

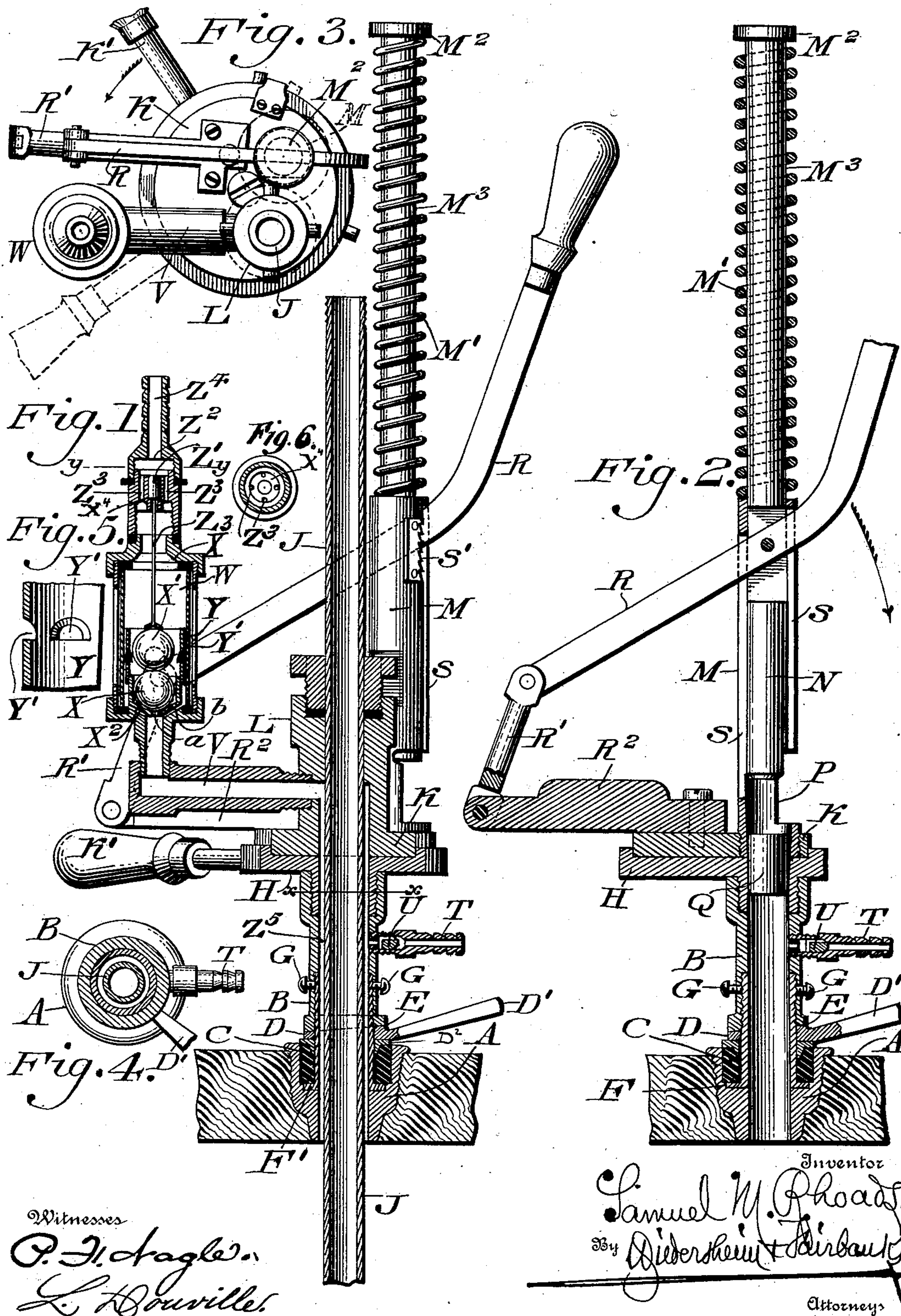
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**S. M. RHOADS.**

## RACKING APPARATUS FOR FILLING BARRELS.

(Application filed Sept. 10, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

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## RACKING APPARATUS FOR FILLING BARRELS.

SPECIFICATION forming part of Letters Patent No. 712,850, dated November 4, 1902.

Application filed September 10, 1901. Serial No. 74,922. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL M. RHOADS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Racking Apparatus for Filling Barrels, &c., of which the following is a specification.

My invention relates to an improvement in racking apparatus for filling barrels, &c.; and it consists of novel means for supporting a filling-tube and novel means for tightening the support in the bush.

It also consists of a novel construction of parts whereby when the filling-tube is withdrawn the bush may be closed by a cork, plug, or other stopper.

It further consists of novel vents and valve mechanism, as will be hereinafter set forth and claimed.

