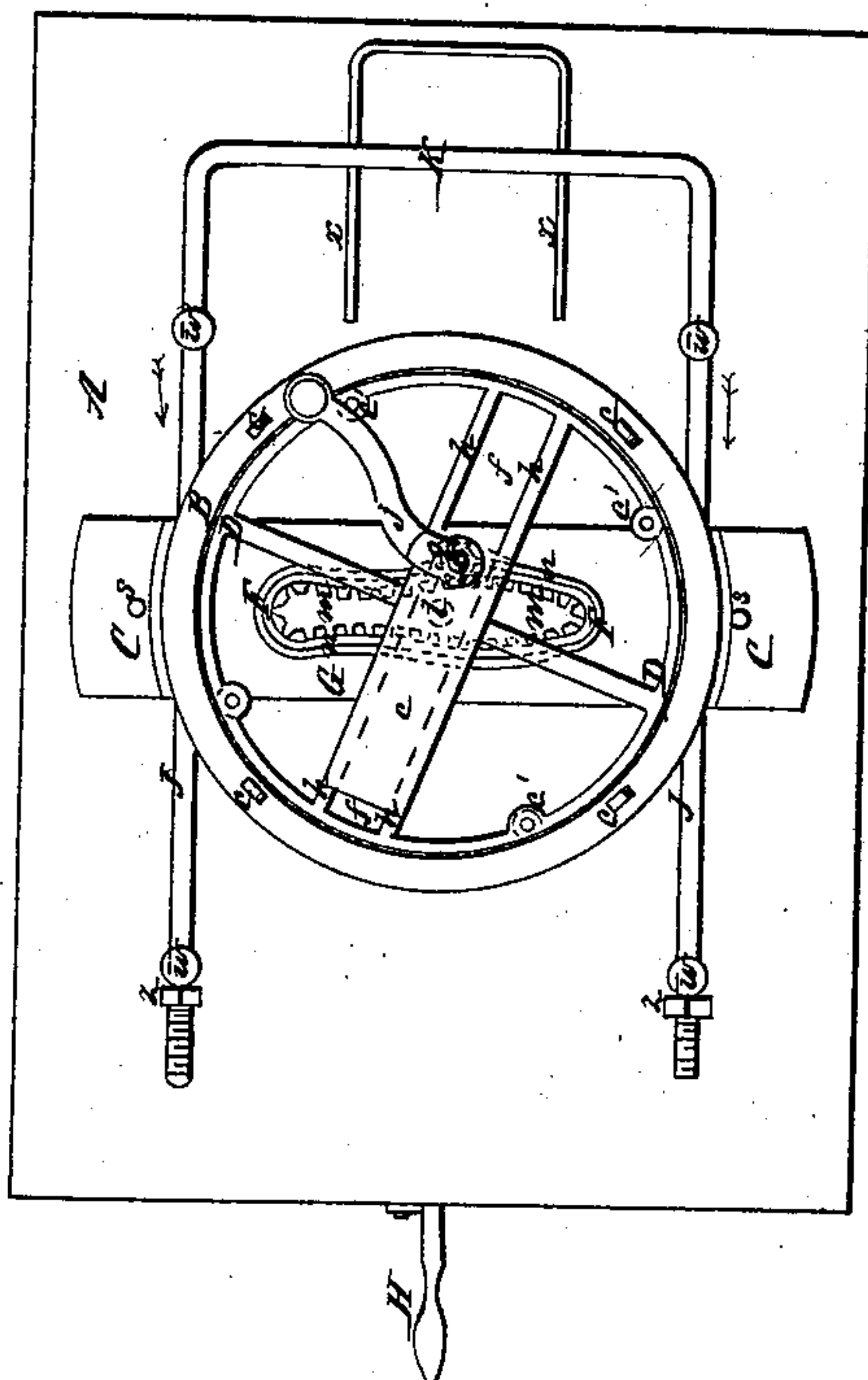
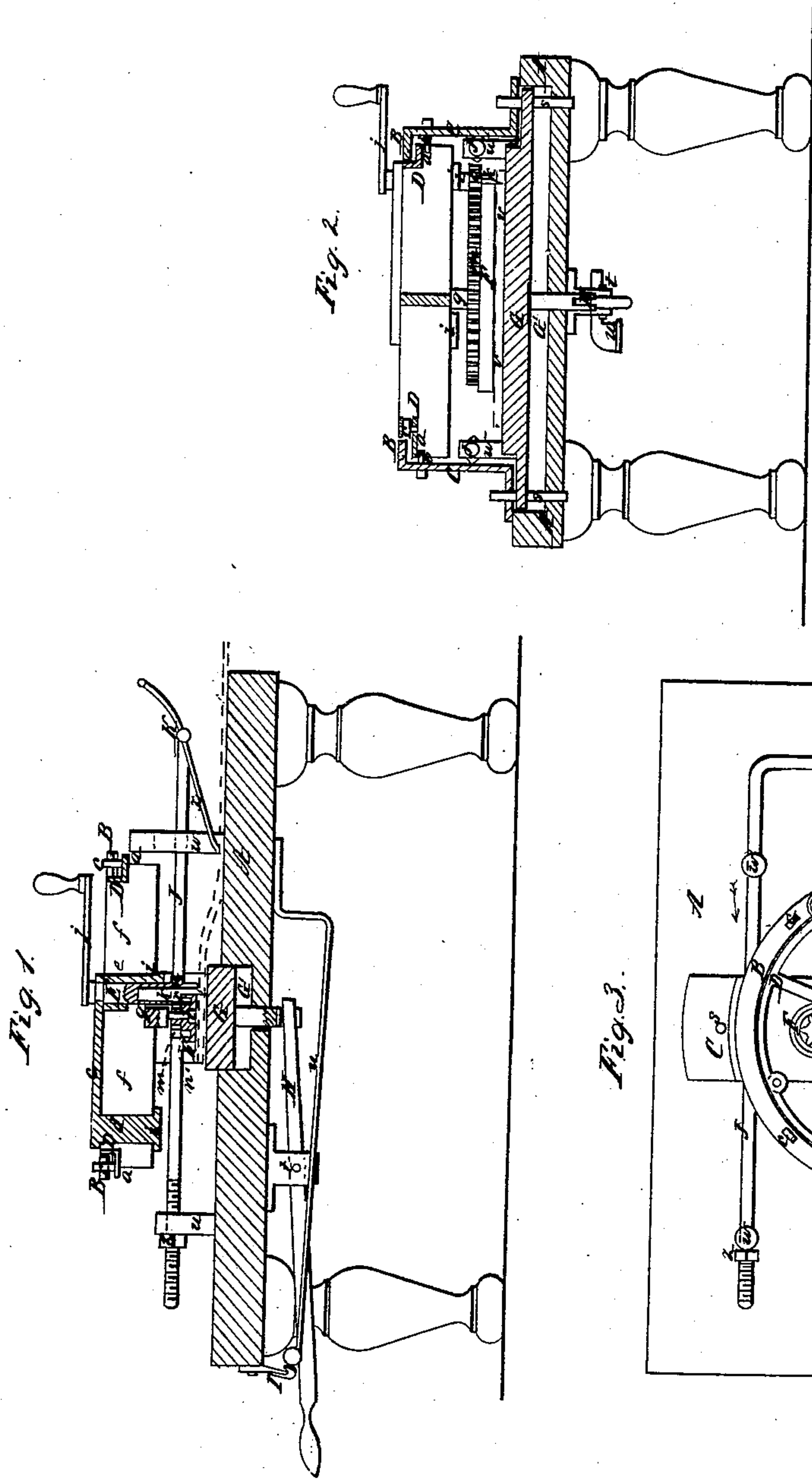


