

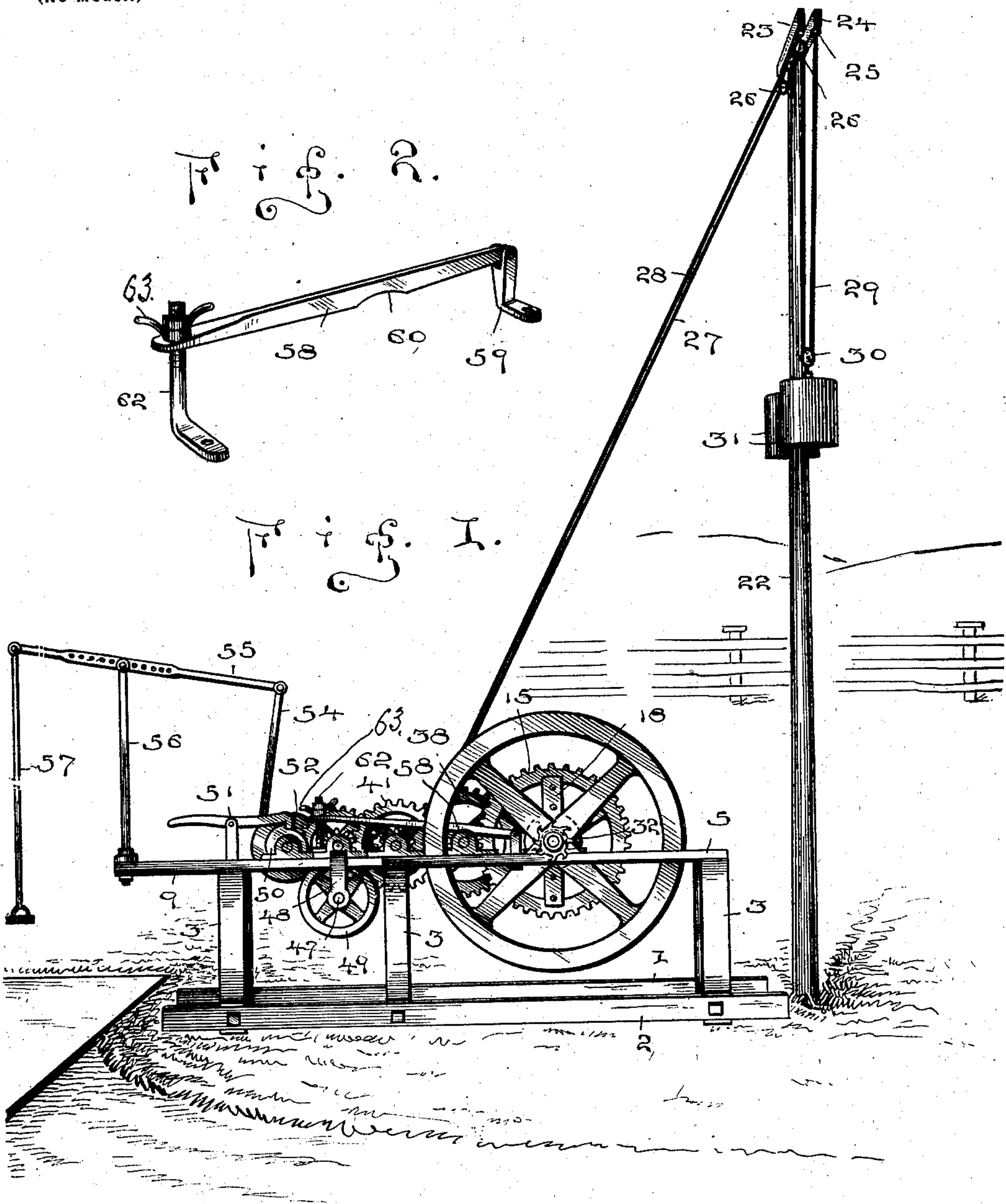
No. 712,359.

Patented Oct. 28, 1902.

J. CARDIFF.  
MECHANICAL MOTOR.  
(Application filed Apr. 25, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Inventor

Witnesses

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Fig. 3.

