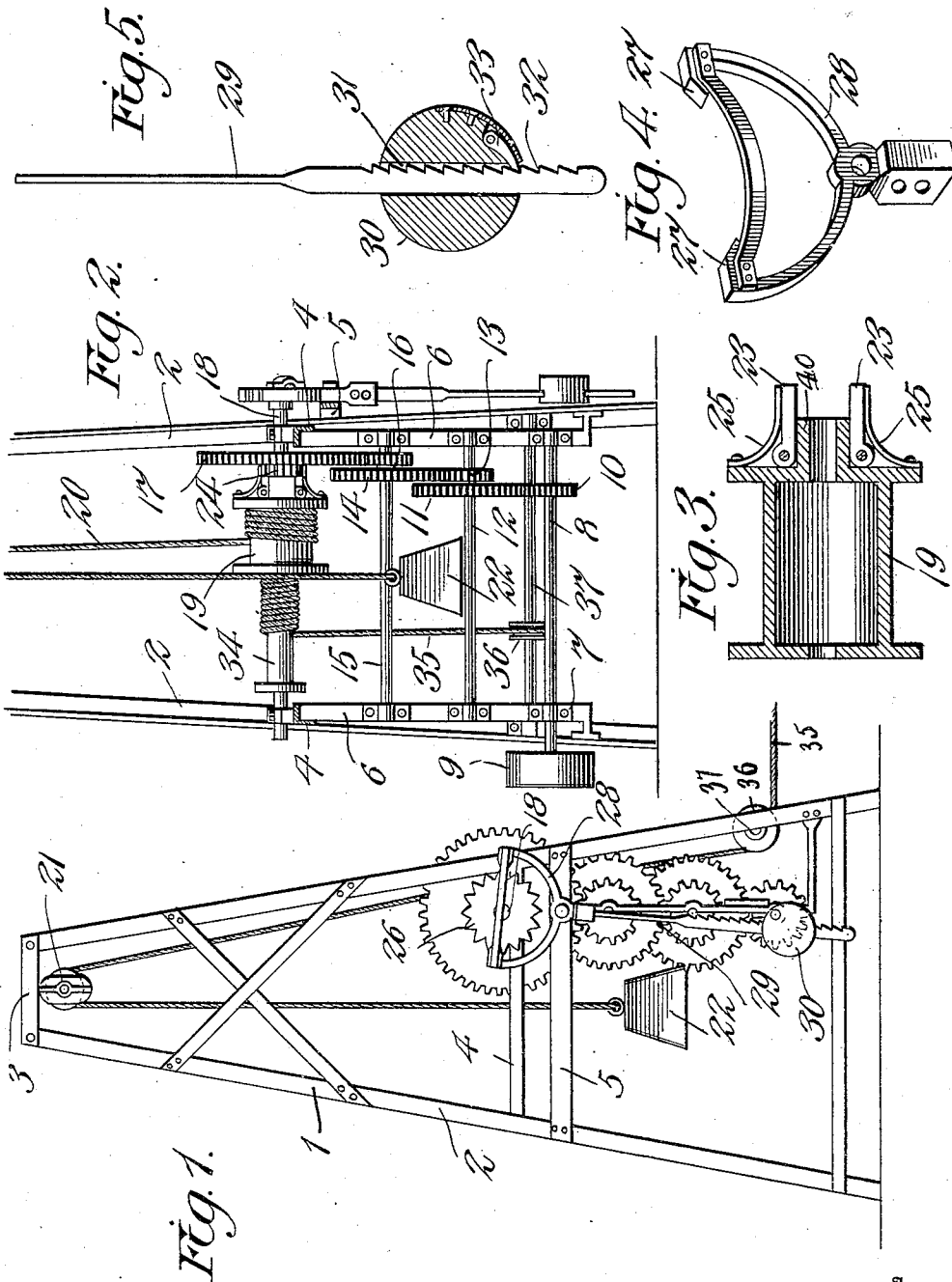


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WEIGHT MOTOR.
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935,422.

Patented Sept. 28, 1909.



Witnesses

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DANIEL D. SPRACKLEN, OF DEEP RIVER, IOWA.

WEIGHT-MOTOR.

935,422.

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To all whom it may concern:

Be it known that I, DANIEL D. SPRACKLEN, a citizen of the United States, residing at Deep River, in the county of Poweshiek and State of Iowa, have invented new and useful Improvements in Weight-Motors, of which the following is a specification.

This invention relates to weight motors designed for driving various classes of machinery, and embodies a power transmitting shaft in gear connection with and operated from a drum shaft, which in turn is operated through the medium of a weighted cable, there being connected with the drum shaft a pendulum operated escapement by means of which the speed of rotation of the drum is controlled and may be regulated.

The invention has for its objects to provide a comparatively simple, inexpensive device of this character wherein the power shaft will be positively driven from the drum, one in which the speed of rotation of the drum shaft will be multiplied through the medium of the intermediate gearing for imparting an appropriate speed of rotation to the transmitting shaft, one in which the pendulum weight may be conveniently adjusted for regulating the speed of the motor, and one wherein the pendulum may be locked at will for stopping the operation of the motor mechanism.

