

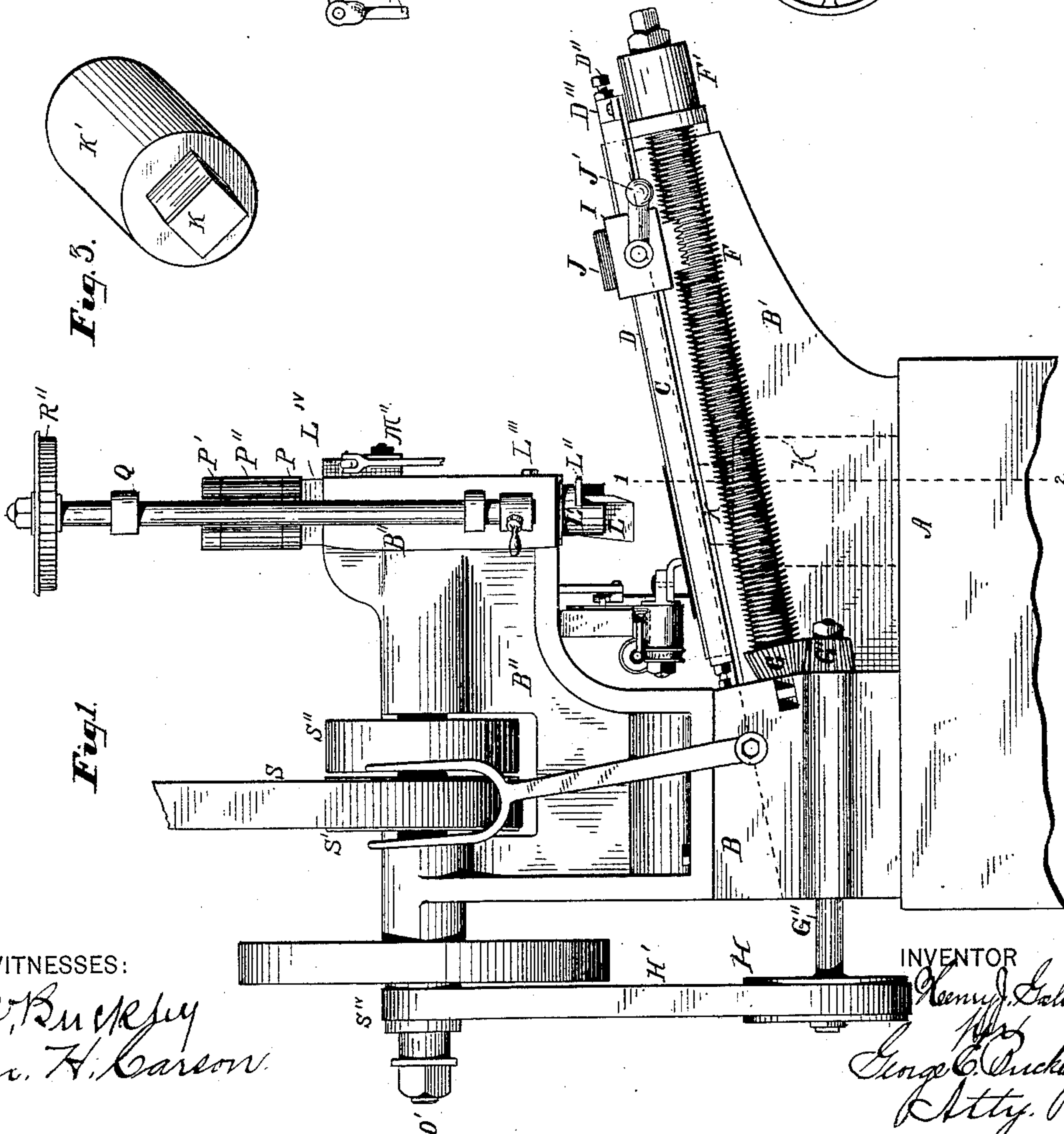
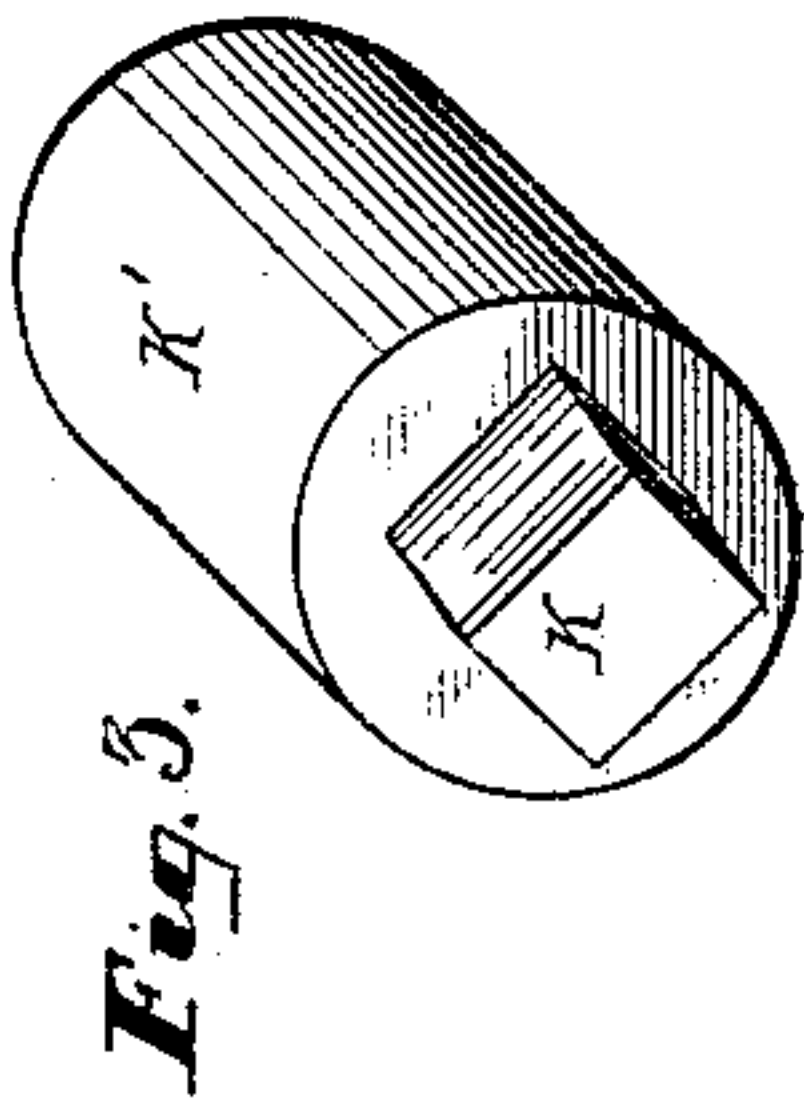