Figures 1 and 2 represent vertical sections of a racking apparatus for filling barrels, &c., embodying my invention. Fig. 3 represents a top or plan view thereof. Fig. 4 represents a horizontal section on line *x x*, Fig. 1. Fig. 5 represents a vertical section of a portion of the valve mechanism adjacent thereto in Fig. 1 on an enlarged scale. Fig. 6 represents a section on line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a tapping-bush which is adapted to receive the sleeve B, between the lower portion of which and the wall of said bush is the packing or gasket C, which is adapted to be compressed and form a tight joint for said sleeve and bush by means of the rotatable collar D, which is provided with an operative handle D' and encircles said sleeve and bears against a suitable washer D<sup>2</sup>, resting on said packing, it being noticed that the portion of the sleeve above said collar has a shoulder E thereon, and the contiguous faces of said collar and shoulder are spiral in their nature, so that when the collar is rotated it rides downwardly on the spiral face of the shoulder E, and so tightens against the packing C, and thereby compresses the same, it being also noticed that the bottom of the sleeve B has a flange F, on which the packing C partly rests,

thus tightly closing the joint between the lower end of the sleeve and adjacent portion of the bush. For purposes of adjustment the sleeve is formed in sections which are connected by the screws G, as most plainly shown in Fig. 1. The contiguous portions of the rotatable collar D and sleeve B are unthreaded, so that rusting of said parts is prevented, while the spiral faces of said collar and the shoulder E are relied upon to advance said collar and cause the compression of the packing or gasket C, as has been stated. On the sleeve is the head H, which has an opening therein for the passage therethrough of the filling-tube J, the latter also passing through the sleeve B into the barrel, hogshead, &c., to be filled.

Supported on, formed, or otherwise secured to the head H is the rotatable plate K, on which is mounted the sleeve L and the tube M, said sleeve L being adapted to have the filling-tube J pass through the same, the tube M containing the plunger N, the lower portion of said tube M having an opening P in its side for the introduction of the cork or stopper Q for purposes to be hereinafter described. The sleeve L and the tube M are arranged eccentrically on the plate K. (See Fig. 3.)

R designates a lever which is connected with the plunger N and adapted to pass through the vertical slots S in the tube M, whereby said lever is permitted to ascend and descend in the operation of the plunger N. The lever R in order to have a long sweep is connected by the link R' with the arm R<sup>2</sup>, the latter being secured to the rotatable plate K, so as to follow the motions thereof, it being noticed that the head H is provided with a handle K', whereby the apparatus may be conveniently carried, while the plate K, with the parts superimposed thereon, may be rotated by proper manipulation of the lever R.

In order to restore the plunger N, and with it the lever R, to its normal position, I employ the spring M', which bears against the top of the tube M and the shoulder M<sup>2</sup> at the top of the upward extension M<sup>3</sup> of said plunger. In order to lock the lever R, the tube has connected with a wall of one of the slots S the ratchet-plate S', with a tooth of which



the adjacent edge of the lever is adapted to engage.

During the filling operation the parts are as shown in Fig. 1, it being noticed that the diameter of the tube J is such that a space  $Z^5$  exists between said tube and the surrounding sleeves and bush for the exit of air from the barrel, hogshead, &c. After said operation the tube J is withdrawn and the plate K rotated, whereby the tube M is carried around and placed in communication with the sleeve B, so that the cork or stopper Q may be introduced through the base of the tube M into the opening in the plate K and top of the sleeve B and then driven into the bush A by the plunger N, the parts being shown in Fig. 2 thus closing the bush.

Connected with the sleeve B is the branch pipe T, which is provided with the valve U. Connected with the sleeve L is the branch pipe V, with which communicates the cylinder or vessel W, in which are the ball valves or floats X X', one placed above the other, the lower float having its seat  $X^2$  at the base of said vessel W, whose side wall is made of glass or other suitable transparent material, so that the interior of the same may be readily seen, said base having a nipple connection with the said branch pipe V and being thereby supported. Within the vessel W is the collar Y, which is sustained on the base of said vessel, said collar being open at top and bottom and having ports  $Y'$  in its side, said collar being cast or otherwise firmly secured to said base and having its upper portion slightly enlarged. In the seat  $X^2$  is a port  $a$ , which forms a communication between said nipple connection and the interior of said collar Y, and consequently with the interior of the vessel W. In said seat  $X^2$  are also the ports  $b$ , which form a communication between said nipple connection and a space or passage intermediate of the collar Y and the side wall of the vessel W and communicating with the ports  $Y'$  of said collar. The transparent side of the vessel W is inclosed in a guard of open-work, on the top of which is a cap from which rises the casing  $X^3$ , in which is a sleeve  $X^4$ , the latter having therein the vertical ports  $Z^3$ . Rising from the float  $X'$  is the stem Z, which passes through the central opening in the sleeve  $X^4$  and carries at its upper end the valve  $Z'$ , which has a seat  $Z^2$  in the portion of the casing  $X^3$  above said valve. The upper end of the casing  $X^3$  has an outlet  $Z^4$ .

