(Model.)

O. M. BUNNELL & N. M. TENNEY.

Mechanical Motor.

No. 227,728. **Patented May 18, 1880.**

Fig. 1.

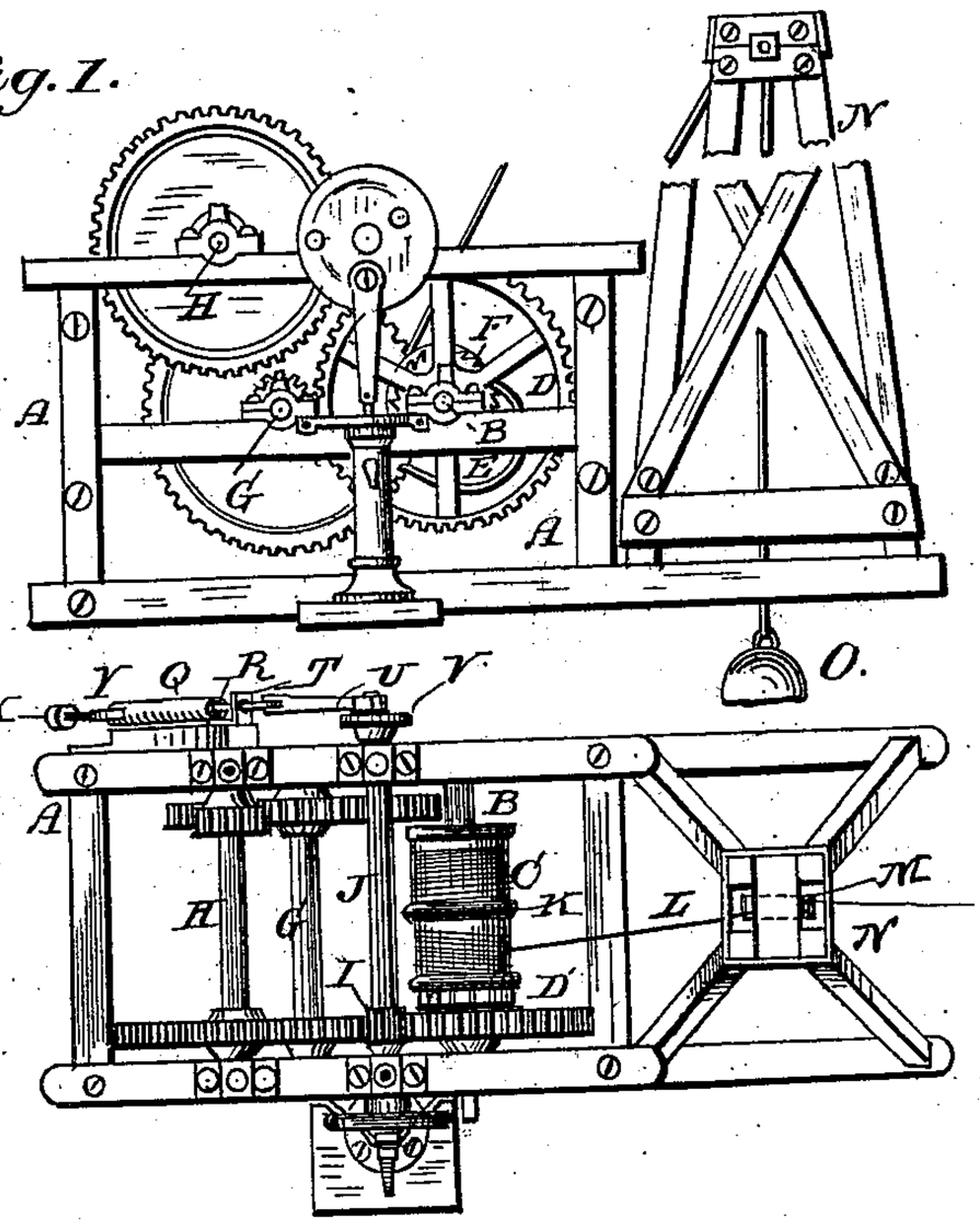


Fig. 2.

Fig. 3.

