

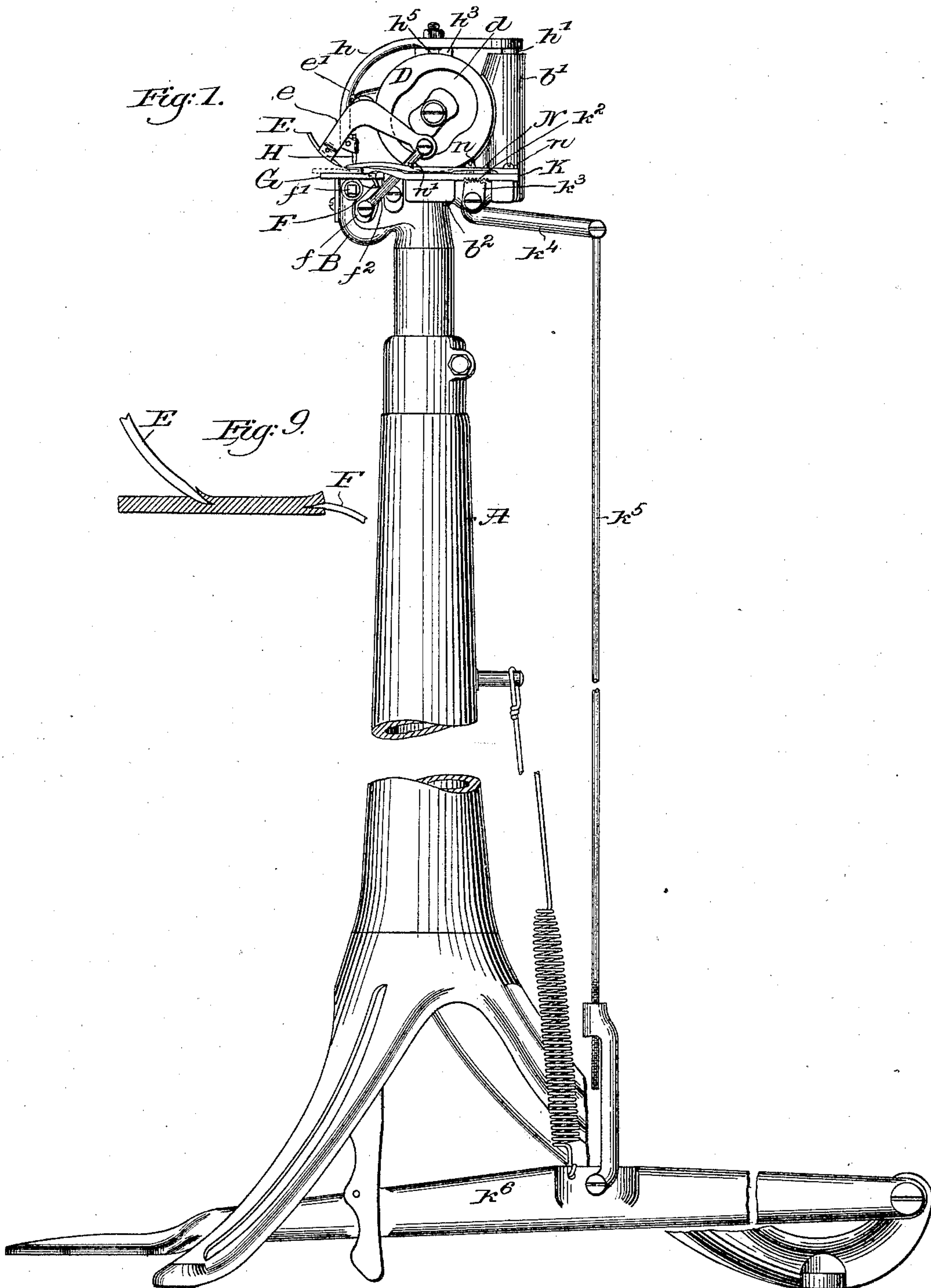
No. 684,543.

