H. EGLI.

MECHANICAL MOVEMENT.

APPLICATION FILED MAY 25 1921.

1,414,461.

Patented May 2, 1922.

3 SHEETS—SHEET 1.

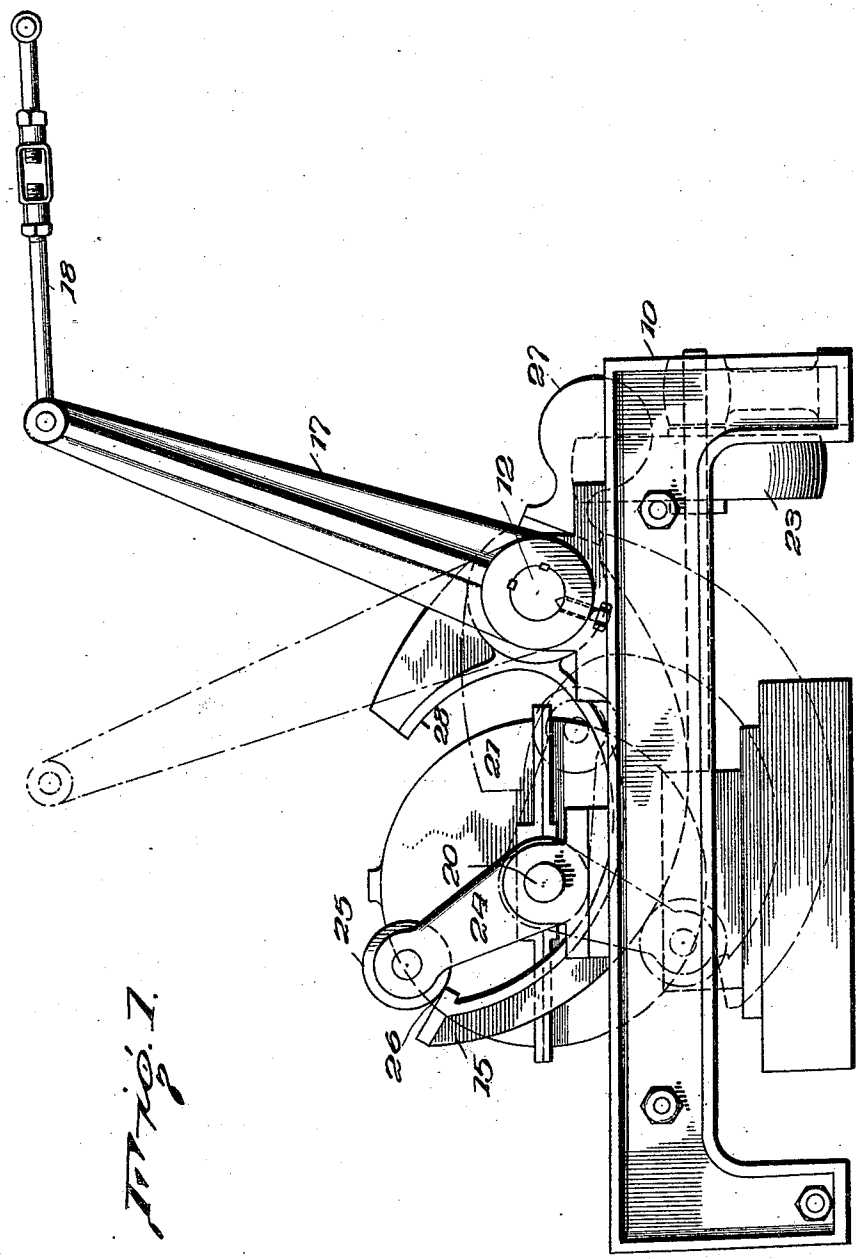


Fig. 1.