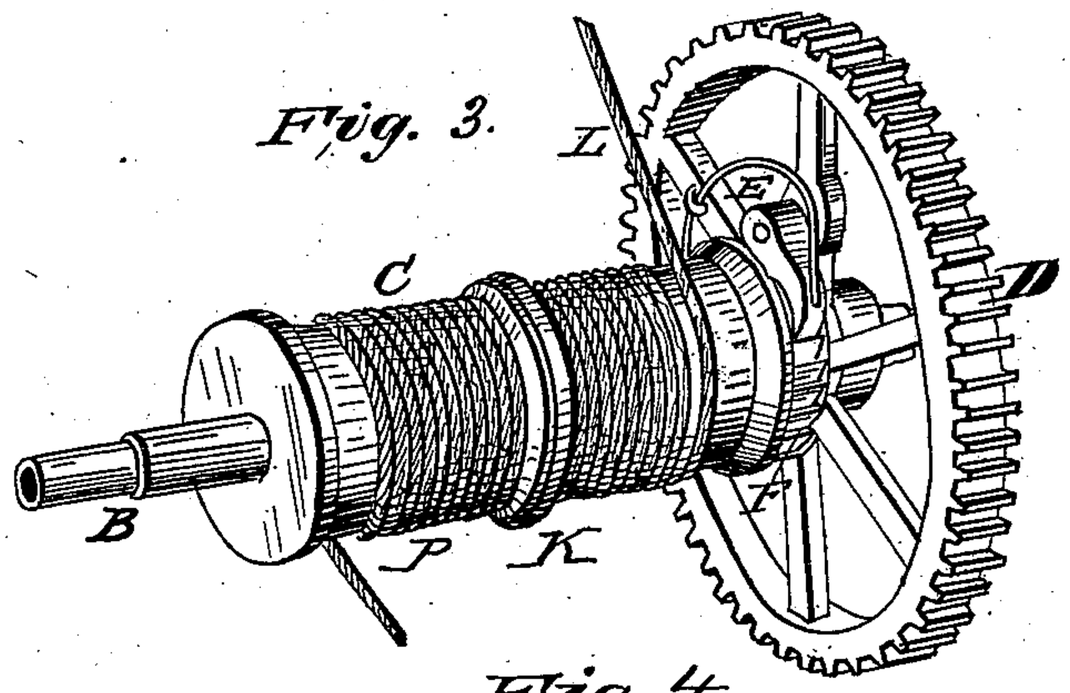
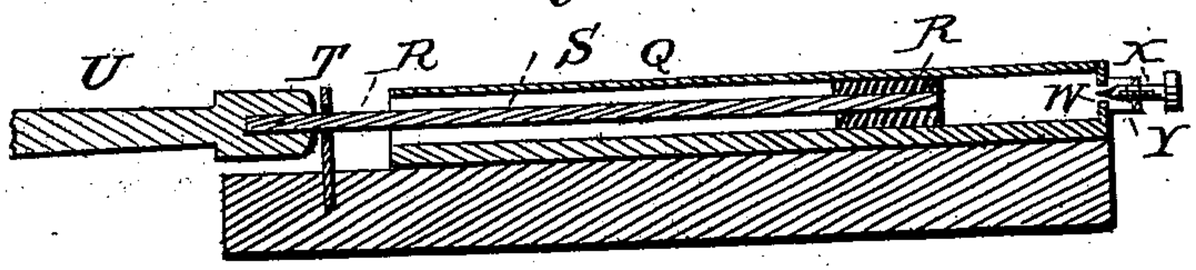


Fig. 4.



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UNITED STATES PATENT OFFICE.

ORVILLE M. BUNNELL, OF AURORA, AND NASON M. TENNEY, OF PLANO, ILLINOIS.

MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 227,728, dated May 18, 1880.

Application filed April 2, 1880. (Model.)

To all whom it may concern:

Be it known that we, ORVILLE M. BUNNELL, of Aurora, and NASON M. TENNEY, of Plano, both in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Mechanical Motors; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view, Fig. 2 is a top view, Fig. 3 is a detail view, of the drum and winding mechanism, and Fig. 4 is a longitudinal sectional view, on an enlarged scale, of the governor.

Corresponding parts in the several figures are denoted by like letters of reference.

This invention relates to that class of mechanical motors which are operated by weights; and it consists in certain improvements in the winding mechanism and in the governor or speed-regulator, as will be hereinafter more fully described, and particularly pointed out in the claim.

In the drawings hereto annexed, A represents a suitably-constructed frame provided with bearings for a shaft, B, carrying the fixed drum C and a loose gear-wheel, D, which latter is provided with a spring-pawl, E, engaging a ratchet, F, upon the drum.

G H are shafts journaled in suitable bearings in frame A, and carrying a train of gear-wheels and pinions, by which motion is transmitted from the gear-wheel D to a pinion, I, upon a shaft, J, which is provided at one end with a crank-wheel, band-wheel, or equivalent means, from which the power may be transmitted by pitman, belt, or otherwise to the pump, churn, or machinery for the operation of which the power is to be utilized.

The drum C is divided by an annular flange, K, into two compartments, upon one of which is wound the weight-rope L. The latter is passed over a pulley, M, at the top of a derrick, N, built at the rear end of frame A, and carries the weight O, by which the machine is operated. Upon the other compartment of drum C is arranged a rope or chain, P, wound in a direction opposite to the weight-rope.

It will be seen that when the weight drops it rotates drum C and unwinds the weight-rope from the latter, but at the same time it winds the chain or rope P. When the weight has run down it may be again elevated by pulling the rope P in such a manner as to unwind it from the drum by rotating the latter, thereby winding the weight-rope.

This method of raising the weight we have found more convenient and economical than by crank or otherwise.

When the machine is used for pumping water for railroad-tanks a locomotive may be readily hitched to rope P for the purpose of raising the weight. When this is not available a span of horses or a capstan may be employed.

It is obvious that the two compartments or divisions of drum C may be of different diameter, if so desired.

To regulate the speed of our improved motor we employ what may be termed an "atmospheric governor," of the following construction: Q is a cylinder secured upon the side of frame A and provided with a piston, R. The piston-rod S, for which a suitable guide or bearing, T, is provided, is coupled to a pitman, U, connecting it with a crank-wheel, V, at the end of shaft J, through the medium of which the piston R is operated. The lower end of cylinder Q has a small opening, W, which may be partly or entirely closed by the point of a thumb-screw, X, adjustable in a bail, Y, at the lower end of cylinder Q. When the thumb-screw X is withdrawn from the opening W little or no atmospheric resistance is offered to the operation of piston R, which consequently does not retard the operation of the motor. By operating the thumb-screw, however, the resistance may be increased, thus regulating the speed of the motor.

Having thus described our invention, we claim and desire to secure by Letters Patent of the United States—

In a mechanical motor, the combination,

with the drum, having two compartments and mounted on the shaft B, having the wheel D, and spring-pawl and ratchet E F, of ropes C L, one passing over an elevated pulley and being weighted, the train of gearing attached to the shafts H G J, and atmospheric engine T U V R Q Y X, all substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

ORVILLE M. BUNNELL.
NASON M. TENNEY.

Witnesses:
WM. SHEPARDSON,
HANNAH SHEPARDSON.