

(No Model.)

E. B. NEWCOMB.  
MOTOR.

2 Sheets—Sheet 1.

No. 407,942.

Patented July 30, 1889.

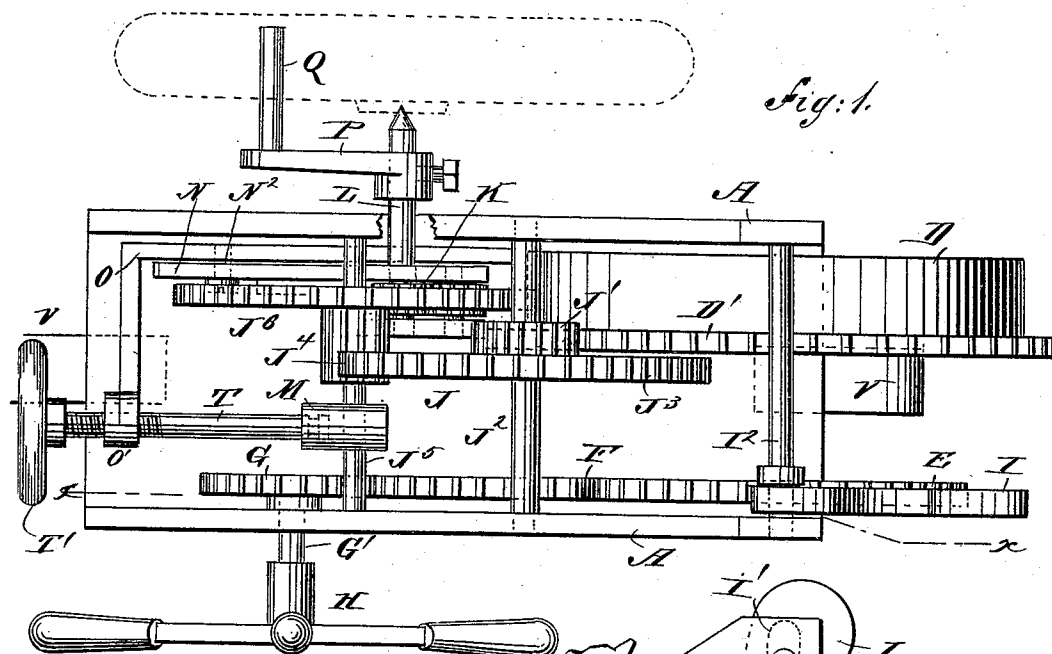


*Fig. 1.*

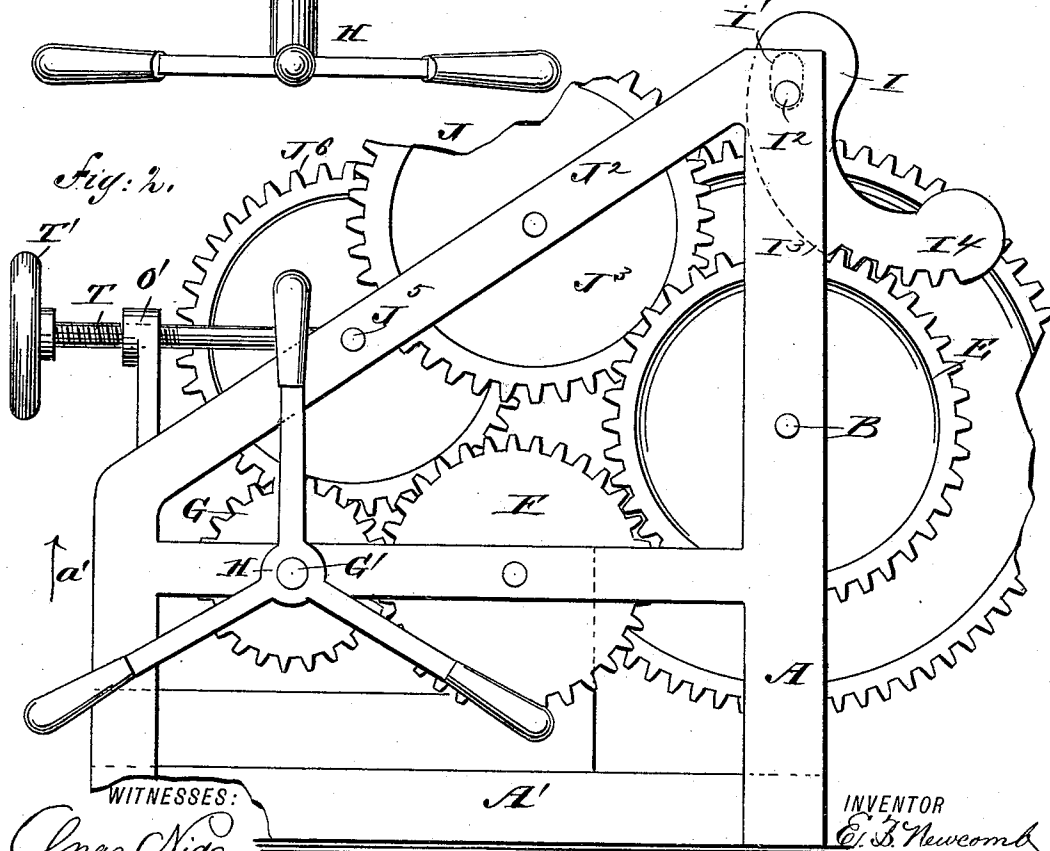


