4 Sheets--Sheet 1.

J. P. MOLLIERE.

Machine for Cutting out, Punching, and Stamping the Soles and Heels of Boots and Shoes.

No. 13,914. Patented Dec. 11, 1855.

Fig. 1

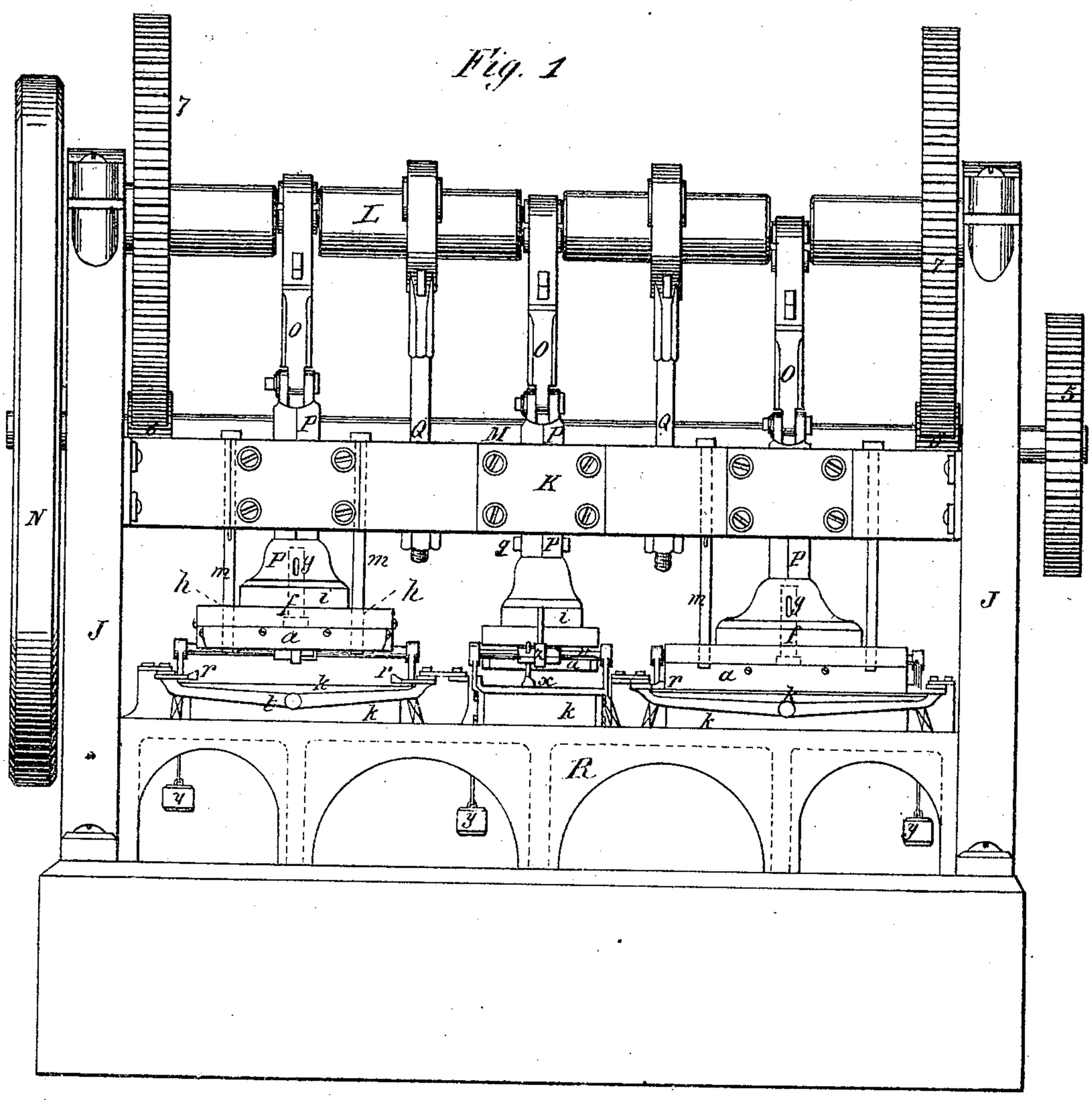

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Fig. 2

