

M. Hobbs,

Shoe-Sole Cutter,

No 82,716,

Patented Oct. 6, 1868.

Fig: 3

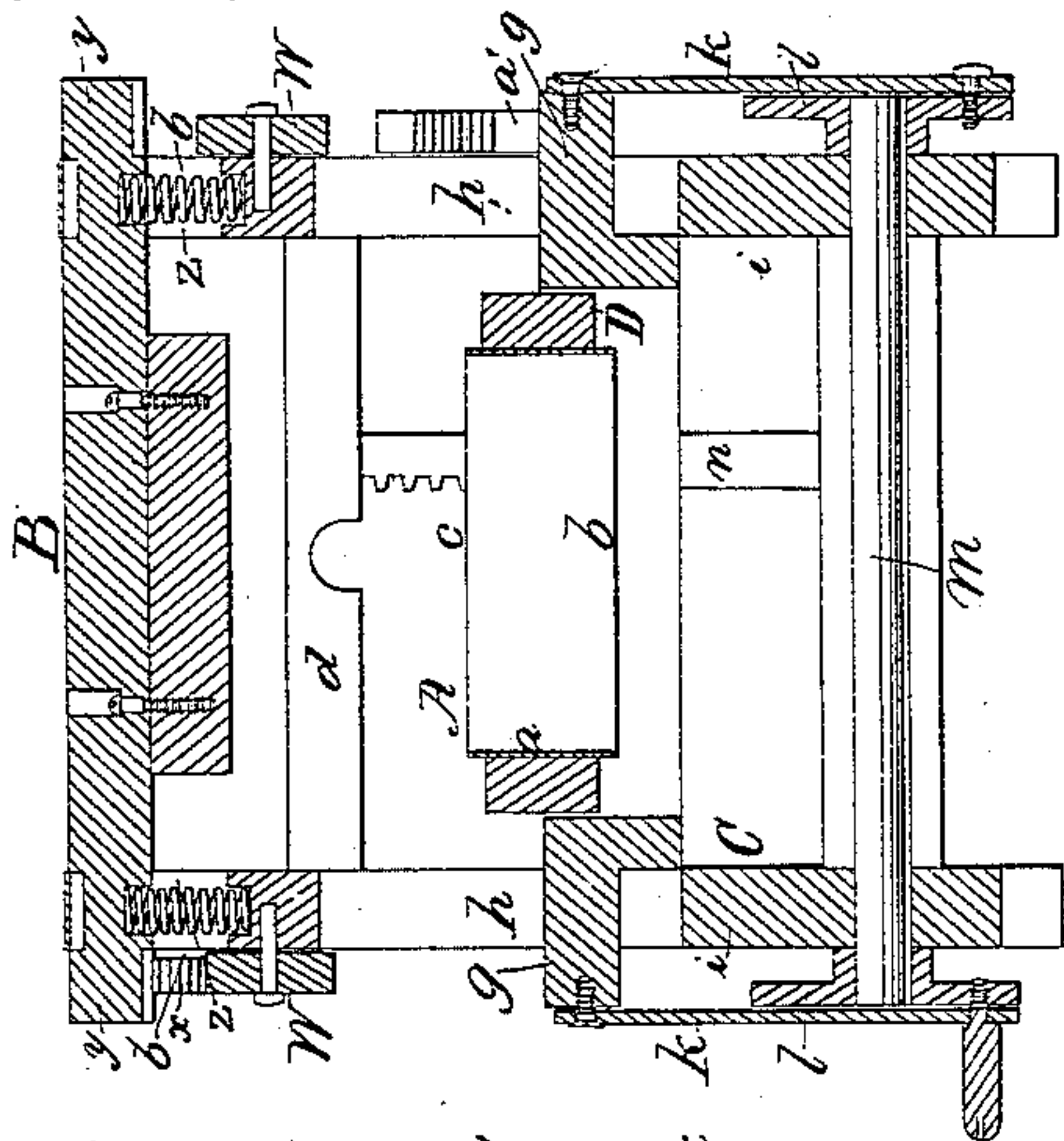


Fig: 2.