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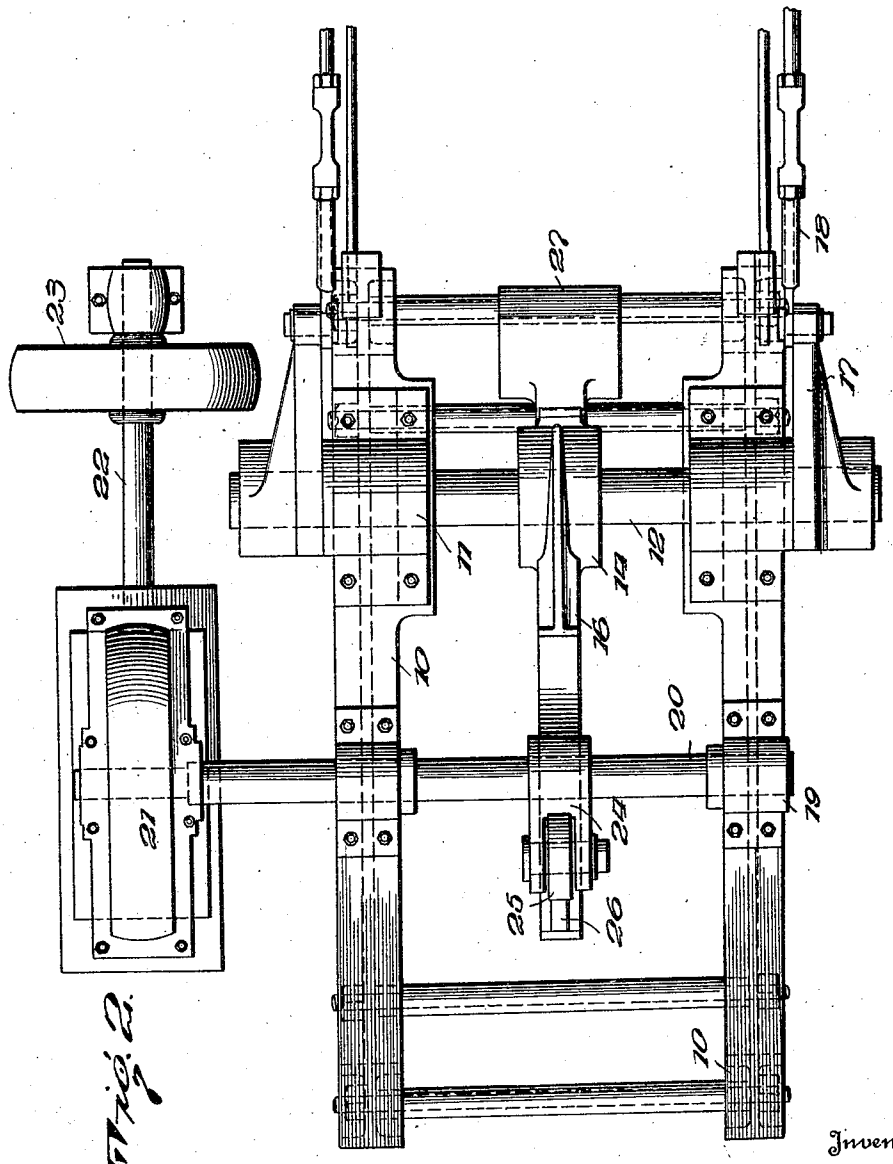


Fig. 2.