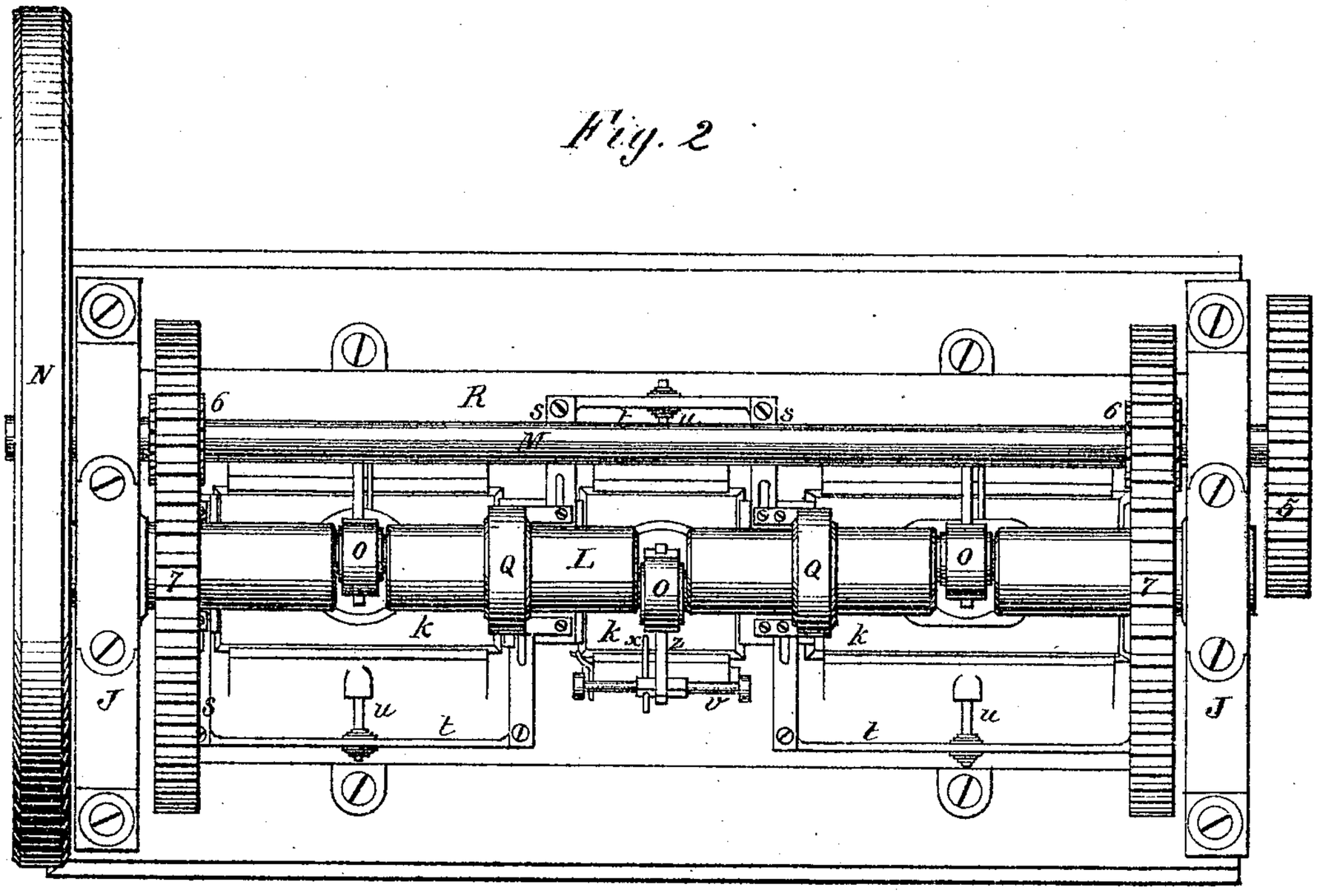

Fig. 1

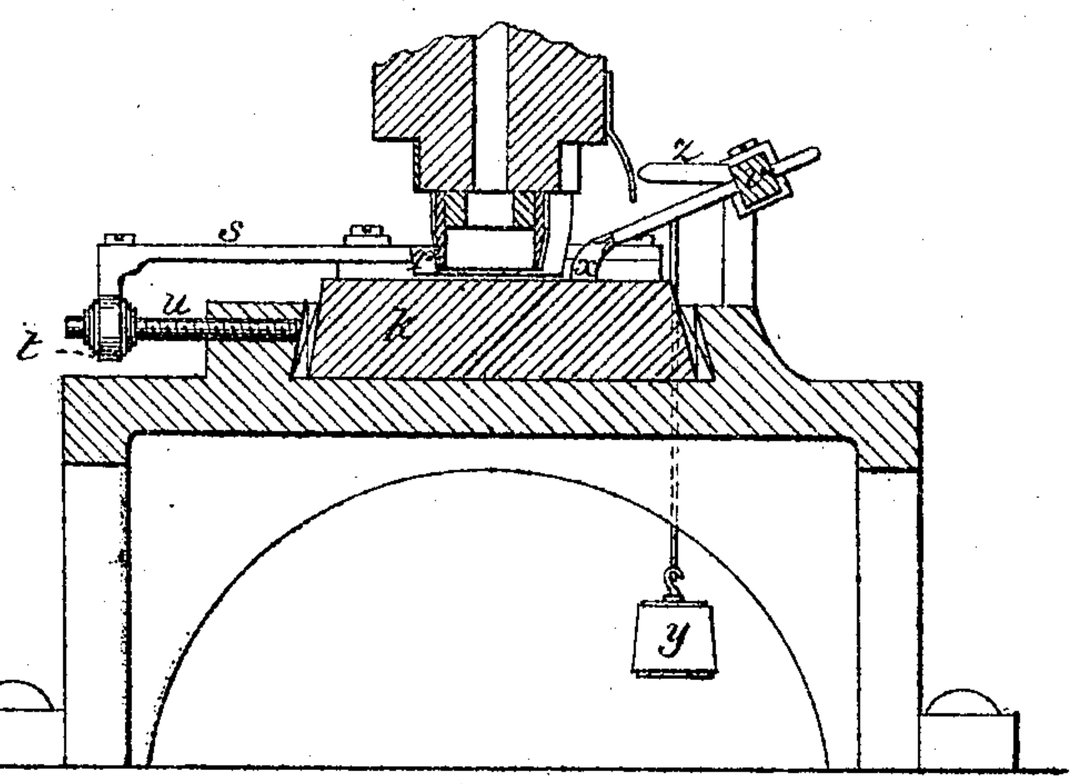

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Fig. 3

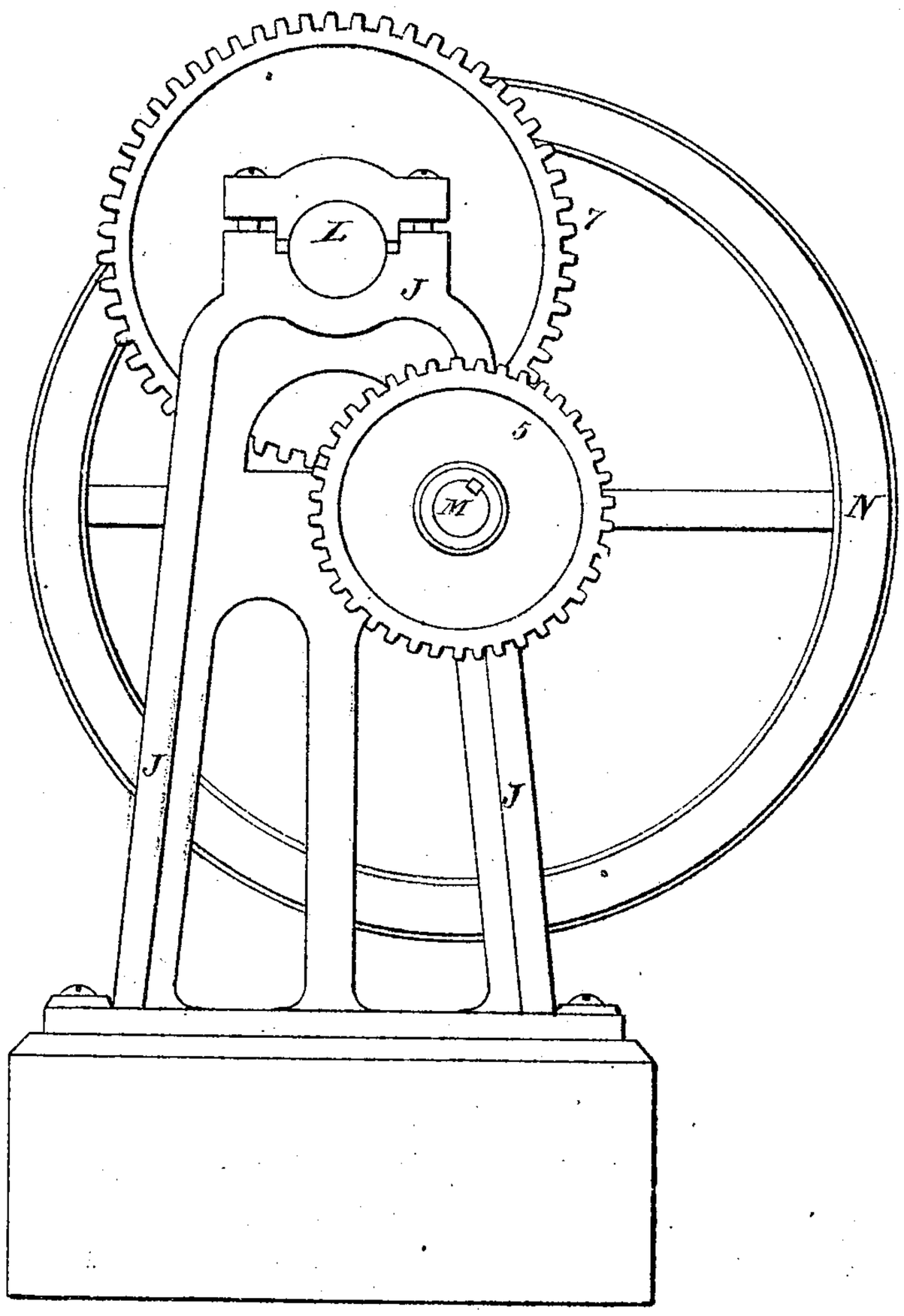

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Fig. 5

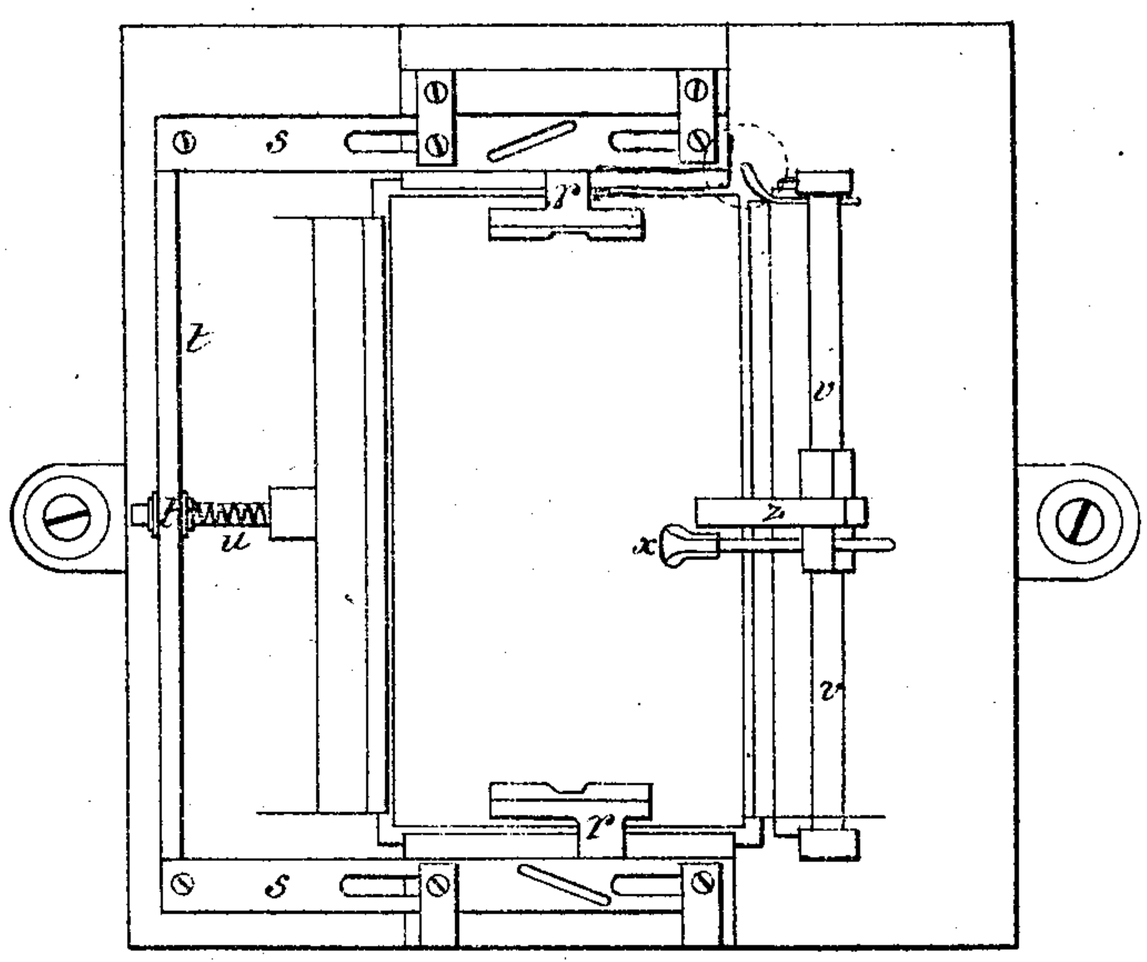


