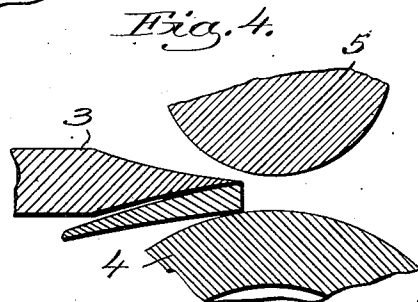
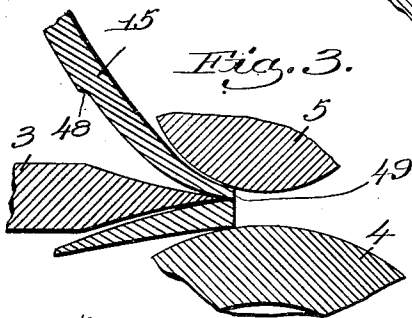
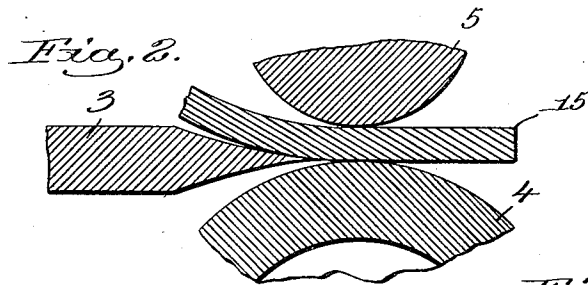
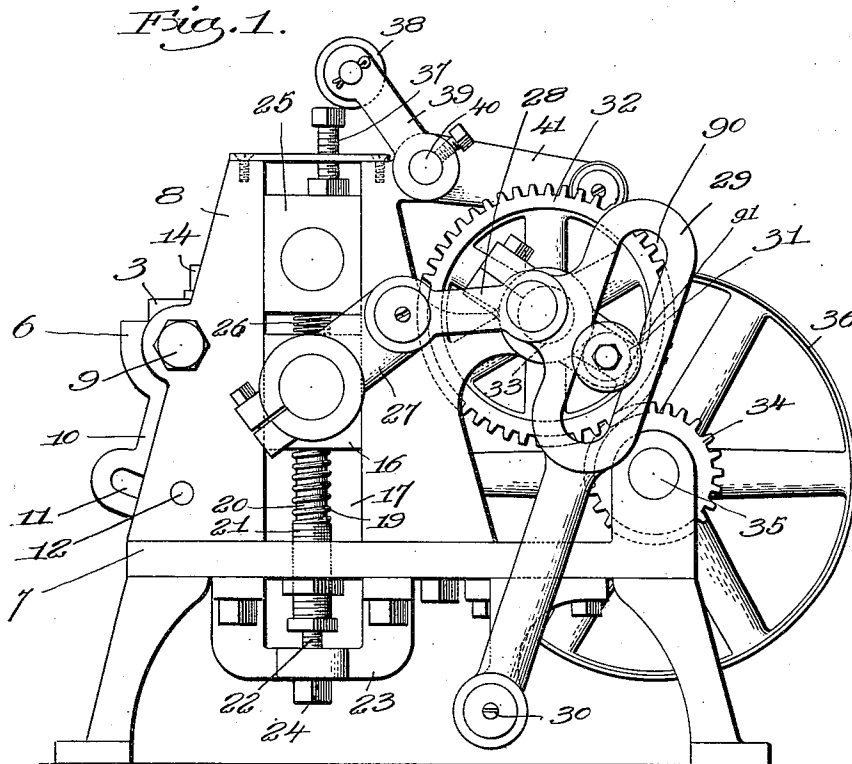


J. F. DONNELLY & H. LYON.
LEATHER SCARFING MACHINE.
APPLICATION FILED JULY 7, 1910.

1,018,171.

Patented Feb. 20, 1912.

3 SHEETS—SHEET 1.



witnesses:
Rich. S. Grunhof.
Joseph M. Ward.