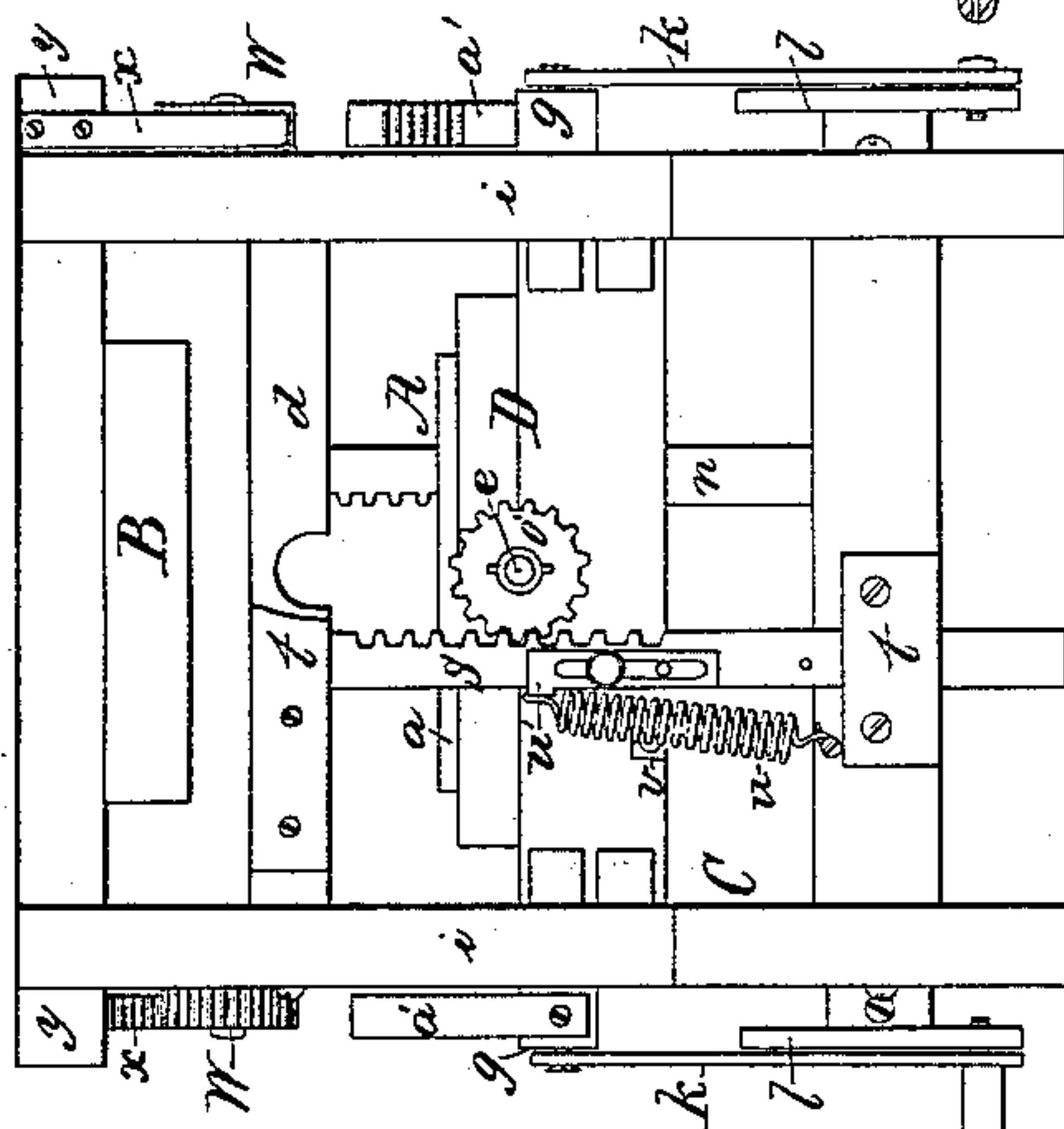


Fig: 1.