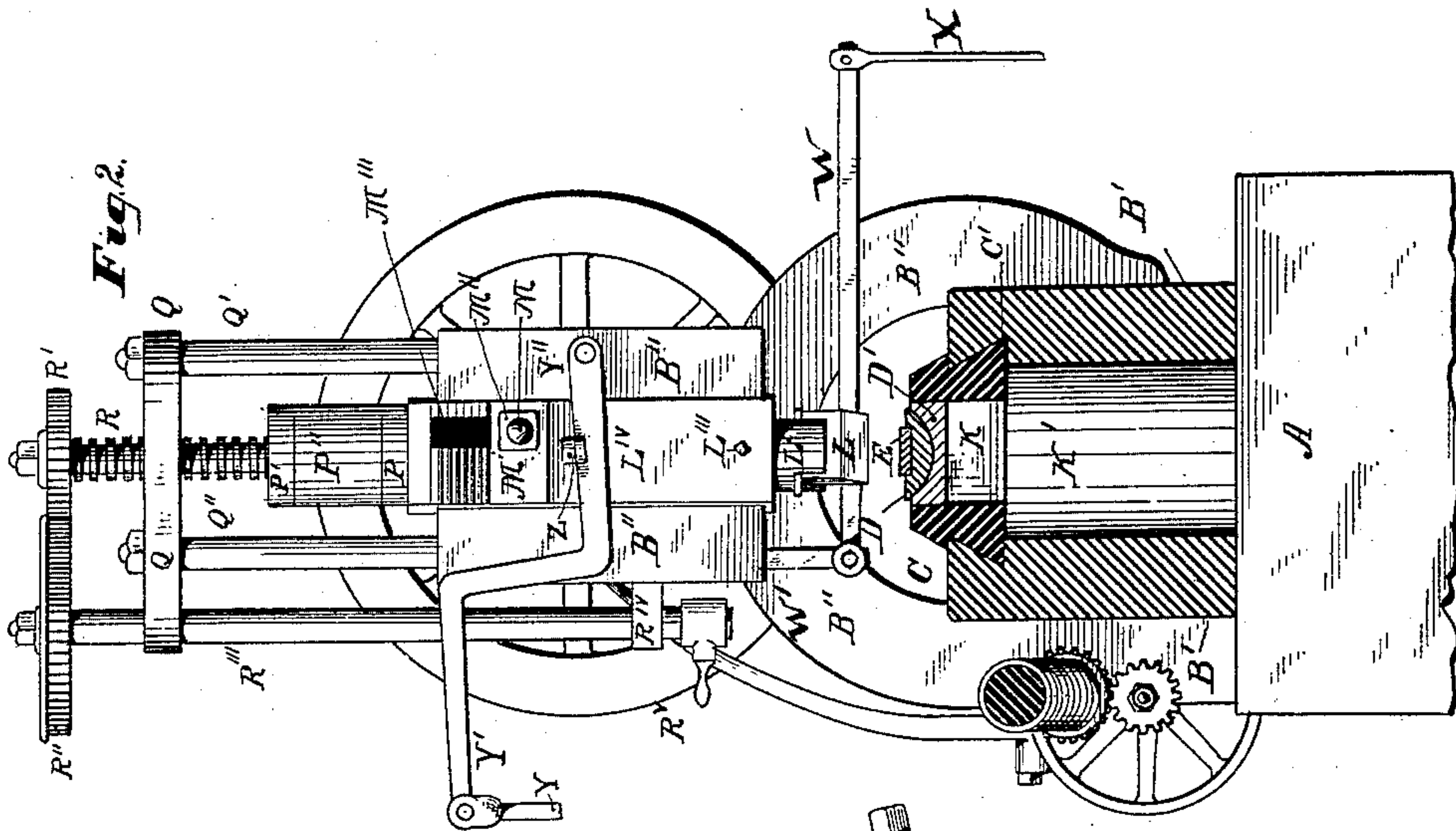
(No Model.)