Fig. 6

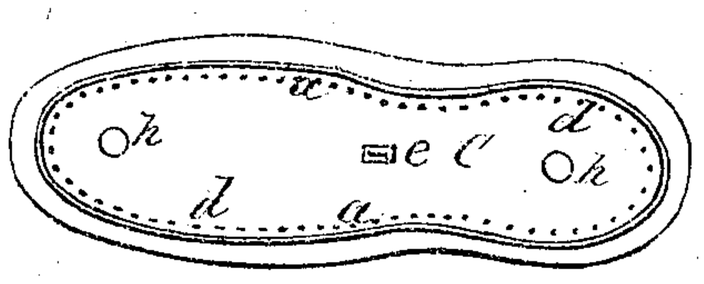
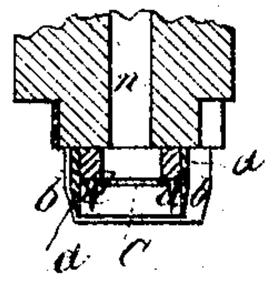


Fig. 7



UNITED STATES PATENT OFFICE.

J. P. MOLLIERÈ, OF LYON, FRANCE.

MACHINE FOR CUTTING OUT, PRICKING, AND STAMPING THE SOLES AND HEELS OF BOOTS AND SHOES.

Specification of Letters Patent No. 13,914, dated December 11, 1855.

To all whom it may concern:

Be it known that I, JEAN PIERRE MOLLIERÈ, of Lyon, in France, have invented a new and useful Machine for Cutting, Pricking, and Stamping at One Stroke the Soles and Heels of Boots and Shoes After They are Hammered; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section, Fig. 2, a top view, Fig. 3 an end view, and Figs. 4, 5, 6, and 7 sections of parts thereof, and in which the letters referring to the several parts of the same are fully explained in the following description.