J. Crawshaw, Shoe-Sole Machine.

N^o 20,936.

Patented July 20, 1858.



UNITED STATES PATENT OFFICE.

J. CRAWSHAW, OF ROCHESTER, NEW YORK.

MACHINE FOR CUTTING OUT THE SOLES OF BOOTS AND SHOES.

Specification of Letters Patent No. 20,936, dated July 20, 1858.

To all whom it may concern:

Be it known that I, JOHN CRAWSHAW, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machinery for Cutting out Soles for Boots and Shoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figures 1 and 2 are vertical sections of the machine in planes at right angles to each other. Fig. 3 is a plan of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a certain mode of applying and operating a pattern and a cutter, whereby a very cheap, easy working, and easily managed machine is obtained.

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

A is a bench of convenient height and size, supporting and having secured to it a frame B C C, consisting of a ring B, with two legs C C, which serve to hold it some distance above the bench.

D, is a wheel having a rim which is partly received within the ring B and is furnished with a flange *a*, see Figs. 1 and 2, below the said ring, said flange being intended to bear upward against a series of antifriction rollers *c*, *c*, which are fitted to ring B as shown in Figs. 1 and 3, and the rim above said flange being fitted with antifriction rollers *c'*, *c'*, to run around the interior of the ring B, as shown in Figs. 2 and 3.

b, *b*, Fig. 2, are two pins inserted in the legs C, C, to prevent the wheel dropping out of the ring.

c, *d*, *e*, is the cutter carriage consisting of a plate *c*, with two bosses *d*, *e*, on the under side which bosses are fitted to slide in two slots *f*, *f*, which are formed in the wheel D, on opposite sides of its hub *g*, by providing said wheel with two parallel arms *h*, *h*, on opposite sides of the hub, said slots being in line with each other. The cutter carriage is secured to the wheel by plates *i*, *i*, under the arms *h*, *h*, but left free to slide across the wheel.

