

(No Model.)

2 Sheets—Sheet 1.

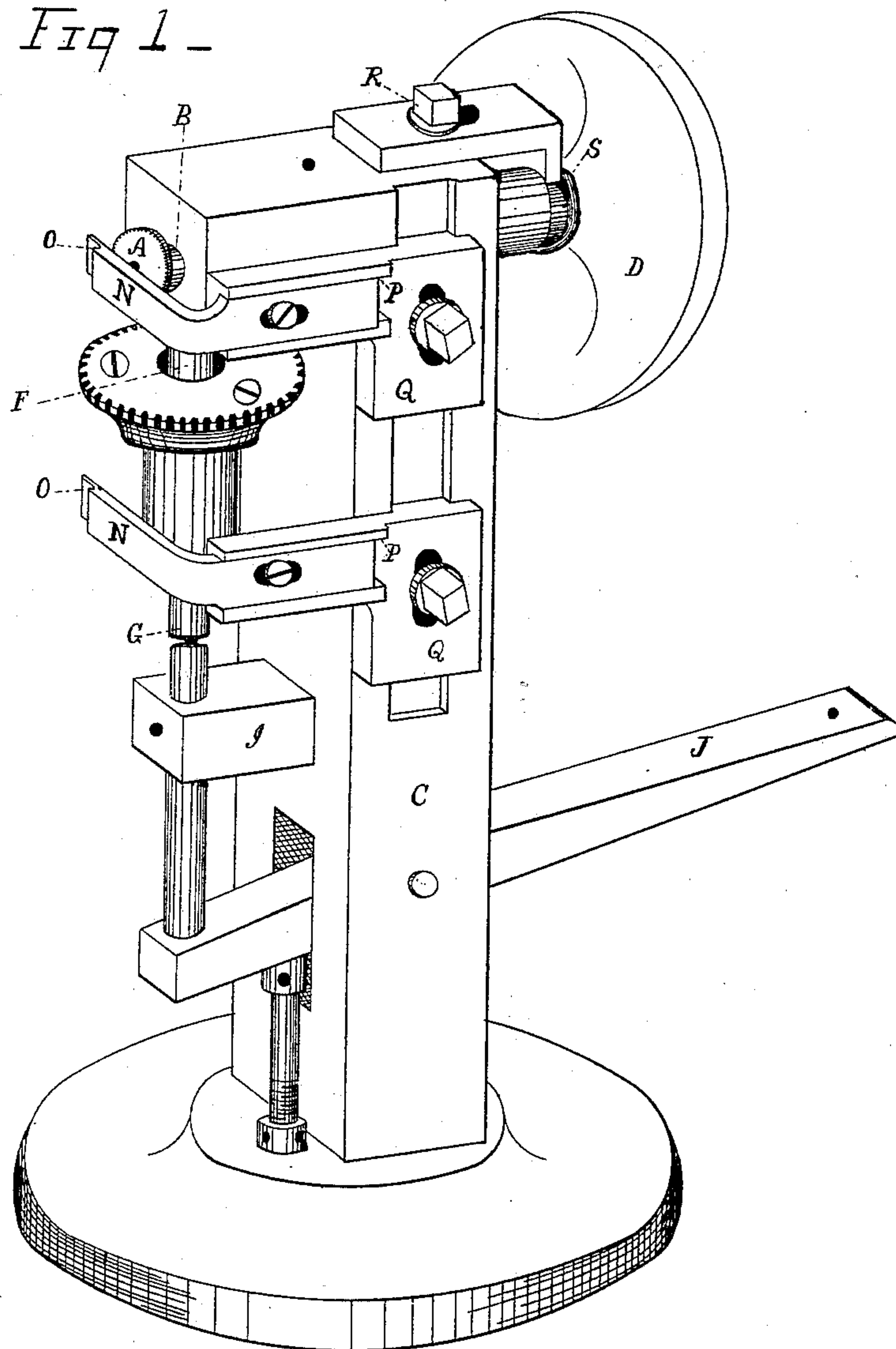
B. B. LEWIS.