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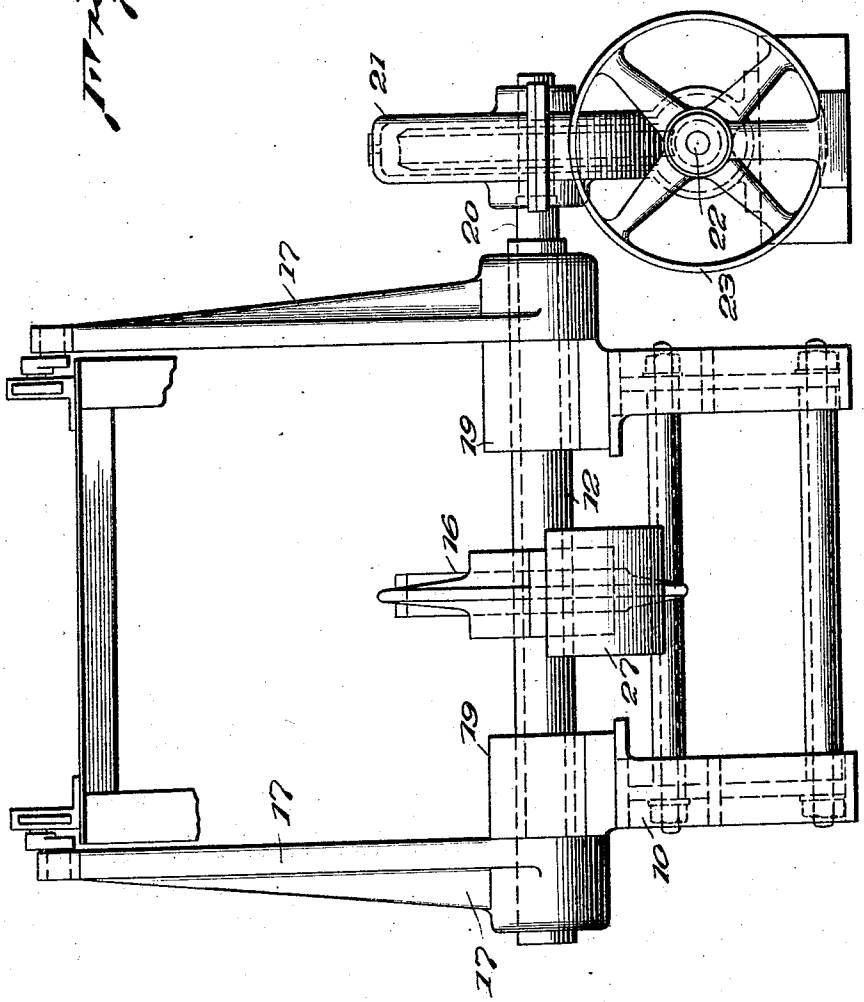
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HULDREICH EGLI, OF BALTIMORE, MARYLAND.

MECHANICAL MOVEMENT.

1,414,461. Specification of Letters Patent. Patented May 2, 1922.

Application filed May 25, 1921. Serial No. 472,337.

To all whom it may concern:

Be it known that I, HULDREICH EGLI, a citizen of Switzerland, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to improvements in mechanical movements, and more particularly to means for imparting a reciprocatory motion to a feeding mechanism such, for instance, as a mechanism for feeding milk bottles to and removing said bottles from their respective jets in a bottle washing apparatus, although other forms of feeding mechanisms may well be provided with the present invention without departing from the spirit thereof.

An object of the present invention is to provide a rocker cam that will have a comparatively long leverage for actuating the feeding mechanism in one direction but will have a short leverage when moving said mechanism in the opposite direction.

A further object is the provision of a cam of this character in which a wide variation of leverages may be obtained whereby the timing of the advancing and returning movements of the feeding mechanism may be varied.

In the accompanying drawings,—

Figure 1 is a side view of a mechanism embodying the present invention, the mechanism here illustrated being adapted to be connected to a bottle feeding apparatus not shown.

Fig. 2 is a top plan view of the structure shown in Fig. 1; and

Fig. 3 is an end view thereof.

While any suitable supporting structure may be employed, the mechanism is shown in the accompanying drawings as being supported on substantial frame members 10 provided with bearings 11 adjacent one end for a rocker shaft 12 which is journaled therein. The frame members 10 are spaced apart by suitable cross pieces and the rocker shaft 12 extends transversely of the frame with its ends projecting a short distance beyond the outer sides of the frame for a purpose presently to be described.

Mounted on the rocker shaft 12 intermediate the frame members 10 and keyed or otherwise fixedly secured to said shaft 12 is a rocker cam 14 provided with a pair of segmental arms 15, 16 extending longitudinally of the frame. A pair of rocker levers 17 are also keyed to the rocker shaft 12, these rocker levers 17 being mounted on the projecting end portions of said shaft and extending upwardly from the frame 10 their upper ends being connected to the feeding mechanism to be operated by an adjustable link connection 18.

