

(No Model.)

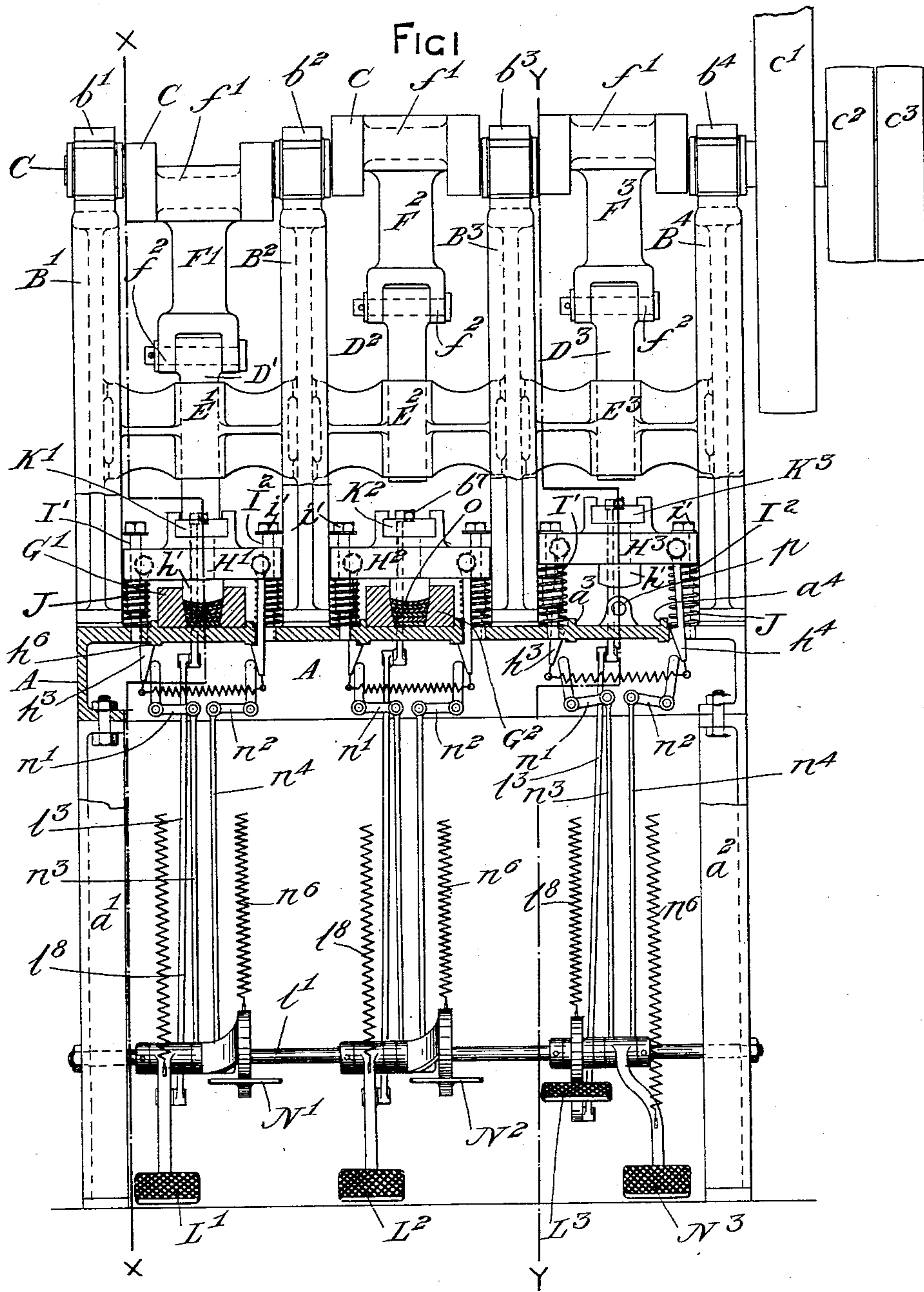
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J. V. COLLIER.

MACHINE FOR MAKING HEELS FOR BOOTS OR SHOES.

No. 593,349.

Patented Nov. 9, 1897.



WITNESSES.

Otto Munk
J. Richard Wolse

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(No Model.)