Patented Oct. 15, 1901.

L. GODDU.
CHANNELING MACHINE.
(Application filed Aug. 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.



witnesses
Fred O. Fish
Amace Van Eeman

Inventor:
Louis Goddu
by his Attorney
Benjamin Phillips

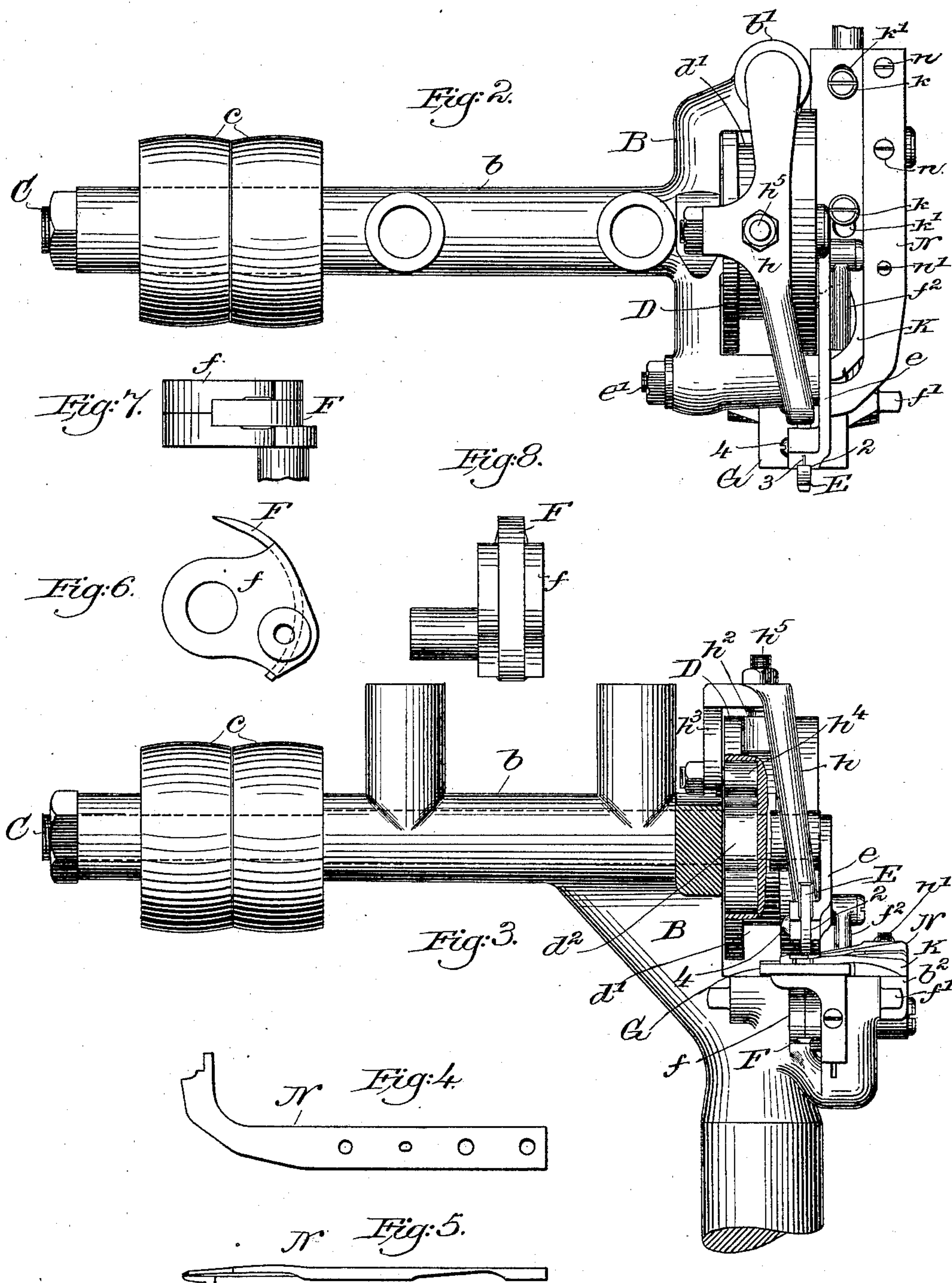
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UNITED STATES PATENT OFFICE.

