

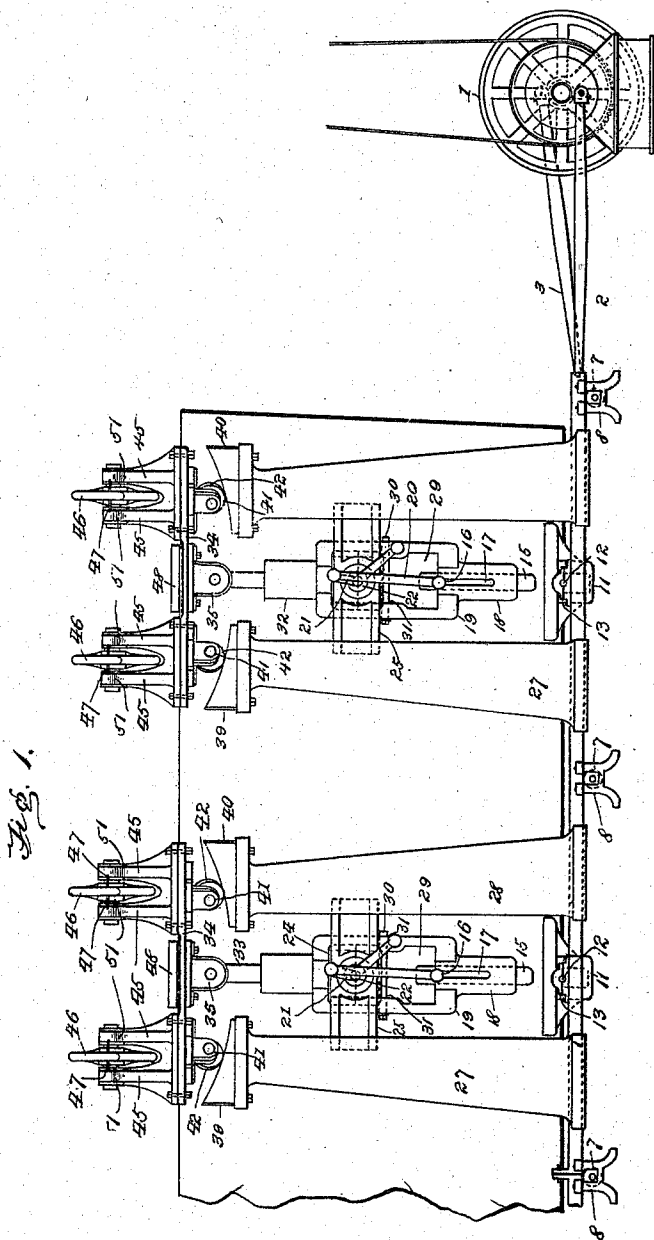
(No Model.)

3 Sheets—Sheet 1.

C. L. KLINE.
BARREL WASHER.

No. 575,482.

Patented Jan. 19, 1897.



WITNESSES:

C. L. Belcher
W. B. Stockbridge

INVENTOR

C. L. Kline

BY

W. B. Stockbridge
HIS ATTORNEY

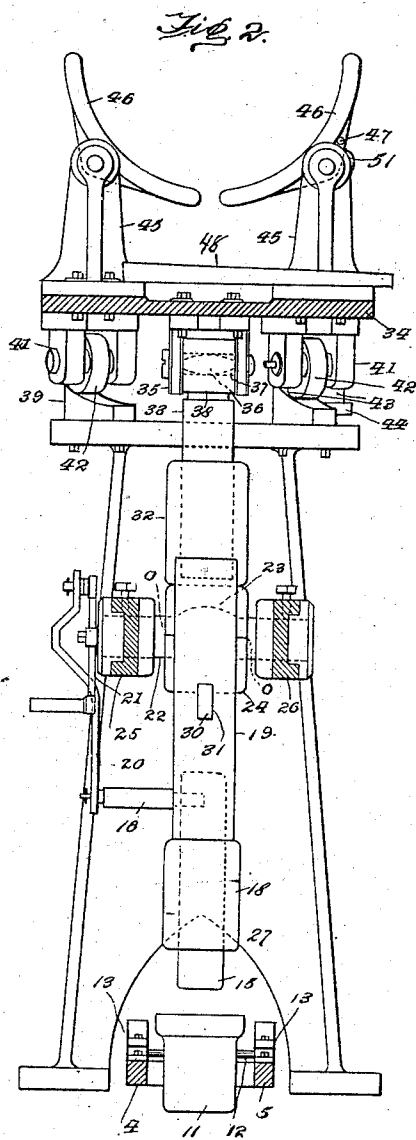
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C. L. KLINE.
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3 Sheets— Sheet 2.