*Fig. 2.*

WITNESSES:  
*Chas. Nida*  
*C. Sedgwick*

BY

INVENTOR

*E. B. Newcomb*

*Munn & Co*

ATTORNEY

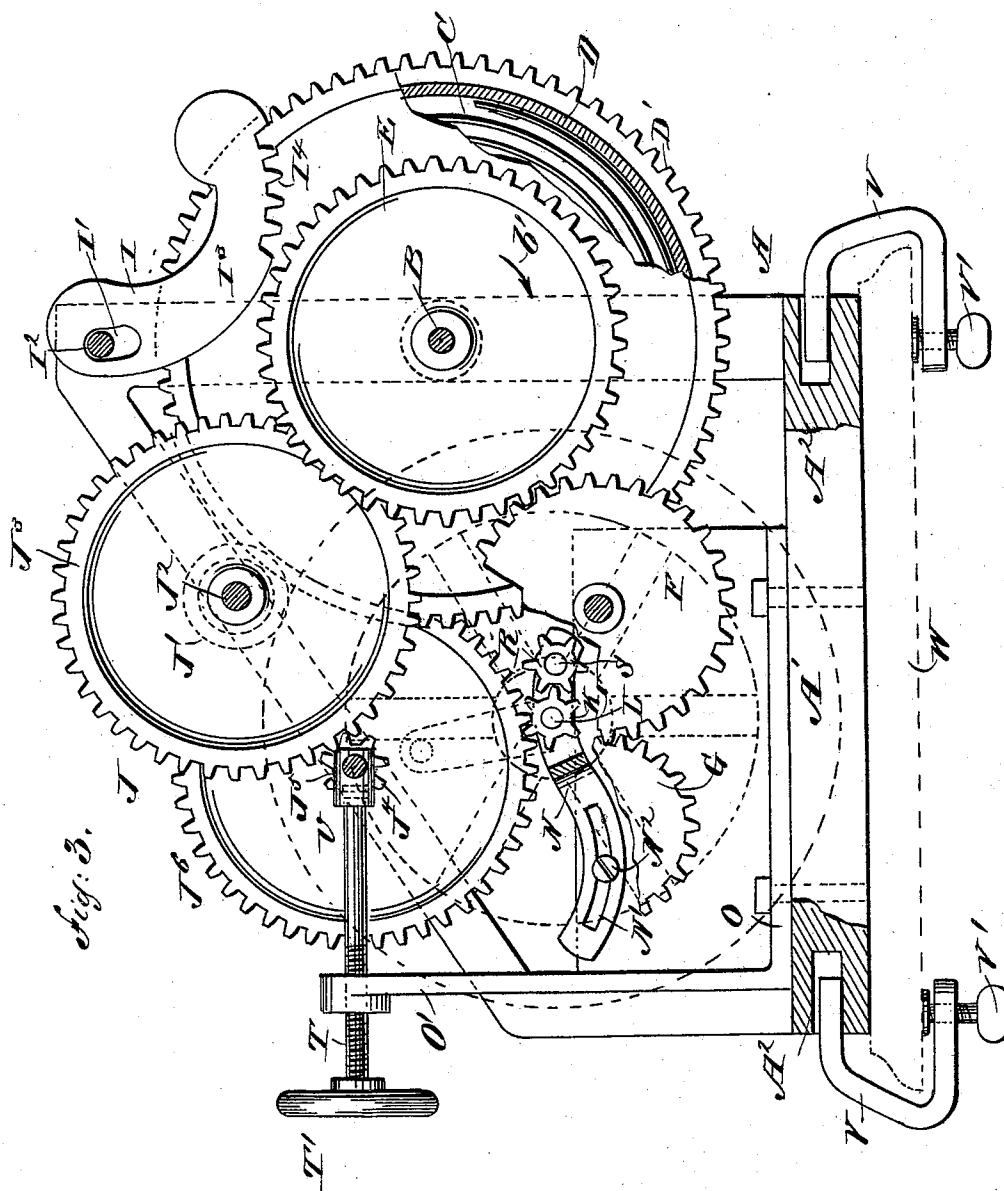
(No Model.)