LOUIS GODDU, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO GODDU SEWING MACHINE COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

CHANNELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 684,543, dated October 15, 1901.

Application filed August 31, 1900. Serial No. 28,625. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GODDU, a citizen of the United States, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Channeling - Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

As machines for channeling the soles of boots and shoes have heretofore been constructed it has been the practice to provide a stationary channeling-knife and in insole-channeling machines a stationary shoulder or edge splitting knife the blade of which is properly shaped to cut the channel or shoulder or split the edge of the sole and against which the sole is fed to make the cut, the cut being what is sometimes called a "drag" cut. The drag cut has been found to be objectionable, particularly in forming the channel, since it is apt to wrinkle and even to tear the channel-flap, so that it will not smoothly cover the seam which is laid in the channel, and machines of this class provided with stationary knives are, moreover, difficult to operate successfully, particularly on thin stock or stock of variable thickness.

The objections above noted have been partially obviated in certain types of machines by giving to the channeling-knife a vibrating or short oscillatory movement in the plane of the line of feed, so that the work is fed against the vibrating cutting edge, which is substantially at right angles to the line of feed.

One of the objects of my present invention is to provide a machine for channeling insoles by which the objections above noted are more fully obviated than is possible by the use of a channeling-knife vibrating in the line of feed; and with this object in view a feature of my invention consists in providing a channeling-machine with a vibrating channeling-knife arranged to cut transversely to the line of feed from within the edge of the sole outwardly, so that the channel is formed by a series of overlapping incisions which unite to produce it. It will be readily seen that the

above-noted arrangement produces a smooth clean cut and renders the machine easy in operation and capable of successful use on the thinnest stock employed for making insoles.

Another object of my invention is to provide a machine for splitting the edge of an insole which shall be free from the objections incident to the construction and mode of operation of prior machines for performing this work; and with this object in view a feature of my invention consists in providing a channeling-machine having suitable means for supporting and guiding a shoe-sole, with a vibrating edge-splitting knife arranged to cut transversely to the line of feed.

My invention also consists in certain devices and combinations of devices, which will be hereinafter described and claimed, the advantages of which will be apparent to those skilled in the art from the description hereinafter contained.

The accompanying drawings illustrate a preferred form of my present invention as applied to a machine for channeling insoles, which at a single operation, as is usual in this class of machines, cuts the channel and splits the edge of the sole to form the lip and feather.

In this machine the cutting edge of each knife is straight and the entire edge is arranged parallel to the line of feed. The knives are also arranged to reciprocate in planes at right angles to the line of feed. It is to be understood, however, that my invention as to its broader aspects is not limited to such construction and arrangement nor is it limited to the particular construction of machine shown.

Figure 1 is a side elevation. Fig. 2 is a top plan view. Fig. 3 is a front elevation, partially in section. Figs. 4 and 5 show the presser-foot detached in plan and side elevation. Figs. 6, 7, and 8 are respectively a side view, plan, and front view of the edge-splitting knife and its carrying-segment; and Fig. 9 is a diagrammatic view showing a portion of the stock and knives in their cutting position.

Referring to the drawings, A represents a

suitable pedestal or base, upon which is mounted the head B, of suitable shape to support the working parts of the machine.

C represents the power-shaft, which is mounted in a suitable bearing or sleeve b on the head B. The shaft C may be conveniently driven by the fast and loose pulleys c and carries a cam-disk D, which rotates therewith.