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W. D. Starkland

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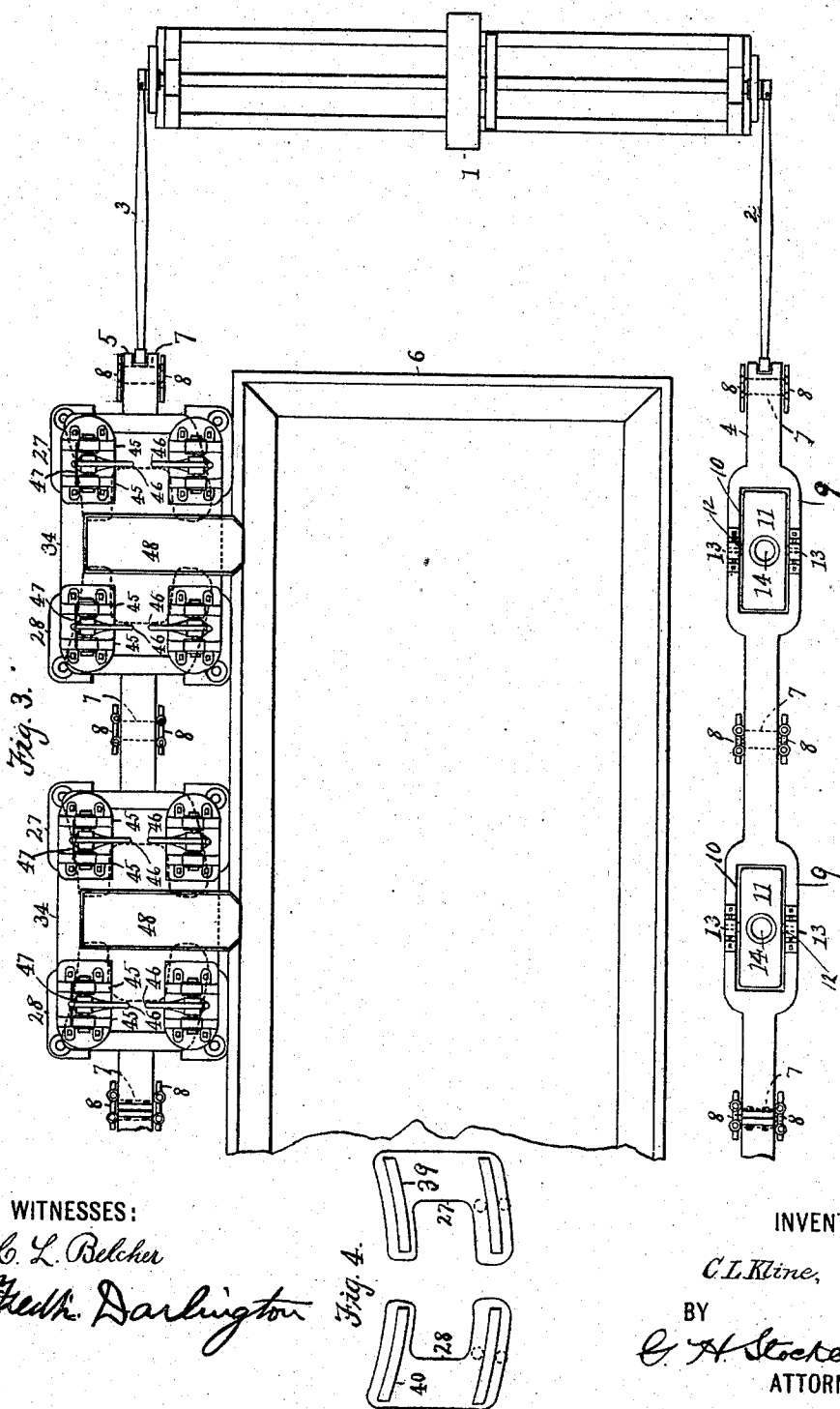
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3 Sheets—Sheet 3.

C. L. KLINE.
BARREL WASHER.

No. 575,482.

Patented Jan. 19, 1897.



UNITED STATES PATENT OFFICE.

CHARLES LIEBMANN KLINE, OF NEW YORK, N. Y.

BARREL-WASHER.

SPECIFICATION forming part of Letters Patent No. 575,482, dated January 19, 1897.

Application filed June 6, 1896. Serial No. 594,615. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LIEBMANN KLINE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Keg-Washing Machinery; 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.

