No. 871,274. PATENTED NOV. 19, 1907.

A. G. HUPFEL.

KEG HANDLING MECHANISM.

APPLICATION FILED AUG. 3, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

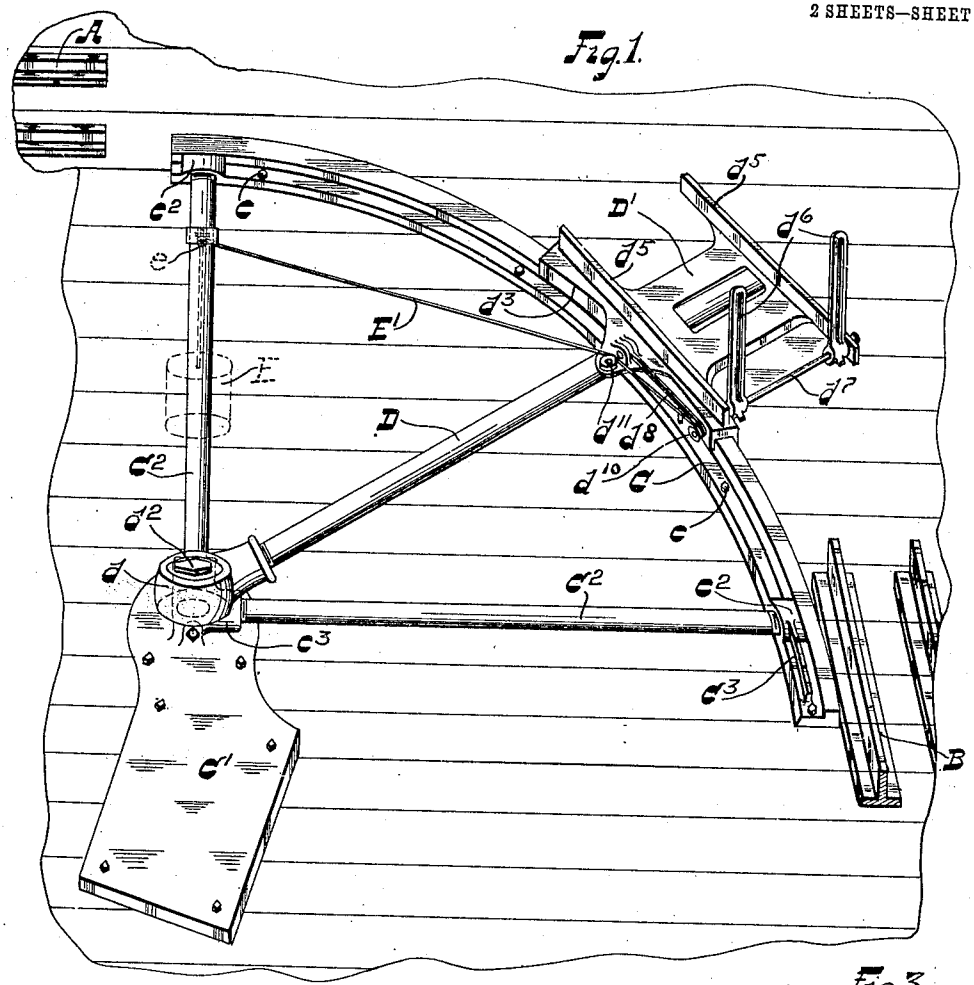


Fig. 4.

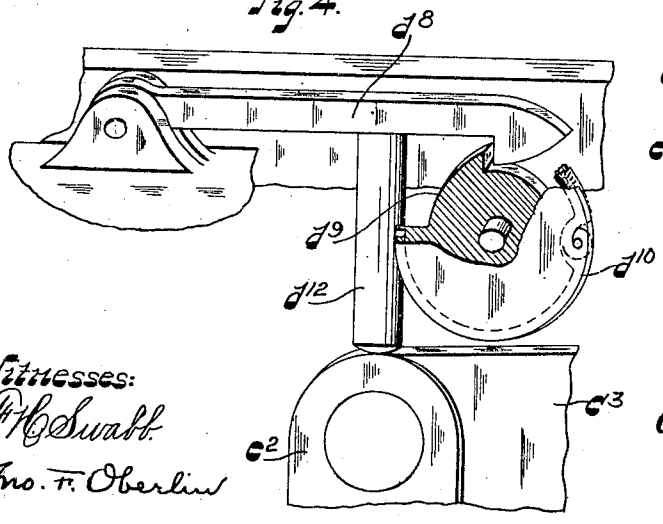
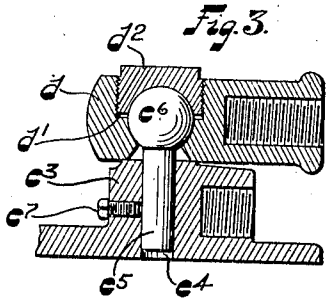


Fig. 3.



