(No Model.) 2 Sheets—Sheet 1.

A. WERNER.

METHOD OF AND APPARATUS FOR RACKING BEER.

No. 519,558. Patented May 8, 1894.

Fig 1

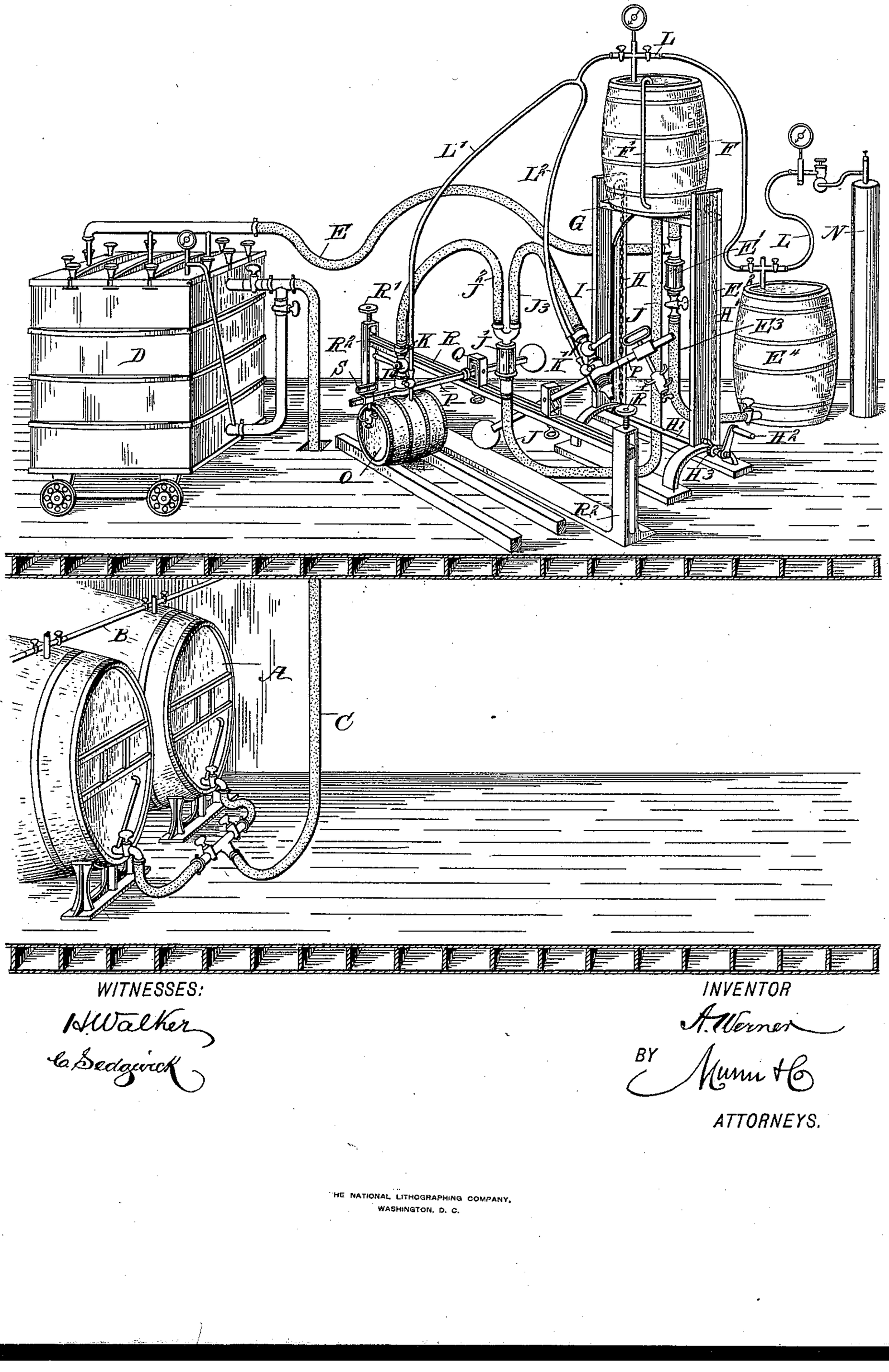

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Fig 2

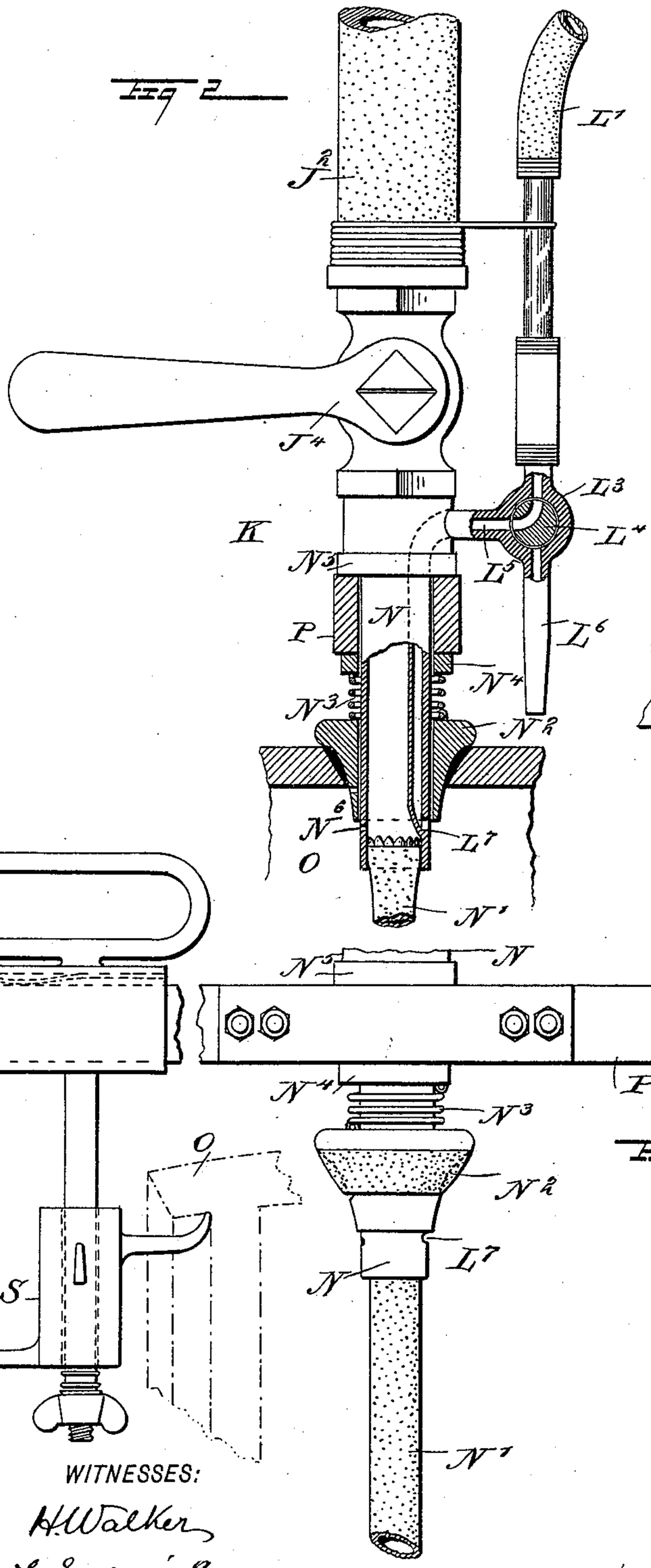

Fig 4

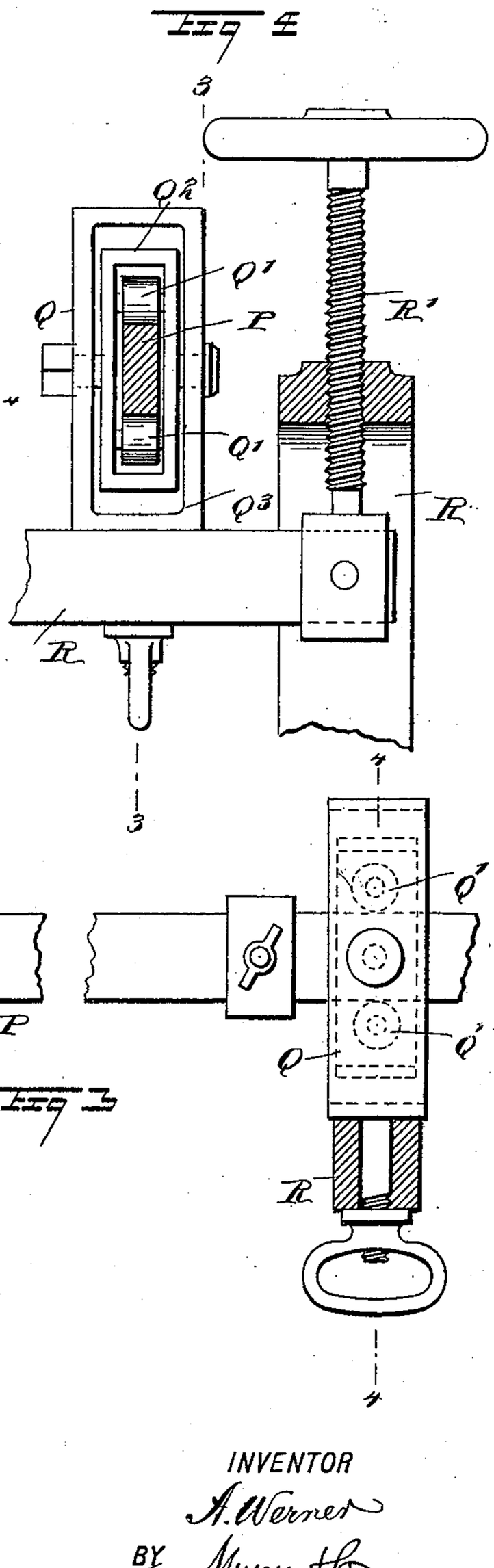

Fig 3

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METHOD OF AND APPARATUS FOR RACKING BEER.

SPECIFICATION forming part of Letters Patent No. 519,558, dated May 8, 1894.

Application filed October 28, 1893. Serial No. 489,411. (No model.)

To all whom it may concern:

Be it known that I, AUGUST WERNER, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Method of and Apparatus for Racking Beer, of which the following is a full, clear, and exact description.

The invention relates to apparatus for filling beer, ale and like liquids from casks into kegs or other vessels.

The object of the invention is to provide a new and improved method and apparatus for racking beer and similar liquids from storage casks into kegs, without loss of valuable properties, and at the same time freeing the beer of any impurities and rendering the beer permanent for a considerable time, so that the contents of the keg will remain pure and wholesome.

The method consists principally in discharging the liquid from the storage cask into an elevated receiver, subjecting the liquid in the receiver to gas pressure, passing gas into the vessel to be filled, to discharge the air therein, and then passing the liquid from the receiver into the vessel charged with the gas.