E represents the channeling-knife, which is secured to one arm of the elbow-lever e , fulcrumed at e' on the head B, the other arm of said elbow-lever carrying a cam-roll, which engages the cam-slot d in the outer face of the cam-disk D. The knife E is preferably curved longitudinally, its center of curvature being coincident with the rocking center of the lever e , and is adjustably secured to the end of the lever e , so that it can be advanced or retracted to vary the distance to which it is projected into the sole. As shown in the drawings, Fig. 2, the knife E is held in a groove 2 in the end of the lever e , which is split, as shown at 3, and a clamping-screw 4 provided, so that the knife E may be advanced or retracted, as desired, and clamped firmly in the required position.

F represents the edge-splitting knife, which is carried by a segment f , mounted upon a short shaft f' , provided with suitable bearings in the head B. The segment f is connected by a pivoted link f^2 to the elbow-lever e , the arrangement being such that a rotation of the cam-disk D rocks the lever e and oscillates the segment f , causing the knives E and F to enter and be withdrawn from the sole simultaneously. The knife F is preferably curved and secured in the segment f by suitable clamping means, so that it can be adjusted to regulate the distance to which it is projected into the sole—that is to say, the depth of the cut. It will be noted that, as shown in the drawings, the channeling-knife and edge-splitting knife move along oppositely-curved paths and simultaneously enter the sole, so that each tends to support the sole against the operation of the other knife. The work-table is shown at G and may be of any suitable form. As shown, it consists of a horizontal plate suitably secured to the head B.

The machine of the drawings is provided with a feed-point H, having a vertical movement and a movement in the line of the feed, such as is usually imparted to a four-motion feed. The motions above referred to are secured by the following mechanism: The point H is mounted upon a bent lever h , to which is imparted a laterally swinging or oscillating movement, which gives the point H its movement in the line of the feed, said lever h being also raised and lowered bodily to give the point H its vertical movement, which causes it to engage and clear itself from the work. To secure these movements, the lever h is secured to a bearing-rod h' , mounted to rotate and reciprocate in a vertical sleeve b' on the head B, and carries a cam-roll h^2 , which engages a cam-path d' in the periphery

of the disk D, the arrangement being such that a rotation of the disk D causes, by means of the path d' and roll h^2 , a laterally swinging or oscillating movement of lever h , the rod h' turning in the sleeve b' . To the lever h is secured the angle-piece h^3 , conveniently made integral therewith, one arm of which is projected along the face of the disk D and carries a cam-roll h^4 , which engages a cam-path d^2 in the face of disk D, the arrangement being such that a rotation of the disk D by means of the path d^2 and roll h^4 raises and lowers the lever h bodily, the rod h' sliding in the sleeve b' . To prevent the roll h^2 from lifting in the groove d' , I prefer to arrange the stud h^5 , which connects the roll h^2 with the lever h , to reciprocate in its bearing in said roll, so that when the lever h is raised the stud h^5 will rise in the roll without raising the roll.

The machine of the drawings is provided with an edge-gage K, which projects over the work-support G and determines the position of the channel with reference to the edge of the sole. As has heretofore been proposed in this class of machines, the gage K is arranged to be advanced and retracted during the operation of the machine to vary the position of the channel on the sole. As shown, the gage K is mounted upon a bracket or table b^2 on the head B, the upper surface of which is substantially parallel with the upper surface of the work-support G, the gage K being secured to the table b^2 so as to be capable of a longitudinal reciprocation along the same by means of the bolts k k , which extend through elongated bolt-holes k' k' in said gage. On the under side of the gage K is formed a rack k^2 , which is engaged by a segmental pinion k^3 , formed on the elbow-lever k^4 , which is pivoted at its angle on the head B and which is connected by the rod k^5 with a suitable treadle k^6 . Upon the gage K is mounted the presser-foot N, which, as shown, consists of a spring-plate, which near its forward end is bent laterally and downwardly, said forward end engaging the sole and pressing it against the work-table G with a pressure due to the elasticity of the plate. The presser-foot N is secured to the gage K by the bolt n , and toward its forward end a check-bolt or stop n' is provided, which bears on the gage K and limits the downward movement of the presser-foot N.

