

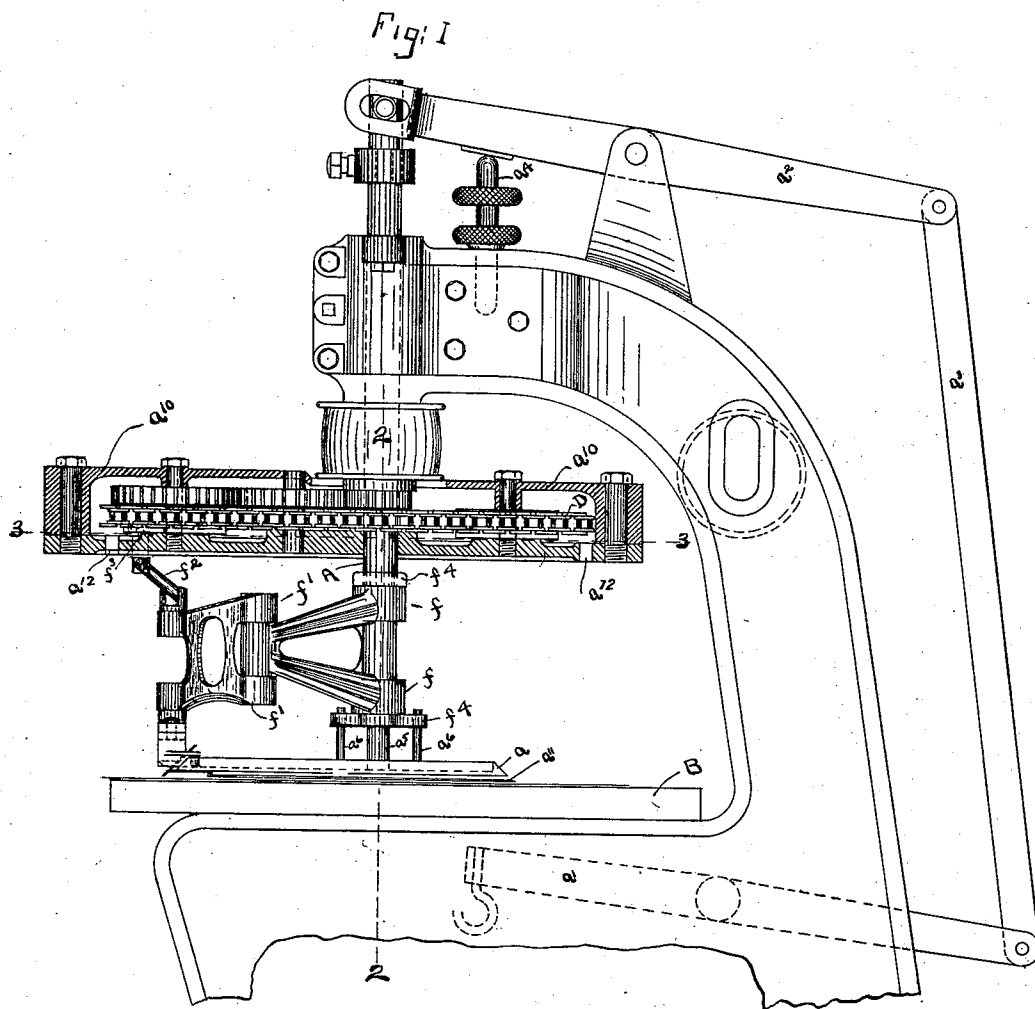
(No Model.)

4 Sheets—Sheet 1.

A. M. STICKNEY.
MACHINE FOR CUTTING SOLES, &c.

No. 506,801.

Patented Oct. 17, 1893.



WITNESSES:

Edw. Hunt
John R. Snow

INVENTOR

Allison M. Stickney
BY
Maynard & Beach

ATTORNEYS.