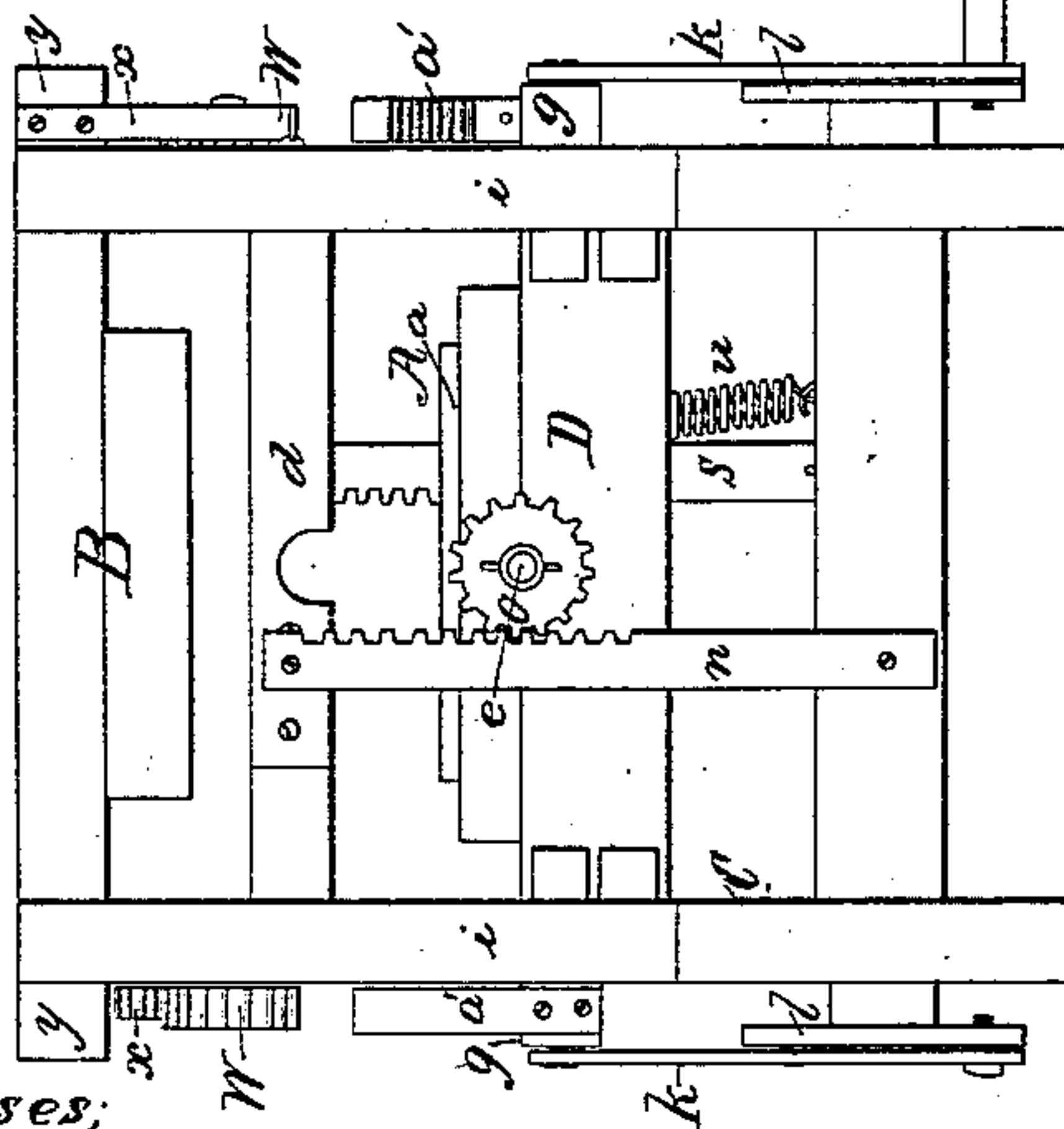


Fig: 7.

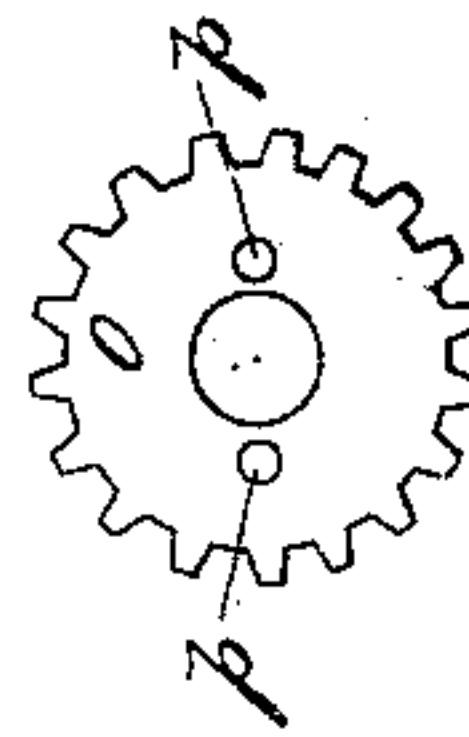


Fig: 6.



Fig: 5.