With these and other objects in view, the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings: Figure 1 is an end elevation of a motor embodying the invention. Fig. 2 is an elevation of the motor mechanism viewed at right angles to Fig. 1. Fig. 3 is a central, longitudinal section through the main drum, showing the same on a larger scale. Fig. 4 is a perspective view of the escapement lever. Fig. 5 is a detail view of the pendulum.

Referring to the drawings, 1 designates a vertical frame or tower comprising uprising corner bars or rails 2 connected at their upper ends by cross pieces 3 and between their ends through the medium of cross pieces 4 and 5, there being fixedly sustained within the frame 1 a pair of oppositely disposed vertical bearing bars 6, for a purpose which will presently appear.

Journaled in suitable bearings 7 attached to the bars 6 is a power transmitting shaft 8 on which is fixed a belt pulley 9 and a

pinion 10 in mesh with a gear 11 fixed on an idler shaft 12 on which there is also fixed a pinion 13 in mesh with a gear 14 fixed on a second idler shaft 15 in turn carrying a pinion 16 in mesh with the gear 17 fixed on a drum shaft 18, there being mounted on the shaft 18 a main drum 19 on which is wound a cable 20 carried upward over a guide pulley 21 hung at the upper end of frame 1, there being attached to the free end of the cable a power generating weight 22.

Pivoted at the outer end of the drum 19, which is susceptible of rotation on the shaft 18, is a pair of locking dogs 23 adapted for engagement with a circular toothed ratchet 24 fixed on the gear 17 for fixing the drum for rotation with the shaft, the dogs being pressed to engaging position under the action of springs 25, while fixed on the outer end of the drum shaft 18 is a toothed escapement wheel 26 adapted for engagement by the points or portions 27 of an escapement lever 28, in turn pivoted on the frame bar 5 and equipped with a vertically depending pendulum rod 29 having thereon a pendulum weight 30. The lower portion of the rod 29, which is slidable through a bearing opening 31 in the weight, is provided with a series of notches or teeth 32 adapted for engagement by a spring pressed pawl 33 pivoted on the weight for holding the latter in place on the rod, it being noted in this connection that the weight may be adjusted upward or downward on the rod to control the movement of the pendulum and consequently of the escapement lever for a purpose more fully hereinafter described.

Arranged on the drum shaft 18 and connected with the main drum 19, for rotation therewith is an auxiliary drum 34 having a rewinding cable 35 wound thereon in a direction reverse to that in which the cable 20 is wound, the cable 35 being led from the drum 34 over a guide pulley 36 fixed on an idler shaft 37 journaled in the frame and connected with some suitable source of power.

In practice, the weight 22 acts upon and for unwinding the cable 20 from the drum 19, thus imparting motion to the shaft 18 from which power is transmitted through the train of gearing to the shaft 8, from which power is taken to the mechanism to be driven by means of a belt arranged for travel on the pulley 9, it being understood, of course, that as the cable 20 unwinds from

drum 19 the cable 35 will be wound upon drum 34, and further, that the rotation of the shaft 18 is controlled by the pendulum operated escapement, as in the ordinary clock trains. After the weight 22 has entirely run down, or, that is, completely unwound the cable 20 from the drum, the dogs 23 are thrown out of engagement with the ratchet 24 to adapt the drums for idle rotation on the shaft 18, whereupon the cable 35, which may be operated by horse power or otherwise, is unwound from the drum 34, thus again winding the cable 20 on the drum 19 and raising the weight 22. The main drum 19 is provided at the end adjacent the gear wheel 17 with a tubular extension 40 against which the dogs 23 engage and are limited in their inward movements thereby. The ends of the dogs 23 project beyond the tubular extension 40 and engage with the teeth of the circular toothed ratchet 24. The springs 25 are connected at one end to the head of the main drum 19 and engaged at their opposite ends with the dogs 23 to press the same inward and hold their outer ends in engagement with the toothed ratchet 24.

It is to be understood that in the operation of the motor mechanism the speed of rotation of shaft 18 will be multiplied through the intermediate gearing for driving the shaft 8 at a proportionately high rate of speed, and further that by adjusting the weight 30 on the pendulum rod 29 the

speed of rotation of the shaft 18 may be readily governed.

Having thus described my invention, what I claim is:

In a weight motor, the combination of a frame, a power transmitting shaft mounted upon the frame, a drum shaft mounted upon the frame parallel with the power transmitting shaft and connected thereto by a train of gearing including the gear wheel 17 fast to said drum shaft, an escapement mechanism controlling the movements of the drum shaft, a circular toothed ratchet fast to the gear wheel 17, connected main and auxiliary drums loose upon said drum shaft and having a tubular extension at the end adjacent the gear wheel 17, dogs pivoted to the drum and limited in their inward movements by the engagement with said tubular extension and having their ends projected and in engagement with said circular toothed ratchet, springs attached at one end to the head of the main drums and exerting an inward pressure on the said dogs, a weighted cable mounted upon the main drum and passed over an elevated pulley on said frame, and a rewinding cable reversely wound on the auxiliary frame.

In testimony whereof, I affix my signature in presence of two witnesses.

DANIEL D. SPRACKLEN.

Witnesses:

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