The apparatus consists principally of a receiver adapted to be raised and lowered, and into which the beer is discharged preferably after it is filtered, and a filling device provided with a pipe connected with the said receiver and having a liquid controlling valve, and a gas valve connected with the gas supply for regulating the egress of the air from the keg and holding the gas in the keg while filling the same with the liquid.

The invention also consists of certain parts and details, and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the apparatus. Fig. 2 is an enlarged side elevation, with parts in section, of the filling device. Fig. 3 is a side elevation of the carrier or support for the filling device, the section being taken on the line 3—3 of Fig. 4; and Fig. 4 is a cross section of the same on the line 4—4 of Fig. 3.

The storage cask or casks A, containing the beer or other liquid, to be filled into the kegs or other receptacles, is provided on the top with a suitable air or gas supply pipe B, connected with a gas supply for exerting pressure on the top of the liquid contained in the cask, to force the liquid out of the latter through the pipe C, into and through the filter D, of any approved construction, to remove the impurities contained in the liquid.

The filter D is provided with a discharge pipe E, connected with the under side of a receiver F, preferably made in the shape of a large barrel set on a platform G, hung on chains H, passing over pulleys journaled in a frame I, in which the said platform G is fitted to slide vertically. The receiver F is provided with a glass pipe F′ to indicate to the operator the amount of liquid in said receiver. The chains H wind on a shaft H′, mounted to turn in the lower part of the frame I, the said shaft being provided at one outer end with a handle H^2, and with a ratchet and pawl mechanism H^3, to lock the said shaft H′, and consequently the platform G, in place, to hold the receiver F in position.

From the receiver F leads a pipe J, provided with a glass vessel J′, to permit the operator to view the condition of the liquid flowing through the pipe. From the top of the glass vessel J′ lead the two branch pipes or posts J^2 and J^3, carrying at their outer ends filling devices K and K′ respectively of the same construction, so that it suffices to describe one, the said filling device being illustrated in detail in Figs. 2, 3 and 4. Each branch pipe J^2 or J^3 is provided with a valve J^4, having a handle under the control of the operator, to open or close the respective pipe to permit the liquid to flow from the receiver F to the vessel to be filled, as hereinafter more fully explained. The upper end of the receiver F is always connected with a gas supply pipe L, connected with a gas storage reservoir N, of any approved construction, and preferably containing carbonic acid gas. The pipe L is also provided with branch pipes L′ and L^2 leading to the filling devices K and K′ respectively, so that each vessel to be filled can be filled with carbonic acid gas, to remove the ordinary air contained in the vessel and to retain a sufficient amount of gas in

the vessel at the time the liquid flows into the vessel.

