

No. 670,389.

Patented Mar. 19, 1901.

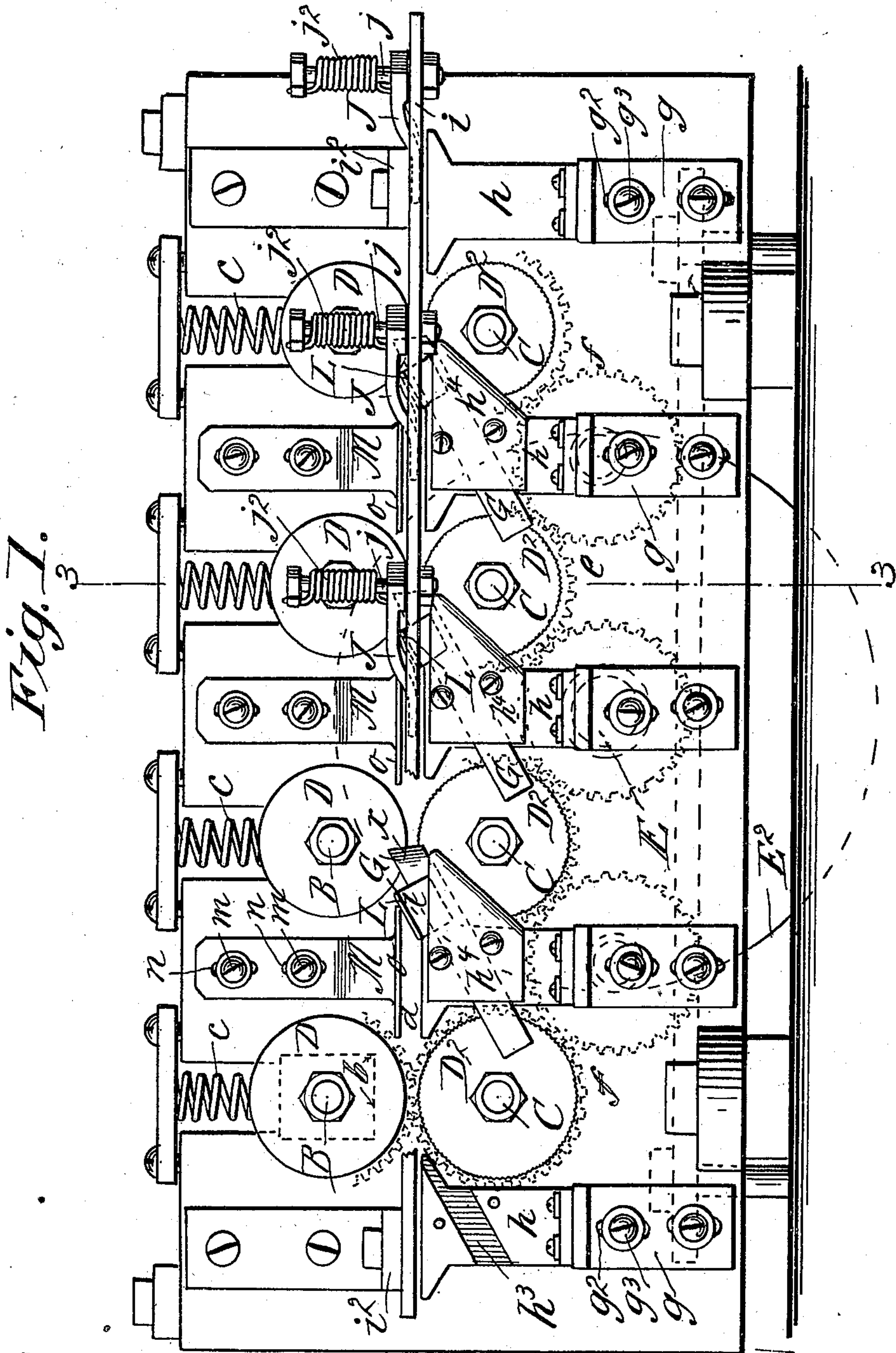
D. C. HULL.

MACHINE FOR LONGITUDINALLY CUTTING AND STRIPPING LEATHER OR  
SIMILAR MATERIAL.

(No Model.)

(Application filed Oct. 4, 1900.)

