(No Model.)

N. ANDERSON.

SPRING MOTOR.

No. 440,123. Patented Nov. 11, 1890.

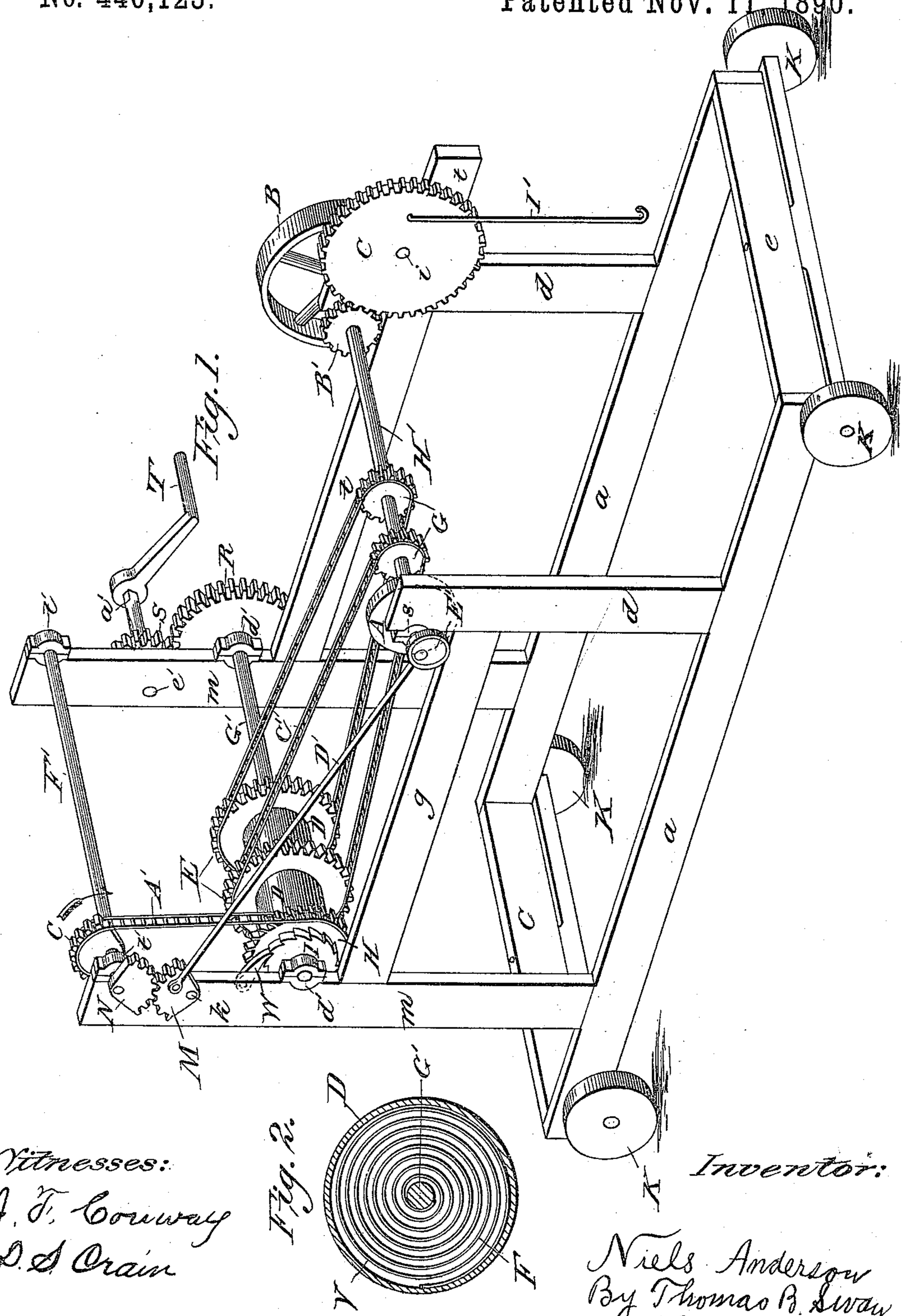

Fig. 1.

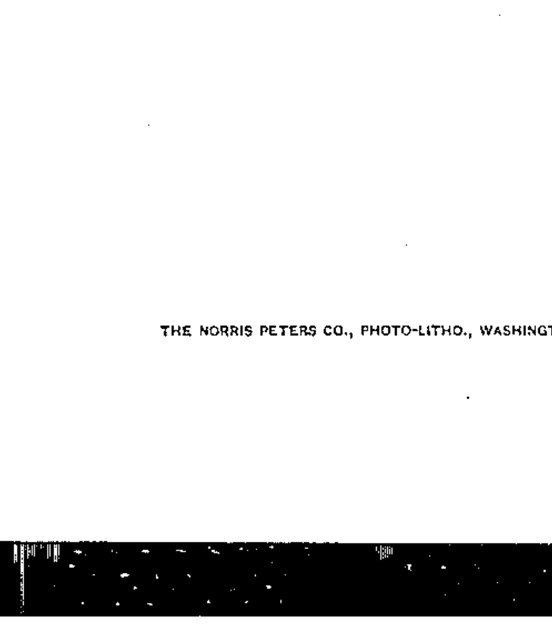

Fig. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

NIELS ANDERSON, OF AUDUBON, IOWA.

SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 440,123, dated November 11, 1890.

Application filed June 26, 1890. Serial No. 356,913. (No model.)

To all whom it may concern:

Be it known that I, NIELS ANDERSON, a subject of the King of Denmark, residing at Audubon, in the county of Audubon and State of Iowa, have invented certain new and useful Improvements in Spring-Motors; and I 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 drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in spring-motors; and the object of my improvement is to provide a spring-motor that will automatically wind its springs. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the entire machine, and Fig. 2 is a sectional view, taken on the broken line x x, Fig. 1, of one of the springs, spring-barrel, and the shaft to which the inner end of the spring is secured.

Similar letters refer to similar parts throughout the several views.

The two longitudinal pieces a, the longitudinal pieces g and t, the two cross-pieces e, the two upright pieces m, and the two upright pieces d constitute the frame of the machine. The two sprocket-wheels E revolve upon the shaft G′, and each has firmly secured to it a spring-barrel D, so that when the spring-barrel revolves the sprocket-wheel secured to its end also revolves. Each spring-barrel D contains a coiled spring F, having its outer end secured to the spring-barrel and its inner end secured to the shaft G′.

H and I are ratchet-wheels, each being firmly secured to the shaft G′. The shaft G′ is secured to the uprights m by means of the boxes d'.

F′ is a shaft secured to the uprights m above the shaft G′ by means of the boxes t'. To the shaft F′ are firmly secured the toothed segments P and N. To one of the uprights m is pivoted by means of the pivot k the toothed segment M, which engages with the segment N. The rod D′ is pivotally connected at one end to the segment M and at the other end it is connected with the eccentric E′ by means of encircling the same. The eccentric E′ is firmly secured to the end of the shaft H′. To the inner side of one of the uprights m is pivotally secured the ratchet W, which engages with the ratchet-wheel H.

Secured to one end of the shaft G′ is a toothed wheel R. To the outer side of one of the uprights m is pivotally secured by means of the pivot e' the toothed wheel S, having a shank a', to which the crank T is secured. The wheels R and S engage with each other. The shaft H′ is secured to the uprights d by means of the boxes s.

In addition to the eccentric E′ there are firmly secured to the shaft H′ the drive-wheel A, the two sprocket-wheels G, the gear-wheel B′, and the fly-wheel B. To the inner side of the longitudinal piece t is pivotally secured by means of the pivot i the gear-wheel C, which engages with the gear-wheel B′. To the inner side of the wheel C is pivotally secured the rod I′. The two sprocket-wheels E are connected with the two sprocket-wheels G by means of the two sprocket-chains C′. The segment P is connected with the ratchet-wheel H by means of the sprocket-chain A′, which engages with the teeth of the segment and wheel. For convenience in moving the motor is mounted upon wheels K. The power of the motor can be imparted to other machinery by connecting the same to the motor by means of a belt encircling the drive-wheel A. Pumps can be operated by the motor by pivotally connecting the lower end of the rod I′ to the piston-rod of the pump. It is evident if the crank T be turned in the proper direction the shaft G′ will revolve and wind the springs F attached thereto, and that the ratchet W will prevent the springs from unwinding only as they unwind by revolving the barrels D. It is also apparent that the wheels E, one of which is attached to each barrel, will revolve with the barrels on the shaft G′, and that the revolving wheels E will cause by means of the sprocket-chains C′ and sprocket-wheels G the shaft H′ and the eccentric and wheels secured thereto to revolve. The revolution of the eccentric E′ imparts a rocking motion to the segments M, N, and P by means of the eccentric-rod D′, and when the segment

P moves in the direction that the arrow points it causes the chain A′ to engage with the teeth of the ratchet-wheel H and revolve the shaft G′ in the proper direction to wind the springs F; but when the segment P moves in a direction opposite to that to which the arrow points then the chain A′ glides over the teeth of the ratchet-wheel H and does not move the ratchet-wheel or shaft G′. The springs F will not be automatically wound as fast as they unwind; but the motor after the springs are wound by turning the crank T will run much longer on account of its automatically winding its springs than it otherwise would.

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

In a spring-motor, the combination of the frame, the shaft G′, journaled in the frame, the sprocket-wheel E, revoluble on the shaft G′, the barrel D, secured at one end to the wheel E, the coiled spring F, having its outer end secured to the barrel and its inner end to the shaft G′, the ratchet-wheel H, secured to the shaft G′, the ratchet-wheel I, secured to the shaft G′, the shaft H′, journaled in the frame, the sprocket-wheel G, secured to the shaft H′, the sprocket-chain C′, connecting the sprocket-wheels E and G, the eccentric E′, secured to the shaft H′, the shaft F′, journaled in the frame, the toothed segments P and N, secured to the shaft F′, the toothed segment M, which engages with the segment N and is pivotally journaled in the frame, the sprocket-chain A′, which engages with the teeth of the segment P and wheel H, the ratchet W, which engages with the ratchet-wheel I, and the rod D′, which encircles the eccentric E′ at one of its ends and is pivotally connected at the other end to the segment M, substantially as described.

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

NIELS ANDERSON.

Witnesses:
A. H. BERRY,
LAURITZ CARSTENS.