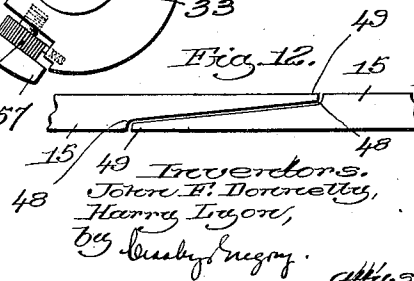
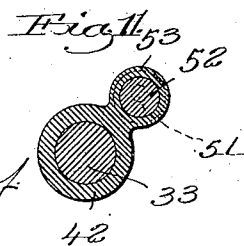
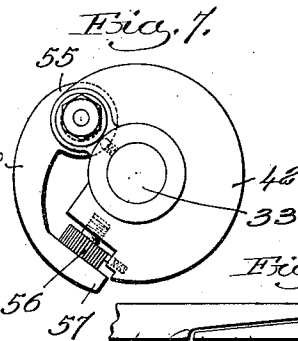
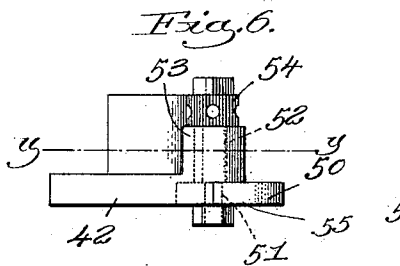
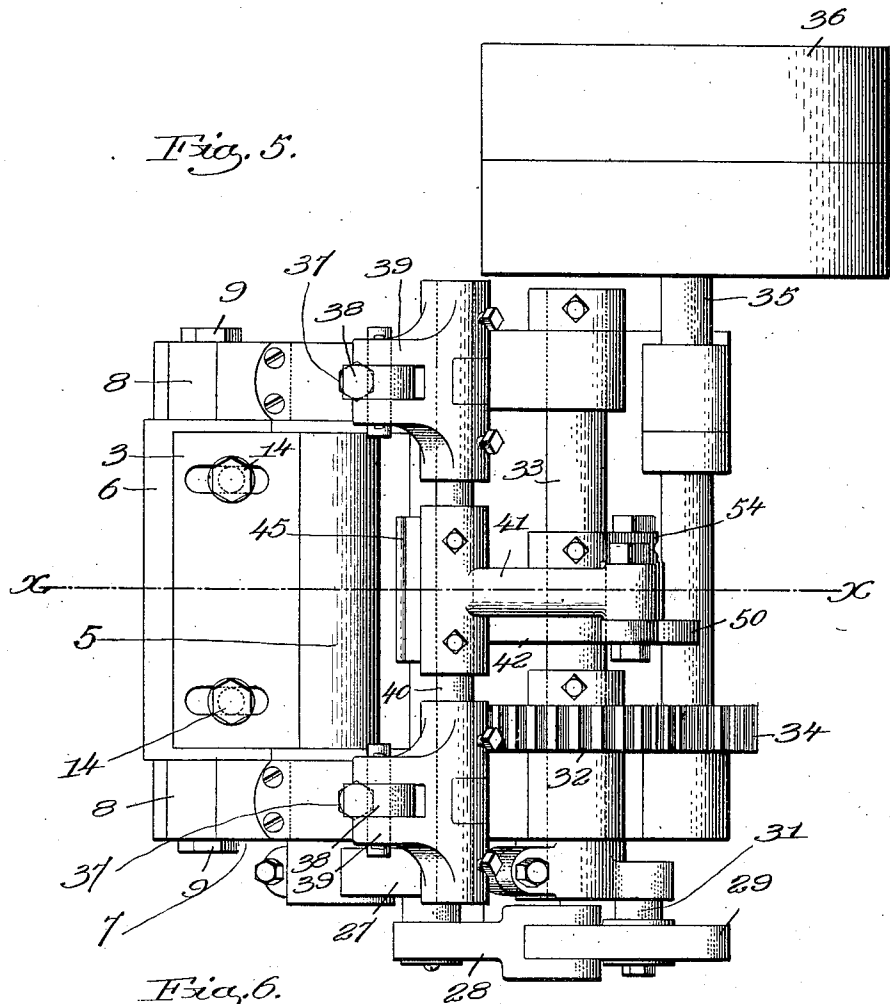
Inventor.
John H. Donnelly,
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3 SHEETS—SHEET 2.