E, is the cutter stock fitted to turn freely in the boss *e*, of the cutter carriage and provided with a crank handle *j*, at the top.

R, is the cutter fitted to turn freely in a socket formed in the lower end of the stock but confined within said stock by the pattern in a manner which will be presently described.

F is the pattern consisting of a metal plate whose profile is of the form of the sole to be cut, said plate being attached by a headed pin *l*, to the hub of the wheel D, the axis of the said pin coinciding with the axis of the wheel. This pattern has a groove *n*, formed in its upper side very near the edge, as shown in Figs. 1 and 3, and has attached to its back a cogged gear *m*, corresponding in form with its own profile. The cutter stock has secured to it a pinion *o*, which gears with the gear *m*, and which is held in gear therewith by a tongue *r*, formed on one side of the cutter R, and fitting into the groove *n*, in the back of the pattern as shown in Fig. 1. This tongue also serves to keep the cutter in place and make it follow closely around the profile of the pattern. The cutter projects a distance below the face of the pattern equal at least to the thickness of the leather from which the soles are to be cut.

G is a cutting board larger than the pattern F, fitted to a cavity G', in the bench A, and furnished with guide pins *s*, *s*, to work through holes in the bench and in the feet of the legs C, C. This board is connected with a lever H, which works on a fulcrum *t*, under the bench, and which has a spring *u*, applied to it in such a manner as to raise the cutting board with the leather upon it up to the pattern which is provided with spurs *v*, *v*, (Fig. 2) on its under side to enter the leather and prevent the pattern turning during the cutting operation.

I, is a hook to hold up the outer end of the lever, when the cutting board is desired to be depressed.

J J K, is a frame whose parallel sides J, J, are fitted to slide through posts *w*, *w*, erected on the bench. This frame has attached to its end two elastic sharp-pointed dogs *x*, *x*, which press downward toward the table and it has screwed on its parallel sides, two nuts L, L, which combine with the end K, to limit the sliding movement of the frame which is in a direction transverse to the length of the cutting board. The leather from which soles are being cut is represented in red color in Figs. 1 and 2.

The leather before being introduced to the machine is cut into parallel strips of a width

equal to the length of the soles to be cut, and is passed under the elastic dogs x, x , to bring its end on the cutting board G while the face of said board is kept on a level with the face of the bench A , by the outer end of lever H , being held up by the hook I . The operator stands on one side of the machine, with the outer projecting end of the lever H , at his right hand, and the feed dogs x, x , at his left hand; and when the leather has been adjusted as above described, he pushes aside the hook I , and allows the spring to depress the outer projecting end of lever H , and force up the cutting board so as to press the leather hard against the pattern F , which is adjusted by turning the wheel D , to stand right across the piece of leather. He then takes the handle j , of the cutter stock in his right hand, and turns it in the direction indicated by the arrow shown on the said handle in Fig. 3, to produce a rotary motion of the cutter stock, whose pinion o , is by that means caused to work around the pattern gear m , and carry the cutter R , all around it, by which movement of the cutter the sole is cut out to the exact form of the pattern. The above movement of the pinion around the gear m , is provided for by the combination of the rotary movement permitted to the wheel D in the ring B , and the sliding movement permitted to the cutter carriage in the slots f, f , of the wheel. The cutter is prevented turning with the cutter stock E , during the above described operation, by its tongue r , working in the groove n , of the pattern. When the sole has been thus cut out, the operator raises the outer end of the lever H , and draws down the cutting board and leather from the pattern and cutter and moves the frame K , in the direction of the arrows shown near it in

Fig. 3, which movement causes the dogs x, x , to carry a fresh portion of the strip of leather under the pattern, after which the cutting board is raised again as before described and the cutter made to operate as before to cut a new sole by turning the handle j . The nuts L, L , are adjusted so that the frame $J J K$, is just permitted to move far enough to feed the leather the proper distance according to the width of the soles to be cut. Its elastic dogs x, x , slip over the leather when it is pulled back in the opposite direction to that indicated by the arrows shown upon it in Fig. 3, but said dogs indent themselves into the leather and carry it along the bench when they move in the opposite direction. In order to save "stock," the operator turns the wheel D half way around between every two operations of the machine, so as to reverse the position of the pattern and cut the widest part of each sole from the part of the leather adjoining that from which the narrowest parts of the next soles on either side were cut; thus preventing much waste.

I do not claim, broadly, the cutting of soles by means of a moving cutter acting in conjunction with a grooved pattern; but

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

Combining the cutter and the pattern with each other and with wheel D , by means of the pattern gear m , pinion o , groove n , tongue r , cutter carriage c, d, e , slot f , and the cutter stock E , or their equivalents; the whole being arranged to operate substantially as herein specified.

JOHN CRAWSHAW.

Witnesses:

FRED. DE LANO,

FRED. A. WHITTLESEY.