Witnesses:
F. H. Swabb.
Jno. F. Oberlin

Inventor,
Adolph G. Hupfel
by his attorney
J. D. Fay

THE NORRIS PETERS CO., WASHINGTON, D. C.

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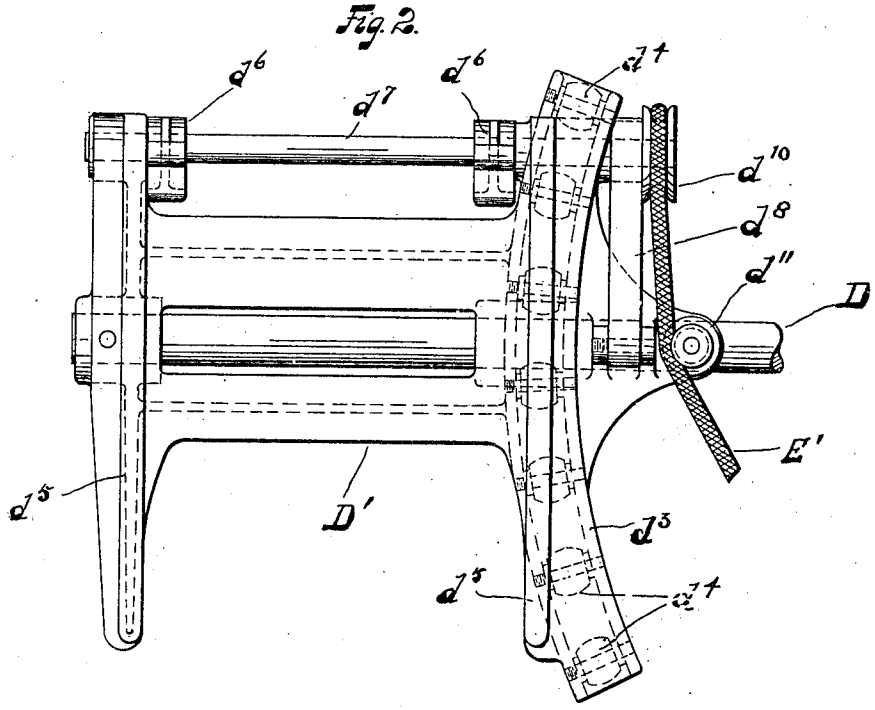
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2 SHEETS—SHEET 2.

Fig. 2.



Witnesses:
F. H. Swabb.
Jno. F. Oberlin

Inventor,
Adolph G. Hupfel
by his attorney
J. D. Fay

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ADOLPH G. HUPFEL, OF NEW YORK, N. Y.

KEG-HANDLING MECHANISM.

No. 871,274. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed August 3, 1906. Serial No. 329,011.

To all whom it may concern:

Be it known that I, ADOLPH G. HUPFEL, a citizen of the United States, resident of New York, county of New York, and State of New York, have invented a new and useful Improvement in Keg-Handling Mechanism, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to improvements in mechanism for handling kegs, barrels, and the like, and has as its particular object the provision of means for conveying kegs around corners. In other words, it is designed to transfer kegs from one to the other of two tracks or skid-ways that are angularly disposed with respect to each other. It is of course understood that in breweries and other manufacturing plants where kegs, or like containers, require to be handled in large numbers, such handling is expedited by the use of elevators, generally of the endless chain type, for transferring them from one floor to the other, and of inclined tracks or skid-ways for conveying them from one part to another on the same floor. In both cases the kegs are handled most conveniently lying on their sides, and in the latter, when thus disposed, it is obvious that they will roll along under the force of gravity alone and without attention except at the receiving and discharging ends of the particular section of track. Heretofore, however, so far as I am aware, it has not been possible to thus convey them around corners; for, inasmuch as it is only the slight bulge in the sides of the keg that keeps it in place on a straight-away track, it is evident that on even a slight curve it would be very apt to jump the track. It is also evident that the use of guide boards laterally of a track with the object of keeping the kegs in place as they roll along is impracticable for such boards would tend to throw the kegs diagonally of the track and so retard or stop entirely their progress thereon. My device, then, consisting of the means hereinafter fully described and particularly pointed out in the claims, is presented as a solution of the difficulties just enumerated.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 represents in perspective a view of one form of my improved keg-handling mechanism in its complete and assembled condition; Fig. 2 is a plan view of the keg-transferring member that forms an element of such mechanism; Fig. 3 is a cross-sectional view of a detail of the base of such mechanism; and Fig. 4 represents in perspective a detail of the transferring member shown in place in Fig. 2.