Witnesses:
Fried. S. Gunkel
Joseph M. Ward.

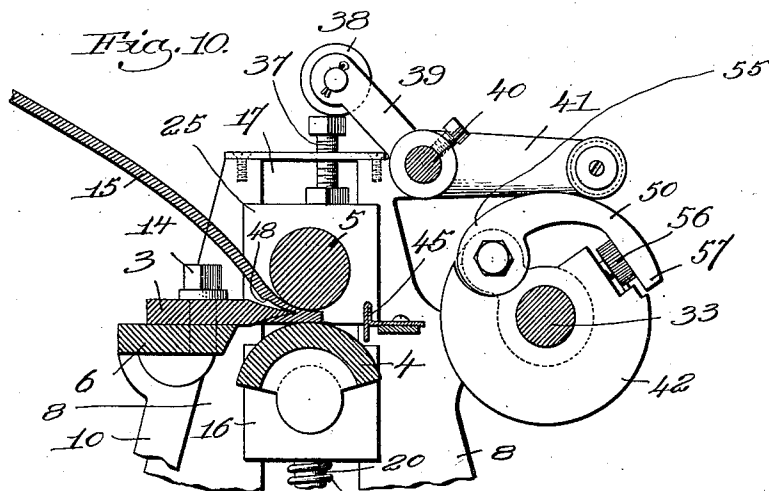
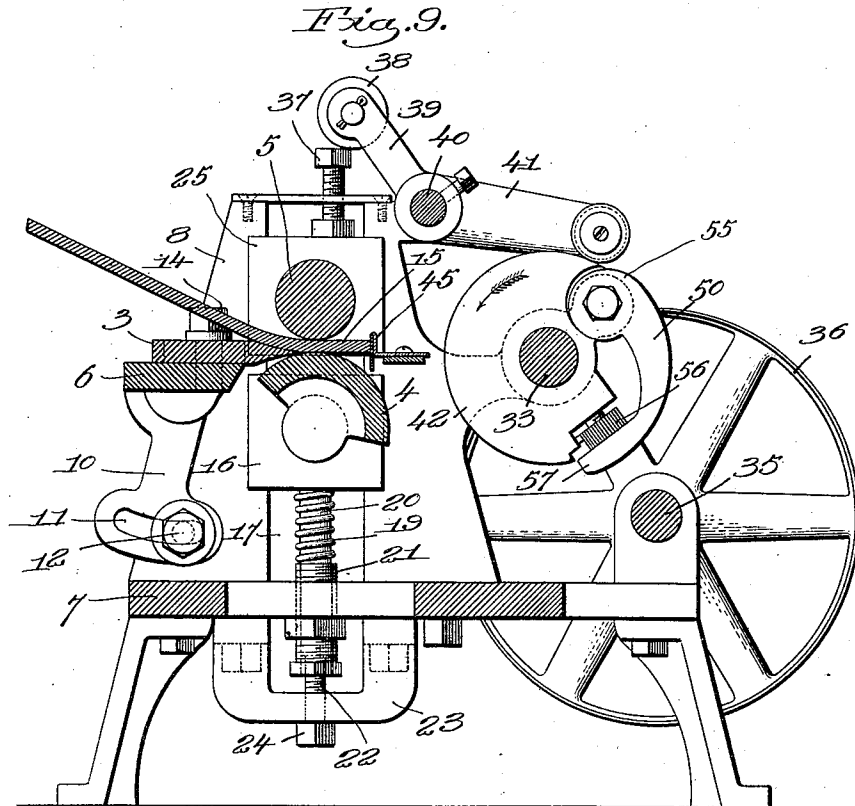
Inventors:
John F. Donnelly,
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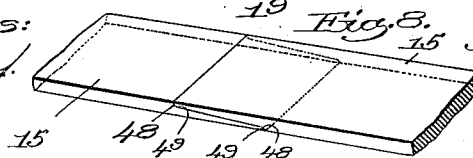
1,018,171.