3 Sheets—Sheet 1.



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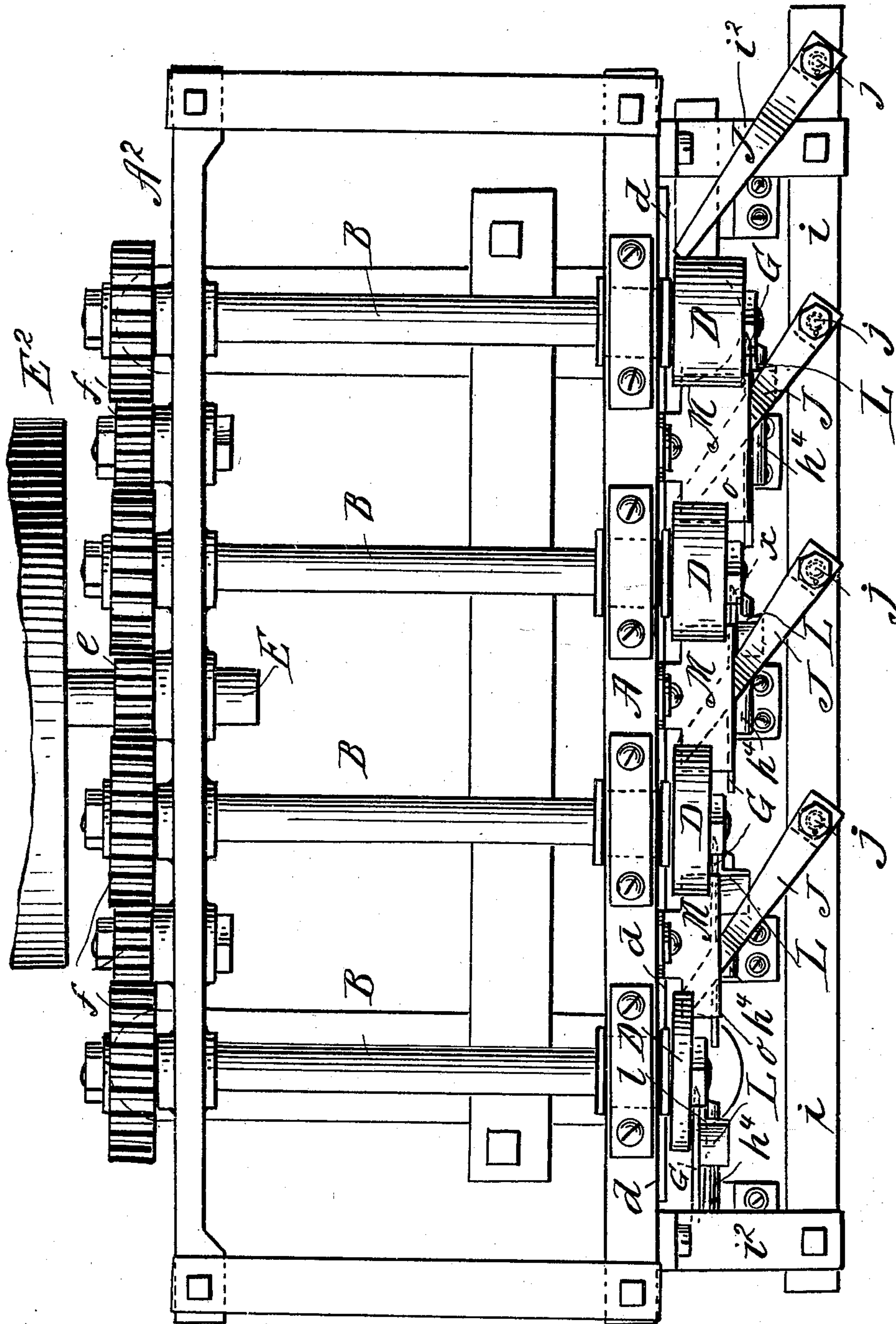
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Fig. 2.

