

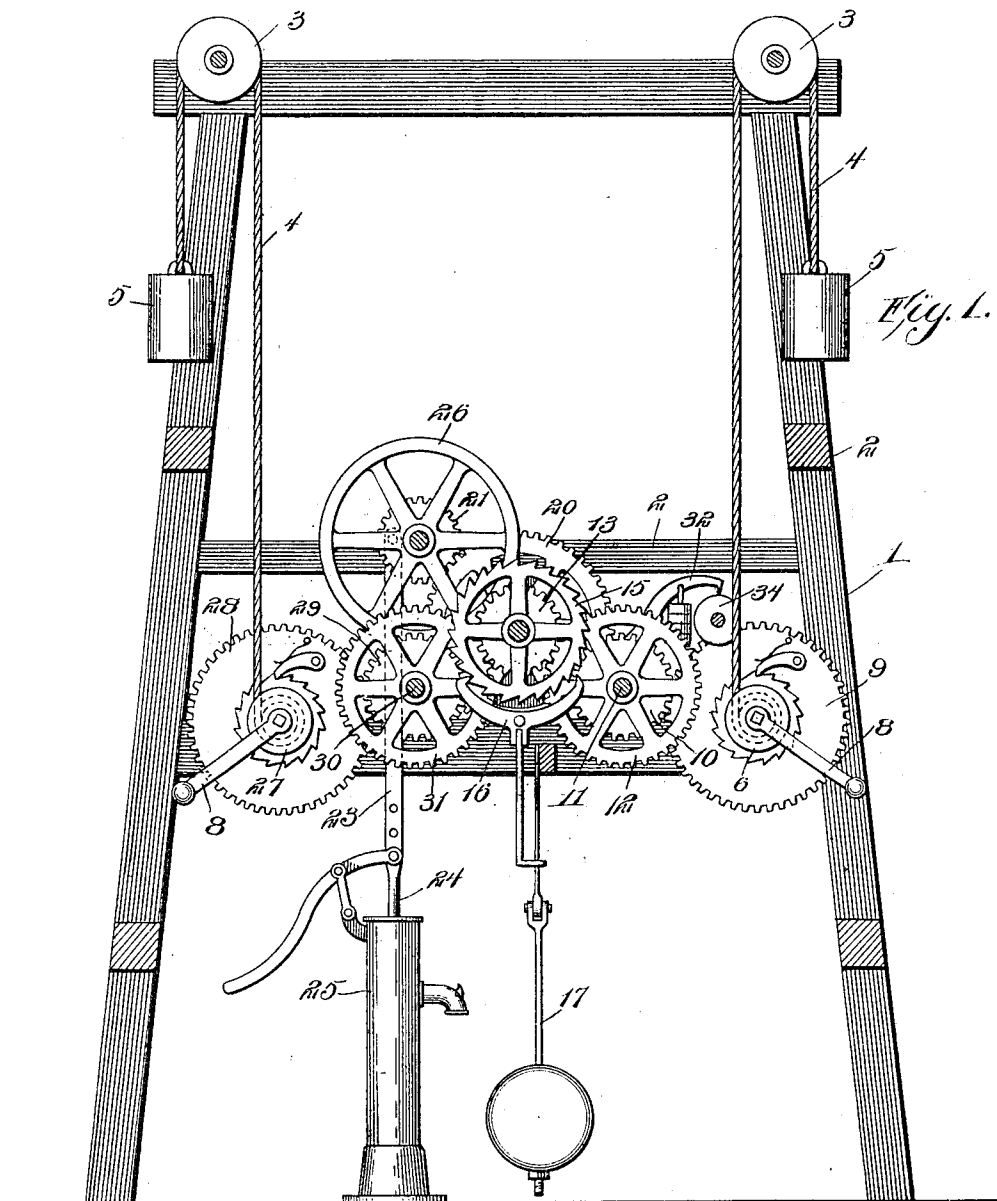
No. 818,946.

PATENTED APR. 24, 1906.

I. FLOWERS.
TIME CONTROLLING MECHANISM FOR PUMPS.

APPLICATION FILED MAY 1, 1905.

2 SHEETS—SHEET 1.



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Witnesses

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Fig. n.

