(No Model.)

S. B. MAXFIELD & W. SNYDER.

MOTOR.

No. 509,043. Patented Nov. 21, 1893.

Fig. 1.

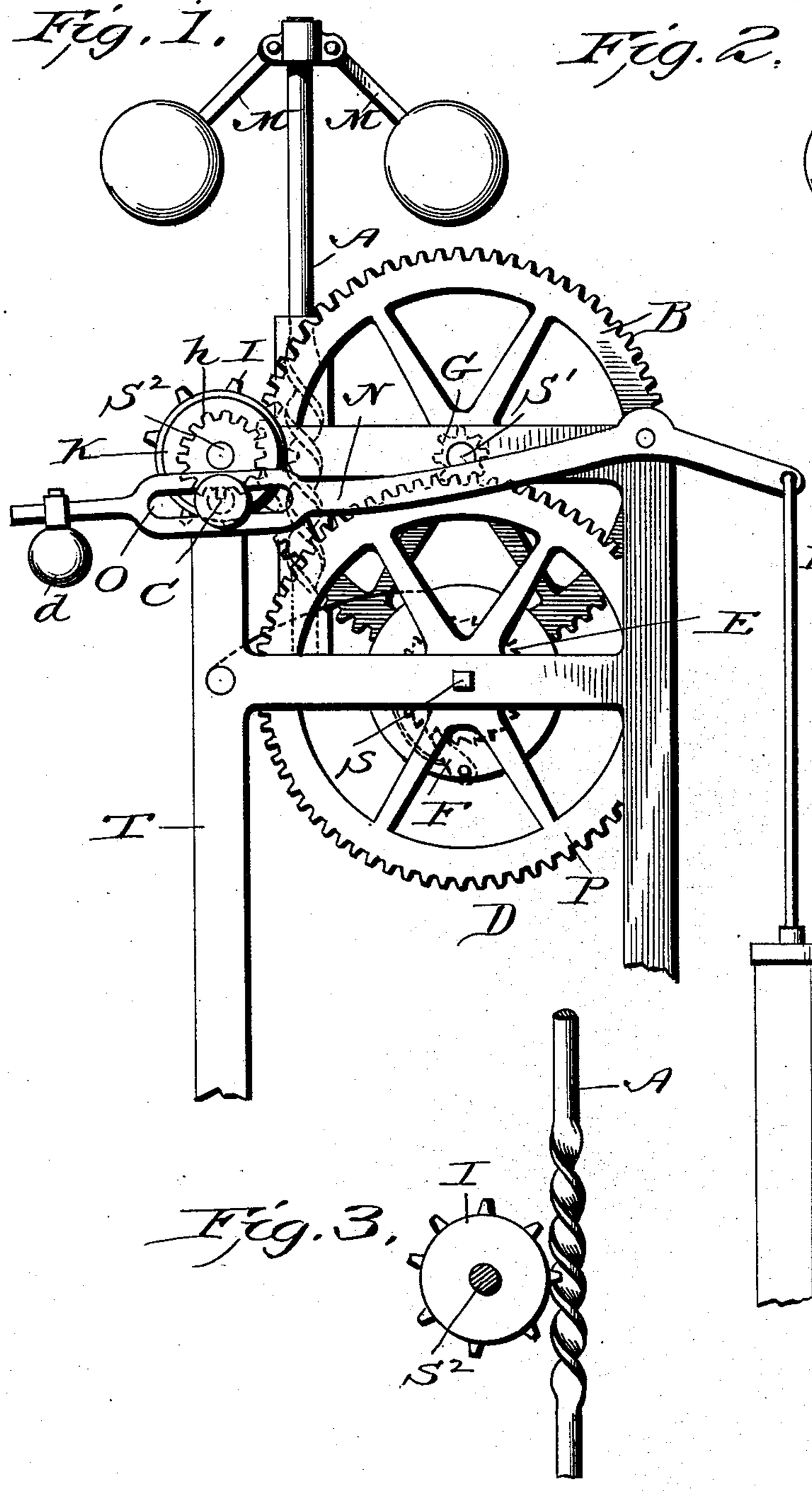

Fig. 2.