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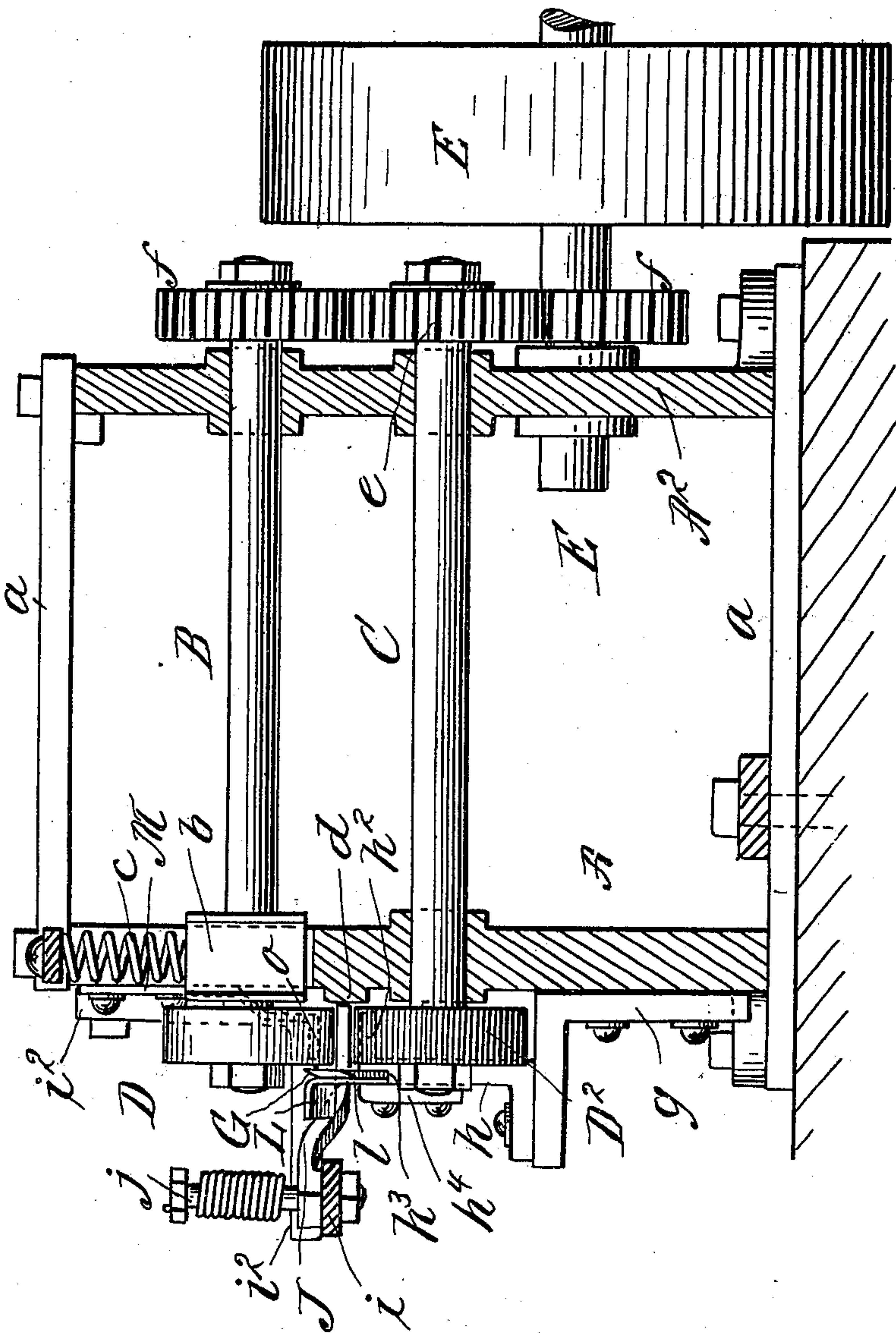
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Fig. 3.



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# UNITED STATES PATENT OFFICE

DAVID C. HULL, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR TO THE  
UNITED STATES WHIP COMPANY, OF SAME PLACE.

MACHINE FOR LONGITUDINALLY CUTTING AND STRIPPING LEATHER OR SIMILAR MATERIAL.

SPECIFICATION forming part of Letters Patent No. 670,389, dated March 19, 1901.

Application filed October 4, 1900. Serial No. 31,988. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID C. HULL, a citizen of the United States of America, and a resident of Westfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Machines for Longitudinally Cutting and Stripping Leather or Similar Material, of which the following is a full, clear, and exact description.

This invention relates to an improved machine for cutting into longitudinal strips of equal widths throughout their entire lengths leather or other similar material.

The machine is especially devised for the purpose of utilizing waste portions or trimmings of sole-leather or other comparatively thick leather by cutting the same into narrow strips which are approximately square in cross-section, which strips are afterward wound and compressed upon a mandrel and finally cut to form wagon-washers.

The invention consists in the constructions and combinations or arrangements of parts comprised therein, all substantially as hereinafter fully described, and set forth in the claims.

The machine as I have constructed and successfully used it for commercial purposes is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation with certain of the attachments at the left-hand end indicated as removed. Fig. 2 is a plan view of the machine. Fig. 3 is a cross-sectional view on line 3 3, Fig. 1.