The cutting out and pricking and stamping are done, at one blow, by means of punchers arranged as is shown in Figs. 6 and 7. The punchers are of cast iron, and of the form or shape of the thing to be cut out, having a flange, which serves as a support for the blades or cutters. When blades are of steel and are four in number, two *a a*, going around the punchers, to which they are secured, and serving to cut out the thing required, while the two *b*, *b*, attached to the end thereof, are intended for clipping off the shred of leather, which might be left on the strip and hinder its handling. The two principal blades have the exact form of the piece of leather, such as it ought to be according to the shape of the heel or sole required; and so you must be supplied with punchers of all sizes and all shapes, according to the prevailing taste and fashion, varying by a scale of two millimeters (.03937 English inch being one millimeter) in size. Not less than two hundred punches are required to supply every variety of shape and size. To this puncher is attached a metal awl plate C. This plate is pierced with just as many holes as there are required in the sole or heel; these holes are conical, the base of the cone resting against the puncher. They are, each one, armed with a little awl *d*, also cone-shaped, which exactly fits in its place; when the plate is thus armed with its awls, it is screwed with the side showing their base, against the puncher, and from the latter, they receive the pressure which drives them into the leather.

The stamp or the numbering of the size of the shoe or boot, is adopted to avoid the trying and fitting incident upon getting together the sizes, needed in the progress of manufacturing; this stamp agrees with that upon the other different pieces, which make up the shoe or boot, and is left upon the sole after it is finished, where it serves for a sale mark, and so, the purchaser, who shall have once found a number which fits him, has only to ask afterward for his number, with the assurance that, owing to the precision of this mode of cutting out, which is, in no case, altered by other tools in the hands of the workman, he will find a boot or shoe exactly like that of the same number, which he before selected, a thing impossible in the trade as heretofore carried on, for in that the first cutting is not the last, trimmed and pared down as it is, by the hand of the workman, who can never, as a machine can, make two soles perfectly alike.

The stamp *e* is screwed, by a tap into the body of the puncher, and being of steel, it can be regulated, according to the depth of the impression, which you wish to be given to the leather.

In the center of the puncher, is the arm *f*, which fastens the puncher itself to the slide bar of the machine by the collar pin *g*. This arm has only to sustain the weight of the puncher, the pressure being upon the puncher itself, which is perforated also with two holes *h*, affording a passage for the two detaching rods, whose office will be explained presently. The machine, which sets these punchers in operation, may or may not be connected with a second one for hammering leather, but if it is so connected, it receives its motion from the latter.

It consists of two frames J J, secured by bolts to a separate foundation stone, or one common to the two machines; these two frames are connected with each other by the cross guide beam K, which serves also as a guide to the slides. These frames carry, each, two bearers, the upper one receiving the cutting out shaft L, with its eccentric bearings, and the other receiving the transmitting shaft M, having at one extremity the fly wheel N, and at the other extremity, receiving, through the wheel 5, the motion of the hammering machine, for the purpose of transmitting it, by means of the pinions 6 6,

to the large wheels 7, 7, attached to the cutting out shaft, which they revolve. The sizes of these driving wheels are such that while the shaft E makes seventy five revolutions, the shaft M does not make more than twenty five, and that of L only 5. If the machine is made and constructed independently of any other machine, which can be done, then the connecting gearing, above described, can be dispensed with, and other gearing substituted for connection with the driving power.

The shaft L of ten centimeters, (a centimeter being 0.39371 of an English inch) has upon its length three bearings of five centimeters in diameter and twenty-five millimeters eccentricity, and their position upon the circumference of the eccentric, is determined by dividing this circumference into three parts, so that these parts shall only arrive, one after the other, and in equal times, at the extreme points of their eccentricity. To each one of these bearings is fixed a crank *o*, *o*, *o*, on which it turns; the other end of this crank is attached with a joint to the slide P, whose shoulder piece receives the puncher. You see, then, that, in consequence of the position of the eccentrics, each slide, armed with a puncher, will come to cut out, by turns and at equal distances, so that no two punches can ever act together; the object of this arrangement is not to overtask the machine, unnecessarily, but to distribute more equally the dead points and working points, so as to relieve the fly-wheel in some measure; as at the instant of cutting, the resistance would operate to bend the shaft, and might strain it in its length. I have supported it by the collars Q Q, fastened to the guide beam K, so that, this upper part of the machine forms, as it were, a solid block. Each of these slides is guided, independently of each other, in the guide beam K, and this allows the movement of one to be governed without deranging the regulation of the others. To these slides are fastened the punchers, by means of the bars *f*, keyed into the shoulder pieces *i*, *i*, *i*. The cutting out is done upon the wooden flats *k*, *k*, *k*, placed upon a vaulted and ribbed cast-iron stool R; these flats are secured to the stool by iron plates, which keep them down by dove-tailed joints, between the cast-iron brackets, attached also to the stool.