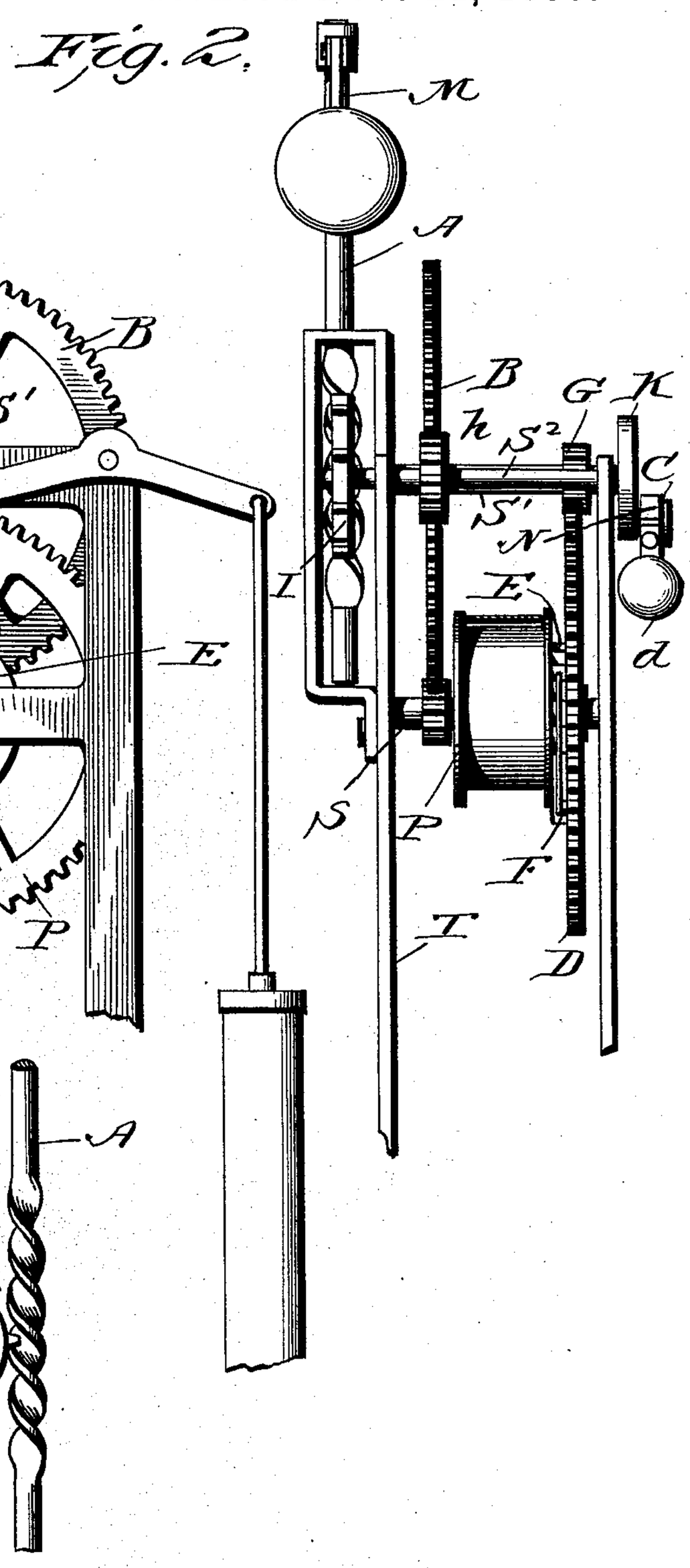

Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL B. MAXFIELD AND WILLIAM SNYDER, OF ANGOLA, INDIANA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 509,043, dated November 21, 1893.