Similar characters of reference indicate corresponding parts in all of the views.

The framing or supporting structure of the machine comprises the front and rear parallel uprights  $A A^2$ , with suitable cross-bracing  $a a$  at the top and at the base. Upper and lower sets of feed-roll shafts  $B B$  and  $C C$  are arranged horizontally one above the other, the same being journaled through the uprights  $A A^2$ , each lower shaft having fixed journal-bearings, while the forward end of each upper shaft is passed through a journal-box  $b$ , vertically movable in a recess or way therefor in the front upright, and has provided thereto a downwardly-reacting spring  $c$ .

$D$  and  $D^2$  represent coacting pairs of feed-rolls located at and fixed upon the forward ends of the feed-roll shafts  $B$  and  $C$  in front of the upright  $A$ , the lower roll of each set having its periphery serrated, and the proximate or nipping portions of all the rolls are in a horizontal line longitudinally of the machine.

$d$  represents the portion of the front upright which extends in a horizontal longitudinal line and which constitutes the edge guide and gage for the leather fed through the machine.

$E$  represents the driving-shaft of the machine, having thereon the pulley  $E^2$ , said driving-shaft having the spur-gear  $e$ , which drives the train of gearing  $f$ , whereby in a common manner for the driving or feed roll in various machines all of such rolls in this machine are rotated at the same axial speed.

As here illustrated, the line of feed is from right to left, and each successive set of the feed-rolls is of a slightly-increasing diameter, whereby a degree of draft or tension is imparted to the leather being fed through the machine to the cutting action of the knives, so that the cutting or stripping may be most effectively and cleanly performed.

The feed-rolls, as shown in Fig. 2, are of a successively-narrowing width, the difference in width between each set or pair and the next pair being uniform in extent.

In practice the feed-roll shafts  $B B$  and  $C C$  are slightly inclined in a forward direction relatively to the line of feed, so that the planes of the faces of the feed-rolls are slightly inclined to the line of feed. By this means the strip of leather has imparted thereto as it is fed through the several sets of feed-rolls a tendency to hug the guiding-face  $d$ .

On the forwardly-extending brackets  $g g$ , located under and in advance of each pair of the feed-rolls, are secondary brackets or risers  $h h$ , having their tops rearwardly turned, as seen at  $h^2$ , to constitute bottom supports and restrainers for the leather being fed, and said brackets  $h$  have in the front faces the upwardly and rearwardly inclined sockets  $h^3$ , (one of which is shown uncovered in Fig. 1,) in which the knives  $G G$  are held by the clamping-plates  $h^4$ , which latter are screwed in



place. The knife-supporting brackets are set forward from the upright A one space more than the next in advance thereof to correspond with the differences in the front-face  
 5 planes of the feed-rolls, and the cutting edges of the knives span the space between and overlap the front faces of the feed-rolls near but a little in advance of the line extending between the axes of the respective pairs of  
 10 rolls.

The machine, furthermore, comprises a series of pressure bars or levers J J, for the support of which the horizontal rail  $i$  is supported longitudinally in front of and parallel with  
 15 the front upright A, said rail being sustained by the brackets  $i^2$ , provided near the ends of the machine. The said pressure-bars are mounted to swing on upstanding studs  $j$ , which are fixed at their low ends in said rails, and  
 20 said bars have forward and inward inclinations toward the bearing portion  $d$  along the front of the machine, as indicated in Fig. 2, for edgewise bearings by their free extremities on the leather, such bearing extremities  
 25 having their locations to the rear of the pairs of rolls corresponding to which said pressure-bars are provided, and the springs  $j^2$ , which are coiled around the studs, have their ends affixed both to the stud and to the bar, so as  
 30 to exert the yielding crowding pressure on each bar.

L L represent deflectors, each having its location closely to and just in advance of the cutting edges of the knives, and each essentially comprises a thin piece or plate having  
 35 a downward and forward inclination, so that the strips severed by the knives from the portion of the whole or main strip, which at the location of any given knife is the outer edge  
 40 portion, will be guided downwardly and forwardly more or less in a line corresponding to the line of inclination of the knife-blade, and so that each strip as produced by each knife will be disposed of in a simple and satisfactory manner. As a matter of practicality and convenience each deflector is formed of a thin blank of sheet metal bent into L form, the back or shank member  $l$  thereof being clamped by the clamping-plate  
 45  $h^4$  closely against the outer face of the knife.