In such Fig. 1, sections of two regular tracks, A, B, are shown, either or both of which may be continued beyond the transferring device if the situation so demands. A not infrequently desirable arrangement would be to have the one main track, in this instance B, extend continuously along one side of, or through, a room or building, and have lateral transversely-disposed tracks, as A, as feeders to discharge their kegs onto such main track. In the case in hand, then, tracks A and B are disposed and inclined to serve respectively as a keg-delivery and a keg-discharge track.

The transferring device consists, in a general way, of an oscillatory member adapted to receive a keg from the first of such tracks and discharge it onto the second thereof. Structurally the device comprises as its base a track formed of a single curved rail C disposed on the arc of a circle tangent to tracks A and B, respectively, and firmly secured to the floor by means of bolts *c* passing through the rail base. The preferred cross-sectional form of such rail C appears from the end view given in Fig. 1. The web of the rail decreases gradually in height from the end adjacent to keg-delivery track A to the end adjacent to discharge-track B. In other words, the rail is inclined downwardly from the one point to the other. Centrally mounted on the floor with respect to the circle, on an arc of which rail C is disposed, is a post or block C′ that, in addition to being itself secured to the floor, is braced with respect to such rail by two radially disposed arms C^2. These latter consist preferably of pipe sections properly threaded to be screwed into openings tapped out in bosses c^2 and c^3, respectively formed on rail C and block C′.

Boss c^3 on block C′ is formed, in addition to the two laterally disposed openings de-

signed to receive the inner ends of pipe-sections C^2, with a vertical bore c^4, Fig. 3, in which is mounted a pin c^5 provided with a spherical head c^6. This pin is held against rotation by means of a set-screw c^7, as shown, and upon its head is mounted the socketed inner end of an arm or link-shaft D, to the outer free end of which is attached the keg-transferring member proper. The details of the construction of the ball and socket bearing thus formed are shown in Fig. 3 already referred to. As reference to such figure will disclose, the aforesaid inner end of arm D consists of a casting d provided with an opening d' therethrough that is adapted to receive pin c^5 and that is further provided with a semi-spherical bearing in which the head c^6 of such pin is seated when the latter is secured in place in boss c^3. The upper portion of the opening d' is of increased diameter and is adapted to receive a plug d^2 that is formed on its under face with a semi-spherical bearing adapted to form a bearing for the top of the pin head c^6. Thus it is seen that not only is arm D free to oscillate in a horizontal plane about the pivotal axis formed by pin c^5 but that a certain range of vertical movement is also permitted it. The necessity for this will appear presently.

As has been stated, the keg-transferring member is mounted upon the outer end of arm or link-shaft D and consists of a rack or table D′ adapted to receive a keg from delivery-track A when adjacent thereto and when properly actuated to transfer and discharge the same upon track B. Such rack D′, preferably in the form of an integral casting, Fig. 2, the base d^3 of which is of inverted trough-shape and is curved laterally to conform with the curvature of rail C over which it is designed to fit. A plurality of rollers d^4, Fig. 2, are mounted on transverse axes within this trough-shaped base d^3, whereby movement of the same along such rail C is much facilitated. On this base are supported two parallel skids d^5 so disposed as to approximately register with the rails of tracks A and B, respectively, in the corresponding limiting positions of rack-member D′ on track C. Normally rack D′ is maintained in the first of such positions, *i. e.* when skids d^5 register with the rails of keg-delivery track A, by means of a counterweight E that is connected therewith through a cable E′ passing over a suitable pulley e and connected with rack D′ in a manner presently to be set forth.

