E. A. WEBSTER.

SOLE CHANNELING MACHINE.

APPLICATION FILED MAR. 4, 1908.

916,381.

Patented Mar. 23, 1909.

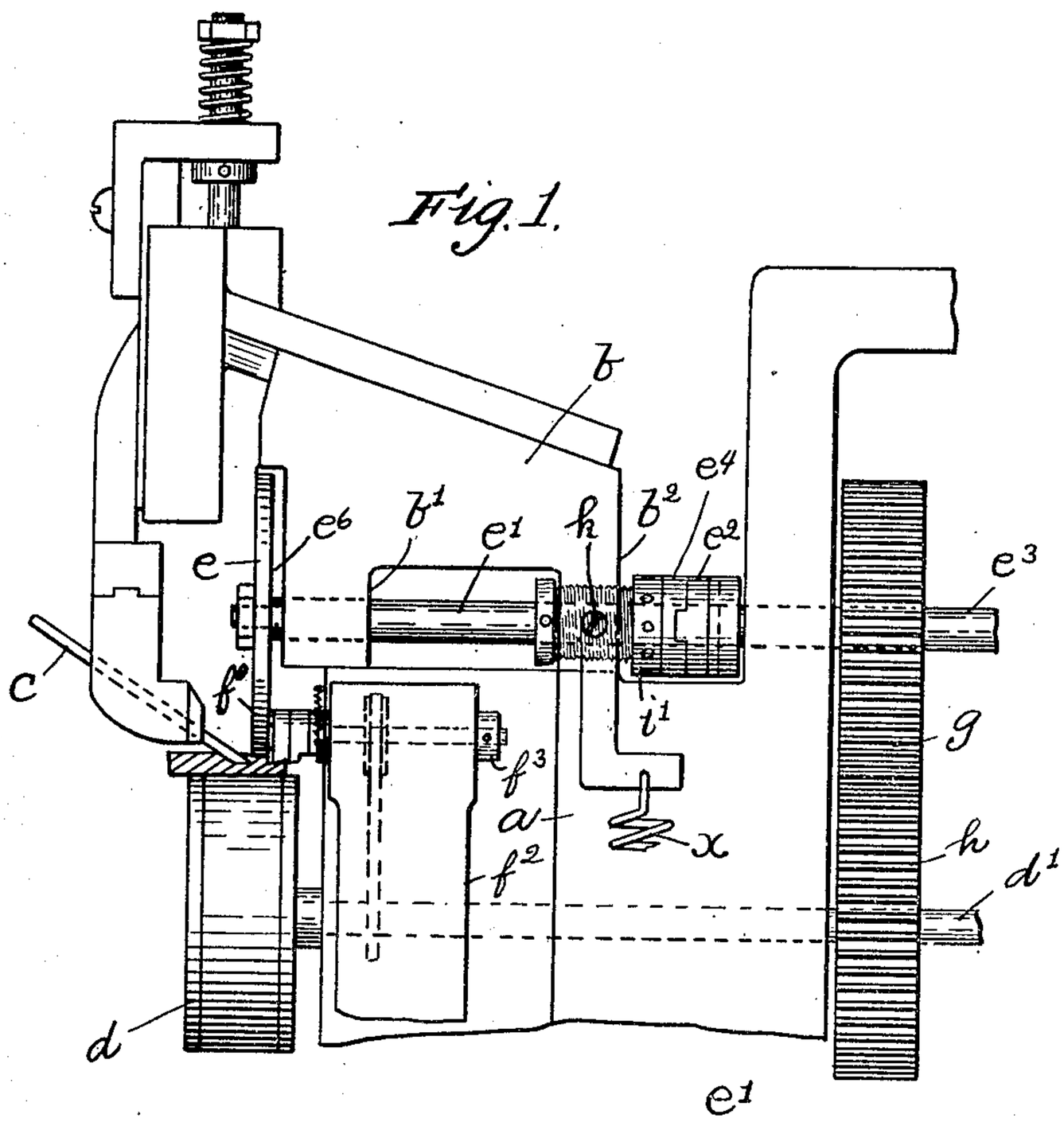

Fig. 1.

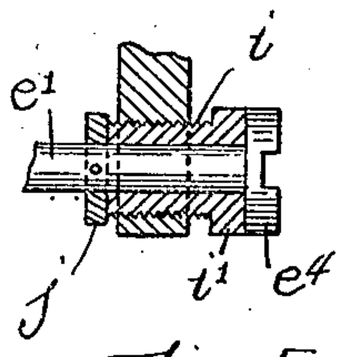

Fig. 5.