In the act of filling the barrel or hogshead the beer or other liquid is forced through the tube J into the interior of the barrel, whereupon the air and the primary froth pass upwardly through the passage  $Z^5$ , around the exterior of the tube J, and flows thence through the passage V and the port or ports  $b$ , around the exterior of the collar Y, and reaching the port  $Y'$  in the collar Y they enter the same as a first exit in their upward passage and are directed by the same into the vessel W and rising therein flow through the casing  $X^3$

and the ports  $Z^3$  and so reach the outlet  $Z^4$ , by which they are directed elsewhere, the lightness of the air and froth not being sufficient to raise float X from its seat  $X^2$ . As the barrel becomes filled with the beer itself or the body of the beer, the latter will rise to the passages  $Z^5$  and  $V'$ , and the pressure thereby created by the beer as ascending will act through the port  $a$  on the lower float X and raise the latter and the upper float  $X'$ , thus raising the valve  $Z'$ , which closes tightly against its seat  $Z^2$ , whereupon it will be seen that beer cannot escape through the passage  $Z^4$  to the air-tank. (Not shown.) Packing is interposed between the wall of the vessel W and the casing above the same for forming a tight joint between said parts. As the closing of the valve  $Z'$  indicates that the cask or barrel is now filled with beer, the tube J is withdrawn and the plate K rotated, as has been above explained, whereby the tube M is placed in alinement with the sleeve B, so that the stopper Q can be driven into the bush A by the plunger N, as has already been explained.

It will be apparent from the foregoing that by my invention I have provided a novel construction of apparatus which can be readily applied to or disconnected from the barrel, cask, or hogshead for the purposes required and that I have made provision for preventing the beer from passing beyond the desired point and that I have also provided a simple and novel means for permitting the air which is expelled from the cask in the act of filling the latter to escape according to requirements.

The apparatus is simple and not liable to get out of order and is readily operated by unskilled labor.

It will be apparent that slight changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

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

1. A tapping-bush having a horizontal shoulder in the interior thereof, a sleeve in said bush, packing interposed between the inner wall of said bush and the exterior of said sleeve, a rotatable collar encircling said sleeve and bearing against said packing, and a stationary shoulder on said sleeve above said collar, the contiguous faces of said shoulder and collar being spiral, the lower end of said sleeve having a flange which is seated on said shoulder and has said packing seated thereon.

2. In an apparatus of the character stated, a sleeve, a stationary head thereon, a rotatable plate mounted on said head, a sleeve on said rotatable plate adapted to be placed in communication with that of the stationary head, and a tube on said plate, also adapted to be placed in communication with the sleeve of



the stationary head, said tube having a stopper-receiver opening in its side, a plunger in said tube, and a lever mounted on said rotatable plate and connected with said plunger.

5 3. In an apparatus of the character stated, a sleeve, a stationary head thereon, a rotatable plate mounted on said head, a sleeve on said rotatable plate, adapted to be placed in communication with that of the stationary  
10 head, and a tube on said plate, the same having a stopper-receiving opening in its side, a plunger in said tube, and a lever mounted on said rotatable plate and connected with said plunger, said tube having a vertical slot there-  
15 in for the play of said lever and a locking device for said lever in a wall of said slot.

4. In an apparatus of the character stated, a vessel, a conveying-pipe thereon, a collar with a valve seated in said vessel, a port in  
20 said seat, and a port between said seat and the adjacent portion of said vessel, said collar having a port in its side forming a communication for the second-named port with the interior of said vessel, and said conveying-  
25 pipe, a float on said seat, a casing above said vessel, an auxiliary valve on the stem of said float, a sleeve in the casing, with a port therein, and a seat for said auxiliary valve in the upper portion of said casing.

30 5. In an apparatus of the character stated, a vessel, a seat on the base thereof, a port in said seat, an auxiliary port in said seat, a collar within said vessel and having a port in its side, and a float on said seat, a passage  
35 existing between said collar and the side of said vessel, the same forming a communication between said auxiliary port and the port of said collar, in combination with a valve connected with the stem of said float and a  
40 seat for said valve in a casing above said vessel,

6. In a racking apparatus, a plate suitably supported and having a passage therethrough, a stoppering device mounted on said plate, a device for permitting the escape of air from  
45 the barrel during the act of filling the same and consisting of a branch having a passage communicating with a collar, a valve-seat in the lower portion of said collar, a vessel in-  
50 closing said collar and being in communication with said branch independent of said valve-seat, a float controlling said valve-seat, ports around said valve-seat for permitting the escape of air, a second float supported on  
55 the first-mentioned float, a casing above said collar, a valve in said casing connected with the second-named float, a seat in said casing for said valve, and ports around said valve and below said seat, whereby the escape of  
60 froth and air from the barrel during the act of filling the latter is permitted, but the passage of the body of the beer beyond said upper valve-seat is prevented.

7. In a racking apparatus, a device for permitting the escape of air from the cask dur-  
65 ing the act of filling the latter, the same consisting of a branch in communication with the interior of the barrel, a vessel supported on said branch and having a transparent exterior shell, a plurality of floats contained  
70 within said vessel, an apertured collar surrounding said floats, a valve-seat below said collar for the lower float, a casing above said vessel, a valve in said casing connected with the stem of the upper float, ports around said  
75 valve, a seat for said valve above the latter, and a discharge-passage on said casing above said valve-seat.

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Witnesses:

OTTO MENDER,  
W. S. HERBERT.