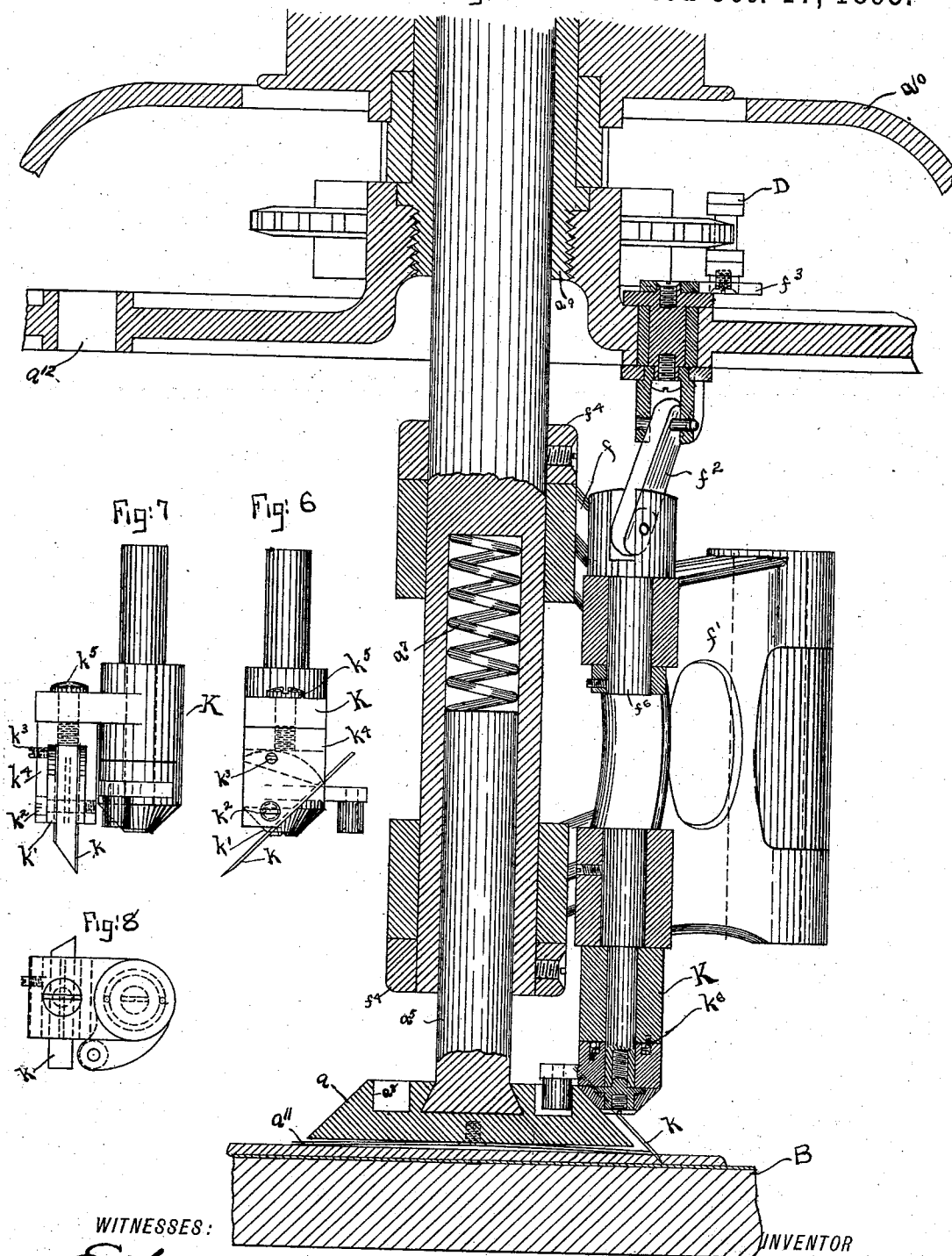
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4 Sheets—Sheet 2.

A. M. STICKNEY.
MACHINE FOR CUTTING SOLES, &c.

No. 506,801.

Fig: 2 Patented Oct. 17, 1893.



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(No Model.)