2 Sheets—Sheet 1.

H. J. GOSLING.
FILE CUTTING MACHINE.

No. 318,104.

Patented May 19, 1885.



WITNESSES:

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Wm. H. Carson

INVENTOR

H. J. Gosling
George C. Buckley
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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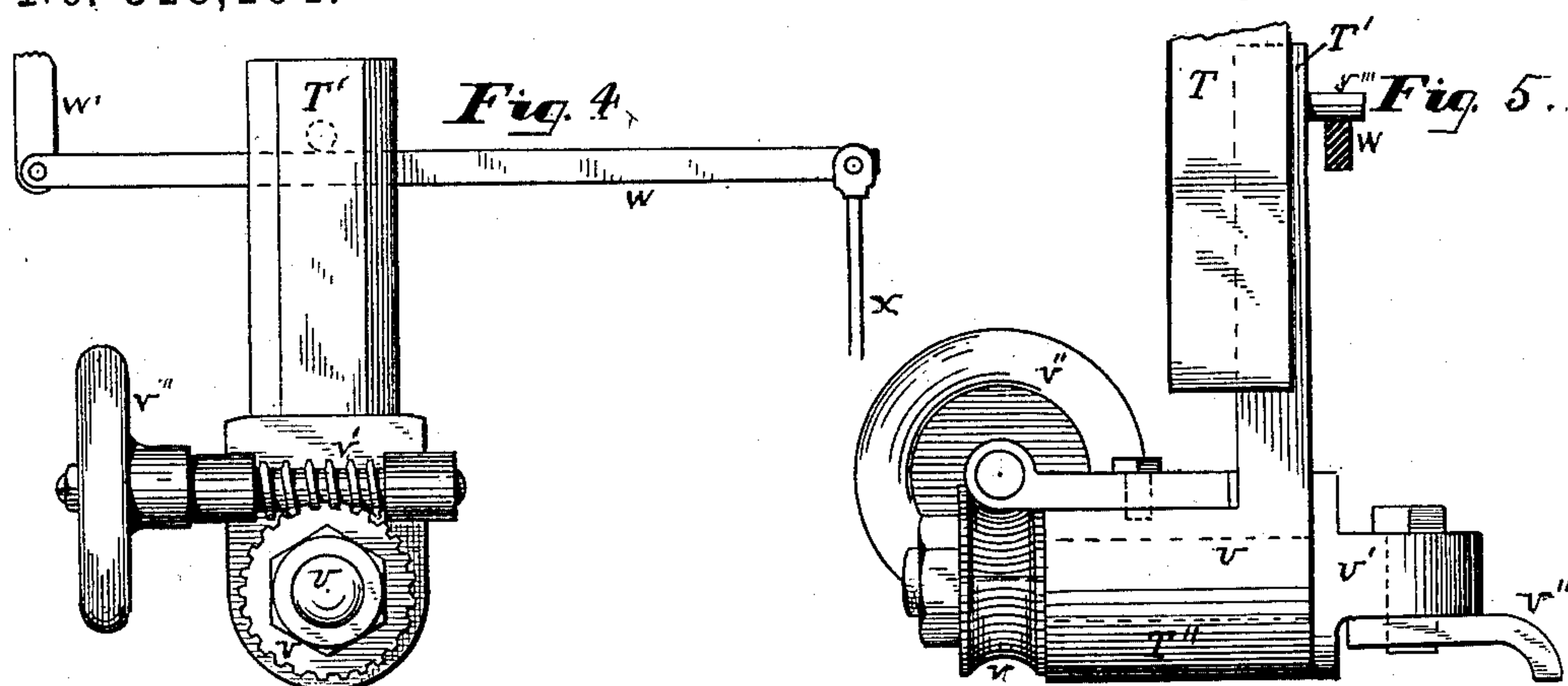