In United States Patent No. 530,593, issued to me on the 11th day of December, 1894, I show and describe a keg-washing apparatus connected with a motor adapted to give to the carrier for kegs or barrels a four-way motion similar to that which is given when kegs or barrels are cleansed by hand. The motor employed in the invention described in the aforesaid patent is connected with a wheel located under the cleansing-vat and it gives to the said wheel an oscillating motion. I may describe the said motion as "a reciprocation along curved lines." Now the carrier for holding the keg or barrel to be washed is supported upon a pivoted standard in such a manner as to partake of the motions of the wheel, and these motions, combined with others caused by curves and sloping tracks for the carriers, enable me to give to the keg or barrel the movements needed for thorough cleansing.

The apparatus described is capable of cleansing several kegs or barrels at the same time, there being a series of carriers arranged around a circular vat and having the means for attachment to the oscillating wheel at different points.

It is found in practice that under certain conditions the circular arrangement of the carriers is a disadvantage, as it leaves less freedom for conveying the kegs or barrels from the carriers to the spraying-machines. For this reason I have devised a straightway arrangement of the carriers and motor devices, the vat being made rectangular and the oscillating wheel being dispensed with. I have also altered the details to a considerable extent, as will be made plain hereinafter.

My present invention will be clearly understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my keg-washing apparatus arranged in proximity to a vat. Fig. 2 is an end elevation of one of my keg-washing devices; and Fig. 3 is a plan of a vat, showing also plans of two of my keg-washing mechanisms along one side of the said vat, the keg-washers on the opposite side of the vat being removed to show certain details of construction. Fig. 4 is a detail view of a modification.

In the drawings, 1 is a wheel or pulley driven from any suitable engine or source of energy, and 2 and 3 are connecting-rods running from the crank-shaft of the said wheel or pulley to sliding bars 4 and 5, located on opposite sides of a vat 6. The sliding bars are supported upon rollers 7 7 7, journaled in small frames 8 8 8, located upon the floor or any other suitable base or support. By virtue of their connection with the wheel or pulley 1 in the manner described the sliding bars 4 and 5 will be caused to reciprocate in straight lines whenever the wheel or pulley is operated. The sliding bars are enlarged at several points, as shown at 9 9, and at the enlarged portions the sliding bars are slotted, as shown at 10 10, to receive rocking boxes 11 11. The said boxes 11 11 are hung on pivots 12 12, which enter journals 13 13, secured to the sliding bars. When in position, the boxes 11 11 are adapted to rock or tilt on their pivots when the sliding bars reciprocate. In the center of each box is a socket 14 for receiving the lower end of a coupling-rod 15, as will be explained hereinafter.

To the upper end of the coupling-rod 15 is secured a pin 16, which pin is adapted to move in a slot 17, made in the lower tubular portion 18 of a rocking frame 19. To the pin 16 is attached a link 20, the other end of which is secured to an angular crank-lever 21. Now the crank-lever 21 is pivoted to a shaft 22, which, through the medium of a ball-bearing 23, forms the immediate support for a divided box 24, on which the frame 19 is sustained. The shaft 22 is itself supported at opposite ends in cross-pieces 25 and 26, which are bolted to strong standards 27 and 28. To approach the relations of the parts from another direction, I will say that the standards 27 and 28, themselves supported upon the floor or other suitable base, sustain the cross-

pieces 25 and 26, which in turn support the shaft 22, on which the divided or split box 24 is journaled through a ball-bearing, as shown.

Now the rocking frame 19 is secured to the box in the following manner: The box being made in two parts, divided along the line O O, is grooved vertically along its sides and is also provided with a horizontal groove along its bottom. There is an opening 29 in the frame 19 just above the tubular portion 18. The halves of the box 24 are put successively into the said opening and then pushed up so that the grooves in the sides of the box run upon the inner edges of the frame 19 above the opening 29 and are guided and held thereby. Thereafter a key 30 is run through slots 31 31 from side to side of the said frame 19 and through the groove in the bottom of the box 24. This completes the union of the frame 19 and the box 24, and thereby gives to the said frame a sort of swivel connection with the shaft 22. That is to say, after the box 24 has been put in place, as above described, the frame 19 is secured between the standards 27 and 28 in such manner as to have a free pivotal connection with its support and to be capable of swinging upon its pivot as upon a universal joint. Above the central part of the frame it again becomes tubular, as at 32, the tube forming a socket for a connecting-arm 33, which is set into the said socket without being secured thereto. In other words, the said connecting-arm has considerable freedom of movement within the socket, being held in place mainly by the weight of the carrier 34, to which it is attached. The means of attachment between the carrier 34 and the connecting-arm 33 are a pair of lugs 35 35, bolted to the floor or bed plate of the carrier, and a crown or ball head 36, supported between the said lugs and within an opening 37 in a head 38 upon the upper end of the arm 33.