Guides and limiting or restraining appliances M for the strip of leather to be passed through the machine to be longitudinally severed or slit are provided between the several  
 55 pairs of feed-rolls, each consisting of an L-shaped plate having the slots  $n$ , through which the confining-screws  $m$  are engaged by threading into the front of an upright A, and a forwardly horizontally extending portion  $o$ , the level of the lower surfaces of all of these portions  $o$  being in a plane approximately coincident with the lower edge portions of the several upper feed-rolls D D. By reason of the vertical adjustments permitted by the slots and  
 60 set-screws the guides and restraining devices or "covers" may have the portions  $o$  thereof located slightly higher or lower, as occasion

may require in the employment of the machine for working leather of greater or less thickness. The brackets  $g g$  are also by reason of the slots  $g^2$  and binding-screws  $g^3$  vertically adjustable, so that these brackets, and with them the brackets  $h$ , (the tops of which constitute the table-like guides and supports on which the leather is sustained,) may have  
 70 their locations at slightly raised or lowered levels to accord with the thickness of the stock being worked.

In Fig. 2 the pressure-bars J J are all shown as swung about to their limit of movement  
 80 toward the front of the upright A; but it will be understood that when strips of leather the widths of which may be variable and of a range between the width of the narrowest set of feed-rolls at the left-hand end and that  
 85 somewhat exceeding the widest set at the right-hand end are run through the machine the pressure-bars J will be crowded outwardly to develop an increasing reaction against the leather to maintain it with its rearward edge  
 90 firmly against the portion  $d$ , which is straight and continuous throughout practically the entire length of the machine and by means of which, in conjunction with said presser-bars, the leather, even although perhaps bowed  
 95 or hollowed or otherwise uneven at its guided edge, will be straightened and made to conform to said straight guiding portion  $d$ . Now, for instance, assuming that a strip of leather to be slitted or stripped having a width a little  
 100 greater than the width of the widest feed-roll D is entered into the machine at the right, subject to the action of the first pair of feed-rolls, the pressure-bar at the right-hand end will carry the strip to its edgewise bearings  
 105 against the gaging portion  $d$ . The propulsive movement being given by the first set of feed-rolls to the comparatively wide strip of leather the latter is carried through them and immediately to the cutting action of the first knife  
 110 G, which removes so much of the strip as stands outside of the cutting plane of the knife, and the portion so removed is by the adjacent deflector L constrained to a downward course free and clear of the further  
 115 rolls and knives. The remaining portion of the strip now of a width corresponding to the first set of feed-rolls being carried to the feeding and draft or tensioning action of the second set of feed-rolls, which have a  
 120 slightly-increased diameter, but a width one size less than that of the first set of rolls, immediately becomes subjected to the cutting and severing action of the second knife, so that a straight strip of uniform width is  
 125 taken off, which is likewise downwardly deflected free and clear of the remaining rolls and knives, and the remnant of the main strip is successively subjected in like manner to the further feeding-rolls of successively-increasing diameters and decreasing  
 130 widths until the entire strip is worked up into narrow strips, which are square or suitably otherwise rectangular in cross-section. The



knives being so close to the center lines of the feeding-rolls and the leather being under draft or tension and also being constrained by the guides and limiting devices against buckling, the cutting thereof by the knives, even although the latter may not be extremely sharp and even although the leather may be flabby or soft, is of the cleanest and most clearly-defined character.

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

1. In a machine for longitudinally cutting and stripping leather, the combination with a gage-guide, of successive pairs of feed-rolls those of each pair being narrower than the preceding pair, and knives in advance of each pair of rolls and substantially coincident with the planes of the front faces thereof, and means for rotating the feed-rolls, substantially as described.

2. In a machine for longitudinally stripping leather, the combination with a longitudinally-extending gage-guide, of a series of pairs of feed-rolls which are of decreasing widths, and knives having their locations respectively adjacent the center lines of the pairs of rolls relatively to which they are provided substantially coincident with face planes of such rolls, and marginally overlapping the faces of the rolls, substantially as described.

3. In a machine for longitudinally stripping leather, the combination with a longitudinal gage-guide, of several pairs of feed-rolls of successively-decreasing widths and successively-increasing diameters and knives arranged adjacent each pair of rolls respectively on the planes of the front faces thereof, for the purposes set forth.

4. In a machine for longitudinally cutting and stripping leather, the combination with a longitudinal gage-guide, *d* of successive pairs of feed-rolls those of each pair being narrower than the preceding pair and all arranged with their axes slightly inclined forwardly and toward the plane of the gage-guide, knives in advance of each pair of rolls and substantially coincident with the planes of the faces thereof, and means for rotating the feed-rolls, substantially as described.