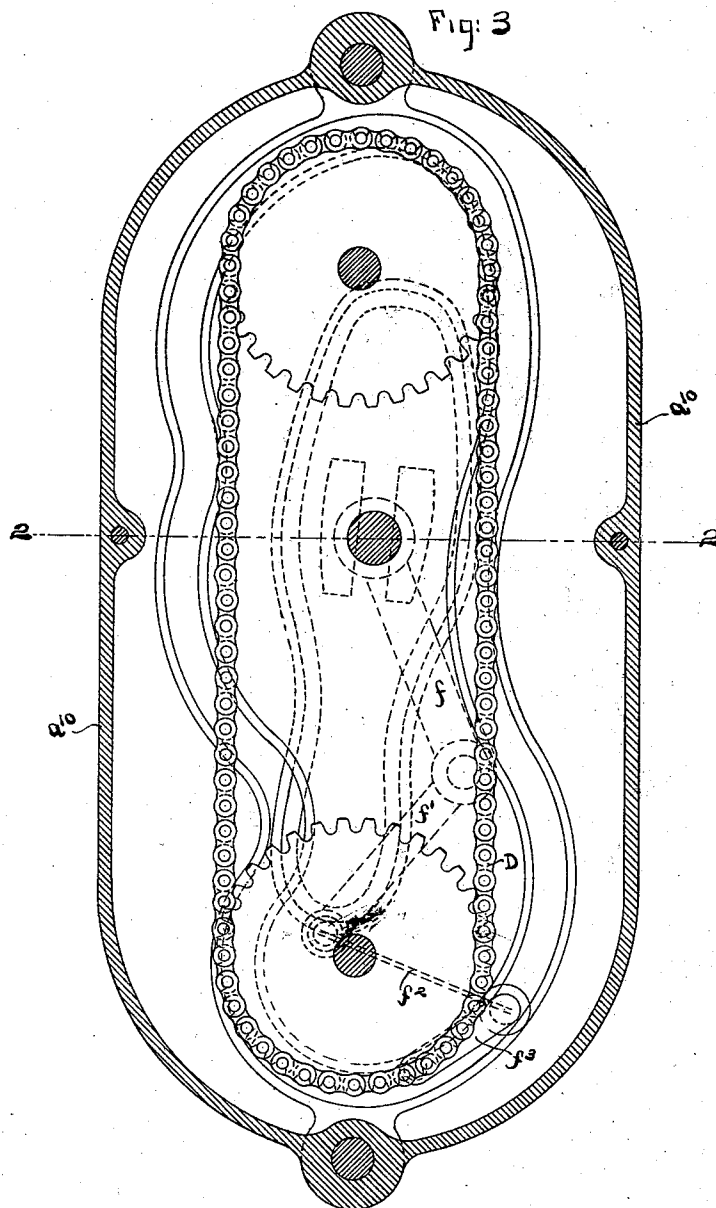
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Fig. 3



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(No Model.)

4 Sheets—Sheet 4.

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Fig: 4

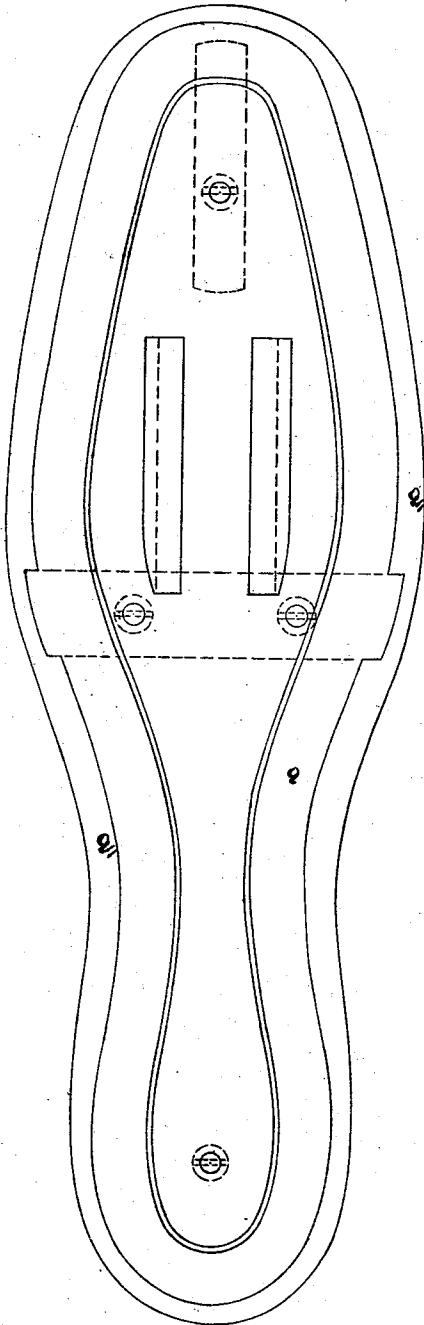
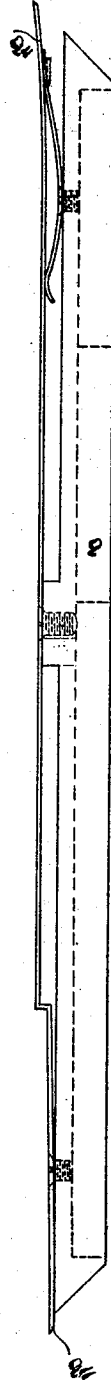