The parts last described constitute the means of connection between the tilting frame 19 and the carrier 34, and it is obvious that the connection is made free and practically universal by means of the ball-joint at the shaft 22 and the crown-joint within the lugs 35 35.

On the tops of the standards 27 and 28 are curved rails 39 and 40, the said rails being not only curved as respects a horizontal position, but also sloping downward in a curve from a high point at one end to a low point at the other. From the bed-plate of the carrier depend lugs 41 41, between which are pivoted rollers 42 42, adapted to travel upon the tracks 39 and 40. To one pair of the lugs 41 41 are attached rods 43 43, carrying rollers 44 44 at their lower ends. The last-named rollers are arranged upon opposite sides of one of the tracks already mentioned and serve to swing the carrier in line with the horizontal curve of the said track. It is only necessary to have one pair of rollers 44 44 for each, but, if de-

sired, two pairs of such rollers can be employed, one depending from each pair of lugs 41 41. Lest I should be misunderstood on this point, I should say that each carrier runs upon four tracks, every one of which is curved, as described. There will be a pair of side rollers on two of the said tracks, while, by preference, there will be no side rollers upon the two tracks farthest away from the vat. Fig. 2 shows a pair of rollers on the inner side of the carrier, but omits them on the outer side. On the other hand, Fig. 4 shows the two pairs of rollers in dotted lines.

Above the bed-plate of the carrier are standards 45 45, to the upper end of which are pivoted curved fingers 46 46, as clearly shown in Fig. 2. The fingers are arranged in pairs, and there are two pairs on every carrier. It will be seen that two pairs of fingers are adapted to catch and hold a keg or barrel of the proper dimensions, and that the weight of the said keg or barrel will serve as an aid in the holding thereof. On each of the fingers farthest away from the vat is a detent-pin 47, cooperating with an enlargement 51 on each standard-head for preventing the outer fingers from tipping too far away from the vat and releasing the keg or barrel on that side. The other fingers are purposely adapted to tilt over toward the vat, and in practice it is customary for the operator to pull up a keg or barrel along the side of the vat until it rests in the curve of the inner fingers when they have been tipped down toward the vat. Then he pulls the barrel still higher in a direction to withdraw it from the vat, and in doing so draws it over into the space between the two fingers, bringing the inner fingers into the position shown in Fig. 2. The barrel is then released by the operator and held in place by the fingers.

At 48 is shown a sluiceway for carrying the water that has been used in cleansing a keg or barrel back into the vat.

It will be understood that before beginning the use of my keg-washer the vat is partly filled with water, into which the kegs or barrels to be cleansed are thrown. These having been partly filled with the cleansing liquid are drawn up, as just now described, until they are supported by the fingers upon the carriers. Either one keg or barrel or a plurality of the same may be drawn up at the same time. For different-sized vats I shall employ a different number of keg-washers, as will be readily understood. One or more kegs having been drawn up till they are supported by one or more carriers, I may then connect them with a motive apparatus in the following manner, it being assumed that in the first instance the coupling 15 is drawn up out of connection with the rocking box 11. When this is the case, the crank-arm 21 and the link 20 occupy the position illustrated in Figs. 1 and 2. If now I take hold of the free end of the crank-arm 21 and lift it until I have