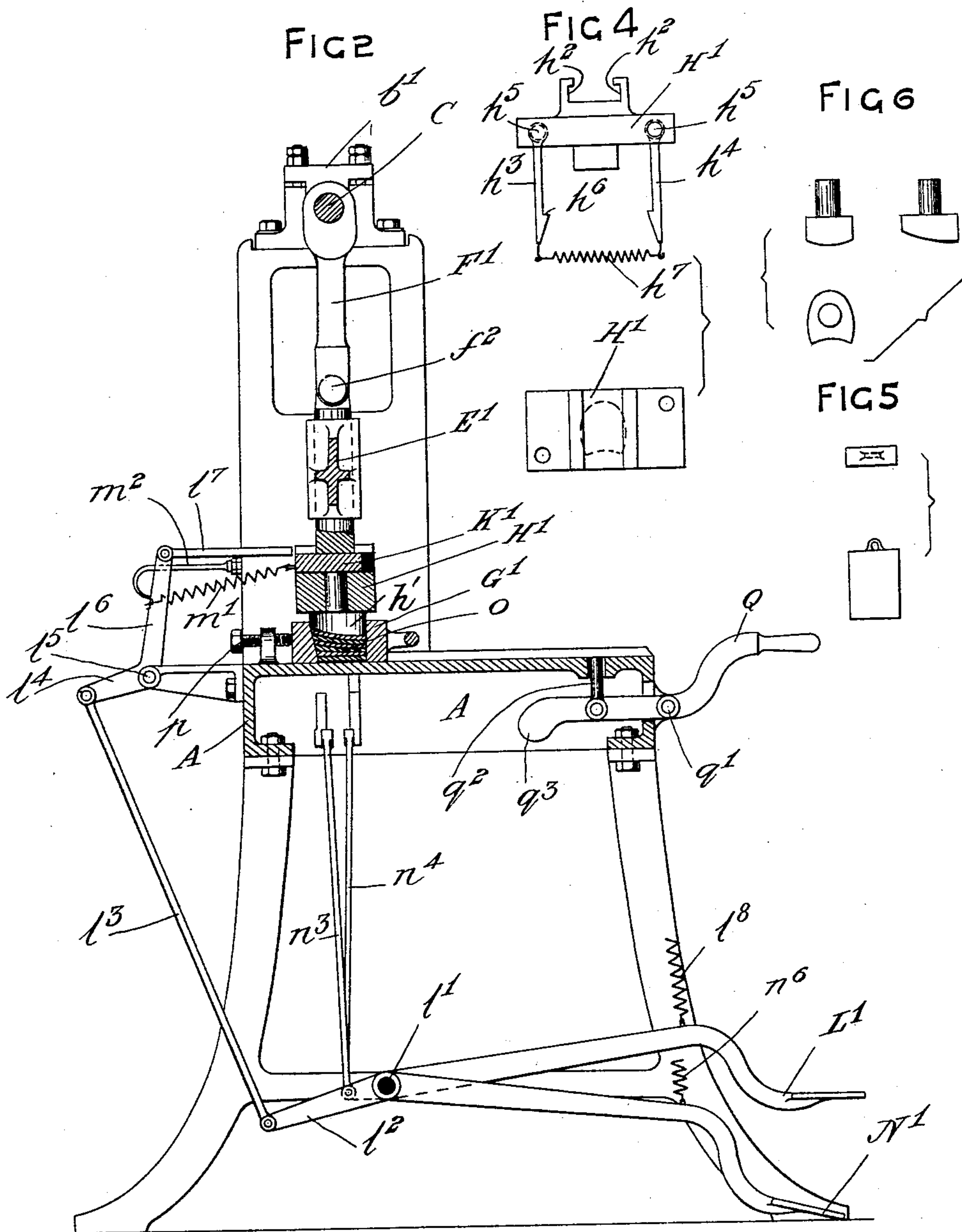
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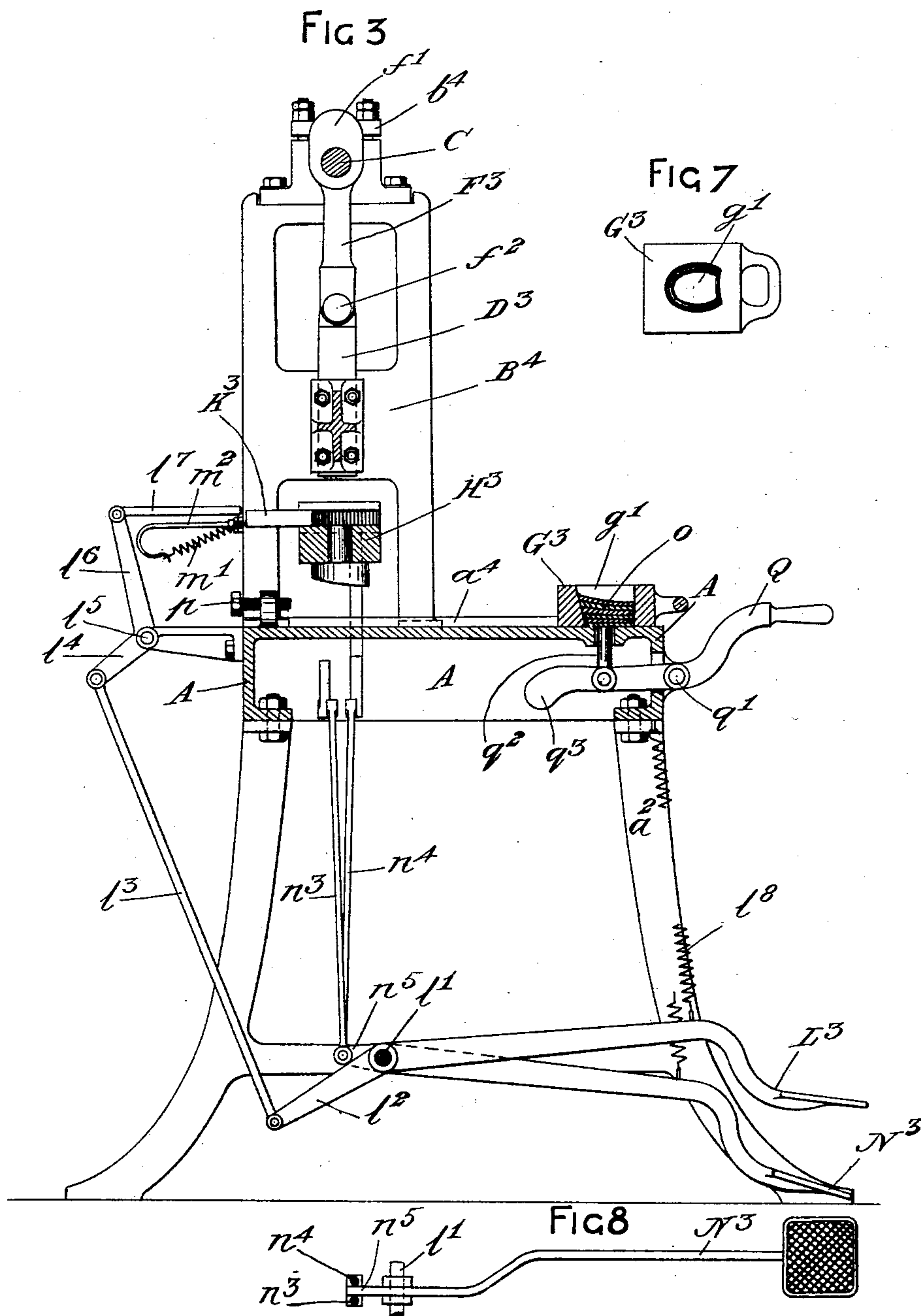
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN VEASY COLLIER, OF NORTHAMPTON, ENGLAND.