To retain the keg upon rack D′ pending the movement of the latter to its second position, arms d^6 are provided, being secured upon a rock-shaft d^7 that is transversely mounted in the front end of rack-member D′. This rock-shaft is normally locked against rotation, and arms d^6 maintained vertical, by a pawl d^8, Figs. 2 and 4, that is mounted laterally of one of the skids d^5 between suitable ears upon rack-base d^3 and engages a ratchet-wheel d^9 on the end of such shaft, Fig. 4. The one, forwardly-disposed, tooth upon this ratchet-wheel is normally held in position to be thus engaged by pawl d^8, by the action of counterweight cable E′, the end of which is fastened to the periphery of a pulley d^{10} mounted upon rock-shaft d^7 beside ratchet-wheel d^9 and conveniently made integral therewith as shown. Proper direction is given to the end of such cable to prevent it from leaving the groove of the pulley by a guide-pulley d^{11} on the base of member D′. Pawl d^8 is provided with a downwardly-projecting elongated lug, or pin, d^{12}, that is adapted to be engaged, as the rack-member nears its second limiting position, the one adjacent to discharge-track B, by the cam edge of a plate C^3 formed integral with rail C, Figs. 1 and 4. The effect of such engagement is to raise the pawl and thereby release ratchet-wheel d^9; rock-shaft d^7, it will be readily apparent, is then held against turning and the arms d^6 mounted thereon sustained from falling by the pull of counterweight E upon pulley d^{10} alone.

The operation of the transferring mechanism, which is entirely automatic, may now be set forth, the details of its construction having been fully described. Assuming at the commencement of such operation that the transferring member D′ is in its normal position with skids d^5 in register with the rails of tracks A, it will follow from what has been just said, that arms d^6 on rock-shaft d^7 will be locked by pawl d^8 in their vertical position. A keg now rolling down track A will accordingly be received by rack D′ and held thereon. The impetus of the keg thus deposited on the rack, however, assisted by the slight downward inclination of the curved track rail C, is sufficient to cause such rack member as a whole to swing around its pivotal axis, the counterweight E being properly gaged to achieve this result. As, in the course of such swing, the skids of the rack, on which the keg is resting, are brought into alinement with the rails of the second, keg-discharge, track B, pawl d^8 is tripped by the engagement of pin d^{12} with cam-plate C^3 and rock-shaft d^7 with arms d^6 thus left free to turn. The weight of the keg is sufficient to bear the latter down against the slight resistance offered by the leverage which counterweight E is given on pulley d^{10}. Such keg accordingly rolls off rack D′, down the continuation of skid-way d^5 formed by arms d^6 and onto track B. Its further movement along the latter is wholly gravitational and it hence continues therealong until stopped. Just as soon as rack member D′ is relieved of the weight of the keg its return oscillation under the influence of counterweight E begins. An incidental effect of such ac-

tion on the part of the counterweight is the restoration of rock-shaft d^7 and arms d^6 to their normal positions in which they are secured by pawl d^8. Accordingly, when the rack again occupies its initial station, all is again ready for the reception of a second keg. If the feeding of the kegs to track A is properly timed, it will be evident that the cycle of operation just indicated can be made to recur with practically no loss of time and the transfer of kegs be thus made continuous. Such timing of the feeding of the kegs can be made automatic also, if desired, by suitable stop mechanism on track A connected to be controlled by the oscillations of member D'. Perfect freedom in its oscillation, in spite of the inclination of rail C, is secured to member D' by the construction of the ball and socket joint whereby it is pivotally attached to the base.

It should be noted in conclusion that my keg-transferring mechanism is not only simple in construction and, as has just been explained, entirely automatic in its operation, but that it is readily adaptable to various situations about breweries and other plants where the handling of kegs assumes formidable proportions. Thus the angle through which the transfer is made may be either greater or less than the one of ninety degrees here shown. It is also simply a matter of design to adapt the device to operative counter-clockwise instead of in clockwise fashion as does the one chosen for the purposes of the foregoing description. Similarly, the use of other means than a counterweight for normally positioning the transferring is contemplated as being included in my invention.

Having thus described my invention in detail, that which I particularly point out and distinctly claim is:

1. Keg-handling mechanism, comprising a track disposed on the arc of a circle; and a member movably mounted upon said track and adapted to receive a keg at one end and transfer the same to the other end of the track.

2. Keg-handling mechanism, comprising a track disposed on the arc of a circle; an arm pivotally mounted at one end at the center of such circle; and a rack mounted upon the free end of such arm and movable upon said track, said rack being adapted to receive and transfer a keg.