Application filed February 18, 1892. Serial No. 422,055. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL B. MAXFIELD and WILLIAM SNYDER, citizens of the United States, residing at Angola, in the county of Steuben and State of Indiana, have invented certain new and useful Improvements in Mechanism for Operating Pumps in Wells and Cisterns; and we do 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, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to regulators or governors for controlling the speed of motors designed for operating small machinery and which are principally run by spring power as a convenient means for developing force.

The improvement consists of a shaft having a spiral portion and provided with pivoted weighted arms which are the vital controlling means for regulating the speed, and a sprocket wheel on a shaft which is operatively connected with the train of gearing, and which actuates a counterbalanced lever used to transmit motion to the mechanism to be operated as will be hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side elevation of a motor embodying our invention showing its application to a pump. Fig. 2 is an end view of the mechanism. Fig. 3 is a detail view of the sprocket wheel and the shaft having the spiral portion in mesh with the said sprocket wheel.

The frame T for supporting the operating parts of the motor is of ordinary construction best adapted for the purpose. The shaft S is provided near one end with a gear wheel D, and supports a spring barrel P of well known construction and arrangement to set the train of gearing in motion. A ratchet wheel E secured on the shaft S is engaged by a pawl F which is pivoted to the barrel P to hold the spring when wound as will be readily understood. A second shaft S′ parallel with the shaft S and journaled above the latter is supplied near one end with a pinion G which meshes with the gear wheel D, and near the other end with a gear wheel B which meshes with a pinion *h* on a shaft S^2 also parallel with the shafts S and S′. This shaft S^2 has a sprocket wheel I at one end and a disk K at the other end. The sprocket wheel I has its sprocket teeth in engagement with the spiral portion of a shaft A which is journaled in a vertical position and is provided at its upper end with weighted arms M pivotally connected at their inner ends to the said shaft. At a moderate speed the weighted arms will assume about the position shown in Fig. 2 and when the speed is abnormal the arms will stand at right angles to the shaft A as shown in Fig. 1. Hence, these weighted arms will fly out more or less according to the speed at which the said shaft A is driven. Obviously, the greater the angle at which the weighted arms stand to the shaft A, the greater the force required to rotate the said shaft A. Should the motor meet with a slight obstruction the momentum of the said weighted arms will be sufficient to carry the motor or driving force over or past the said obstruction like a fly wheel.

The disk K has a wrist pin C which is adapted to travel in a slot O in a counterbalanced lever N. The weight J movable on the outer end of this lever N is properly adjusted to counterbalance the load imposed on the opposite end of the said lever so that the motor has nothing to do but perform actual work.

It will be observed that the greater the angle in which the weighted arms stand from the shaft A, the greater the leverage obtained for the resistance of the air; hence more force will be required to rotate the shaft A when the arms stand at right angles thereto than if the said arms occupied a position between the horizontal and the perpendicular. Hence, if the parts are so disposed that the weighted arms stand at right angles to the shaft A when the motor is not loaded, the speed will be proportionately diminished according to the amount of work imposed on the motor as will be readily understood.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a motor the combination with the train of gearing comprising shaft S^2 having wrist pin C and sprocket wheel I, of a controlling mechanism to carry the motor over a slight

obstruction and regulate the speed consisting of a spiral shaft meshing with the said sprocket wheel, and weighted governor arms pivotally attached to the said shaft, substantially as and for the purpose described.

2. In a motor, the combination of a shaft having a wrist pin and a sprocket wheel, a spiral shaft meshing with the said sprocket wheel, weighted governor arms pivoted to the said spiral shaft to control the speed of the motor and act in the capacity of a fly wheel, and a power transmitting lever having a slot to receive the said wrist pin, and having a weight adjustable thereon to balance the load and connections carried by the said lever, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

SAMUEL B. MAXFIELD.
WILLIAM SNYDER.

Witnesses:
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DOAK R. BEST.