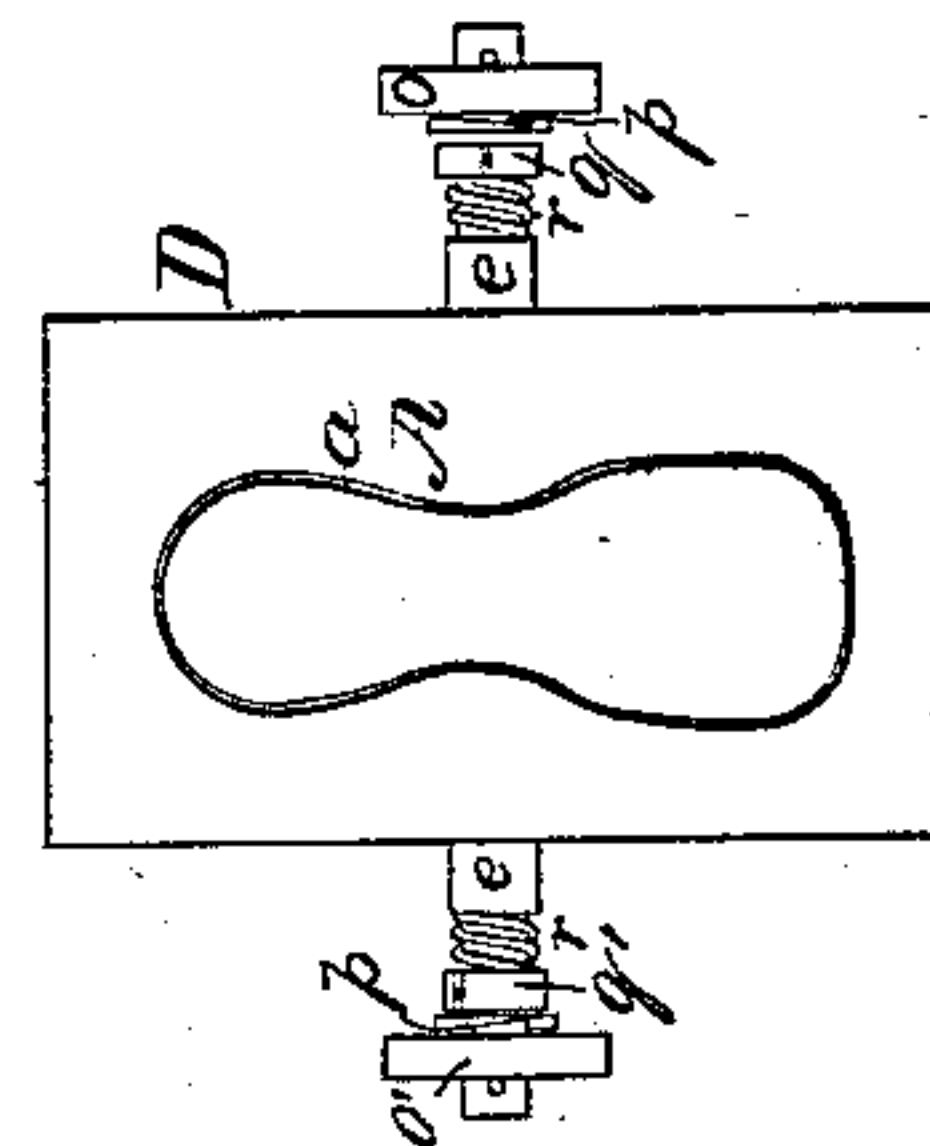
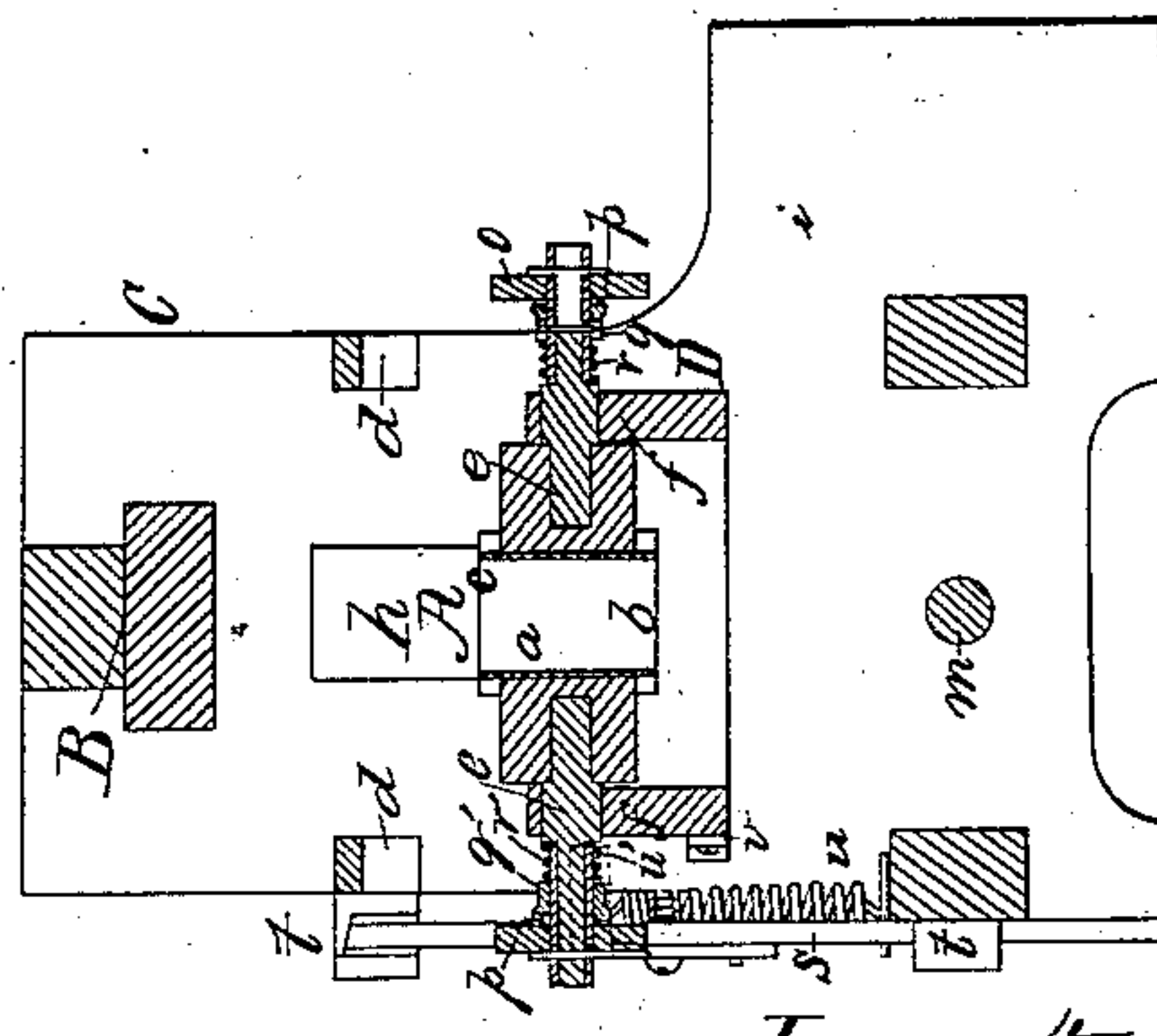