3. Keg-handling mechanism, comprising an inclined track disposed on the arc of a circle; and a member movably mounted upon said track and adapted to receive a keg at one end and transfer the same to the other end of said track.

4. Keg-handling mechanism, comprising an inclined track disposed on the arc of a circle; an arm pivotally mounted at one end at the center of such circle; and a rack mounted upon the free end of such arm and movable upon said track, said rack being adapted to receive and transfer a keg.

5. Keg-handling mechanism, comprising an inclined track disposed on the arc of a circle; a member movably mounted upon said track and adapted to receive a keg at one end and transfer the same to the other end of said track; and means normally positioning said member at the highest portion of said track.

6. Keg-handling mechanism, comprising an inclined track disposed on the arc of a circle; an arm pivotally mounted at one end at the center of such circle; a rack mounted upon the free end of said arm and movable upon said track, said rack being adapted to receive and transfer a keg, and means normally positioning said member at the highest portion of said track.

7. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks; and a member movable upon said third track and adapted to transfer a keg from one of said first-named tracks to the other.

8. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks; an arm pivotally mounted at one end at the center of such circle; and a rack mounted upon the free end of said arm and movable upon said third track, said rack being adapted to transfer a keg from one of said first-named tracks to the other.

9. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of an oscillatory keg-transferring member adapted in one position to receive a keg from one of said tracks and in another position to discharge such keg onto the other thereof; and means normally retaining said member in said first position.

10. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks; a keg-transferring member movable upon said third track, such member being adapted in one position to receive a keg from one of said first-named tracks and in another position to discharge such keg upon the other thereof; and means normally retaining said member in said first position.

11. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks; an arm pivotally mounted at one end at the center of such circle; a rack mounted upon the free end of said arm

and movable upon said third track, said rack being adapted to transfer a keg from one of said first-named tracks to the other, and means normally positioning said rack.

12. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks and inclined from the first to the second thereof; a keg-transferring member movable upon said third track and adapted in one position to receive a keg from the first of said tracks and in another to discharge it upon the second thereof; and a counterweight normally retaining said member in said first position.

13. In keg-handling mechanism, the combination with two tracks angularly disposed with respect to each other; of a third track disposed on the arc of a circle tangent to aforesaid tracks and inclined from the first to the second thereof; an arm pivotally mounted at one end at the center of such circle; a rack mounted upon the free end of said arm and movable upon said third track, said rack being adapted in one position to receive a keg from the first of said tracks and in another to discharge it upon the second thereof; and a counterweight normally retaining said member in said first position.

14. In keg-handling mechanism, the combination of a movable member adapted to receive a keg; means adapted to retain such keg thereon; and means normally positioning said member; said positioning means being operatively connected with said retaining means.

15. In keg-handling mechanism, the combination of a movable member adapted to receive a keg; a rock-shaft mounted in said member and provided with arms adapted to retain such keg thereon; and a counterweight normally positioning said member, said counterweight being operatively connected with said rock-shaft.

16. In keg-handling mechanism, the combination of a movable rack adapted to receive a keg; a rock-shaft mounted in said rack and provided with arms adapted to retain a keg thereon; means normally positioning said movable rack, such means being also adapted to operatively position said arms; means adapted to secure said arms in such position; and means adapted to release said securing means at a predetermined point in the path of movement of said rack.

17. In keg-handling mechanism, the combination of a movable rack adapted to receive a keg; a rock-shaft mounted in said rack and provided with arms adapted to retain a keg thereon; a counterweight normally positioning said rack, said counterweight being connected with said rock-shaft to normally operatively position the arms on the latter; a ratchet-wheel mounted upon said rock-shaft; a pawl adapted to engage said wheel to secure said arms in such operative position; and means adapted to release said pawl at a predetermined point in the path of movement of said rack.

18. In keg-handling mechanism, the combination of an inclined track disposed on the arc of a circle; an arm pivotally mounted by a ball and socket joint at the center of such circle; and a rack mounted upon the free end of said arm and movable upon said track.

19. In keg-handling mechanism, the combination of an inclined track disposed on the arc of a circle; a suitable support at the center of such circle; an arm mounted upon such support by a ball and socket joint; and a rack mounted upon the free end of said arm and movable upon said track; said rack being adapted to receive a keg at one end of said track and discharge the same at the other end thereof.

Signed by me this first day of August 1906.

ADOLPH G. HUPFEL.

Attested by—
ANTON C. G. HUPFEL,
O. A. GRUNDMANN.