No. 713,775. Patented Nov. 18, 1902.

P. M. KUEHNRICH & C. LAURSEN.

BOTTLE CONVEYER.

(Application filed Apr. 1, 1902.)

(No Model.) 2 Sheets—Sheet 1.

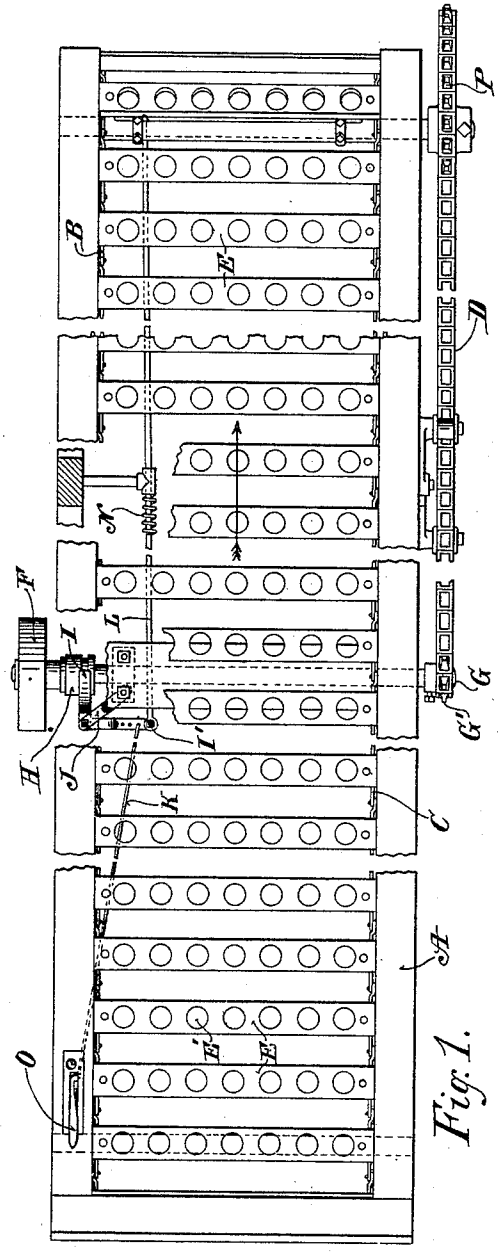


Fig. 1.

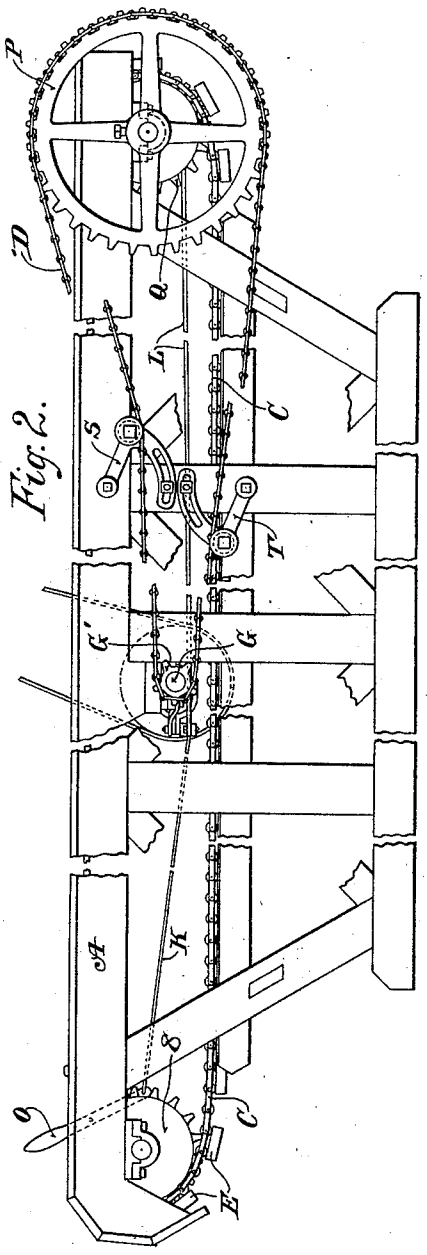


Fig. 2.