Fig: 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALLISON M. STICKNEY, OF MEDFORD, ASSIGNOR TO THE WELLMAN SOLE CUTTING MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, AND PORTLAND, MAINE.

MACHINE FOR CUTTING SOLES, &c.

SPECIFICATION forming part of Letters Patent No. 506,801, dated October 17, 1893.

Application filed October 12, 1891. Serial No. 408,523. (No model.)

To all whom it may concern:

Be it known that I, ALLISON MORRIS STICKNEY, of Medford, in the county of Middlesex and State of Massachusetts, have invented an Improved Machine for Cutting Soles and other Forms, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation partly in section of the upper portion of a machine embodying my invention. Fig. 2 is a view partly in section on a line 2—2 of Figs. 1 and 3 but with the knife block in section. Fig. 3 is a plan view partly in section on line 3—3 of Fig. 1. Figs. 4 and 5 are details in plan and edge view of the clamping pattern plates. Figs. 6, 7 and 8 are details illustrating the best form of knife-block.

In my Patents No. 443,123, dated December 23, 1890, and No. 446,555, dated February 17, 1891, I have described machines for cutting soles and other forms; and my present machine is an improvement on these of my former patents.

One feature of my invention consists in the combination of a chain or its equivalent with a knife carrier by means of three arms, (as in Patent No. 446,555) a fourth arm, and a form or pattern plate by which the outer end of the third arm is guided in an endless path of such a shape as to give the desired thrust to the third arm. In my Patent No. 446,555 this third arm was connected to a chain which was made sinuous by pulleys in order to give the proper thrust; but by the use of a fourth arm and an extra pattern plate I do away with the need of moving the driving chain or its equivalent in a sinuous endless path.

A second feature of my invention is the combination of a knife carrier one part of which moves in a path adapted to a considerable number of sizes or styles of soles or the like; a second part of which moves in a path varying only slightly from the outline of the sole, while a third part and the knife moves in a path corresponding to the outline of the sole, with three forms each controlling the path of its part of the knife carrier, and suitable mechanism for traveling the knife carrier about the forms.

In my Patent No. 443,123 I describe two forms each corresponding to the outline of the sole or other article to be cut, and in my Patent No. 446,555 I describe a form which rests upon the stock and has a ledge upon its upper surface whose inner wall corresponds in outline to the sole; but in my present invention I use that form in connection with a sheet metal form secured to it; and this compound form is also a feature of my invention.

In the drawings the parts not lettered are in all substantial respects the same as in my Patent No. 446,555, as are also the parts lettered with the same letters as in that patent, and these parts are not described in full, as they will be clearly understood from that patent.

In cutting rubber soles the sheet material is clamped between the compound form a^{11} and the bed B, the jog in the sheet metal form a^{11} taking the thicker portion of the sheet which forms the tread of the heel; of course with stock of substantially uniform thickness this jog is unnecessary, as would also be the projection across the form a and the spring between a and a^{11} ; the form a in that case having a flat under surface and the form a^{11} being a flat sheet of tin plate, flat against the flat under surface of form a , but it may be of an outline varying considerably from the outline of form a , and somewhat larger than form a , for the reason that form a guides only the axis of the knife block K; while form a^{11} guides the knife itself; for in my present invention the knife k is guided by the form a^{11} , the knife block K by form a , and the outer end of arm f^2 by form a^{12} .