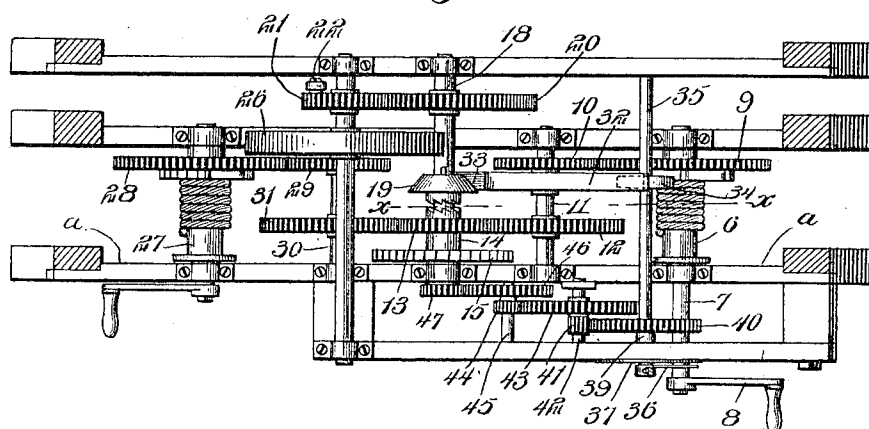


Fig. 3.

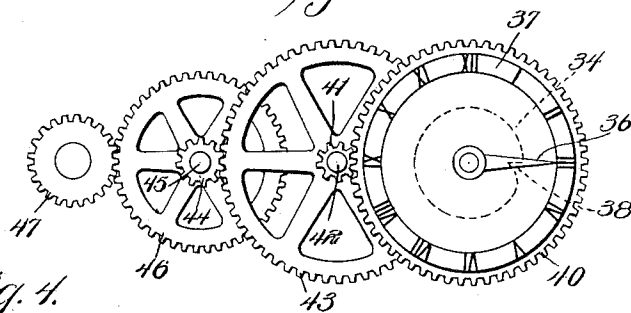
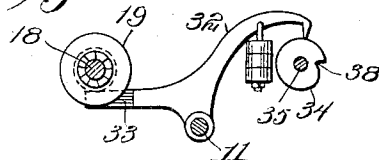


Fig. 4.



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UNITED STATES PATENT OFFICE.

ISAAC FLOWERS, OF MARTELLE, IOWA.

TIME CONTROLLING MECHANISM FOR PUMPS.

No. 818,946.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed May 1, 1905. Serial No. 258,315.

To all whom it may concern:

Be it known that I, ISAAC FLOWERS, a citizen of the United States, residing at Martelle, in the county of Jones and State of Iowa, have invented certain new and useful Improvements in Motors; 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.

My invention relates to improvements in pumps, and it is more particularly a motor for use in operating the pump at a predetermined time.

The object of the invention is to provide mechanism of simple construction which can be substituted for a windmill or other hoisting device ordinarily employed.

With the above and other objects in view the invention consists of a pump the rod of which is connected to a train of gearing driven, preferably, by means of weights suitably connected thereto. An escapement is employed for regulating the operation of the gearing, and a novel setting device is utilized whereby the constantly-operating gears can be caused to actuate the pump-rod at a predetermined time.

The invention also consists in further novel construction and combination of parts hereinafter more fully described and claimed.

In the accompanying drawings I have shown the preferred form of my invention.

In said drawings, Figure 1 is a vertical section taken on the line *a a*, Fig. 2. Fig. 2 is a plan view of the mechanism, the supports and weight-cords being shown in section. Fig. 3 is an elevation of the indicator and the gears for transmitting motion from the shaft of the scape-wheel to the indicator-shaft; and Fig. 4 is a section on line *x x*, Fig. 2.

Referring to the figures by numerals of reference, 1 1 are standards suitably connected by means of braces 2 and having sheaves 3, mounted adjacent the upper ends thereof and supporting cords or ropes 4, having weights 5 at their ends. Each cord 4 is connected to a drum 6, secured to a shaft 7, adapted to be rotated by means of a crank 8. A gear 9 is secured to shaft 6 and meshes with a smaller gear 10 on an intermediate shaft 11. A large gear 12 is secured to this intermediate shaft and meshes with a small gear 13, which is secured to a sleeve 14, having a scape-wheel 15 thereon. A pallet-lever 16 is mounted below and is adapted to engage

this scape-wheel and is controlled by a pendulum 17. A shaft 18 rotates within the sleeve 14 and has a frusto-conical collar 19 keyed to it and slidably mounted therein. This collar constitutes one member of a clutch and is adapted to engage the end of sleeve 14. A large gear 20 is secured to the shaft 18 and meshes with the gear 21, having a wrist-pin 22, to which is pivoted one end of a link 23, extending upward from the rod 24 of a pump 25. A fly-wheel 26 is secured to this shaft so as to cause the mechanism to operate at a uniform speed and to overcome a dead-center.