In the machine of the drawings the channeling-knife E is curved to correspond substantially in degree of curvature to the curved needle of the inseam-machine, which is to unite the insole to the upper and welt, and is arranged to move along a path of substantially the same degree of curvature as the path of said needle, and the curved edge-splitting knife F is located on the opposite side of the work from the channeling-knife E and is arranged to move along a path oppositely curved to the path of the channeling-knife, so that the lower surface of the feather

(assuming the insole to be in position on the last) cut by it is curved upwardly from the edge of the sole. These features, while not essential to my invention in its broadest scope, I regard as being novel and of the greatest importance, the former securing an unobstructed approach of the needle to strike at substantially the bottom of the between substance and the latter enabling the upper to lie smoothly against the feather and avoiding a sharp bending of the upper around the edge of the feather, such as occurs where the feather is left straight.

The operation of the machine of the drawings is as follows: The operator puts an insole in position in the machine by pushing its edge under the presser-foot N and against the gage K. He then starts the machine, and the channel-knife E and edge-splitting knife F are projected into the sole, each making an incision therein equal in length to the width of the knife, or, more precisely speaking, to the length of its cutting edge. Both knives are then retracted from the work and the feed-point H engages the same and feeds it along a distance a little less than the length of a cut, so that when the knives are again projected into the work the second incision made thereby forms a continuation of the first, and the operation is repeated, forming a continuous channel along that portion of the sole required to be channeled and splitting the edge of the sole to form the lip and feather. If desired to vary the position of the channel with respect to the edge of the sole, the operator by pressing on the treadle k^6 advances the gage K or by releasing the treadle after the gage has been advanced permits it to be retracted.

Having thus described the preferred form of my invention, I claim as new and desire to secure by Letters Patent of the United States—

1. In a channeling-machine, a channeling-knife having its cutting edge substantially parallel to the line of feed and arranged to reciprocate in a plane at right angles to said line of feed and to cut from within the edge of the sole outwardly and means to actuate the knife, substantially as described.

2. In a channeling-machine, an edge-split-

ting knife having its cutting edge substantially parallel to the line of feed and arranged to reciprocate in a plane at right angles to said line of feed, means for supporting and guiding a shoe-sole arranged with relation to the edge-splitting knife to present the edge of the shoe-sole thereto, and means to actuate the knife, substantially as described.

3. In a channeling-machine, a vibrating channeling-knife arranged to cut transversely to the line of feed from within the edge of the sole outwardly to form a continuous channel, and means to actuate the knife, substantially as described.

4. In a channeling-machine, a vibrating edge-splitting knife arranged to cut transversely to the line of feed, means for supporting and guiding a shoe-sole arranged with relation to the edge-splitting knife to present the edge of a shoe-sole thereto, and means to actuate the knife, substantially as described.

5. In a channeling-machine, the combination with reciprocating edge-splitting and channeling knives movable toward and from each other, and arranged to engage the sole substantially simultaneously from substantially opposite directions, of mechanism for actuating the knives, substantially as described.

6. In a channeling-machine, the combination with edge-splitting and channeling knives arranged to oscillate along oppositely-curved paths and to engage the sole substantially simultaneously, of mechanism for actuating the knives, substantially as described.

7. In a channeling-machine, means for supporting and guiding a shoe-sole, an oscillating edge-splitting knife movable along a curved path situated with relation to the work supporting and guiding means to cause the knife to cut a feather on the sole curving upwardly from the edge of the sole, and means to actuate said knife, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS GODDU.

Witnesses:

HORACE VAN EVEREN,
ALFRED H. HILDRETH.