Schultz & Renne.

Cutting Files.

No. 90,788. Patented Jun. 1, 1869.

Fig. 1.

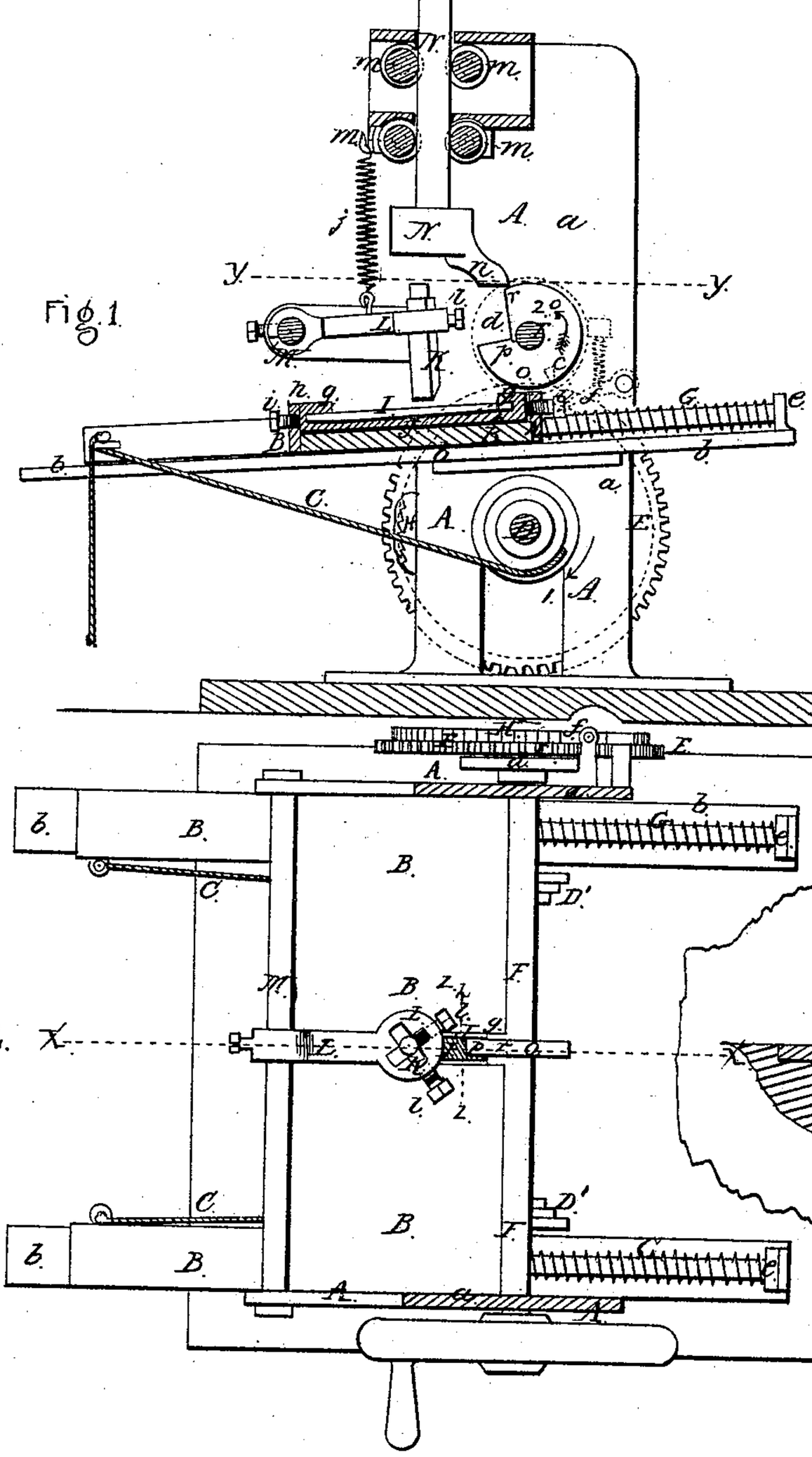
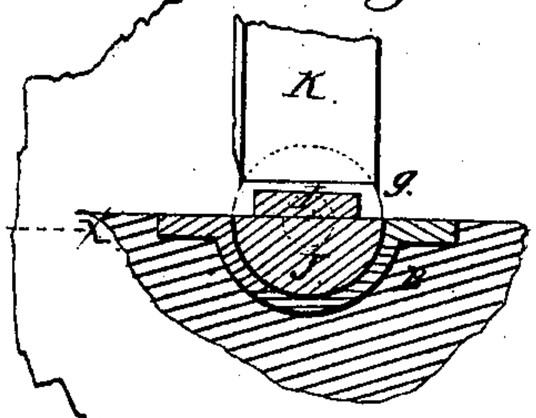


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR CUTTING FILES.

Specification forming part of Letters Patent No. **90,788**, dated June 1, 1869.

To all whom it may concern:

Be it known that we, F. SCHULTZ, of Hoboken, Hudson county, New Jersey, and C. RENNE, of the city, county, and State of New York, have invented an Improved File-Cutting Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 represents a vertical longitudinal section of our improved file-cutting machine, taken on the plane of the line *x x*, Fig. 2. Fig. 2 is a horizontal section of the same, taken on the plane of the line *y y*, Fig. 1. Fig. 3 is a detail vertical transverse section of the same, taken on the plane of the line *z z*, Fig. 2.