WITNESSES

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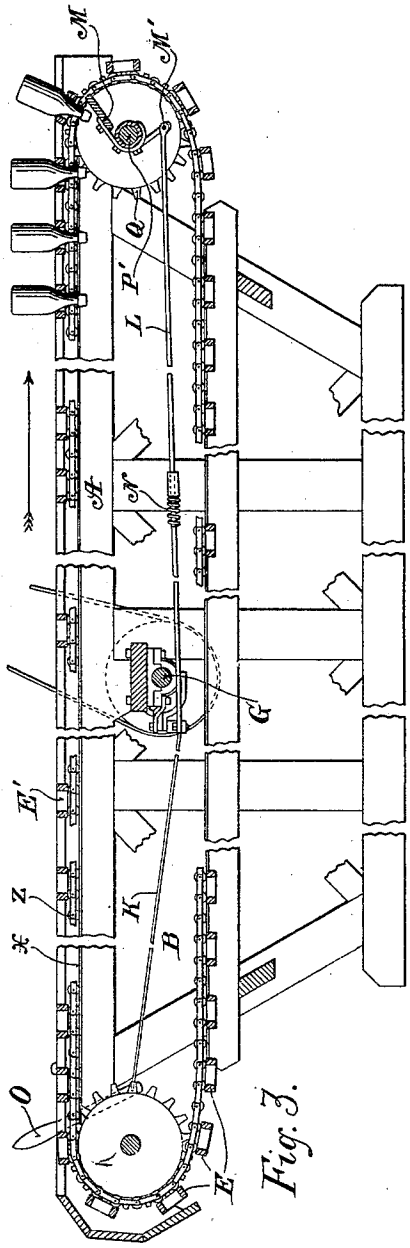


Fig. 3.

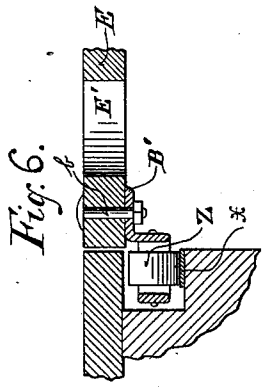


Fig. 6.

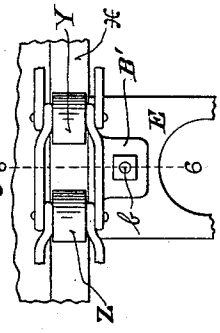


Fig. 5.

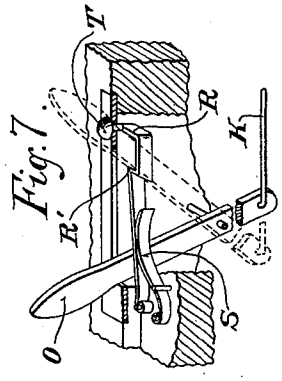


Fig. 7.

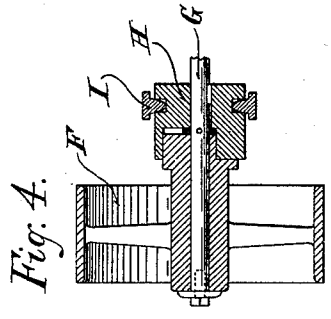


Fig. 4.

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UNITED STATES PATENT OFFICE.

PAUL MAX KUEHNRICH AND CHRISTEN LAURSEN, OF LOS ANGELES, CALIFORNIA.

BOTTLE-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 713,775, dated November 18, 1902.

Application filed April 1, 1902. Serial No. 101,012. (No model.)

To all whom it may concern:

Be it known that we, PAUL MAX KUEHNRICH and CHRISTEN LAURSEN, citizens of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Means to Convey Bottles, of which the following is a specification.

