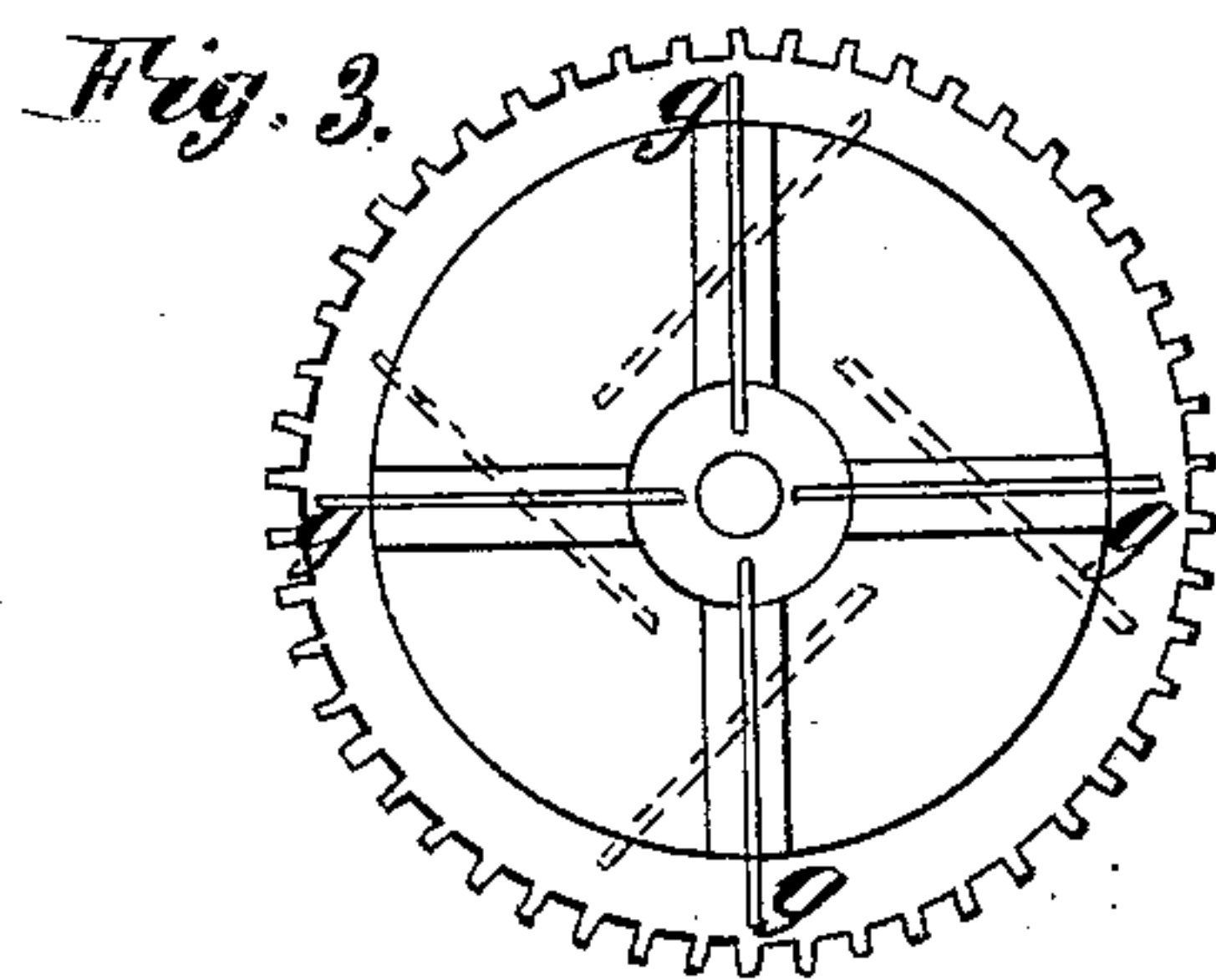
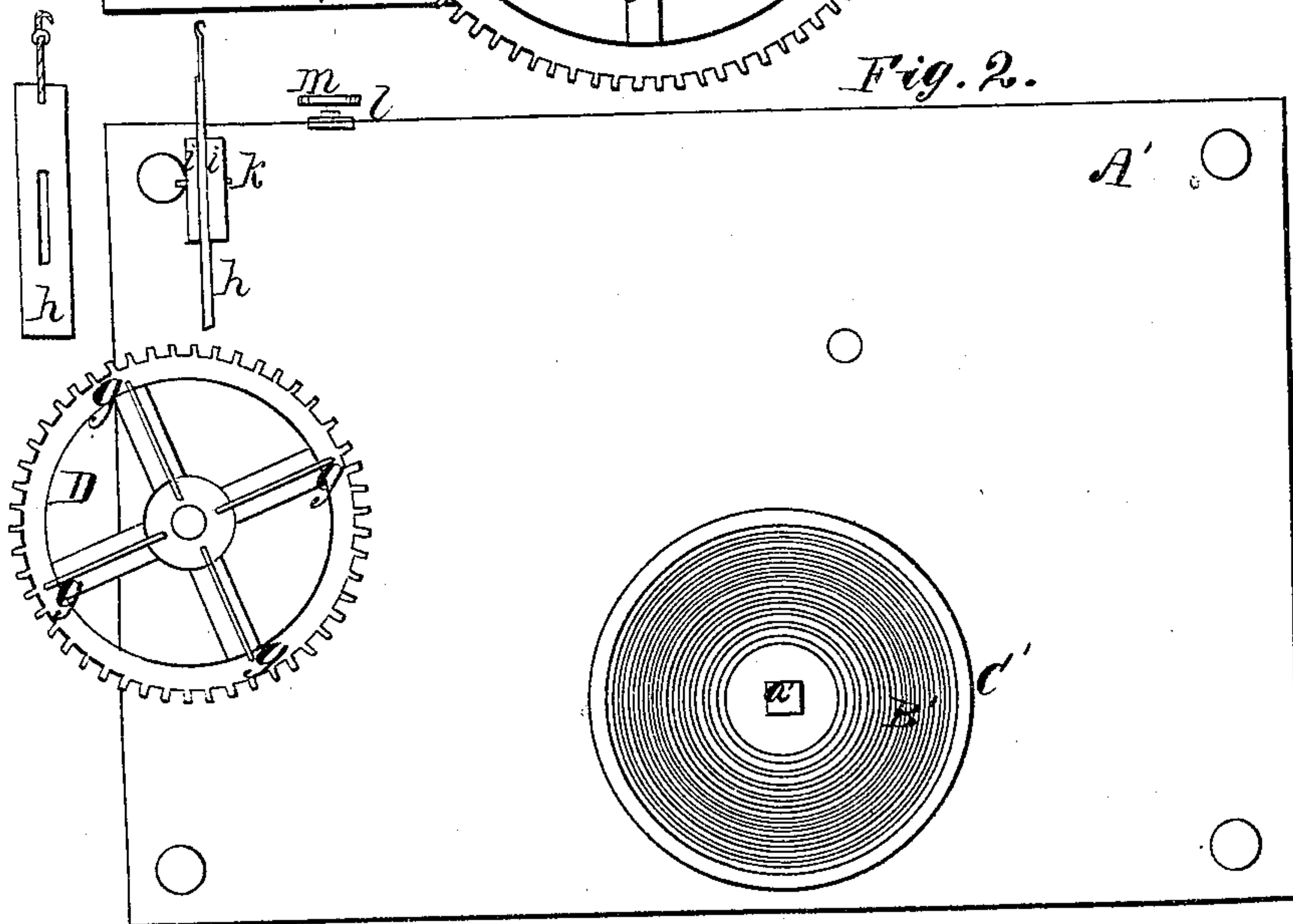