The chain D, is driven as usual in this class of machines; and its function is to pull upon one end of the fourth arm f^3 . The other end of arm f^3 is guided by form a^{12} , which also guides one end of the third arm f^2 ; that is form a^{12} guides the axis which connects arms f^2 and f^3 . This form a^{12} is of peculiar construction and wholly new with me; and is so laid out to give the proper thrust to arm f^2 for the smallest sole to be cut on the machine. The same rule will apply to other articles than soles; but after being so laid out the slot may be varied for smoother working. The two plates forming the outer and inner

walls of the slot of form a^{12} are secured to the cap a^{10} and the inner plate of form a^{12} is secured to sleeve, a^9 , which is fast to the frame of the machine. The two studs connecting the inner plate of form a^{12} with cap a^{10} serve as bearings for the sprocket wheels of the chain.

The arms $f f' f^2$ operate as in my Patent 446,555, but as the thrust of arm f^2 is controlled by the form a^{12} the operation is smoother and better.

The axis of knife block K is guided by the form a , as before; but the knife k is held in a holder k' which can be adjusted on screw k^2 to give the proper bevel, and after adjustment be held in place by set screw k^3 . This holder k' is fast in the jaws k^4 , which are secured by screw k^5 to the arm of the knife block K, and block K can move about its axis to give proper freedom of motion to the knife; but as the knife is guided by form a^{11} , which may, and in practice does, vary somewhat from form a , the knife block is made in two parts connected by spring k^6 , see Fig. 2; the lower part carries the roll which is guided by the inner wall of form a but the upper part carries the knife holder k' so that when form a^{11} differs in outline from form a the knife k which is held against the edge of form a^{11} by spring k^6 may follow the outline of form a^{11} , instead of being controlled wholly by form a , as before. This compound form a^{11} is wholly new with me; and its great advantage is that the casting which constitutes form a , need not be made with that extreme accuracy heretofore required in machines of this class. Obviously this casting cannot be made, practically, in the factories where the machines are used, while it has long been the custom in such factories to manufacture forms of tin plate or thin sheet metal identical with form a^{11} . It is highly objectionable, in practice, for the factories to depend upon the manufacturer of the machines for forms which require to be varied slightly, such as form a^{11} ; and it is to meet this that I have devised my compound form a^{11} ; in which a^{11} may be readily filed off to the exact shape de-

sired, and it is sufficient if form a corresponds generally with form a^{11} .

What I claim as my invention is—

1. In a machine for cutting soles and the like a knife carrier made up of four arms, and a guide piece between the third and fourth arms; the inner arm f movable about an axis; the second arm f' hinged to the first arm f ; the third arm f^2 , hinged to second arm f' ; the fourth arm f^3 hinged to the driving chain; and the arms f^2 and f^3 hinged to the guide piece; all combined and operating substantially as set forth.

2. In a machine for cutting soles and the like, the combination of a permanent form, a^{12} , having a path arranged to suit all the sizes and styles of soles for which the machine is adapted; a second arm, a , having a path nearly approaching the outline of one particular size and style; and a third form, a^{11} , whose outline corresponds accurately with the outline of the particular size and style; the second and third forms being detachably connected with the machine, substantially as shown, to be changed at pleasure; all substantially as and for the purpose specified.

3. In a machine for cutting soles and the like the improved form above described consisting of main form a with inner and outer guiding surfaces and supplemental form a^{11} of thin sheet metal, making a form with three guiding surfaces, two in the main form and the third the edge of the thin sheet metal form; all substantially as and for the purpose specified.

4. In a machine for cutting soles and the like, knife block K made in two parts in combination with knife holder k' , attached by an arm to the upper part of knife block K; a spring between the upper and lower parts of knife block K, and an arm carrying a pattern roller and attached to the lower part of knife block K; all substantially as specified.

ALLISON M. STICKNEY.

Witnesses:

J. E. MAYNADIER,
JOHN R. SNOW.