Our invention has relation more particularly to situations in which large numbers of bottles are conveyed from one place to another, and we have applied the same where large numbers of bottles are filled with beer. The bottles have to be washed before being filled, then conveyed from the washer to the filling-machine, and our invention has been applied in conveying the bottles after being washed to the place where they are filled; but of course the apparatus is adapted to convey bottles of any kind from one point to another, whether for the purpose of filling or otherwise; and the object of our invention is to accomplish the transfer of large numbers of bottles with safety from one place to another with facility and economy. We accomplish this object by means of the apparatus herein described and shown in the accompanying drawings, in which—

Figure 1 is a plan view of our apparatus broken away in places. Fig. 2 is a side view of the same. Fig. 3 is a central vertical section looking in the direction of the main driving-wheel and the clutch-shifting lever. Fig. 4 is a central section of the main driving-wheel and the clutch mechanism. Fig. 5 is an enlarged detail of a link of the sprocket-chain looking at it from below, showing the manner of securing the bottle-conveying slats to the chain. Fig. 6 is a vertical section taken on line 6 6 of Fig. 5. Fig. 7 is a perspective view of the clutch-shifting lever in the position which it assumes when the clutch is in engagement with the main driving-shaft.

In the drawings, A is the frame of our apparatus, of any suitable length, in which there are rotatively mounted a number of sprocket-wheels adapted to carry sprocket-chains B, C, and D by means of the connection therewith of the main operating-shaft. In the sprocket-chain B and C are special links having a projecting leaf B′, Figs. 5 and 6, perforated for the reception of a bolt *b*, adapted to pass through a hole in the ends of the bottle-conveying slats E, by means of which the slat is secured to the sprocket-chain. Journaled between the links of the sprocket-chain are the antifriction-rollers Y and Z, which carry the ends of the bottle-conveying slats and on which these slats rest. These rollers are adapted to roll on the rail *x*, forming a tread therefor. By this means a large number of slats can be mounted in one apparatus and be moved with facility. The slats have circular openings E′ therein for the reception of the necks of the bottles, which when placed in the conveyer assume the shape shown in Fig. 3, with the bottoms upward. The bottles are placed in the conveyer at the end next to the clutch-shifting lever, which we will for convenience call the "bottle-washing" end and the other end the "bottle-filling" end, this being the order in which they are operated on. They will move in the direction indicated by the arrow marked on Figs. 1 and 3 from the washing to the filling end, where four rows of bottles are shown in Fig. 3.

Power is applied to operate the apparatus through the driving-pulley F, which is operatively connected with the shaft G by the clutch mechanism. On the shaft G is the sprocket G′, which engages the sprocket-chain D, which runs over and moves the sprocket-wheel P on the shaft P′, on which the sprocket-wheel Q is keyed, the sprocket-chain running thence over the sprocket-wheel S, whereby it will be manifest that by the rotation of the operating-shaft G motion will be imparted to the apparatus. The clutch mechanism is more particularly shown in Fig. 1, (a part of the apparatus being broken away to show the same, and it is also shown in enlarged details in Fig. 4.) The clutch H, through the shipper I, is given a longitudinal movement on the driving-shaft G through the clutch-operating rods K and L. The rod L is pivotally secured at one end to the arm I′ of the shipper and at the other end to the downwardly-projecting arm M′ of the detent-catch M. The rod K is mounted at one end on the arm I′ of the shipper, at which point there are a plurality of holes in this arm to

engage the end of this rod, and affording thereby means to secure the rod to the arm at various distances from the end of the arm of the shipper, the other end of the rod being pivotally secured to the lower end of the clutch-shifting lever O. Encircling the rod L is a coiled spring N, adapted by the impulse therein to throw the rod in the direction of the bottle-filling end of the apparatus, and thereby throw the clutch into engagement with the operating-shaft, and thereby put the apparatus into motion. The necks of the bottles projecting down below the slats, as shown in Fig. 3, will contact with the detent or bottle catch M and will move it around until it has thrown the projecting arm M′ back against the spring N until it has thrown the clutch out of engagement with the operating-pulley and stopped the further motion of the machinery, when the pulley will run free, the apparatus then being at rest. As soon as the attendant at the filling end has removed all the bottles from the slat which engage the bottle-stop the stop will be thrown into the operative position shown in Fig. 3, drawing the clutch into engagement with the pulley and again imparting motion to the apparatus, which will continue to move until the neck of a bottle again contacts with the bottle-catch and again throws the clutch out of engagement and stops the apparatus.