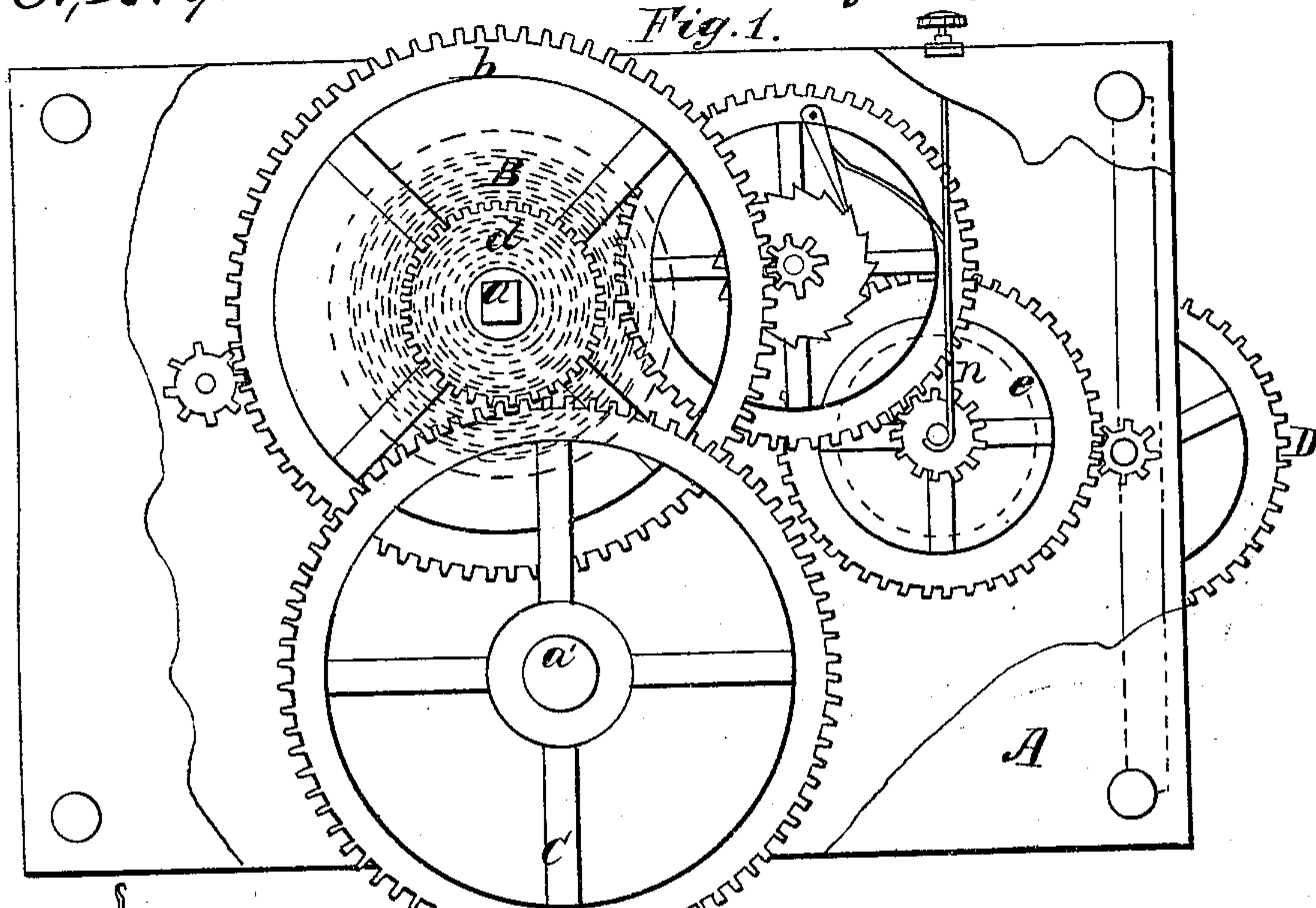