Similar letters of reference indicate corresponding parts.

This invention relates to an improved machine for cutting files, which is of such simple construction and arrangement that it cannot readily get out of repair, and that it can be manufactured at a cost much less than that for which file-cutting machines can now be made.

The invention consists, first, of an improved mechanism for moving the sliding table on which the blank to be cut is supported, and which operates automatically to give the requisite feed to the blank.

The invention consists, secondly, in a novel construction of cutter-holder, the same being provided with a cross-slot, to retain a cutter in different positions.

The invention, finally, consists in the general combination of parts for operating and feeding the apparatus.

A in the drawing represents the stationary frame of our improved file-cutting machine. It is composed, chiefly, of two side posts or supports, *a a*, which are provided with horizontal or inclined guideways *b b*, for the supporting of the movable bed B, and which are connected and braced by suitable cross-bars and stays.

B is the bed for supporting the file-blank. Its front part is, by means of belts or chains C, connected with a horizontal shaft, D, which has its bearings in the posts *a* below the bed, and which, when revolved in the direction of the arrow 1, winds the said belts or cords around itself, thereby moving the bed B backward.

A toothed wheel, E, is mounted upon one end of the shaft D, and into its edge meshes a tooth or teeth, *c*, formed on a disk, *d*, of the horizontal driving-shaft F.

The said shaft F has its bearings in the posts *a*, somewhat above the bed B, as shown, and receives rotary motion in the direction of the arrow 2 by suitable mechanism. When thus revolved it imparts intermittent rotary motion to the shaft D, and thereby draws the carriage gradually backward, producing thus the requisite feed.

The feed-motion is regulated by the size and number of teeth of the wheel E, and by the number of teeth on the disk *d*.

Springs G G are interposed between the back edge of the bed B and fixed lugs *e* on the frame A, as shown. They serve to hold the bed forward, and to keep the belts or chains C tense, so as to insure a regular feed. To prevent their holding the bed entirely forward there is a ratchet-wheel, H, mounted on the shaft D, and a pawl, *f*, pivoted to the frame A. The ratchet-wheel has as many teeth as the wheel E, and at every motion of the latter the pawl drops into another tooth of the ratchet-wheel, locking thereby the bed in the new position, and preventing its being forced forward, and the consequent unwinding of the belts C.

By raising the pawl off the wheel H the springs will be at liberty to push the bed forward, and to unwind the belts or chains C from the shaft D, so as to bring the bed into position for commencing operations on another blank.

The file-blank I is fastened upon a bar, J, which is of semi-cylindrical, or nearly such, shape, as in Fig. 3, and which is placed into a hollow depression formed in the bed B, so that it can rock therein. It has projecting ears *g g* at both ends, fitted within lugs *h*, that project from the bed, and is clamped by means of set-screws *i*, which fit against the ears *g*, so as to hold it somewhat, but not quite, firm, allowing it to rock in its support. The ends of the blank I are fitted into notches of the ears *g*, as shown in Fig. 1.

The tool K, for cutting the file, is secured to

an arm, L, which is pivoted to a cross-bar, M, of the frame, or fastened to a pivoted cross-bar, M, as may be desired. It is held up by a spring, *j*. The arm L has a cross-shaped slot for receiving the tool in either position. One of two set-screws, *l*, clamps the tool in the arm L.

N is the hammer. It is sufficiently heavy to cause the requisite indentation to be made by its fall, and is fitted through an upper cross-beam of the frame, working between friction-rollers *m*, as shown. An arm, *n*, projects from the hammer over a cam, *o*, on the shaft F. This cam is a concentric disk with a rectangular recess cut out, as shown. The arm *n* of the hammer rests on it.

When the hammer falls upon the upper end of the cutter K its arm will be directly over the then horizontal straight plane *p* of the cam, and as the cam revolves with the shaft F its plane *p* will at once elevate the hammer as soon as it has fallen. The cutter is then also at once drawn up by the spring *j*, and the file-blank is thereby liberated as soon as it has received an impression, to be fed along with the bed B for another impression.

The disk O, when it is with its circular edge under the arm *n*, holds the hammer at its most elevated position until the arm *n* slips off the edge *r* of the disk, when the hammer will be no more supported and will drop upon the cutter, to cause another impression to be made.

The whole machine is, it will be seen, of very simple construction, entirely automatical in its operation, not likely to get out of repair, and can be cheaply made.

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

1. The combination of the belts or chains C, shaft D, and toothed wheel E with the disk *d*, shaft F, ratchet-wheel H, pawl *f*, and springs G, all arranged and operating to impart the requisite feed-motion to the sliding bed B, substantially as herein shown and described.

2. The cutter-holder L, when provided with a cross-slot, and with two set-screws, *l*, or their equivalent, for the purpose of holding the cutter K in either position, substantially as herein shown and described.

3. An improved file-cutting machine, consisting of the frame A, movable bed B, belts or chains C, intermittently-rotating shaft D, shaft F, springs G, ratchet-wheel L H, pawl *f*, cam *o*, hammer N, spring cutter-holder L, cutter K, and rocking support J, all combined and operating substantially as herein shown and described.

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