Each filling device K or K′ is provided below the valve J^4 with a nozzle N, carrying at its lower end a filling hose N′, extending into and close to the bottom of the vessel O to be filled, so as to prevent foaming of the liquid filled into the vessel. On the lower end of each nozzle N is fitted to slide a cone-shaped rubber collar N^2, forming a bung and pressed on by a spring N^3, resting with its upper end on a washer N^4, engaging the under side of the lever P, mounted to slide rearward and adapted to swing up and down or sidewise, so as to conveniently move the said lever in position on the vessel O, or out of place, to permit of removing the filled vessel and replacing it by an empty vessel to be filled. A shoulder N^5 on the nozzle N, rests on the top of the lever P, directly above the washer N^4, to hold the nozzle on the lever.

Each branch pipe L′ or L^2 is provided near the nozzle N with a valve L^3, having a plug L^4 provided with a curved port adapted to connect the respective branch pipe L′ or L^2 with a pipe L^5, extending through part of the nozzle N and discharging at the side thereof near the lower end at L^7, as plainly illustrated in Fig. 2. The plug L^4 also serves to connect the said pipe L^5 with a pipe L^6, leading to the outer air, to permit gas contained in the vessel O to be discharged therefrom at the time the said vessel is filled with the liquid, and the filling device is removed as hereinafter more fully explained.

The opening L^7 in the nozzle N for the pipe L^5 is normally closed by the bung N^2, but when the latter is engaged with the bunghole of the vessel O, as illustrated in Fig. 2, and the lever P is pressed downward, then the said washer N^2 slides upward to compress the spring N^3 and to uncover the opening L^7, so that gas can pass from the respective gas pipe L′ or L^2 and plug L^4, into the pipe L^5, and through the same and the opening L^7 into the keg. In the lower end of the nozzle N is arranged a vent hole N^6, for permitting the liquid in the nozzle to discharge after the valve J^4 is closed and at the time the filling device is removed from the keg.

The levers P, carrying the filling devices K and K′, have their rear ends weighted, and are mounted to slide between rollers Q′ held on a frame Q^2 journaled in a second frame Q^3, and forming part of a universal joint, the last mentioned frame Q^3 being held adjustably on a slotted bar R, supported on screws R′ in slotted standards R^2, forming part of the racking bench. As I do not claim the especial construction of this universal joint, further description is not deemed necessary. It suffices to say that the lever P carrying the respective filling device K or K′ can be readily swung upward, downward, and moved sidewise or rearward, to enable the operator to conveniently manipulate the filling device, as hereinafter more fully described.

On the front end of the lever P is arranged a locking device S, adapted to engage the head of the vessel O, so as to securely lock the lever P in place to hold the filling device K on the said vessel O.

The two branch pipes J^2 and J^3 are employed with corresponding filling devices K or K′, to enable the operator to remove one filled keg during the time the other is filling, and to replace the filled keg by an empty one so as to charge the empty one with liquid at the time the other one has been filled. By this arrangement considerable time is saved, and the operator is enabled to rapidly and continuously fill kegs without interrupting the flow of the liquid from the storage cask to and through the receiver F.

The pipe connecting the filter D with the receiver F is provided with a glass vessel E′ below which is arranged a faucet E^2, from which leads a pipe E^3 discharging into the lower end of a barrel E^4 connected at its upper end with the gas supply pipe L. This barrel E^4 serves to prevent or take up any overflow of the receiver F in case the liquid from the filter D flows faster into the said receiver than the liquid is taken out of the same by the filling devices K and K′. The receiver F is provided with a gage to indicate the level of the liquid in the said receiver.

The operation is as follows: When the several parts are in the position illustrated in Fig. 1, the liquid flows from the storage cask or casks A under pressure through the pipe C into and through the filter D, and through the pipe to the receiver F in which pressure is maintained on top of the liquid by the gas supplied by the pipe L from the reservoir N. The liquid in the receiver F can flow through the pipe J, glass vessel J′ and branch pipe J^2 to the filling device K, it being understood that the valve J^4 in the other filling device K′ which is not in use is now closed. When the operator engages the filling device K with the vessel O by the lower end of the nozzle N being inserted in the bunghole of the said vessel, then the operator, before finally pressing the lever P down and locking it in place on the vessel by the locking device S, first opens the plug L^4 to permit gas to flow through the pipe L^5 into the vessel, to cause the air therein to pass out through the bunghole, as the collar N^2 is not yet firmly seated on the bunghole to close the same. As soon as the air is driven out of the vessel O, the operator firmly presses the front end of the lever P downward, and then engages the locking device S with the head of the vessel to securely lock the lever P, and consequently the collar N^2 of the filling device K in place in the bung hole. The vessel is now filled with gas from the branch pipe L′, and then the operator opens the valve J^4 to permit the liquid to flow from the pipe J^2 through the nozzle N into the vessel O charged with the gas. As the liquid enters the vessel it causes the gas to gradually recede therefrom back into the receiver,