turned the upper end of the link past the pivot of the said crank-arm, then the weight of the coupling-rod 15 carries it down into the socket 14. In starting up the apparatus this will ordinarily be done before the motor 1 is set in operation. It is not necessary, however, that such should be the case, since it is very easily possible to make the connection between the coupling-rod 15 and the rocking box 11 while the sliding arm is in rapid operation. In fact, I find that this can be done without sensible shock to the apparatus at any point. In other words, the several carriers are quite independent of one another, and it is possible to operate any number of them from one up to the limits of the machine's capacity, while it is also possible to switch in a hitherto unused machine at any time during the operation. It will be sufficient, therefore, to detail the action in respect to a single carrier. The connection between the coupling-rod 15 and the box 11 having been established, as already described, and the motor having been started, the sliding bars 4 and 5 will begin to reciprocate and one of them will throw the rod 15 and with it the lower end of the frame 19 back and forth with a rapid motion. The said frame being jointed, as described, to the shaft 22 by means of a ball connection, the upper end of the said frame will be also reciprocated by the movement of the sliding bar. The object of the rocking box 11 and the ball-joint for the frame 19 is to allow for slight variations from an absolute rectilinear reciprocation of the sliding shaft. The whole structure gives greater freedom to the movements of all the parts. Moreover, the loose nature of the connection between the rod 33 and the socket in the tube 32 tends to relieve the strain upon the carriage and upon the frame 19 by reason of the travel of the carrier upon a curved track. For it must be understood that the reciprocating movements of the upper part of the frame 19 are communicated to the carrier through the rod 33 and its means of attachment to the carrier, and it must also be understood that the guiding-rollers 44 44 in their travel on either side of their respective tracks or rails cause the carrier to swerve to one side and the other at each reciprocation. As a consequence the carrier receives a compound motion made up of the back-and-forth reciprocations, the up-and-down movements along the rails, and the out-and-in movements along the same rails. This compound movement being repeated rapidly throws the liquid in the keg or barrel in just the manner adopted by hand operators for cleansing the same sort of liquid-holders. I thus accomplish by machinery and with a great gain in rapidity the cleansing of articles hitherto difficult to make clean.

By reason of the straightway arrangement described in this specification I interfere less with the operation of other apparatus usually

found in breweries, where, among other places, my apparatus is likely to be used.

Having now described my invention, I claim—

1. The combination with a carrier of supports therefor a reciprocating bar, suitable intermediate mechanism, and coupling devices for uniting the said intermediate mechanism to the said reciprocating bar, one part of the said coupling devices being a sliding rod and the other part being a pivoted or rocking box, as described. 70 75

2. The combination with a carrier of supports therefor a reciprocating bar, a pivoted frame connected with the said carrier, a sliding rod connected with the said pivoted frame, and a tilting or rocking box on the said reciprocating bar, the said rocking box having a socket for receiving the said rod, as and for the purpose set forth. 80 85

3. The combination with a carrier of supports therefor a reciprocating bar, a frame connected with the said carrier and joined by a wrist connection with a suitable shaft or support, a sliding rod mounted in the said frame, means for shifting the said sliding rod, and a rocking or tilting box coöperating with the said rod to form a coupling device, as set forth. 90 95

4. In a keg-washing machine, a carrier mounted upon sloping rails and joined to a frame which is centrally pivoted, a reciprocating bar in line with the farther end of the said frame, and coupling devices for connecting the frame and the reciprocating bar, the said reciprocating bar being adapted to move back and forth in a straight line, as and for the purpose set forth. 100

5. In a barrel or keg washing machine, the combination of one or more barrel-holding devices, supports therefor a reciprocating bar, intermediate mechanism for transmitting motion from the reciprocating bar to the barrel-holding device or devices, and coupling mechanism for throwing the intermediate mechanism into and out of connection with the reciprocating bar, one element of the coupling mechanism being loosely pivoted as described to give freedom to the action of the connected parts. 105 110 115

6. In a barrel or keg washing machine, the combination of one or more barrel-holding devices, supports therefor a reciprocating bar traveling back and forth in a straight line, intermediate mechanism for transmitting motion from the reciprocating bar to the barrel-holding mechanism, such intermediate mechanism consisting of a frame centrally pivoted so as to have a wrist motion, the said frame having also a wrist connection with the support for the barrel-holding device or devices, together with coupling mechanism for uniting the said reciprocating bar and the said frame. 120 125

7. In a keg-washing machine, a carrier mounted upon rails which slope downward and have also a horizontal curve, rollers bear-

ing on the upper faces of the said rails and other rollers bearing on the side faces of one or more of the said rails, the carrier being suitably connected with reciprocating mechanism, as set forth.

5 8. In a keg-washing machine, a pair of standards beside a cleansing-vat, the said standards carrying suitable rails, a carrier with rollers resting on the said rails and a
10 frame joined to the said carrier by a wrist-joint, the said frame being connected to a split box, as shown, the said split box surrounding a suitable shaft supported in cross-
15 pieces which are secured to the said standards, as set forth.

9. A coupling device for joining a reciprocating bar with a carrier-frame, the said

coupling device consisting of a rod or pin sliding in a slotted tube, a pin connected with the said rod and passing through the tube, a
20 link connected with the said pin, and a crank-arm joined to the said link and pivoted at a point intermediate between its ends, as set forth.

In testimony whereof I have signed my
25 name, in the presence of two witnesses, this 7th day of May, A. D. 1896.

CHARLES LIEBMANN KLINE.

Witnesses:

G. H. STOCKBRIDGE,
C. L. BELCHER.