Fig. 6

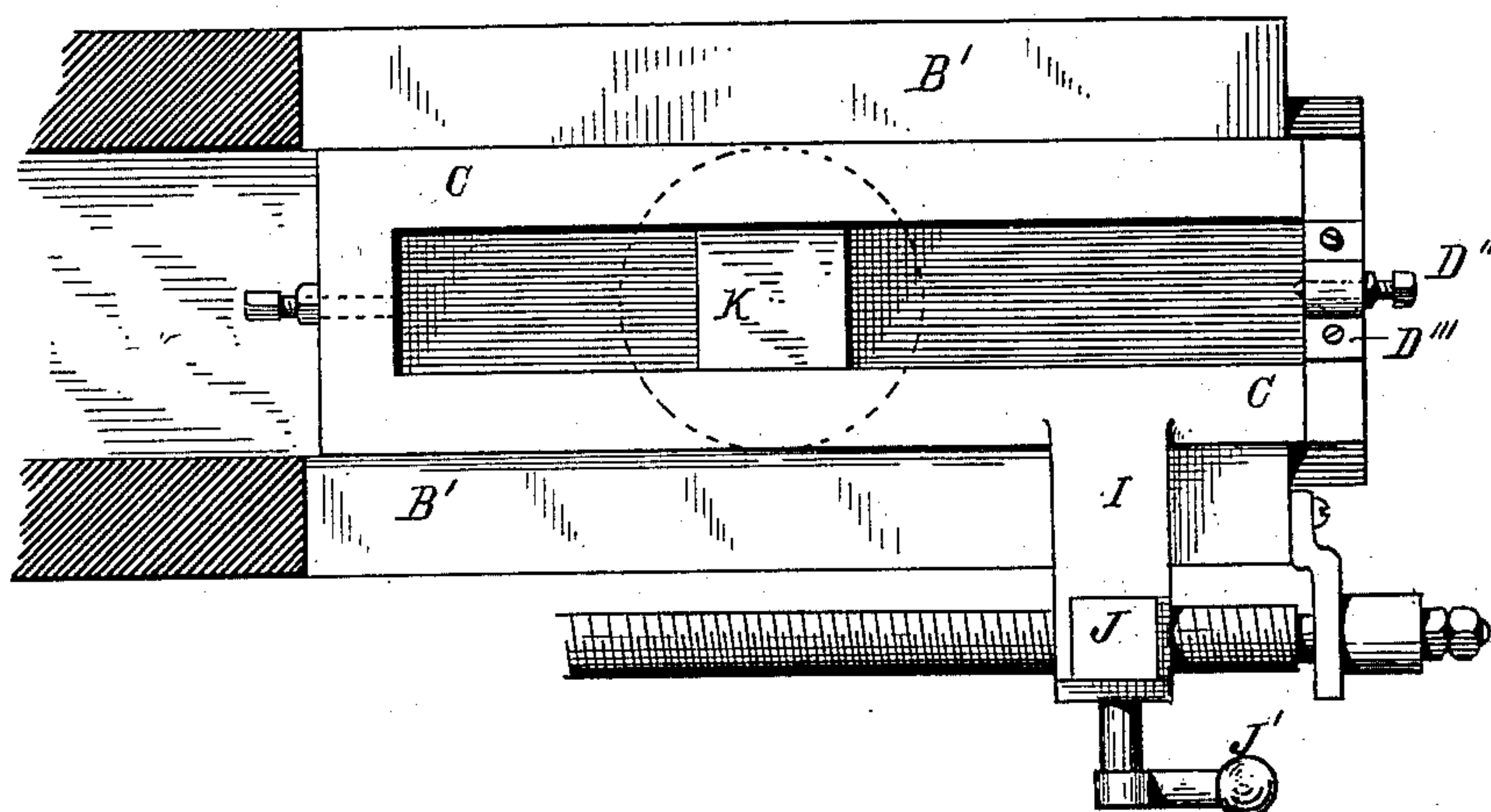