E. Shiver
Sewing Mach. Motor
N^o 81,219. Patented Aug. 18, 1868.



Witnesses.
S. J. Hayes
W. C. Humphreys

Inventor.
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by H. W. Beadle atty

UNITED STATES PATENT OFFICE.

ELISHA SHIVER, OF COLUMBIA, SOUTH CAROLINA.

IMPROVED SEWING-MACHINE MOTOR.

Specification forming part of Letters Patent No. 81,219, dated August 18, 1868.

To all whom it may concern:

Be it known that I, ELISHA SHIVER, of Columbia, in the county of Richland and State of South Carolina, have invented a new and Improved Sewing-Machine Motor; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention consists of an improved sewing-machine motor so constructed and arranged as to be capable of application to any form of sewing-machine now in use, and intended to supersede the laborious and often painfully-operated treadle.

In the drawings, Figure 1 represents a side view of my motor, with part of one of the supporting-plates broken away to disclose the gearing. Fig. 2 represents the face of the opposite side, with balance-wheel and attachments; and Fig. 3 represents the balance-wheel detached, showing clearly its peculiar construction of wings.

The same letters refer to identical parts in all the figures.

In order that those skilled in the art of constructing such machinery may be able to make and adapt to use my improved motor, I will proceed to set forth more fully its construction and operation.