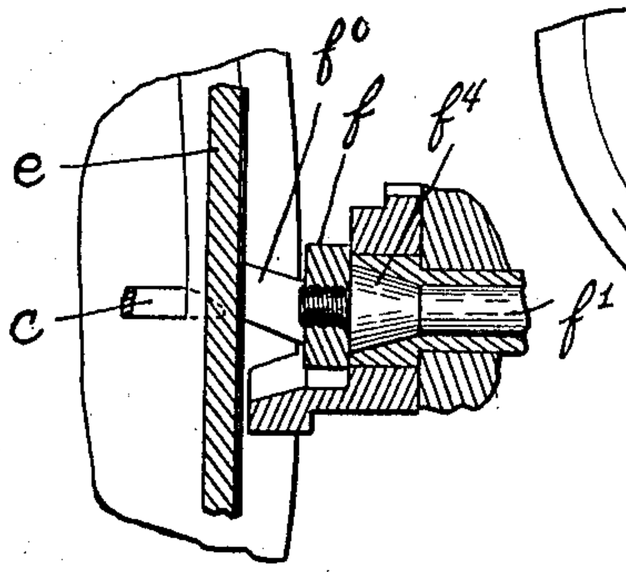

Fig. 2.

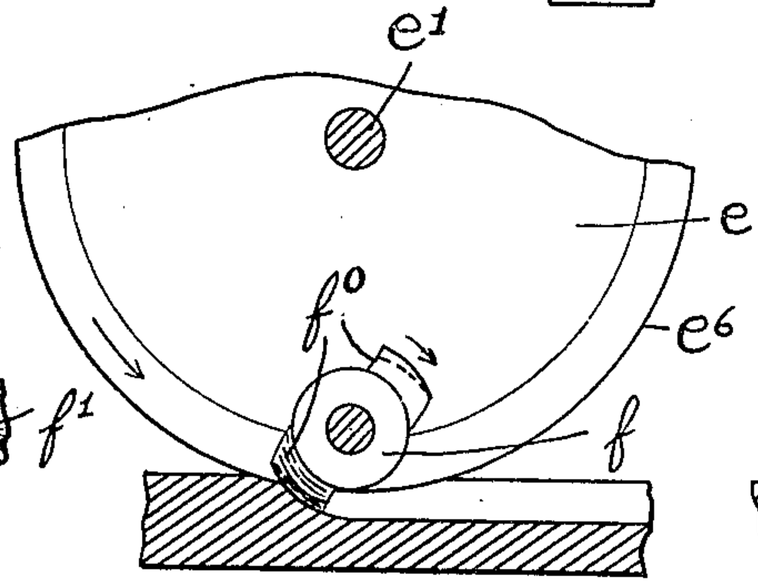

Fig. 3.

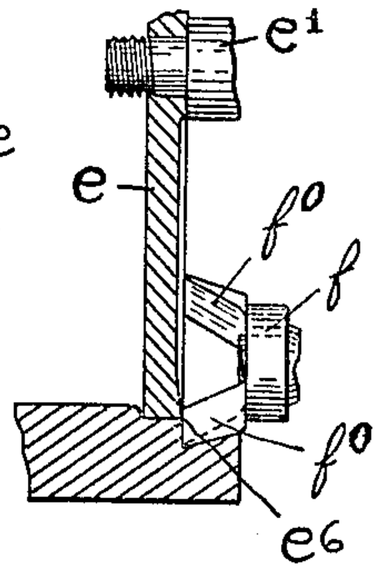

Fig. 4.

Witnesses:
H. B. Davis.
Cynthia Doyle

Inventor:
Edwin A. Webster
by Boyer & Hamman
Atty's

UNITED STATES PATENT OFFICE.

EDWIN A. WEBSTER, OF GROVELAND, MASSACHUSETTS, ASSIGNOR TO HAVERHILL CHANNELING MACHINE COMPANY, OF HAVERHILL, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SOLE-CHANNELING MACHINE.

No. 916,381. Specification of Letters Patent. Patented March 23, 1909.

Application filed March 4, 1908. Serial No. 419,077.

To all whom it may concern:

Be it known that I, EDWIN A. WEBSTER, of Groveland, county of Essex, State of Massachusetts, have invented an Improvement in Sole-Channeling Machines, of which the following is a specification.

This invention relates to sole channeling machines of the character shown in my copending applications Serial Nos. 297,094, 373,726 and 393,483, in which a rotary knife for forming the shoulder or upper-receiving seat of the sole is employed, said knife rotating on an axis parallel to the axis of the feed roll and with the front end thereof in close proximity thereto. In said machines there is a certain coöperation between the feed roll and the rotary knife, in that the roll acts to press down the leather closely adjacent the end of the knife, so that the knife is thereby enabled effectively to remove or cut away the chips at their inner ends and to prevent the knife from lifting the sole, so as to make too deep a cut. I have found this coöperation to be so important, that an accurate adjustment between the knife and the roll is very desirable and practically essential, particularly in order that a shearing action between the knife and roll may be effectively secured.

The object of the present invention is to provide means whereby the knife and feed roll may be caused to coöperate to the best advantage. The means which I employ to accomplish this object are shown in the accompanying drawing, in which,

Figure 1 is a side elevation of the main operating parts of the machine. Figs. 2, 3 and 4 are enlarged detail views of the cutter and upper feed roll, and, Fig. 5 is a detail sectional view of the roll shaft adjusting means.