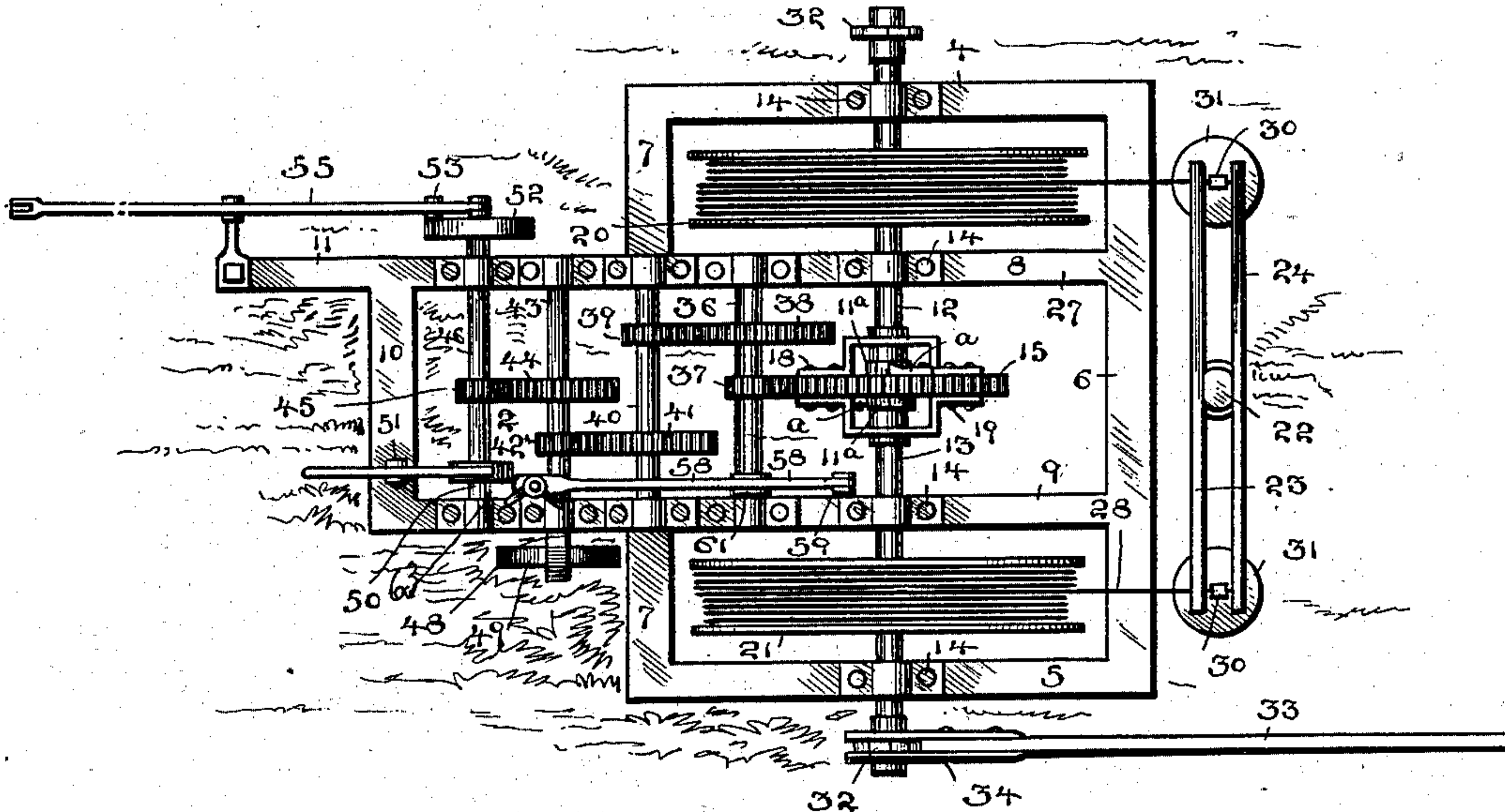


Fig. 4.