and when finally the vessel is filled, the operator closes the valve J^4, then turns the plug L^4 to connect the pipe L^5 with the pipe L^6, so that the gas still left in the vessel readily flows out to the outer air, and the filling device is then removed from the vessel. If the gas were not discharged from the filled vessel and lower part of the filling device, the liquid would be forced out of the vessel on the removal of the filling device. To remove the filling device, the operator disengages the locking device S from the head of the vessel O, and throws the lever P upward to move the device K out of engagement with the vessel, the latter then being sealed in the usual manner by driving the bung in the bunghole. When the lever P is swung upward, the filling hose N′ moves out of the vessel O, and the air entering the vent-hole N^6, drains all the liquid contained in the filling device below the valve J^4, back into the vessel, to fill the latter clear up to the bung.

While the vessel is filling, the operator has placed an empty vessel alongside the vessel O, and manipulated the lever P of the other filling device K′ in the manner above described, so that the air is first driven out of this second vessel O, and then the vessel is charged with gas and finally filled with liquid, but not before the first named vessel O was filled and bunged, as described. Now, it will be seen that by this arrangement the liquid after leaving the storage cask A, is freed from impurities on its passage through the filter D, and as the said liquid does not come in contact in any shape or form with the atmospheric air, and is kept under pressure at all times until the filled vessel is finally bunged, as above described, no valuable properties whatever can be lost and the liquid filled in the vessel will remain constant for a considerable length of time. When this device is used on beer which has fermented under approximately seven pounds pressure, this pressure is maintained, or still better, increased a few pounds, and remains on the liquid from the storage cask A to the vessel O to be filled. If this is not the case, and beer is drawn from the storage cask at a pressure less than its fermenting pressure, then the beer will foam and it is hard to completely fill the keg except with considerable loss of beer and its gases, so that the beer becomes flat.

It is understood that the receiver F is considerably larger than the vessel O to be filled, so that sufficient liquid is always in the said receiver to supply the vessels in the manner above described. It will further be seen that the said receiver F is raised or lowered a sufficient distance above the vessel to be filled, to permit the liquid to readily flow from the said receiver under its hydrostatic pressure into the vessel to be filled, as the said vessel contains gas under the same pressure as that in the receiver F. By this arrangement no foaming whatever of the liquid can take place in the vessel O.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The herein-described method of racking beer, consisting in forcing the beer from the storage cask through a filter then discharging the filtered beer into an elevated receiver, subjecting the filtered beer in the receiver to gas pressure, passing gas into the vessel to be filled to expel the air therefrom, then filling the vessel with gas under the same pressure as that on the beer in the receiver, and finally passing the beer under its own hydrostatic pressure from the said elevated receiver into the vessel already charged with gas, which recedes back into the receiver on the gradual filling of the vessel with the liquid, substantially as described.

2. A racking apparatus for racking beer, comprising an elevated receiver, into which the beer is discharged, a movable platform supporting the said receiver and adapted to be raised and lowered, a liquid discharge pipe leading from the said receiver, a filling device held on the said discharge pipe and provided with a gas and air valve serving to regulate the discharge of the air from the vessel and to charge the latter with gas, and a gas supply pipe connected with the said receiver to charge the vessel with gas under the same pressure as that on the beer in the receiver and to permit the gas to recede back into the receiver on the gradual filling of the vessel, substantially as shown and described.

3. A racking apparatus for beer, comprising a receiver connected with the liquid supply, a platform adapted to be raised and lowered and supporting the said receiver, a gas supply pipe connected with the upper end of the said receiver, a liquid discharge pipe leading from the said receiver, and a filling device held on the said discharge pipe and provided with a nozzle, a spring pressed collar fitted to slide on the said nozzle and adapted to be seated on the bunghole of the vessel to be filled, a gas supply pipe, a valve in the said gas supply pipe and provided with a valve plug, a pipe extending through the nozzle of the said filling device and connected with the said valve plug, and a pipe leading from the valve plug to the outer air and adapted to be connected with the said gas pipe extending through the nozzle, substantially as shown and described.

AUGUST WERNER.

Witnesses:
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C. SEDGWICK.