MACHINE FOR FASTENING CLOCK PINION LEAVES.

No. 318,762.

Patented May 26, 1885.

Fig 1 -



WITNESSES:

H. L. Lambert
G. E. Bailey

INVENTOR

B. B. Lewis
BY *Geo. W. Seymour*
ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

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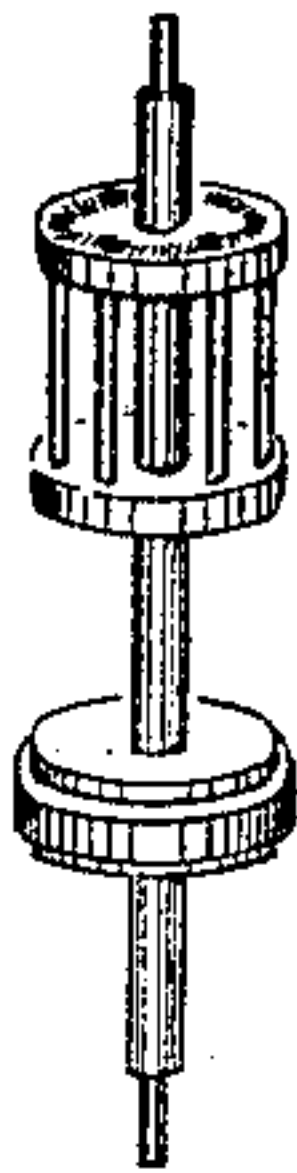