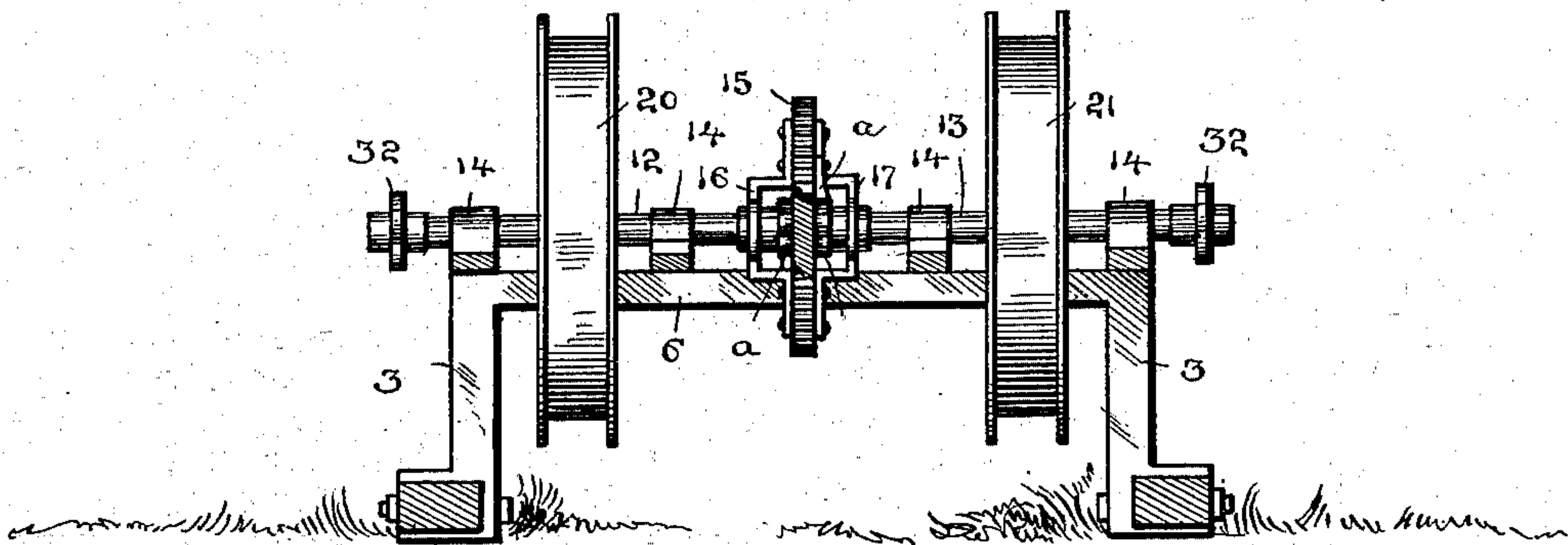
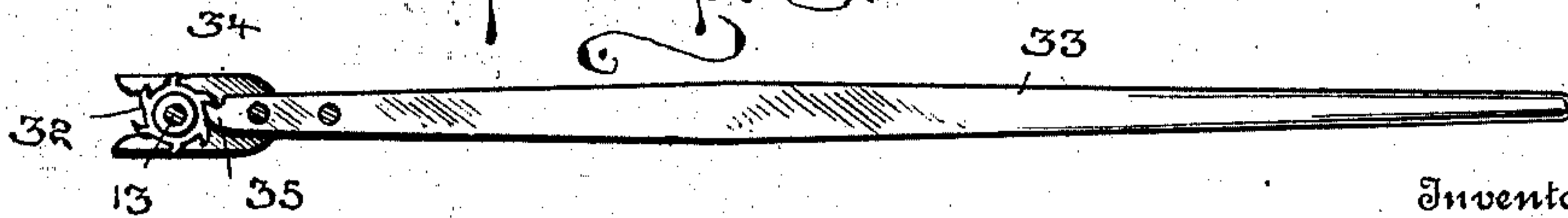


Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOHN CARDIFF, OF POTOMAC, ILLINOIS.

## MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 712,359, dated October 28, 1902.

Application filed April 25, 1902. Serial No. 104,629. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CARDIFF, a citizen of the United States, residing at Potomac, in the county of Vermilion and State of Illinois, have invented new and useful Improvements in Mechanical Motors, of which the following is a specification.

My invention has relation to improvements in mechanical motors of a kind or construction particularly adapted for actuating pumps; and the object is to simplify the existing art by providing a motor of the kind named and for the purposes intended which is of simplified construction, strong and durable, and efficient and certain in action and operation.

With these purposes in view the improvements consist in the novel construction of parts and their arrangement and aggroupment in operative combinations.

I have fully and clearly illustrated my improvements in the accompanying drawings, wherein—

Figure 1 is a side elevation of the complete machine. Fig. 2 is a detail perspective of the brake-lever removed from its position in the machine. Fig. 3 is a top plan view of the machine. Fig. 4 is an end view partly in transverse section. Fig. 5 is a detail side view of the lever for actuating the drum-shafts to wind up the cables on the drums.

Referring to the drawings, it will be seen that a frame is provided, supported by base rails or sills 1 2, to which are secured the legs 3 of the main and rear portion of the frame which carries the driving-drums, the driving gear or wheel, and a portion of the train of operating-gears. The rear and main portion of the frame consists of parallel side pieces 4 5, connected by an end piece 6 and having the inner inturned pieces 7. From the end piece 6 extend parallel bars 8 9, reaching forward the required distance and united by a cross-piece 10. An arm 11 is provided, which supports a standard for the pumping-beam, as hereinafter mentioned. The frame and its adjuncts or parts support the operative mechanism of the apparatus or device. It will be seen that this construction of the frame provides spaces at the side portions, affording room for the mounting of the driving-drums.

