

CHARLES E. MOORE.

Improvement in Feeding Mechanisms for File-Cutting Machines.

No. 114,957.

Patented May 16, 1871.

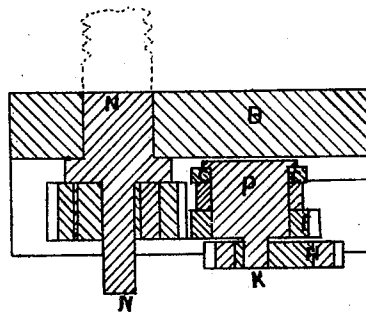
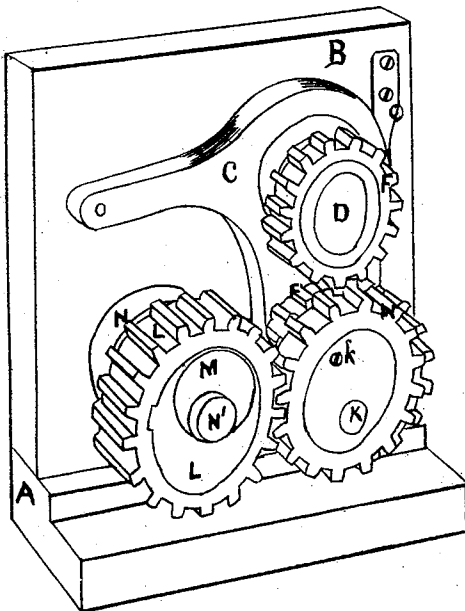


Fig. 2.

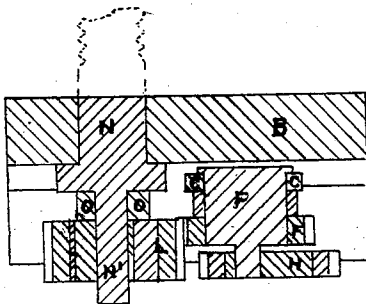


Fig. 3.

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CHARLES E. MOORE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIRAM B. NICKERSON, OF SAME PLACE.

IMPROVEMENT IN FEEDING MECHANISMS FOR FILE-CUTTING MACHINES.

Specification forming part of Letters Patent No. **114,957**, dated May 16, 1871; antedated May 6, 1871.

To all whom it may concern:

Be it known that I, CHARLES E. MOORE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Feeds for File-Cutting Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in combining with the feed-screw of a file-cutting machine a system of eccentric gears, eccentrically adjustable, arranged in such a manner that the velocity with which the file is fed may, if desired, be made to vary constantly; moreover, an infinite variety of changes in the velocity may be made.

By use of the above device an irregularity may be given to the cutting of the file, so that when completed it will have a certain irregularity, which, though machine-cut, will render the file as good as the best hand-made.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and use.

In the drawings, Figure 1 is a perspective view, showing the arrangement of gears used for driving the feed-screw. Figs. 2 and 3 are horizontal sections through the same.

In the drawings I have only represented the feed-motion of a file-cutting machine, as my present invention is entirely confined to that part.

N N' in the drawings represent the end of the feed-screw. D, Fig. 1, represents a shaft, through which power is communicated for driving the feed device. Upon the end N N' of the driving-screw a circular eccentric, M, is placed, and upon this eccentric a gear, L, so that, if desired, by movement of the eccentric M within L, the shaft N' may be located at the center of L, or out of the center; in other words, the gear L may be used as an eccentric gear or as an ordinary gear.

By suitable mechanical device the eccentric M may be made fast in any position within L that may be desired.

The piece C swings upon the shaft D, and serves to hold a center, P, Figs. 2 and 3, upon

which the gears F and H revolve. Q, Fig. 1, is a spring, which, acting upon the lower end of C, serves to press it, together with the gears F and H, toward the gear L, and thus to keep the gears F, H, and L in working relation with each other. The gear F revolves around its own center and meshes with D. The gear H always revolves with F, but is adjusted eccentrically.

In Figs. 1 and 3 the gear L is represented as holding working relation to both gears F and H—that is, as F and H revolve together the teeth of one or the other would mesh with the teeth of L, thus causing L to revolve with a varying velocity.

If the gear H is made concentric with the gear F, then H and F would both act together upon L and would cause it to revolve with a uniform motion; but if H be adjusted eccentrically to F, then the action of F and H upon L will become intermittent, and consequently the motion of L will vary in velocity.

In the drawings, L is represented as concentric with the feed-screw N N', so that if L be moved with uniform velocity the feed will also move uniformly; but if L be moved around upon M, so as to become eccentric to the shaft N N', then, though impelled by uniform motion of F, it would give a variable motion to the feed-screw N N'.

When it is desirable that the gear F alone shall actuate the gear L the ring O, Fig. 3, may be removed, and the gear L pressed upon the shaft of the driving-screw, as represented in Fig. 2, so that it shall mesh with F only, in which case if L be concentric with N N' the motion of the driving-screw N N' will be uniform.

From the above it will be seen that I have four methods of adjustment—the first being to have the gear L mesh only with F, as represented in Fig. 2, and to have it concentric with the driving-screw N N', in which case a uniform motion will be given to the driving-screw; in other words, the file will be fed regularly. Second, the gear L meshing only with F, but set eccentrically with the feed-screw N N'. This adjustment gives a regular intermittent velocity to the feed-screw, which repeats itself at every revolution. Third, the

gear L may be set so as to be concentric with N N', and to mesh with both gears F and H. H being concentric with F, this adjustment will give an intermittent velocity, which repeats itself at every revolution of F and H; but it may be varied in degree. Fourth, the gear L, meshing with F and H, as above, may be set eccentric to N N'.

By this class of adjustments an endless variety of velocities may be given to the feed.

What I claim as my invention, and desire

to secure by Letters Patent of the United States, is—

The combination of the swinging piece C, spring Q, concentric shafts D P, and gears E F with the gears L H and eccentrics K K and M N', all arranged substantially in the manner described.

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Witnesses:

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