Fig 4 -

Fig 2 -

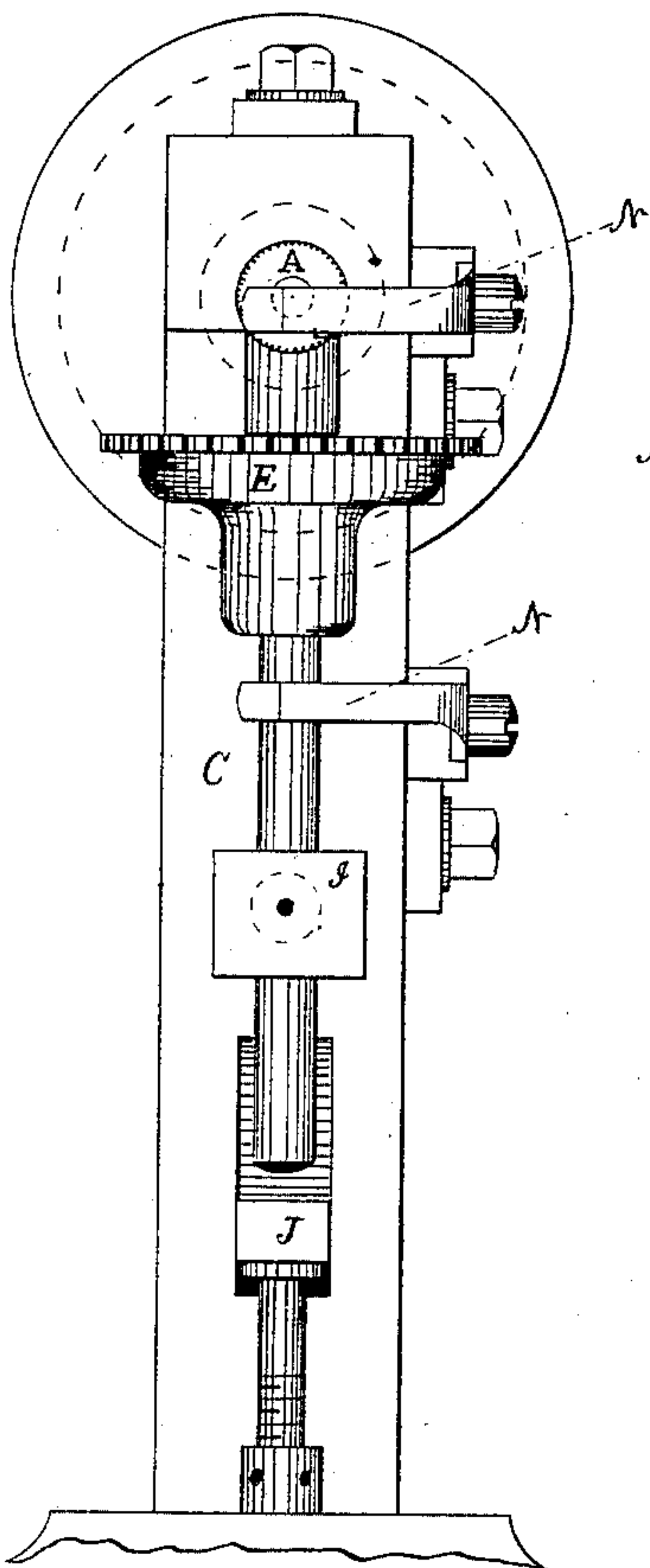
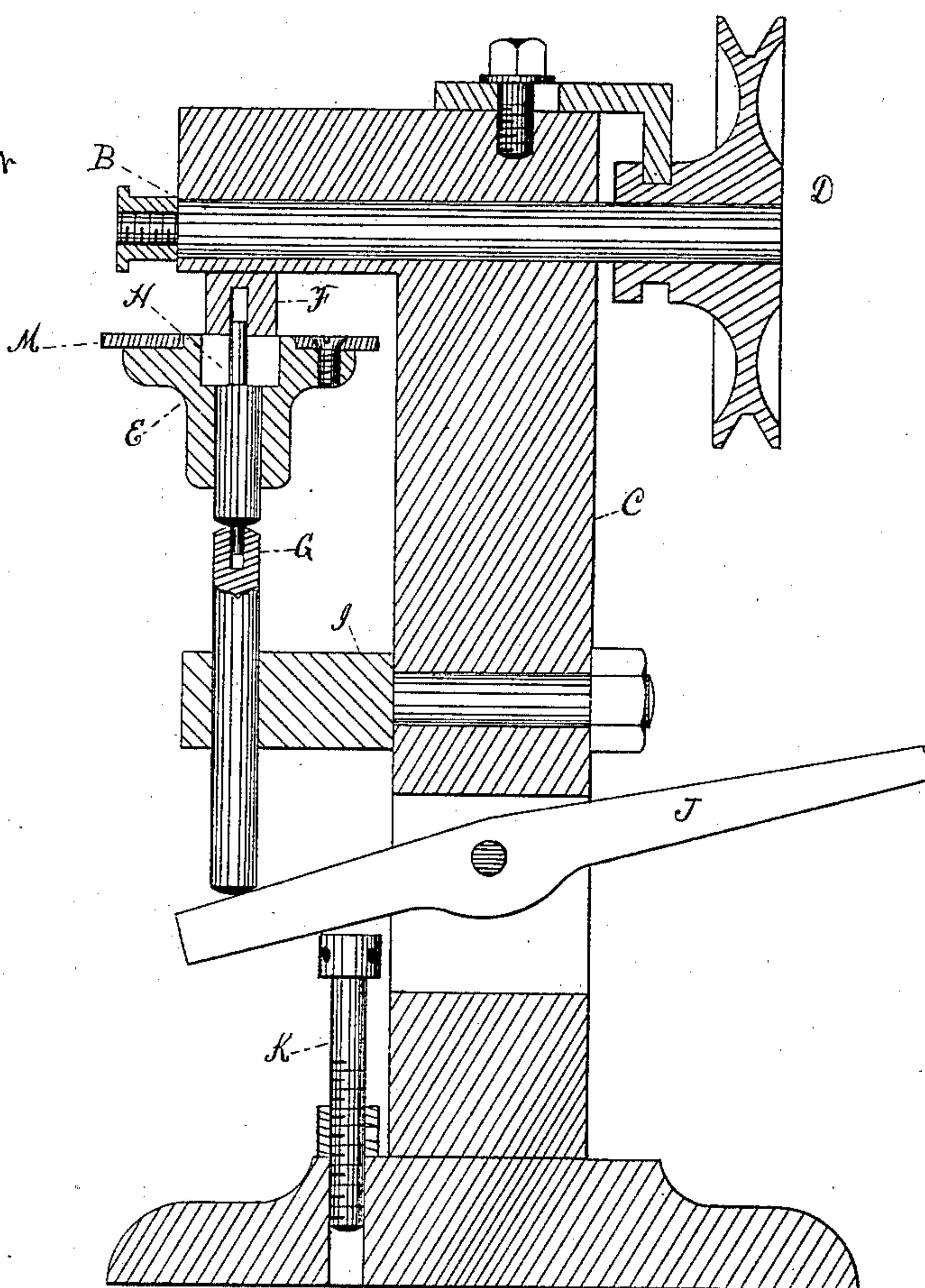