2 Sheets—Sheet 2.

E. B. NEWCOMB.  
MOTOR.

No. 407,942.

Patented July 30, 1889.



WITNESSES:

*Chas. A. A. A.*  
*C. Sedgwick*

INVENTOR

*E. B. Newcomb*

BY

*Munn & Co.*

ATTORNEY

# UNITED STATES PATENT OFFICE.

EVANDER B. NEWCOMB, OF PARSONS, KANSAS.

## MOTOR.

SPECIFICATION forming part of Letters Patent No. 407,942, dated July 30, 1889.

Application filed January 22, 1889. Serial No. 297,139. (No model.)

*To all whom it may concern:*

Be it known that I, EVANDER B. NEWCOMB, of Parsons, in the county of Labette and State of Kansas, have invented a new and Improved Motor, of which the following is a full, clear, and exact description.

The invention relates to spring-motors; and its object is to provide a new and improved motor which is simple and durable in construction, very effective and noiseless in operation, and specially designed to operate light machinery, such as sewing-machines, jewelers' lathes, churns, &c.

The invention consists in certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Fig. 1 is a plan view of the improvement. Fig. 2 is a side elevation of the same; and Fig. 3 is a sectional side elevation of the same on the line *xx* of Fig. 1, with parts broken out.

On a suitably-constructed frame A is mounted to rotate in suitable bearings the transverse shaft B, to which is secured one end of a coiled spring C, fastened by its outer end to the inside of a barrel D, mounted to rotate loosely on the said shaft B. On the latter is fastened a gear-wheel E, into which meshes an intermediate gear-wheel F, meshing into a gear-wheel G, secured on a shaft G', mounted to rotate in suitable bearings on the front of the main frame A and carrying a three-armed lever H for turning said shaft G'. When the latter is turned in the direction of the arrow *a'*, a rotary motion is imparted to the shaft B in the direction of the arrow *b'*, so that the coil-spring C is wound up, provided the barrel D is held in place.

The shaft B is adapted to be locked in place after the spring is wound up by a pawl I, formed in the shape of a segment and provided near its upper end with a slot I', through which passes a rod I<sup>2</sup>, held on the upper part of the main frame A. The part I<sup>3</sup> of the lower edge of the pawl I is smooth, and the part I<sup>4</sup> is provided with gear-teeth adapted to mesh into the gear-teeth of the wheel E. When the spring C is wound up, as above de-

scribed, the smooth part I<sup>3</sup> of the pawl I rests on top of the teeth of the gear-wheel E, as shown in Fig. 3. As soon as the operator stops turning the three-armed lever H the shaft B will turn in the inverse direction of the arrow *b'* by the force of the spring C. The moment this takes place the teeth of the gear-wheel E will act upon the smooth part I<sup>3</sup> of the pawl I and push the latter upward, the slot I' permitting said movement. The upward movement of the pawl I brings the teeth of the part I<sup>4</sup> into mesh with the gear-wheel E, so that the latter, and consequently the shaft B, is locked in place. The return motion of the shaft B is thus prevented.