Extending half-way across the frame are

two alining shafts 12 13, journaled in bearings 14 on the rails of the frame. At their inner ends these shafts are each provided with a ratchet-wheel 11<sup>a</sup> to be engaged by pawls *a*, hung on a driving-wheel 15. This driving-wheel is arranged with its hub between the inner ends of the shafts 12 13 and is free to rotate between them. The driving-wheel is mounted in a frame composed of oppositely-disposed disks 16 17, journaled loosely on the shafts and having radial arms 18 19, having their outer ends secured to the driving-wheel. On the opposite faces of the driving-wheel are hung pawls *a a*, which engage the ratchets 11<sup>a</sup> and hold the wheel to turn with the shaft or shafts. It will be perceived that the driving-wheel may be locked to turn with one or both shafts by the pawls and that the cables or ropes on the drums may be independently wound up thereon.

On each of the shafts 12 13 is mounted a drum or flanged pulley 20 21 of large diameter—say six feet—so that the requisite length of cable may occupy but few turns thereon and the time of actuation increased.

A vertical support 22 is fixed adjacent to the machine, to the upper end of which are rigidly fixed cross-pieces 23 24, to one of which are fixed eyes or hooks 25 and to the other are hung small sheaves 26. Cables 27 28 have one end secured to the cross-pieces 23 24 and from thence are carried over the sheaves and then extended to the respective drums, to which their other ends are secured. A loop 29 is made in each cable, and in each loop is loosely placed a sheave 30, to which is hung a weight 31, which constitutes the power for actuating the mechanism. On the outer ends of each of the shafts 12 13 is mounted a ratchet-wheel 32, with which engages a detachable lever 33, by which the drum may be rotated to wind the cable thereon. This lever consists of a suitable handle carrying at its inner end two parallel pieces 34, forked to fit over the shaft, and between the parallel pieces on the end of the handle is formed with a crooked nose 35 to engage with the ratchets 32 on the outer end portions of the shafts 12 13. It will be perceived that when the forks of the lever are arranged on the



shaft the nose 35 will engage the teeth of the ratchet, and then by raising and lowering the handle of the lever the shaft will be turned with the drum and the cable wound up.

5. Journaled on the sills 8 9 is a shaft 36, on which is mounted a small pinion 37 in mesh with the driving-gear 15, and at another point on the shaft 36 is mounted a large gear-wheel 38 in mesh with a small pinion 39 on a shaft 40, which also carries a larger gear-wheel 41 in mesh with a small pinion 42 on a shaft 43, which also carries a gear-wheel 44 in mesh with a pinion 45 on shaft 46 and terminates the train of gearing. On a shaft 47, journaled in hangers 48, is mounted a fly-wheel 15 49 to regulate the motion of the train, and on this shaft 47 is mounted a pinion, which is meshed by the wheel 44 to drive the fly-wheel. On the shaft 46 is mounted a ratchet or 20 notched wheel 50, which is engaged by a pawl-lever 51 and serves to hold the mechanism stopped as desired. On the outer end of the shaft 46 is mounted a crank-disk 52, to the eccentric-pin 53 of which is pivotally fastened 25 the lower end of a pitman 54, the upper end of which is jointed to a rocking beam 55, which is adjustably supported on a vertical standard 56, having its lower end fixed to the arm 11 of the frame. To the free end of the rocking 30 beam is connected the pump-rod 57. The connection herein shown is conventional, since any proper connection may be utilized which will reciprocate the pump-rod. To regulate the speed of the mechanism, I provide a brake-lever 58, fulcrumed to a post 59, fixed to the 35 frame and formed with a recess 60, which bears on a brake-pulley 61 on the shaft 36. The free or outer end of the brake-lever is provided with an aperture which takes loosely 40 over a threaded standard 62, fixed to the frame, whereon it may be adjusted in pressure on the brake-pulley by means of thumb-

nut 63 engaging the threads of the standard, as shown in the drawings.

The operation may be stated to be: The 45 drums being equipped with the cables and the pawl of one or both being released from the ratchets on the inner ends of the shafts, the drums may be turned by the lever and the cables wound thereon, resulting in lifting the 50 weights to the height desired. The pawls may then be reengaged, the lever removed, and the weights will immediately exert their force and impart slow rotation to the drums, and the latter communicate movement to the train 55 of gearing and eventually result in actuating the pumping mechanism. If the movement is too fast for the purpose, the brake-lever is applied to bring the speed down to that desired and the action continued as long as desired or until the cable has been unwound 60 from the drum. Should it be desired to stop the mechanism, it may be accomplished by using the locking-lever.

Having thus described my invention, what 65 I claim is—

In a mechanical motor, the combination of a divided shaft, ratchets mounted adjacent to the inner end of each section thereof, a driving-wheel loosely arranged between the ap- 70 proaching ends of the divided shafts, disks journaled on the shaft-sections on opposite sides of the driving-wheel and formed with oppositely-extending radial arms having their ends secured to the driving-wheel, and pawls 75 on the driving-wheel to engage the ratchets on the shafts.

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

JOHN CARDIFF.

Witnesses:

JOHN M. CRAYTON,  
GEORGE SHOEMAKER.