Fig 3 -



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UNITED STATES PATENT OFFICE.

BENJAMIN B. LEWIS, OF BRISTOL, CONNECTICUT.

MACHINE FOR FASTENING CLOCK-PINION LEAVES.

SPECIFICATION forming part of Letters Patent No. 318,762, dated May 26, 1885.

Application filed October 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN B. LEWIS, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Machinery for Fastening the Leaves of Lantern-Pinions for Clocks in Place, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in power machinery for fastening the leaves of lantern-pinions for clocks in place, the object being to produce a machine which shall do this work more rapidly and in a better manner than it has heretofore been done.

With these objects in view my invention consists in a machine having means for automatically revolving a pinion and for supporting it and sustaining it in position while revolving, during which time it is operated upon by a power-driven upsetting tool which fastens its leaves in place.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of one form which a machine constructed in accordance with my invention may assume. Fig. 2 is a view thereof in front elevation. Fig. 3 is a view in vertical section; and Fig. 4 represents a pinion which has had its leaves fastened in place by the machine.

In this particular form of machine a knurl, A, fulfills the twofold function of revolving the pinions and of fastening their leaves in place. The said knurl is secured to a shaft, B, journaled in a standard, C, and driven by a pulley, D. The pinions are supported by a platform, E, mounted upon a stationary center, F, and a movable center, G. A chamber or recess, H, formed in the platform, as shown, receives the stationary center and permits the platform to be vertically adjusted by the movable center, as required. The said movable center, which consists of a short shaft mounted in a bearing, I, secured to the standard of the machine, is operated by a lever, J, the same being fulcrumed in the said standard

and connected with a suitable foot-treadle, through which the platform is raised and lowered and the pinion pressed against the knurl. The play of the lever is regulated by a set-screw, K, arranged as shown. By this construction and arrangement of parts the platform is adapted to be rotated and to be moved toward and from the knurl in planes respectively at right angles and parallel with the plane in which the same rotates.

The object of making provision for the rotation and adjustment of the platform, as described, will appear in the description of the operation of the machine. The pinions are supported upon the edge of the platform, which extends a little beyond the knurl, as will be seen by reference to the drawings.

As herein shown, the platform is provided with a supplemental edge consisting of a toothed-ring, M. The teeth of this ring extend between the leaves of the pinions and support the same by forming bearings, upon which their outer collets or disks rest; also by means of the teeth the revolving motion of the pinions is transmitted to the platform, which is thus rotated. The platform is not, however, necessarily provided with a toothed edge, although such is the preferred construction. It may, for instance, be made with a thin or beveled edge for supporting the pinions. In case this construction is adopted, friction may be relied upon to transmit the motion of the pinions to it; or provision may be made for rotating it by power directly applied.

For the purpose of sustaining the pinions in position with respect to the platform and knurl, and overcoming the tendency of the latter to displace without revolving them, some support for them outside of that afforded by the said platform and knurl must be provided. As herein shown, bearings N are employed in this capacity. They are provided with grooves O to receive the pivots of the pinions, and mounted and adapted to be laterally adjusted in grooves P, formed in plates Q, secured to and arranged to be vertically adjusted upon the standard of the machine. The described provision for the lateral and vertical adjustment of the bearings enables them to be set for pinions of all ordinary sizes.