When the cutting out has taken place, the leather tends to stick to the blades and awls of the punch. In order to detach it, I employ the detaching rods *m*, *m*. These rods are fixed on the cross guide piece K, and pass down into the holes *h h* of the punchers; when the puncher is lifted up, carrying with it the piece cut out, this piece encountering the detaching rods *m*, *m*, which are immovable, and which extend fifteen millimeters below the under face of the cutter or puncher, finds itself forced off and detached from the blades and awls, to fall back upon the flat, whence it is removed by the workman.

In the middle slide, intended for cutting out heels and half soles, the discharge or detachment of the leather is effected by the stamp. (See Fig. 7.) The puncher is fastened to the slide by the hollow screw *n*, This hollow screw is traversed by a rod *o* receiving the stamp P. This rod extends up into the slide, where it is held fast by a key *q*. Being allowed to play fifteen millimeters in this slide, and extending a centimeter beyond each side of the slide, the puncher in returning carries with it the leather sticking to the blade and awls, but the key *q*, meeting the cross beam K, can rise no higher, and consequently holds back the rod *o*, which pressing upon the leather forces it back, for the reason that the puncher continues to rise fifteen millimeters after the contact of the key *q* with the cross beam K.

The workman charged with the cutting out holds the strip and puts it under the puncher, but as this must be done with great rapidity, the leather finds iself guided and stopped in such a way that it can be instantly in its place. The guides to effect this, (see Figs. 4 and 5) consist of two pieces *r*, forming the sides of a square, one of which is graduated and has on it the numbers of the sizes. As the puncher is always in the center, these guides must be governed by a single movement in their approach to and retreat from it. This result is obtained by the following mechanism: two pieces *s* slide on a cast-iron guide bed, and have an oblique groove, in which plays a pin fixed to the guides *r;* these two pieces *s* are connected by the cross tie *t*, and controlled by the screw *u*, which being attached to a cast-iron bracket, causes the traverse *t* of the pieces *s* to move forward or backward, so that the pieces *s*, by their oblique grooves push forward the guides. The stopping piece *x* is supported upon a small axis *v;* it is kept down upon the leather on the flat, by the counter weight *y*, attached to the axis *v*, while the puncher is cutting; a spring catch hitches under the piece *z*, and lifts up the stopper as fast as the puncher rises, which leaves time enough to remove the leather that has been cut. When it gets up as far as it can, the piece *z*, which has described the arc of a circle, lets the catch go, and being drawn down by the counter weight *y*, the stopper falls back to its place.

The pricking and stamping can be dispensed with, and the cutting out carried on by itself, according to the requirements of the work.

What I claim as my invention and desire

to secure by Letters Patent, of even date with the French Letters Patent for the same invention, is,

The cutting out of soles and heels, by the blades *a*, *a*, and *b*, *b*, from strips of hammered or other leather, sliding between the guide pieces *r*, *r*, and held in place by the stoppers *x*, *x;* the pricking and stamping of the heels and soles, so cut out, by the awls *d*, and the stamp *e*, at the same time, the three operations being performed at one stroke; the detaching, from the blades and awls, of the pieces cut out, pricked and stamped, by the detaching rods *m*, *m* and *o;* and the adjustment of the eccentrics upon the shaft L, in such manner that no two of the punchers can operate at one and the same time; the whole constructed and operated substantially as herein described.

J. P. MOLLIERÈ.

Witnesses:
W. G. SNETHEN,
L. A. MAXWELL.