Fig: 4.



Witnesses,

*S. R. Piper
J. C. Snow*

*Inventor;
Micah Hobbs.
Per R. W. Allen
Att'y*

United States Patent Office.

MICAH HOBBS, OF NATICK, MASSACHUSETTS.

Letters Patent No. 82,716, dated October 6, 1868.

IMPROVED SOLE-CUTTING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, MICAH HOBBS, of Natick, of the county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Machines for Cutting Soles from sheets of leather; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figures 1 and 2 are opposite side elevations.

Figure 3 a longitudinal section, and

Figure 4 a transverse section of my sole-cutting mechanism.

Figure 5 is a top view of the sole-cutter, its journals, and clutches.

Figure 6 is an inner side view of one of the clutches.

Figure 7 is an inner side view of one of the clutch-gears.

The sole-cutter of the machine is shown at A, and the bed with which it operates is exhibited at B, in the drawings, the frame for supporting the operative parts being seen at C.

The knife of this sole-cutter is a short tube, *a*, having cutting-edges, *b c*, at its opposite ends, and it is revolved so as to cut with their edges alternately. The knife is made to ascend and descend, and while descending, it revolves a quarter of a revolution, it being revolved another quarter of a revolution while ascending. The bed also descends to meet the knife. The rise of the bed is to elevate it far enough above the plate on which the sheet of leather is supported to enable such leather to be moved along on the bed the requisite distance for the knife to act on it. The said plate may be supposed to rest on the two girths *d d* of the frame, and to have a hole through it for the knife or sole-cutter to pass through, in order for it to act on the leather when resting on the said plate.