A and A' are two side plates which support the axles of the various wheels in the motor. They are connected and held at a suitable distance asunder by four posts, to which the plates may be secured in any proper manner. Near the middle of the plates are two strong shafts, *a a'*, which have their bearings in the plates, and project one through one side and the other through the opposite side of the supporting-plates. On these projecting ends are coiled springs B B', each of which has one end fixed to the shaft and the other attached to a drum, C C', which incloses the spring and is permanently secured to the supporting-plates. Upon the shafts *a a'* are firmly secured cog-wheels *b c*; *b*, on the shaft *a*, having fixed to itself and on the same axis a smaller wheel, *d*, so arranged and of such diameter as to gear into the wheel *c* on the shaft *a'*, thus concentrating upon one shaft, *a*, the combined force of the two springs. The wheel *b* acts through

any proper intermediate gearing (in this case another set of cog-wheels) upon the drum *e*. This drum is adapted, by its flat periphery and central groove, for either band or cord, which is to drive the sewing-machine.

On the shaft of the drum *e* is secured another cog-wheel, arranged to gear into a smaller wheel, the axis of which extends through the supporting-frame and carries a balance-wheel, D. This balance-wheel is provided on its outer side with wings *g g g g*, pivoted on the side of the wheel in such a manner that they may be turned either in lines parallel with the respective radii on which they are pivoted, or at any angle therewith, so as to present greater or less surface to the air and retard more or less the rotation of the wheel. The edge of the wheel is serrated, and above its center there slides, between guides *i i* and into contact with the wheel, a stop or catch, *h*. Its motion is limited by a pin, K, which passes through the guides and a slot in the catch, which slot permits the catch to be raised out of contact with the teeth without clearing the guides. To the upper part of the catch is attached a string, and on the upper end of the string a hook of size and shape suitable to hook over a thread. Across the upper edges of the supporting-plates is arranged a flat bar, *l*, through which passes a set-screw, *m*. To the lower end of this screw is attached, in any proper manner, a wire or band, *n*, which, by the revolution of the screw, may be made to bear on the axle of the drum, or on a friction-wheel fixed thereon, thus retarding in any desired degree the motion of the entire machinery. The springs are wound up by means of a key acting on a shaft and pinion, which gears into the wheel *b*. It will be observed that both springs are wound at one operation, and that the power is not applied to the shaft upon which the spring is wound, but to the circumference of the wheel *b*, as shown. The force of the spring is retained and thrown upon the machinery by means of a spring-pawl and ratchet-wheel on the secondary wheel *b'*; or ratchet-wheels may be fixed on the ends of the shafts which support the springs, and the pawls which hold them may be pivoted to the fixed drum.

This whole device may be so compactly constructed as to be set underneath the ordinary

sewing-machine without occupying as much space as the treadle now in use. The thumb-screw of the motor should extend up through a proper opening in the table, and the fly-wheel should be arranged toward the front of the machine, in order that it may be readily reached by the operator.

Its operation is as follows: When the machine is wound up, the force of the springs being thrown upon the machinery it is thus set in motion, and the drum *c* revolved. The band of the sewing-machine being attached thereto, the motion of the drum is transmitted to the machine. The balance-wheel *D*, by means of its adjustable wings, regulates and steadies the motion, making it uniform. The small cord is of sufficient length to reach some part of the thread, and the hook on the end of the cord hooked over the thread, the length of the cord being such that when thus hooked the catch *h* is lifted out of gear with the wheel *D*. In case of breakage of the thread the catch is permitted to fall on the wheel *D*, and thereby the whole motive machinery stopped at once. The hook may be used, also, if desired, independently of the thread, by being caught over a rod or any other suitable arrangement. By means of the brake *n* and screw *m* the motion of the wheels may be retarded to any degree without any waste of power, the force of the spring being extended only in proportion as it unwinds. The arrangement of the two springs and their connected gearing admits of the application of greater force, and at the same time distributes the force more favorably for the machinery.

It will be observed also that the springs and fly-wheel are located on the outside of the case. This arrangement is made for the purpose of permitting the springs and fly-wheel to be removed and others substituted, when it is desired to use the motor for running a lighter or heavier machine. This motor may, of course, be used also for running light lathes and other small machinery.

I am aware that sewing-machine motors have been heretofore used; therefore I do not broadly claim the application of a spring-motor to a sewing-machine; but

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A sewing-machine motor, when arranged and constructed with the double springs and shafts *a* and *a'*, gearing, drums, and brake *n*, and adapted to be placed under the ordinary sewing-machine, substantially as and for the purpose set forth.

2. In connection with the motor so constructed, a balance-wheel, when provided with wings, constructed and arranged as and for the purpose set forth.

3. In combination with balance-wheel of such a motor, the catch *h*, with its cord and hook, all arranged to operate as and for the purpose set forth.

This specification signed and witnessed this 9th day of July, 1868.

ELISHA SHIVER.

Witnesses:

W. W. BOYCE,
H. W. BEADLE.