The attendant at the washing end of the apparatus has control of the movement of the apparatus by means of the clutch-shifting lever O, which is adjacent to the position in which the attendant who washes the bottles stands, as follows: Where large numbers of bottles are being washed and then filled, the apparatus should be of sufficient length so that a bottle when taken out of the washer and immediately placed into the conveyer will be long enough in moving therefrom to the filling end to enable it to become dry enough to be filled. Now, until the conveyer is filled with empty bottles all moving from the washing end in the direction of the filling end, drying in the meantime, it is essential that the attendant feeding the empty wet bottles into the conveyer should have control over the movement of the conveyer until the filled portion of the conveyer reaches the filling end, as the movement is only stopped automatically when a bottle reaches that end. Therefore we have provided means whereby the attendant at the washing end can start and stop the apparatus at will. The clutch-shifting lever when in the position shown in the views will be in engagement and move the machinery, but when thrown into the reverse position to that shown will throw the clutch out of engagement and stop the machinery.

In Fig. 7 we have shown an enlarged detail of the clutch-shifting lever and the manner in which it is held in whatever position it may be thrown. In the position in which it is shown, which is the operative position, it will be held in this position by reason of the impulse of the spring N, which will hold it there. Now when the attendant desires to stop the movement of the conveyer he throws the lever into the reverse position from that shown—that is, he throws the lever into the postion shown in dotted lines in Fig. 7. The lever will then be held in its position of rest by reason of its contact with the shoulder R′ on the spring R, the supplementary spring S acting to further secure the engagement of the spring R with the lever. When it is desired to again start the conveyer, the lever must be thrown out of this rest position (shown in dotted lines) into the operative position, the attendant will press the thumb-piece T on the spring R and throw the same back until the lever can pass the shoulder R′, when it can be moved to the operative position, where it will stay until again moved. To impart the proper tension to the sprocket-chain D, we have provided tension-regulating devices S and T, secured to the side of the frame and shown in Figs. 1 and 2.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A machine to convey bottles comprising a rectangular frame; a plurality of bottle-carrying slats adapted to move lengthwise of the frame, and adapted to carry bottles placed therein from the washing to the filling end; means to move said slats; means to stop the movement of said slats upon the arrival of the empty bottles at the filling end, substantially as herein shown and described; and means to start said slats upon the removal of the bottles from the filling end, substantially as herein shown and described.

2. In a bottle-conveying apparatus being provided with a plurality of transverse bottle-conveying slats, the herein-described means to stop the movement of the slats comprising a detent adapted to engage the necks of the bottles when the bottles arrive at the filling end of the apparatus and stop the further movement of the apparatus.

3. In a bottle-conveying apparatus such as herein described means to start and stop the bottle-conveying slats comprising the clutch H, the shipper I operatively connected therewith; the rods K pivoted to the arm M′ of the detent M and to the shipper at the other end the rod K operatively connected with the shipper at one end and with the clutch-shifting lever at the other.

4. In a bottle-conveyer having clutch mechanism to throw the machine into and out of operation the herein-described means to stop the apparatus when a bottle reaches the filling end comprising the detent M in the path of movement of the neck of the upturned bottle in the conveyer in combination with means to throw the machinery out of gear upon the contact of the neck of the bottle with the detent substantially as shown and described.

5. In a bottle-conveyer in which the bottle-

conveying slats are caused to stop when the empty bottles reach the filling end of the apparatus as herein described, the herein-described means to start the conveyer upon the removal of the bottles at the filling end, comprising the rod L pivoted to the arm M′ of the detent M, the coiled spring N encircling the rod and mounted to normally throw the rod into and hold it in its operative position, the rod L operatively connected with the clutch I, and the clutch I substantially as herein shown and described.

6. The combination in a bottle-conveying apparatus of the operating-pulley, a clutch operatively connected thereto; a shipper to operate said clutch; a rod pivoted to the shipper at one end and operatively connected with a bottle-catch at the other; a bottle-catch at the filling end of the apparatus disposed in the path of movement of bottles in the conveyer; a coiled spring on said rod adapted to retract the rod and throw the clutch into engagement with the operating-pulley; a rod to connect the clutch-shifting lever with the shipper.

In witness that we claim the foregoing we have hereunto subscribed our names this 26th day of March, 1902.

P. MAX KUEHNRICH.
CHRISTEN LAURSEN.

Witnesses:
HENRY T. HAZARD,
G. E. HARPHAM.