In the drawing, *a* indicates the main frame of the machine, provided with a vertically movable head *b*, which supports the channeling knife *c*. The lower feed roll is mounted on the shaft *d'*, journaled in frame *a*, and the upper feed roll *e* is mounted on the shaft *e'* and journaled in the head *b*, said head being drawn down by a spring *x*. The cutter *f* is mounted upon a shaft *f'*, journaled in a support f^2 mounted on frame *a*, said shaft being held from longitudinal movement by suitable collars or shoulders f^3, f^4, the axes of shafts *d'*, *e'* and *f'* being parallel and located in the same vertical plane. The shaft *e* is connected, by means of a side-slip or "Oldham" joint e^2, to the main shaft e^3, and said shafts e^3 and *d'* are connected and driven in unison by gears *g* and *h*, so that the feed rolls rotate at approximately the same surface speed. The shaft *e'* is journaled in a bearing *b'*, formed on the head *b*, and in a bushing *i*, which is threaded in a projection b^2 on said head, said shaft *e'* being held from longitudinal movement with relation to said bushing *i* by means of a shoulder e^4, which constitutes a part of the joint e^2, and a collar *j* which is secured on the shaft. The bushing *i* is provided with a series of spanner holes *i'*, so that it may be easily turned, and a set screw *k* is employed to lock the same in any position to which it may be adjusted. It will be apparent that, by turning the bushing the shaft *e'* may be adjusted longitudinally in either direction.

The side of the roll next the cutter is provided with an annular shearing face e^6, which extends from the sole engaging face of the roll, and which is formed so that it lies as nearly as possible in a plane perpendicular to the axis of the roll. This annular face e^6 is preferably as narrow as practicable, and may be termed an edge or sharp corner, and the side of the roll is beveled away therefrom, or recessed, as best shown in Fig. 4. The cutter is preferably provided with two blades f^0, the ends of which, particularly the portions leading from the cutting edge, are accurately ground, so that they are located in a plane perpendicular to the axis of the cutter, or a plane exactly parallel to the plane of the shearing face f^6 of the roll.

The diameter of the path in which the cutter blades rotate is preferably less than one-third the diameter of the roll *e*, and extends beyond or below the sole engaging face to an extent corresponding to the depth of the shoulder which is to be cut. The shaft *e'* is adjusted by means of the bushing *i*, so that the ends of the blades f^0 pass as closely as possible to the face e^6 of the roll, without frictional engagement therewith sufficient to over-heat said blades. The cutter is rotated at a very high speed and in the opposite direction to the rotation of the roll *e*, as it is impracticable to rotate the cutter in the direction of the feed, the directions of rotation being indicated by the arrows in Fig. 3.

As a blade advances and passes above the surface of the leather to remove a chip, its end passes obliquely across the face e^6 at the edge of the roll *e*. As the diameter of the cutter is relatively small to that of the roll, the point at which the blades actually leave the leather is put a short distance in advance of the vertical plane of their axes, and, on account of the yielding of the leather, the arc of contact of the roll extends for some distance in advance of said plane, particularly as the roll is pressed against the sole with considerable force. The result is that, in practice, the leather is firmly engaged by the roll abreast of the point where the edges of the blades emerge to sever a chip, so that the leather is not only pressed down by the roll opposite the ends of the cutter blades, but, the ends of the blades and the edge or face e^6 of the roll coöperate to shear off the chips at their inner ends, as the blades move up across the said face e^6, so that the chips are removed by both a cutting and shearing action. Each cutter blade, therefore, has a longitudinal cutting edge and a shearing end edge and the roll *e* acts to coöperate therewith in both the cutting and shearing action. The roll *e* is recessed on its inner side, so that its shearing face is as narrow as practicable, and, consequently there is but slight frictional engagement between the blades and the shearing face or portion of the roll, and the length of the surface of contact is so short that the danger of the heating of the blades in the transverse movement thereof across said shearing face is reduced to a minimum.

The adjusting means with which the roll and shaft is provided enables the coöperating shearing faces of the roll and cutter blades to be adjusted so that they may operate to the best advantage. In practice, imperfect adjustment of the roll is at once apparent from the fact that the chips will be imperfectly severed at their inner ends, causing the sole to have a ragged appearance at the upper edge of the upper-receiving shoulder.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a sole channeling machine, a sole support, a feed roll disposed to press the sole against said support and having a peripheral sole engaging face and a shearing side face extending therefrom, a transversely rotatable edge-forming blade having a longitudinal cutting edge and a shearing edge extending therefrom at one end and movable about an axis approximately parallel to the axes of the roll in a path extending transversely of said shearing side face, with its shearing edge adjacent thereto, and means permitting relative axial adjustment of said roll and said blade to bring their shearing portions into coöperative relation, substantially as described.

2. In a sole channeling machine, a sole support, a feed roll disposed to press the sole against said support and having a peripheral sole engaging face and an annular face at one side extending from said engaging face, and located in a plane perpendicular to the axis of the roll, the side portion of the roll next said annular face being recessed inwardly therefrom and a transversely rotatable edge-forming blade having a longitudinal cutting edge and a transverse shearing edge at one end, movable in a path, having its axis parallel to the axes of said roll, transversely of said annular face, adjacent said support, with its shearing end in close proximity to said annular face, substantially as described.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

EDWIN A. WEBSTER.

Witnesses:
L. H. HARRIMAN,
H. B. DAVIS.