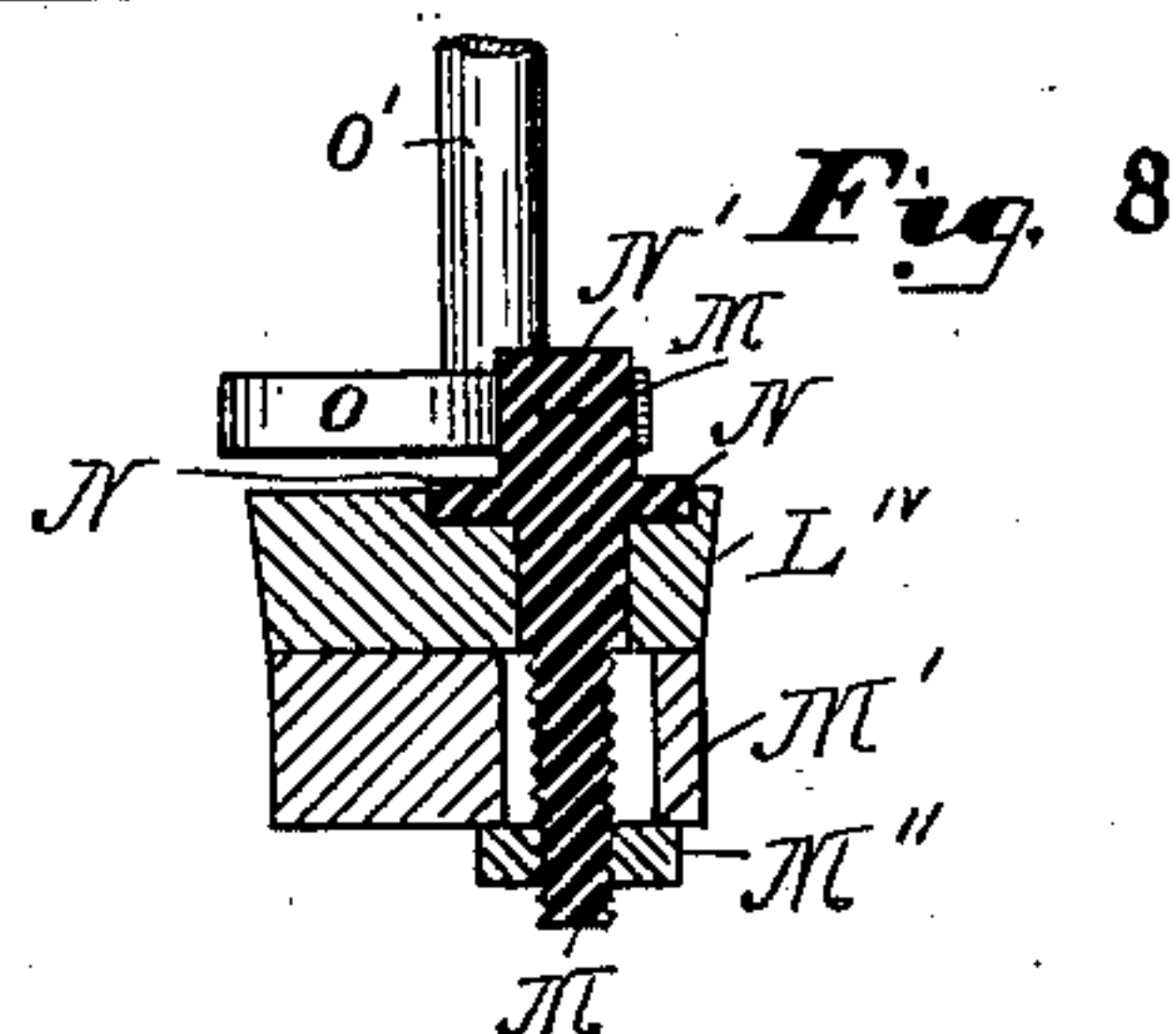
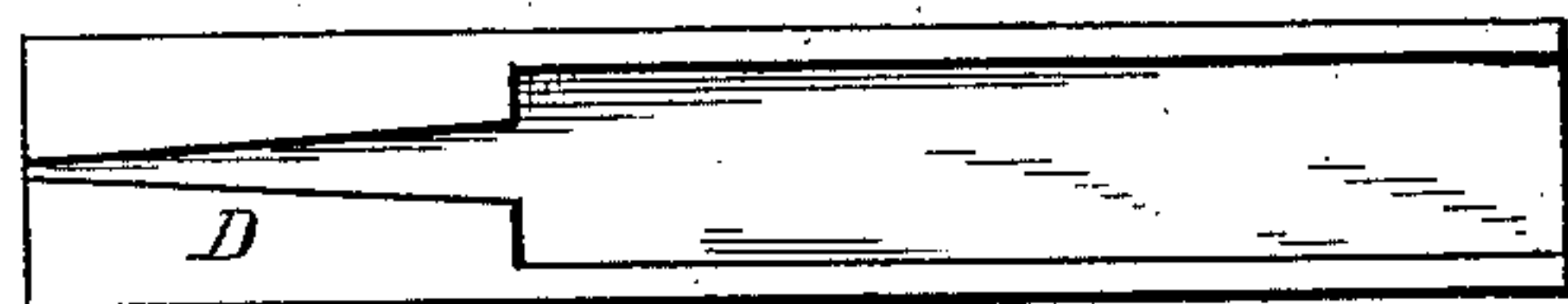