On the barrel D is secured or formed a gear-wheel D', which meshes into a pinion J' of a train of gear-wheels J, also, provided with a shaft J<sup>2</sup>, carrying the said pinion J', and mounted to rotate in suitable bearings in the main frame A. On the shaft J<sup>2</sup> is secured the gear-wheel J<sup>3</sup>, which meshes into a pinion J<sup>4</sup>, fastened on a shaft J<sup>5</sup>, mounted to turn in suitable bearings in the main frame A and carrying a large gear-wheel J<sup>6</sup>, which forms the last wheel of the train of gear-wheels J just described. N designates an adjustable frame, which is provided with a segmental slot N', through which passes a bolt or screw N<sup>2</sup>, screwing into an auxiliary frame O, fastened in the main frame A. The gear-wheel J<sup>6</sup>, before referred to, meshes into a pinion K, which is mounted to turn on the frame N, and through the hollow hub of which extends removably a shaft L. The frame N can be moved forward or backward by slackening the screw or bolt N<sup>2</sup>, so that the pinion K engages the gear-wheel J<sup>6</sup> either in its lowermost position or on one side thereof, thus assuming a higher or lower position, as desired, and for a purpose hereinafter more fully described. When the frame N has been adjusted, it is held in place on the auxiliary frame O by screwing up the screw or bolt N<sup>2</sup>.

The shaft L projects rearward through the frame A, and carries adjustably a crank-arm P, on which is formed a crank-pin Q, adapted to be passed between the spokes of a driving-wheel of the machine to be driven. The outer end of the shaft L is pointed and is adapted to be centered on the shaft of the driving-wheel of the machine to be driven, as is plain-

ly shown in Fig. 1. The shaft L is interchangeable with the gears K R—that is, it may be taken out of the hub of gear K and inserted through the hub of gear R, or vice versa—so that when the shaft L is in the hub of the pinion K it rotates in one direction, and when the shaft L has been inserted in the hub of the pinion K it rotates in the opposite direction. This device permits of turning the machine to be driven in either direction.

On the auxiliary frame O is formed an upwardly-extending bracket O', in which screws a screw-rod T, carrying on one outer end a hand-wheel T', and fitting at its other end loosely into an arm M, hung loosely on the shaft J<sup>5</sup> of the train of gear-wheels J. When the screw-rod T is screwed up by turning the hand-wheel T' the inner end of the said screw-rod will abut against the shaft J<sup>5</sup> and brake the same, so as to cause the motor either to run slower or to stop entirely, as desired.

The base A' of the main frame A is provided on each end with a recess or slot A<sup>2</sup>, into which fits the upper end of a U-shaped clamp V, adapted to pass over the edge of the table W, and carrying on its lower arm a clamping-screw V', serving to clamp the frame A to the table W, supporting the machine to be driven. The slots A<sup>2</sup> and the clamps V permit a forward and backward movement of the frame A, so as to bring the shaft L in the desired position relative to the driving-wheel of the machine to be driven.

The operation is as follows: When the motor is set in place on the table W, the crank-pin Q passes between two spokes of the driving-wheel, the center of the shaft L being in line with the center of the shaft of the said driving-wheel. When the spring C has been wound up, as before described, and the shaft B is locked in place by the pawl I, then the force of the spring will rotate the barrel D, which, by its gear-wheel D', sets the train of gear-wheels J in motion. The gear-wheel J<sup>6</sup> of the train of gear-wheels J imparts a rotary motion to the pinion K, so that the shaft L is turned, and the crank-arm P, fastened on the said shaft, turns by its crank-pin Q the driving-wheel of the machine to be driven. When the operator desires to rotate the driving-wheel in an opposite direction, he interchanges the shafts S and L, as before described.