The sole-cutter A is arranged in a frame, D, and has journals, *e e*, extending from its middle, and supported on bearings or axes, *f f*, of such frame.

The said frame D has ears, *g g*, extending from its ends, and through vertical slots, *h h*, made in the standards *i i* of the frame C. Connecting-rods, *k k*, are pivoted to the ends of such ears and to two cranked wheels, *l l*, fixed on a driving-shaft, *m*, the whole being arranged as represented. While the shaft is being revolved, reciprocating rectilinear or upward and downward movements will be imparted to the frame D.

The mechanism for revolving the sole-cutter, in manner as heretofore described, during such movements, may be thus explained:

There is fixed to the front side of the frame C a toothed rack, *n*, which engages with a gear, *o*, that revolves freely on one of the journals, *e e*, of the cutter, and has two studs, *p p*, projecting from and arranged on its inner side, as shown in fig. 7. Three studs operate with a clutch, *q*, which is formed with two long triangular teeth-slides on the journal, and is connected therewith by a spline or feather-connection. A spring, *r*, encompassing the journal, serves to press the clutch toward the gear.

On the opposite journal, *e*, is another such gear, clutch, and spring, they being represented at *o'*, *q'*, and *r'*. The gear engages with a toothed rack, *s*, which slides vertically in guides or boxes, *t t*, and has a spring, *u*, applied to it and the frame C. The purpose of the spring is to pull the rack downward. An adjustable arm, *u'*, is extended from the rack, and over a projection, *v*, affixed to the frame D.

Furthermore, two gears, *w w*, are applied to opposite ends of the frame C, such gears being on journals projecting from the frame, and arranged as represented. Each of these gears engages with one of two racks, *x x*, extended downward from the ears *y y* of the bed B, such ears being in vertical slots, *z z*, of the frame C.

There also extends upward from each of the ears of the cutter-frame D another rack, *a'*. These racks *a' a'*, while the cutter-frame is rising upward, act and revolve in the gears *w w*, so as to cause them to act in and draw downward the racks *x x*, and therefore depress the bed B, the subsequent elevation of the bed being effected by springs, *b' b'*, arranged underneath its ears, in manner as represented.

During a descent of the cutter-frame D, the gear *o* will be clutched to the journal on which it is placed, and by the rack *n* will be caused to revolve and turn the cutter ninety degrees.

As soon as the frame D commences to rise, the other gear, o' , will be clutched to its journal. By the action of the rack s on such gear, it, while ascending with the frame, will continue the revolution of the cutter, and cause it to revolve another ninety degrees. On the accomplishment of this, the projection v will be brought up with and by the frame D, and against the arm u' , and will raise the rack s , so as to prevent it from continuing to revolve the gear, the cutter being maintained horizontal until after it may have been forced up to and through the sheet of leather.

From the above, it will be seen that one cutting-edge of the cutter is first brought upward against the sheet of leather, after which the cutting-frame descends, and next rises with the cutter, the latter, in the meantime, having been revolved one hundred and eighty degrees, so as to bring the other edge into action with the latter. In this way the axes of the cuts will be parallel, and the heel of one cut will be against the toe of the next one throughout the series of cuts. The convexities of one cut will be alongside of the concavities of the next one, the same causing the series of soles to be formed from a sheet of leather with as little waste between each two of them as possible.

From the above it will be seen that the mechanism for operating or moving the bed B, in manner as hereinbefore specified, consists of the springs $b' b'$, the racks $x x$, the gears $w w$, and the racks $a' a'$. Also, that the mechanism for elevating and depressing and revolving the cutter, in manner substantially as specified, consists of the journals $e e$, the frame D, the clutches $q q'$, their springs $r r'$, the clutch-gears $o o'$, the racks $n s$, the spring u , the arm u' , the projection v , the connecting-rods $k k$, the crank-wheels $l l$, and the driving-shaft m .

I am aware that sole-cutters have been revolved transversely over a bed, but I am not aware that, before my invention, the bed has been arranged over the rotary cutter, and provided with mechanism to depress and elevate it, in manner as described, nor am I aware that a cutter has been revolved in a longitudinal direction, and in the manner in which it is in my machine.

What, therefore, I claim as my invention, is as follows:

I claim the combination of the bed B and its mechanism for operating or moving it, as described, with the rotary cutter A, and mechanism for elevating and depressing and revolving it, in manner substantially as specified, the bed being arranged over the rotary cutter, as explained.

MICAH HOBBS.

Witnesses:

R. H. EDDY,
S. N. PIPER.