Fig. 7



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UNITED STATES PATENT OFFICE.

HENRY J. GOSLING, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO G.
& H. BARNETT, OF SAME PLACE.

FILE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 318,104, dated May 19, 1885.

Application filed October 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. GOSLING, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a new and Improved File-Cutting Machine; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part hereof.

10 The nature of my invention will fully appear from the following description and claims.

In the drawings, in Sheet 1, Figure 1 is a side elevation of my machine; Fig. 2, a front elevation thereof; showing the file-holder, carrier, and its grooved bearing in cross-section, also a cross-section of the screw which actuates the carrier. These cross-sections are upon the line 1 2 of Fig. 1. Fig. 3 is a perspective of the anvil and its block all in one piece. 15 In Sheet 2, Fig. 4 is a rear elevation of the presser-foot mechanism; Fig. 5, a side elevation of the same; Fig. 6, a plan view of the slide with its grooved-bearing mechanism for actuating the slide, also the anvil, the block of which is shown in a dotted circular line; Fig. 7, a plan view of the file-carrier, showing a receptacle for receiving the file-blank; Fig. 8, a horizontal sectional detached view showing the position of the tappet, upon the inner 25 end of which the cam which operates the cutting-chisel acts.

Sheet 1, A, Fig. 1, is the stone base upon which the mechanism rests. B B' B'' are various parts of the cast-iron frame of my machine. C is the slide, set in grooves C'. (See Fig. 2.) These grooves are in the upper part of that section of my frame which I have denominated B'.

D is the file-carrier, which is convex for the 40 length of its lower surface, which sets loosely in a corresponding concave groove passing the length of the upper surface of the holder D'. E is the file-blank to be cut. The holder D' is secured in place by the set-screw D'', which passes through a female screw-threaded yoke, D''', which in its turn is held down upon 45 the upper or outer end of the slide C.

It will be observed that the upper surface of the part B' of my frame has an upward incline toward its outer extremity. The grooves 50

before mentioned having the same incline, it follows that the slide C, carrier D, holder D', and the file upon the carrier traverse up and down at the same angle.

F is a screw-threaded rod passing through 55 a plain hole in the collar F' at one end, and terminating at the other end in a beveled cog-wheel, G, which gears with a similar cog-wheel, G', set upon a shaft, G'', which passes through the part B of the main frame, and is actuated 60 by the pulley H and belt H'.

I, Figs. 1 and 6, is an ear or lug passing over sidewise from the carrier C. The outer extremity of this ear is pierced vertically to receive a vertically-movable block, J, the lower 65 surface of which latter is provided with a semicircular groove having a female screw-thread adapted, when the block is lowered upon the screw-rod F, to engage with the screw of the latter, whereby the revolution of 70 the screw-rod F will move the ear-piece I and consequently the slide C, backward and forward as the screw turns one way or the other. J' is a crank, the shaft of which passes into the interior of the head of the carrier I and terminates in a round plate, in the face of which 75 is set a pin which sets into a horizontal groove in the opposing face of the block J. As the crank-shaft is turned, this pin moves upward or downward and raises or lowers the block J. 80 The length of the slot in the latter permits the pin to slide therein. The pin will have a slight lateral as well as vertical motion as the plate turns with the shaft. When the crank J' is moved, the block J will be raised from or 85 lowered down upon the screw-threaded rod F.

K is the anvil; K', the anvil-block, which is cast or forged preferably in one piece with the anvil. This anvil-block sets in a hollow space in the part B' of the frame resting below 90 upon the base-stone A. The anvil sets up against the lower side of the holder D' (see Fig. 2) directly beneath the point where the cutter strikes the file. (See dotted lines, Fig. 1.) The upper surface of the anvil is slanted 95 at an angle corresponding to that of the lower face of the holder D'.

L is the cutter-blade secured in the lower end of the plunger L' by set-screw L''. (See Fig. 2.) I have also indicated the position of 100

this set-screw by a letter, L', in Fig. 1, the screw itself not showing because the plunger L' is partially turned whereby the set-screw is hidden.

