends of the fillers, substantially as set forth.

3. In a beer-racking device, the combination of the settling-tank, and supply-pipe leading therefrom, a twin coupling in the supply-pipe, independent vertically-extending tubes leading from the branches of the twin coupling, independent fillers communicating with said vertically-extending tubes, and means for supporting the barrels or packages to be filled above the level of the twin coupling, substantially as and for the purpose set forth.

4. In a beer-racking device, the combination of a settling vat or tank, a supply-pipe leading therefrom, a twin coupling attached to said supply-pipe, independent vertically-extending branch tubes communicating with the branches of said twin coupling, suitably-supported independent observation-glasses in said vertically-extending tubes, a pair of independent fillers communicating with said tubes above the observation-glasses, means for supporting the fillers, and a barrel stand or rack adapted to support the barrels or packages to be filled above the level of the twin coupling-tubes, substantially as and for the purpose set forth.

5. In a racking apparatus, the combination of a liquor-supply, and two independent filling



devices having overflow-passages in open communication with the packages when in operative position, with a back-pressure device comprising a pressure-chamber communicating  
5 with the overflow-passages of both filling devices, and a controlling-valve constructed and arranged to open up communication between the pressure-chamber and both overflow-passages of the filling devices in one position,  
10 and between one overflow-passage and pressure-chamber and the other overflow-passage and open air in another position, substantially as set forth.

6. In a racking apparatus, the combination  
15 of a liquor-supply, and two independent filling devices having overflow-passages in open communication with the packages when in operative position, with a back-pressure device comprising a pressure-chamber communicating  
20 with the overflow-passages of the filling devices, and a valve controlling said communication; said valve being constructed and arranged to be moved into three positions, one position of the valve opening up communication  
25 between both filler-overflow passages and pressure-chamber, the second position opening up communication between one overflow-passage and pressure-chamber and other overflow-passage and open air, the third position  
30 reversing the arrangement of the overflow-

passages with relation to the pressure-chamber and open air, substantially as set forth.

7. In a racking apparatus, the combination of a liquor-supply, and two independent filling  
35 devices having overflow-passages, with a back-pressure device comprising a pressure-chamber communicating with the overflow-passages of the filling devices, a pressure-supply such as an air-pump, and a controlling-valve  
40 constructed and arranged to open up communication between the overflow-passages of the filling devices and pressure-chamber, the overflow-passages and the open air, and the pressure-supply and the pressure-chamber, substantially as set forth. 45

8. In a racking apparatus, the combination of a liquor-supply, and two independent filling  
45 devices having overflow-passages, with a back-pressure device comprising a pressure-chamber, a pressure-supply such as an air-pump, 50 and a seven-way valve controlling communication between the overflow-passages of the filling devices, with the pressure-chamber and the open air, and the pressure-supply with the pressure-chamber, substantially as set forth. 55

EDGAR FRIEDMAN.

Witnesses:

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