For the same purpose provision is made for adjusting the shaft B to change the position of the knurl with respect to the platform. With this end in view the said shaft is arranged to be moved endwise in its bearing and an adjustable angle-plate, R, engaging with a groove, S, formed in the hub of the driving-pulley, is employed for securing it in any desired position of adjustment.

Having set forth the construction of the machine in detail, I will now describe the mode of operating it. For the purposes of description let it be assumed that the knurl and bearings have been set as required, and that the platform is in the lowered or dropped position in which it is shown in the drawings. With the parts thus adjusted a pinion is engaged with the bearings and platform, which is then moved toward the knurl, and sufficient pressure applied to press the outer collet or disk of the pinion against the same. As soon as the pinion is pressed against the knurl, it will be revolved thereby, while it in turn will rotate the platform, whereby the same affords it a practically frictionless support during its entire revolution. The pressure upon the foot-treadle operating the lever is sustained until the pinion has made one revolution and successively presented every portion of the edge of the outer collet or disk to the action of the knurl, which is to upset the metal of the collet or disk in a continuous line following the holes formed therein to receive the leaves. When the machine has completed its work, the pressure upon the treadle is removed and the movable center and platform allowed to drop and release the pinion, leaving it free to fall into a chute or other receptacle, or to be thrown aside by the hand or by a spring arranged for the purpose.

With respect to the upsetting action of the knurl, it may be further explained that it operates to displace the metal adjoining the holes which receive the leaves and force it into and over them, whereby the leaves are prevented from escaping.

It will be observed that the rotation of the pinions is done automatically, instead of by hand, as heretofore. This results in a great saving of time; and, moreover, after a pinion has once been clamped between the knurl and platform and engaged with the bearings the hand may be removed and employed for picking up another to feed into the machine. It is to be noted, also, that the ordinary process of fastening the leaves of lantern-pinions in place often fails as to one or more leaves. This difficulty is completely avoided by my invention, as the metal of the collets or disks is upset in a continuous line following the holes formed to receive the leaves. It is thus apparent that with the aid of a machine embodying my invention the leaves of lantern-pinions for clocks may be fastened in place more rapidly and in a better manner than has heretofore been done.

I would have it understood that as my in-

vention comprehends, broadly, means for automatically revolving a pinion and for supporting and sustaining it in position while having its leaves fastened in place, I do not limit myself to the construction herein shown and described. The revolution of the pinions and the fastening of their leaves in place is not necessarily effected by a single device. A revolving fastening-tool may be replaced by one which reciprocates, and the rotary motion of the platform may be changed to reciprocation in the same plane. Again, instead of making provision for moving the platform toward and away from the fastening-tool, the latter may be arranged to be moved toward and away from the platform. I therefore hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening tool and means for operating it, of a support, a movable center and lever-connections for moving such support toward and away from the fastening-tool, and devices for retaining the pinions in position, substantially as set forth.

2. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a support having a toothed edge, and devices for retaining the pinion in position, substantially as set forth.

3. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a rotary support having a toothed edge, means for moving such support toward and away from the fastening-tool, and devices for retaining the pinions in position, substantially as set forth.

4. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a fastening-tool and means for operating it, of a support, means for moving it toward and away from the fastening-tool, and rests having open or exposed bearings for retaining the pinions in position, substantially as set forth.

5. In a machine for fastening the leaves of lantern-pinions in place, the combination, with a knurl mounted upon a longitudinally-adjustable shaft, of a rotary platform having a toothed edge, a movable center, and lever-connections for moving the platform toward and away from the knurl, and adjustable grooved rests for retaining the pinions in position, substantially as set forth.

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

BENJAMIN B. LEWIS.

Witnesses:

MILES L. PECK,
EDSON M. PECK.