MACHINE FOR MAKING HEELS FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 593,349, dated November 9, 1897.

Application filed February 10, 1897. Serial No. 622,830. (No model.)

To all whom it may concern:

Be it known that I, JOHN VEASY COLLIER, a subject of Her Majesty the Queen of Great Britain and Ireland, residing at Northampton, in the county of Northampton, England, have invented certain new and useful Improvements in Machinery for Making Heels for Boots or Shoes, of which the following is a specification.

This invention consists of the herein-described new or improved machinery for making heels for boots and shoes whereby there is a considerable saving of labor, thus reducing the cost of manufacture. Moreover, all the heels of a certain size can be built to a uniform height, and the split lift can be built in the heel with the other sections instead of being nailed onto the bottom after the heel is built.

I will describe my invention by referring to the accompanying drawings, in which—

Figure 1 is a front sectional elevation of a boot and shoe heel making machine constructed according to this invention. Fig. 2 is a sectional side elevation of the same on line X X of Fig. 1. Fig. 3 is a sectional side elevation of the same on line Y Y of Fig. 1. Fig. 4 is a front elevation and plan of one of the pressure-blocks of the said machine. Fig. 5 is a front elevation and plan of one of the distance-blocks of the said machine. Fig. 6 shows a part of one of the said pressure-blocks in front and side elevations and in plan. Fig. 7 is a plan of one of the heel-molds of the said machine, and Fig. 8 is a plan of one of the treadles of the said machine.