The mechanism above described is duplicated at the other side of shaft 18. It will be noticed that a second drum 27 is provided for the cord of the other weight 5, and this drum has a gear 28 rotatable with it and meshing with the gear 29 on the shaft 30. Another gear 31 is on this shaft and meshes with the gear 13. It will therefore be seen that gear 13 can be rotated by power derived from either or both of the weights 5.

A lever 32 is pivoted or fulcrumed on shaft 11 and has a beveled end 33, adapted to contact with the frusto-conical collar 19. One end of this collar bears on a cam 34, (shown by dotted lines in Fig. 3,) and which is secured to a shaft 35, having an index 36 at one end. A dial 37 surrounds this end of the shaft and is numbered to represent the hours of the day. A recess 38 is formed in the periphery of the cam 34 directly in rear of index 36, and by rotating this index shaft 35 will be also rotated, so as to bring recess 38 to a point any desired distance from the contacting portion of lever 32. A sleeve 39 is mounted on shaft 35 and rotates therewith by reason of the frictional contact between the two. This sleeve has a gear 40 meshing with a smaller gear 41 on the shaft 42, and a gear 43 on said shaft serves to transmit motion to a gear 44 on an intermediate shaft 45. Another gear 46 on the intermediate shaft meshes with a gear 47 on sleeve 14.

The gears 9 28 and drums 6 and 27 are provided with the usual pawl-and-ratchet mechanisms, so that the cords 4 can be wound without causing the rotation of the gears. The weights 5 will gradually unwind the cords from the drums and cause motion to be transmitted from gears 9 and 28 through the train of gears extending therefrom to sleeve 14. Scape-wheel 15 will therefore be continuously rotated, such movement being

controlled by the pallet-lever 16. As the sleeve 14 is loosely mounted on shaft 18, its rotation will not cause the corresponding rotation of the shaft of fly-wheel 26. Motion will, however, be continuously transmitted from sleeve 14 through gears 47, 46, &c., to shaft 35, and when the recess 38 in cam 34 assumes a position under the end of lever 32 said lever will drop therein and cause its beveled end 33 to contact with the collar 19 and force it into engagement with sleeve 14. Said sleeve will therefore be locked to the shaft 18, and the further rotation of said sleeve will cause motion to be transmitted through gears 20 and 21 to the link 23 and pump-rod 24. By rotating the index 36 and cam 34 the recess 38 can be caused to assume a position under lever 32 at a predetermined time. Shaft 35 may be geared so as to rotate once every twelve hours, and in that event the dial 37 is numbered successively from "1" to "12," so that by moving the index 36 to the numeral "3" the recess 38 in the cam is brought to such a position that it cannot reach the lever 32 until three o'clock. As the sleeve 39 rotates with shaft 35 solely through its frictional contact therewith, it is possible to rotate said shaft within the sleeve without causing a corresponding rotation of the gears.

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

1. The combination with a pump-rod and means for reciprocating the same; of a weight-operated drum, a scape-wheel, means for transmitting motion from the drum to the scape-wheel, a trip device, means for transmitting motion thereto from the scape-wheel and a clutch actuated by the trip device for operatively connecting the scape-wheel and the rod-actuating mechanism.

2. The combination with a pump-rod and mechanism for actuating the same; of a weight-operated drum, a scape-wheel, means for transmitting rotary motion from the drum to the scape-wheel, a cam, means for transmitting rotary motion thereto from the scape-wheel, a clutch for operatively connecting the scape-wheel with the rod-actuating mechanism and means actuated by the cam for operating the clutch.

3. The combination with a pump-rod and mechanism for actuating the same; of a power device, means for transmitting rotary motion therefrom to the scape-wheel, a cam, means for transmitting rotary motion thereto from the scape-wheel, a clutch for operatively connecting the scape-wheel and the rod-actuating mechanism, clutch-operating means adapted to be actuated by the cam and means for adjusting the relation of the cam to said clutch-operating means.

4. The combination with a rod and actuating mechanism therefor; of oppositely-disposed power devices, a scape-wheel, means for transmitting rotary motion from the power devices to the scape-wheel, a clutch for operatively connecting the scape-wheel and the rod-actuating mechanism, a recessed cam, means for transmitting rotary motion thereto from the scape-wheel, a clutch-operating lever adapted to be actuated by the cam, a stationary dial and an index movable with the cam for adjusting its recess to a desired relation with the lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ISAAC FLOWERS.

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