Journaled in bearings 19 approximately midway the ends of the frame members 10 is a shaft 20 adapted to be rotated by ordinary worm reduction gearing 21 connected by a shaft 22 carrying a pulley 23 which is driven from any suitable source of power. Mounted on shaft 20 is an actuator arm 24 having its outer free end provided with bearings for a cam roller 25, the arm and roller being adapted to be revolved in the direction indicated by the arrow through the driving connections just described.

Cam arm 15 is comparatively long, extending below the frame members 10 and beyond the actuator arm shaft 20, and, as shown, said arm is provided at its end with a cam surface 26. The rocker levers 17 are shown, in Fig. 1, in their retracted positions and when said arms are in that position, the cam surface 26 of cam arm 15 is positioned in the path of the cam roller 25 carried by the revolving actuator arm 24. As arm 24 continues to revolve, cam arm 15 is depressed until it reaches the position shown in dotted lines in Fig. 1, at which point the cam roller 25 will ride off cam face 26. The curvature of arm 15 is such that said arm will then be free to be elevated to its original position by mechanism hereinafter described, but it is momentarily maintained in its depressed position, while the bottles are being washed, or when any other work to which the machine is adapted is being accomplished, by the rocker levers 17 and a counterbalance 27 formed on the cam 14 and projecting on the opposite side of cam shaft 12. As the arm 15 is being depressed, the rocker shaft 12 is rocked in its bearings and the rocker levers 17 are advanced to the position shown in dotted lines in Fig. 1, as will be understood.

Cam arm 16 projects upwardly from cam shaft 12 and when the rocker levers are retracted said arm occupies the position in which it is shown in full lines in Fig. 1,

that is, with its cam surface 28 out of the path traveled by the revolving actuator arm 24 and cam wheel 25. When, however, cam arm 15 has been depressed, arm 16 is moved to the position shown in dotted lines in Fig. 1 and is positioned in the path of the actuator arm and cam roller, and when said roller is brought in contact with the arm 16, by the revolving actuator arm, said cam arm will be returned or elevated to its former position. This return movement of arm 16 will return arm 15 to its elevated position ready to be engaged and depressed by the actuator arm during the next revolution of the latter and the rocker levers 17 will also be retracted to their former position.

Cam arm 16 is considerably shorter than arm 15, the long leverage of arm 15 causing the rocker arms 17 to be advanced slowly while the comparatively short leverage secured by arm 16 will retract the rocker arms at a greater rate of speed. The relative lengths of arms 15 and 16 being determinative of the speeds at which the rocker arms 17 are advanced and retracted, and it being a simple matter to make the arms of any desired length it is possible to secure any desired variation in the advancing and retracting movements of the rocker levers.

While the present invention has been described in connection with a milk bottle washing machine wherein the bottles, in trays or boxes, are advanced under and removed from their respective jets, it will be understood that the mechanism may be connected to any feed mechanism that it is desired to uniformly actuate at timed intervals.

What is claimed is:

1. In a mechanical movement, the combination of an actuator, a rocker shaft, a rocker lever mounted on the shaft, a cam mounted on the shaft provided with a pair of arms projecting in the path of the actuator and adapted to be alternately engaged by said actuator, one of said arms being of greater length than the other, whereby the rocker lever will be moved in opposite directions at different rates of speed.

2. In a mechanical movement, the combination of an actuator arm revoluble about a fixed axis, a rocker shaft, a cam mounted on said rocker shaft, said cam having a pair of arms arranged eccentrically to the axis of the actuator arm and each provided with a cam surface, and a cam roller carried by the actuator arm adapted to successively engage the cam surfaces on said cam arm.

3. In a mechanical movement, the combination of an actuator arm revoluble about a fixed axis, a rocker shaft, a rocker lever mounted on said shaft, and a cam mounted on the rocker shaft, said cam having a pair of arms arranged eccentrically to the axis of the actuator arm and provided with cam surfaces adapted to be successively engaged by the actuator arm, one of said cam arms being of greater length than the other, whereby the rocker lever will be rocked in opposite directions at different rates of speed.

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