The speed of the motor can be regulated by adjusting the screw-rod T so as to brake more or less the shaft J<sup>5</sup> of the train of gear-wheels J. The machine can be entirely stopped by screwing the screw-rod T up hard against the shaft J<sup>5</sup>, so as to prevent its rotary motion.

The machine takes up very little room and can be easily applied to light machinery, such as sewing-machines, jewelers' lathes, churns, &c. It will be seen that the machine will run very steadily, and before the spring

C is entirely unwound can be rewound by turning the handle H without stopping the running of the motor. The special construction of the pawl I makes the machine noiseless.

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

1. In a motor, the combination, with a spring-shaft and a gear-wheel secured thereon, of a segmental pawl held in contact at its periphery with the teeth of the said gear-wheel, said periphery being partly smooth and partly provided with gear-teeth adapted to mesh into gear-teeth of the said gear-wheel, said pawl being provided with a slot through which passes the pin forming the fulcrum for the pawl, substantially as shown and described.

2. In a motor, the combination, with a spring-barrel and a coiled spring, of a shaft connected with the said spring, a gear-wheel held on the said shaft, and a segmental pawl having its contacting lower edge partly smooth and partly provided with gear-teeth adapted to mesh into the gear-teeth of the said gear-wheel, substantially as shown and described.

3. In a motor, the combination, with a spring-barrel and a coiled spring, of a shaft connected with the said spring, a gear-wheel held on the said shaft, a segmental pawl having its contacting lower edge partly smooth and partly provided with gear-teeth adapted to mesh into the gear-teeth of the said gear-wheel, said pawl being provided with a slot, and a fixed pin passing through the said slot and forming the fulcrum for the pawl, said slot permitting an upward motion of the said pawl, substantially as shown and described.

4. In a motor, the combination, with a shaft, a spring-barrel provided with a gear-wheel and held loosely on the said shaft, and a coiled spring secured by its ends to the said shaft and the said barrel, of a train of gear-wheels connected with the said barrel gear-wheel, a pinion engaging one of the wheels of the said train of gear-wheels, a shaft carrying the said pinion, and a crank-arm held on the said shaft and engaging the wheel to be driven, substantially as shown and described.

5. In a motor, the combination, with a shaft, a spring-barrel provided with a gear-wheel and held loosely on the said shaft, and a coiled spring secured by its ends to the said shaft and the said barrel, of a train of gear-wheels connected with the said barrel gear-wheel, an adjustably-pivoted frame carrying a pinion engaging one of the wheels of the said train of gear-wheels, and a second pinion meshing into the first-named pinion, substantially as shown and described.

6. In a motor, the combination, with a shaft, a spring-barrel provided with a gear-wheel and held loosely on the said shaft, and a coiled spring secured by its ends to the said shaft and the said barrel, of a train of gear-wheels connected with the said barrel gear-wheel, an

adjustable frame carrying a pinion engaging  
one of the wheels of the said train of gear-  
wheels, a second pinion meshing into the first-  
named pinion, and a shaft interchangeable  
5 with the said pinions and provided with a  
crank at one end, substantially as shown and  
described.

7. In a motor, the combination, with a shaft,  
a spring-barrel provided with a gear-wheel  
10 and held loosely on the said shaft, and a coiled  
spring secured by its ends to the said shaft  
and the said barrel, of a train of gear-wheels  
connected with the said barrel gear-wheel, a

pinion engaging one of the wheels of the said  
train of gear-wheels, a second pinion meshing 15  
into the first-named pinion, and an adjusta-  
ble frame carrying the said shafts and serv-  
ing to raise and lower the first-named pinion,  
at the same time holding it in mesh with its  
gear-wheel, substantially as shown and de- 20  
scribed.

EVANDER B. NEWCOMB.

Witnesses:

WILLIAM SULLIVAN,  
JOHN SCHMITZ.