5 L'', Fig. 1, is a set-screw to secure the plunger L' in any position to which it may be turned. This plunger is cylindrical in form and sets up into a correspondingly-shaped socket in the sliding block L^{IV}. (See Fig. 2.)
 10 The set-screw L'' passes through the outside of this block to its interior, so as to impinge against this cylindrical plunger, which also constitutes the cutter-holder. The cutter is so turned in the drawings as to make a diagonal cut upon the file-blank. It may be
 15 turned so as to make a cut of any angle upon the blank. The sliding block L^{IV} has a vertical reciprocating motion and sets in a deep dovetailed groove in the face of the part B'' of the main frame. This block L^{IV} is pierced by a
 20 long vertical slot, M'''. (See Fig. 2.) The outer end of this steel tappet (see Fig. 8, Sheet 2) is screw threaded to receive a nut, M''. The outer face of the block L^{IV} on both sides of the slot M''' is serrated, and a washer, M', with an
 25 inner serrated face corresponding with and adapted to engage with the serrated face of block or slide L^{IV} upon both sides of the slot M''' is set upon this screw-bolt and is held
 30 against the face of the block or slide L^{IV} by means of a nut, M'', on the screw-threaded end of the tappet M. This tappet is secured in place near its rear end by two shoulders, N
 35 N, which are set in two long grooves or recesses in the rear surface of the block L^{IV}, which shoulders are adapted to slide up and down therein. A continuation or projection,
 40 N', of the rear end of the tappet sets directly over the cam O, which in its turn is set upon the cam-shaft O'. The revolution of the cam
 45 O gives an intermittent upward movement to this projection N' of the tappet. As the tappet is securely fastened in the block L^{IV} by the nut M'', this motion is imparted to the block L^{IV},
 and consequently to the plunger or cutter-holder L', and consequently to the cutter L.

If, through the wearing away of the cutter L, or for any other cause, it becomes necessary to set the cutter farther down, the nut M'' is
 50 loosened and the washer M' is released from the serrated face of the block or slide L^{IV} and the block is allowed to drop to the requisite distance, when the washer M' with its serrated face is again set against the serrated face of
 55 block or slide L^{IV} and the nut M'' is tightened up, thus securing the parts in place. As the end N' of the tappet rests upon the cam O, the block or slide L^{IV} will be lowered, so as to give a lower stroke to the cutter, as desired.

60 P P' are two metallic disks concave upon their opposite surfaces, and holding between these concave surfaces a rubber cylinder, P''. (A spiral or other spring might be substituted.) The disk P is set by a pin upon the upper end
 65 or face of the block or slide L^{IV}. A cross-bar, Q, is supported upon columns or standards Q'

Q'' from the part B'' of the main frame. A screw-threaded rod, R, passes through a female screw-threaded hole in the bar Q, and terminates in a point which sets in a slight
 70 depression or cavity in the top of the disk P'. The upper end of this screw-threaded rod R carries a cog-wheel, R', which engages with a cog-wheel, R''. The latter cog-wheel is mounted upon the adjusting-rod R''', which passes
 75 down through the bar Q, and is secured in an upright position below by the bearing or lug R^{IV}. Its lower end is polygonal in shape, and is furnished with the wrench R^V, which engages with its polygonal end, and by which it
 80 is turned. The wrench fits loosely upon it, and when the wrench-handle has moved as far as possible in any one direction the wrench can be raised up upon the rod R''' to its plain portion and turned around to its starting-point,
 85 dropped into position, and another turn taken. This operation can be repeated as long as it is desired to turn the rod R'''.

If it is desired to give greater strength to the stroke of the chisel L, the rod R''' is turned
 90 by means of the wrench R^V in such a manner that the movement of the cogs R'' and R' will force the screw R downward upon the disk P'. This will result in compressing the rubber P'', which, by its spring, imparts the stroke to the
 95 cutter through the medium of the slide or block L^{IV} and chisel-holder L'. In order to permit this downward stroke, a cam of such shape is used that after the tappet has been raised to the highest point of cam O a space
 100 will be left between the tappet and the next succeeding face of the cam to admit of a full downward stroke or movement of the slide L^{IV}, without having the tappet strike the cam when the lowest point of the stroke is reached.
 105 The cam-shaft (see Fig. 1) passes through and is supported in the upper part, B'', of the main frame, and is operated by the belt S and pulley S'. S' is a fixed pulley and S'' a loose pulley upon the shaft O'. By throwing the belt
 110 upon the loose pulley in the ordinary way the machine is stopped. S^{IV} is a small pulley located upon the cam-shaft O', which, through the medium of the belt H', actuates the pulley H and its shaft G''. This in its turn actuates
 115 the cog-wheels G' and G, and the screw-threaded rod F, which, as explained above, moves the sliding mechanism which carries the file-blank to be cut.