5. In a machine for longitudinally stripping leather, the combination with a longitudinally-extending gage-guide *d* and a horizontal support for the leather of a series of pairs of feed-rolls which are of decreasing widths, and knives having their locations respectively adjacent the center lines of the pairs of rolls relatively to which they are provided, and at the front-face planes of the rolls and bars mounted for a yielding pressure horizontally toward the gage-guide, substantially as described.

6. In a machine for longitudinally stripping leather the combination with a longitudinal gage-guide, of several pairs of feed-rolls of successively-decreasing widths, knives slightly

in advance of the center line of each pair of rolls, respectively, on the planes of the front faces thereof, and a downwardly-inclined deflector adjacent and in advance of the cutting edge of each knife.

7. In a machine for longitudinally cutting and stripping leather, the combination with a longitudinally-extending gage-guide, of several pairs of feed-rolls those of each pair being narrower than the preceding pair, knives in advance of each pair of rolls and substantially coincident with the planes of the front faces thereof, means for rotating the feed-rolls, horizontal supports the tops of which are adjacent the tops of the lower feed-rolls, and horizontal members *o* between the rolls, at about the level of the under side of the upper feed-rolls, substantially as described.

8. In a machine for longitudinally stripping leather, the combination with a longitudinally-extending gage-guide, of a series of pairs of feed-rolls which are of decreasing widths, and knives having their locations respectively adjacent the center lines of the pairs of rolls relatively to which they are provided substantially coincident with the front-face planes of such rolls, and marginally overlapping the faces of the rolls, the brackets *h* by which the knives are supported the tops of which constitute horizontal supports and guides for the leather.

9. In a machine for longitudinally stripping leather, in combination, the longitudinally-extending gage-guide *d*, a series of pairs of feed-rolls, of successively-decreasing widths arranged as shown, knives arranged adjacent each pair of rolls on the plane of the front face thereof, downwardly and forwardly inclined deflectors adjacent but in advance of the cutting edges of the knives, the horizontal supports and guides for the stock, the covers or restraining devices *o* above the horizontal supports and the horizontally-movable pressure members exerting a yielding pressure toward the gage-guide *d*, substantially as described.

10. In a machine of the character described the combination with the machine-frame having at the front the longitudinal gage-guide *d*, and the several pairs of feed-rolls of successively-decreasing widths, the knives arranged on the front-face planes of the rolls, the brackets arranged adjacent and under the rolls, the tops thereof constituting horizontal supports and guides for the stock, and having inclined sockets *h*<sup>3</sup> in which the knives are set, and the clamping-plate *h*<sup>4</sup>, substantially as described.

11. In a machine of the character described the combination with the machine-frame having at the front of the longitudinal gage-guide, *d*, and the several pairs of feed-rolls of successively-decreasing widths, the knives arranged on the front-face planes of the rolls the brackets which are vertically adjustable arranged adjacent the lower feed-rolls, the tops thereof constituting horizontal supports



and guides for the stock, and having inclined sockets  $h^3$ , in which the knives are set, the angular devices L comprising the deflectors the clamping-plates  $h^4$  confining the knives  
5 and deflectors in their positions on the brackets, and the devices M adjustably confined above the tops of the brackets, and having the horizontally-extending members  $o$ , substantially as described.  
10 12. In a machine for longitudinally cutting and stripping leather in combination the machine-frame comprising the front upright provided with the horizontal longitudinally-extending vertical-faced gage-guide  $d$  the  
15 several pairs of feed-rolls of successively-decreasing widths and means for rotating them, the knives G G arranged in the planes of the front faces of the respective pairs of feed-rolls and the deflectors L L, horizontal supports

and guides the tops of which are adjacent the  
level of the top of the several lower feed-rolls and the appliances M M having the horizontal members  $o o$  the brackets  $i^2$  extending forwardly from the frame-upright, and the horizontal longitudinal rail  $i$  supported by said  
25 brackets outside of the faces of the several feed-rolls, the upstanding studs  $j j$  mounted on said rail the presser-bars J J engaged to swing on said studs and the springs applied for reaction against the bars to force them  
30 toward the gage-guides all substantially as described.

Signed by me at Springfield, Massachusetts, in presence of two subscribing witnesses.

DAVID C. HULL.

Witnesses:

WM. S. BELLOWS,  
A. W. SMITH.