The same letters indicate the same parts throughout the drawings.

The said machine is constructed and operated as follows:

A is a machine-bed suitably supported, as by the legs a' a^2 . Fixed to the bed A are four standards (marked B' B^2 B^3 B^4) provided with top bearings b' b^2 b^3 b^4 , in which revolves the three-throw crank-shaft C, provided with fly-wheel c' and driving-pulleys c^2 c^3 .

D' D^2 D^3 are three plungers guided for vertical movement by the guides E' E^2 E^3 , fixed to the standards B' B^2 B^3 B^4 . These plungers are connected to the three-throw crank-shaft C by the connecting-rods F' F^2 F^3 , which

at their top ends f' are respectively jointed to the throws of the crank-shaft C and at their lower ends f^2 are respectively jointed to the plungers D' D^2 D^3 . Thus so long as the machine is at work the plungers D' D^2 D^3 are moving up and down continuously.

Mounted so as to be capable of sliding to and fro upon the bed A are three heel-molds G' G^2 G^3 , which are each shaped internally at g' to correspond with the shape of the sides of the required heel, so as to receive the various sections of which the heel is built up. Each of these molds is guided by two planed strips a^3 a^4 , cast on the bed A and between which the mold will slide.

Under the plungers D' D^2 D^3 and above the molds G' G^2 G^3 , I provide the three pressure-blocks H' H^2 H^3 , which are arranged for vertical movement by fitting on the two upright studs I' I^2 , fixed to the bed A of the machine. Upon each of the studs I' I^2 is a coiled spring J, which springs are strong enough to raise and maintain the pressure-blocks in their highest positions against the nuts i' on the top of the studs. Each of the pressure-blocks H' H^2 H^3 has a removable projecting lower part h' , adapted to fit into the corresponding mold and press onto the heel therein. The under side of the projecting part h' is made of a shape to correspond with the seat of the boot upon which the heel when built is to be fixed. On the top of each of the pressure-blocks H' H^2 H^3 there is a sliding distance-block which is marked, respectively, K' K^2 K^3 and are adapted to slide in guides h^2 , formed on the top of the pressure-blocks. For each of the distance-blocks K' K^2 K^3 , I provide means for pushing the distance-block forward between the bottom of the corresponding plunger and the top of the pressure-block, so that the plunger will then act upon the distance-block and force it and the corresponding pressure-block down. The means for operating the distance-blocks consist of three treadles, (marked, respectively, L' L^2 L^3 ,) one for each distance-block, turning on a fulcrum-shaft l' and continued beyond the same as an arm l^2 , which by means of the connecting-rod l^3 is connected to the arm l^4 of a bell-crank lever which turns on a fulcrum-pin l^5 and the other arm l^6 of which has a pusher-piece l^7 connected to it, so that when the treadle is pushed

down the pusher-piece l' will move forward and push the corresponding distance-block underneath the plunger. Each of the said distance-blocks K' K^2 K^3 has a coiled spring m' , connecting it to a bracket m^2 on the machine-frame, so as to draw the distance-block back from underneath the plunger at the proper times, as hereinafter described.

Each of the three pressure-blocks H' H^2 H^3 is provided with two downwardly-projecting ratchets or catches h^3 h^4 , which at h^5 are jointed to the pressure-block and near their lower ends each is made with a notch h^6 . These catches pass through holes in the bed A and at their lower ends are connected together by a coiled spring h^7 , so that when the pressure-block has been forced down to compress the boot-heel in the mold, as hereinafter described, the notches h^6 will engage underneath the bed A and thus maintain the pressure-block in its lowest position. In order to release the catches h^3 h^4 to allow the springs J to raise the pressure-blocks, I provide for each pair of catches two small bell-crank levers n' n^2 , which by the rods n^3 n^4 are connected to the shorter arm n^5 of the corresponding treadle-lever N' N^2 , or N^3 , which turn on the fulcrum l' , so that when one of these treadle-levers N' N^2 N^3 is depressed the shorter arm n^5 of the lever, together with the two connecting-rods n^3 n^4 jointed thereto, rises and turns the bell-crank levers n' n^2 , so as to force the catches h^3 h^4 farther apart, as shown on the right-hand side of the machine, Fig. 1, so that the notches h^6 will then be free of the bed A and the pressure-block will rise.