In Fig. 5, Sheet 2, and Fig. 1, Sheet 1, T
 120 represents hanger or support attached above to the part B'' of the main frame, which sustains the presser-foot and its mechanism. This hanger T is provided with a dovetailed groove adapted to receive the sliding tenon T', which
 125 slides up and down in the said groove as the presser-foot mechanism is raised or lowered. This tenon terminates below in a hollow sleeve, T'', cast in one piece therewith. In this sleeve is fitted a short shaft, U, (shown in dotted
 130 lines in Fig. 5,) to which shaft is fitted a head, U'. To the under side of this head is secured

by a screw or bolt the presser-foot U'', which is designed to hold the file-blank down while it is being cut. The opposite end of this shaft is provided with a worm-wheel, V, which is
 5 rotated by means of the worm V', which gears with it, and the hand-wheel V'', which latter is attached to the worm. The lever W, which is jointed to the main frame by arm W', is operated to raise the presser-foot mechanism by
 10 raising the pin Y''' on the tenon T'. This lever is raised by means of the rod X, which is attached below to an ordinary treadle.

By turning the wheel V'' the presser-foot U'', through the worm V', worm-wheel V, and
 15 shaft U, is made to bear upon one or the other edge of the file by being tilted in one or the other direction, and by the raising of the lever W, through the treadle above referred to, the pin Y''' is raised, thereby raising the tenon T' in its dovetailed groove. The presser-foot is
 20 thus raised clear of the file-blank, and the latter is released.

If at any time it is desired to raise the chisel L up from the blank being cut, the foot of the
 25 operative is placed upon a treadle similar to treadle X, which is attached to the rod Y, Fig. 2, Sheet 1. This rod is attached to the outer end of a bent lever, Y', which is pivoted at Y'' to the main frame. The raising of the outer end
 30 of this lever causes the lug Z, which is set upon the same, to strike the lower edge of washer M', and thus raise the slide or block L^{IV} and the chisel L.

The operation is as follows: The soft-metal
 35 file-blank E is laid in its carrier D with the tang end away from the operative, who sits in front of the machine, which is to the right in Fig. 1. The block J is then raised from contact with the threaded rod F. The slide-carrier C is then pushed down the incline until
 40 the end of the file nearest the operator is immediately below the chisel L. The presser-foot V' is then lowered upon the blank to hold it in place. The chisel is then also let down upon the blank, and the block J is also lowered until its thread engages with the thread of rod F. Power is then applied through the
 45 belt S, which turns the pulley S', which revolves the cam-shaft O', and rapidly vibrates the chisel, as above described. The slide or
 50 block L^{IV} is raised by the cam, and immediately

forced down again by the spring of the rubber cylinder-P''. At the same time the small pulley S^{IV}, by means of the belt H', slowly turns the
 larger pulley H', from which motion is com- 55 municated to the shaft G'' and cog-wheels G' and G. The rod F is thus also slowly revolved, which moves the block J slowly up the incline, and the slide C, holder D', carrier D, and the file-blank are also moved slowly up
 60 the incline, the file-blank receiving rapid and continuous cuts from the chisel as it ascends the incline. When the cutting is finished, the chisel and presser-foot are raised and the file is released. Another blank is then inserted
 65 and the operation is repeated.

What I claim as new is—

1. In a file-cutting machine, the combination of the main frame B B' B'' and the independent anvil K K', set in a recess or opening
 70 in said frame directly beneath the chisel L and resting below upon the block or support A, whereby the vibrations caused by the descent of the chisel will be received directly upon the independent anvil and the main sup-
 75 port, instead of being sustained by the main frame, substantially as described.

2. In combination with the main frame B B' B'', the plunger L^{IV}, having a serrated face, as shown, adjusting-block M', tappet M, and nut
 80 M'', projecting through the recess or opening M''', the rear end of said tappet coming in contact with the eccentric O, whereby said tappet and the plunger L^{IV} are raised between the
 85 strokes of the chisel L, and the depth of stroke of the latter is regulated or adjusted, substantially as described.

3. In a file-cutting mechanism, the presser-foot U'', suspended in a grooved hanger, T, from the main frame, provided with a short
 90 shaft, U, through the block T'', worm-wheel V, worm V', hand-wheel V'', whereby the presser-foot can be inclined and made to bear upon either side of the file-blank, and the lever W, by the raising of which the operator
 95 can elevate the presser-foot and release the file-blank from beneath it, substantially as described.

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Witnesses:

CHAS. M. LUKENS,
 WM. H. CARSON.