The machine above in part described acts as follows: The various lifts or sections o of which the boot-heel is to be made are placed in one of the molds—say the first mold G' —each lift being slightly covered with paste or other adhesive mixture. The mold G^2 will then be in the position in which the mold G^3 is shown in Fig. 3. The mold G' , with the heel-section o in it, is then slid back along the machine-bed A until it comes in contact with the screwed adjustable stop p at the back of the machine, when the mold G' will be immediately under the pressure-block H' , the exact position of the mold being regulated by the stop p . The workman now depresses the treadle L' , causing the pusher-piece l' to push the distance-block K' under the plunger D' , so that this plunger in descending acts upon the distance-block K' and forces the pressure-block H' down, so that its lower projecting part h' acts upon the sections o in the mold G' , and the pressure-block is held in this position by means of the catches h^3 h^4 engaging under the bed-plate A, as shown in Fig. 1. The operator now places the lifts of another heel in the second mold G^2 and slides this mold under the plunger D^2 and depresses the treadle L^2 , so as to insert the distance-block K^2 under the plunger D^2 , which will then depress the pressure-block H^2 and compress the sections in the mold G^2 , as shown

in Fig. 1. The operator then similarly forms another heel in the third mold G^3 and depresses the treadle L^3 , so that the heel in the mold G^3 is compressed by the pressure-block H^3 similarly, as above described, with reference to the other two pressure-blocks. Immediately the plunger D' has acted upon the distance-block K' and depressed the pressure-block H' , as above described, so that the catches h^3 h^4 catch underneath the bed A and the plunger has commenced to rise, the spring m' draws back the distance-block K' , so that the moving plunger does not continue to act upon the pressure-block after it has been secured in its lowest position by the catches. The first pressure-block H' can now be released from the first mold G' by the operator depressing the treadle L' , which, as above described, throws outwardly the catches h^3 h^4 free of the bed A and allows the pressure-block H' to rise. The operator then draws mold G' forward to the position shown by the mold G^3 in Fig. 3 and the heel o is removed from the mold and the sections or lifts for another heel are placed therein and the mold G' is slid back underneath the pressure-block H' and the heel is compressed, as above described, and so on, each heel being properly compressed while two other heels are being built.

In order to facilitate the removal of the finished heel from the mold, I may provide for each mold a lever, such as Q, which turns on a fulcrum q' at the front of the machine, and has a piston q^2 jointed to one of its arms q^3 immediately underneath the cavity g' in the mold, so that when the lever Q is depressed the pusher q^2 will be raised and push the finished heel out of the mold.

Each of the treadles L' L^2 L^3 is provided with a coiled wire spring l^8 , connected to the bed A of the machine for lifting the treadle after it has been depressed, and the treadles N' N^2 N^3 are similarly provided with springs n^6 for lifting them.

It will be seen that as the pressure on the lifts of the heel is applied by power and is continuous the pressure is equal on each heel, and therefore those heels which are nominally of the same height can all be built to a uniform height.

It will be evident that, if desired, the machine may be constructed with only one or two or with more than three of the molds G' G^2 G^3 and corresponding pressure-blocks and plungers and accessories without departing from the nature of my invention.

I wish it to be understood that I do not limit myself to the precise details herein described, and illustrated by my drawings, as it will be evident that they may be varied to some extent without departing from the nature of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a machine for making heels for boots and shoes comprising a heel-mold adapted to

slide to and fro on the bed of the machine, the pressure-block guided for vertical movement above the said mold, catches for maintaining the pressure-block in its lowest position, springs or like means for raising the said pressure-block, a plunger and means for moving the plunger up and down above the pressure-block, and a distance-block with means for inserting the same between the plunger and the pressure-block to cause the plunger to depress the pressure-block and compress the heel in the mold, all substantially as hereinbefore described.

2. In a boot and shoe heel making ma-

chine, the combination with the heel-mold of the pressure-block such as H', for compressing the heel, catches h^3 h^4 secured thereto for holding the pressure-block in its lowest position, treadle and connections for releasing the said catches, and the springs for causing the pressure-block to rise out of the mold, all substantially as hereinbefore described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHN VEASY COLLIER.

Witnesses:

WILLIAM CHARLES WOODFORD,
WILLIAM EDWARD RICKERD.