Patented Feb. 20, 1912.

3 SHEETS—SHEET 3.



Witnesses:
Paul S. Grunke,
Joseph M. Ward.



Inventors,
John F. Donnelly,
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UNITED STATES PATENT OFFICE.

JOHN F. DONNELLY AND HARRY LYON, OF BROCKTON, MASSACHUSETTS; SAID LYON
ASSIGNOR TO SAID DONNELLY.

LEATHER-SCARFING MACHINE.

1,018,171.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed July 7, 1910. Serial No. 570,753.

To all whom it may concern:

Be it known that we, JOHN F. DONNELLY and HARRY LYON, citizens of the United States, residing at Brockton, county of Plymouth, State of Massachusetts, have invented an Improvement in Leather-Scarving Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters 5 on the drawing representing like parts.

This invention relates to leather-scarving machines of that type wherein a stationary knife is used and the scarving operation is performed by moving the leather transversely of the cutting edge of the knife at the same time that it is moved longitudinally.

One object of our invention is to provide a machine of this type which will cut the scarf so that the edge thereof will be comparatively thick instead of tapering to a knife edge, and so that at the point where the scarf begins the leather will be cut to form a gouge or shoulder, all as will be 25 more fully hereinafter described and claimed.

In the drawings wherein we have illustrated the preferred embodiment of our invention, Figure 1 is a side view of the machine embodying the invention; Figs. 2, 3 and 4 are views showing the manner in which the scarf is made; Fig. 5 is a top plan view of the machine; Fig. 6 is an edge view and Fig. 7 is a side view of the cam for giving transverse movement to the feed rolls; Fig. 8 is a view showing the manner in which the two pieces of leather scarfed on our machine may be spliced together; Fig. 9 is a section on the line $x-x$, Fig. 5; Fig. 10 is a section similar to Fig. 9 showing the parts in different position; Fig. 11 is a section on the line $y-y$, Fig. 6; Fig. 12 is an enlarged view of two scarfed ends of leather applied to each other as they would be in 45 making a joint.

The scarving of the leather is accomplished by a knife 3 which is stationary and the leather to be scarfed is fed forward against the knife by means of two feed rolls 4, 5. The knife is shown as supported by a holder 6 which is adjustably carried by the frame 7 of the machine. This holder is received between the two side pieces 8 of the frame and is held in position by two screws

9 that pass through the side pieces into the sides of the holder. Said holder is adapted to be adjusted into different angular positions so as to vary the angular position of the cutting edge of the knife, and for this purpose said holder is provided with the 60 arm 10 having the curved slot 11 which is concentric with the screws 9 and through which enters a clamping screw 12 secured in the side of the frame. By loosening the clamping screw the holder may be turned 65 about the bolts 9, as will be obvious, thus changing the angular position of the knife.

The knife is slotted as usual and is clamped to the holder by clamping screws 14, this construction providing for adjustment of the knife toward and from the feeding rolls. The roll 5 is in the nature of a presser-roll, and the roll 4 is positively actuated for feeding the leather 15 forward. The surface of the roll 4 may be roughened 75 if desired for facilitating the feeding operation. We have shown the roll 4 as an oscillating member, rather than a rotary member, but it would be within our invention to have the roll 4 make a complete rotation 80 rather than to merely oscillate. Said oscillating roll 4 is journaled in two boxes or bearings 16 that are slidably mounted in slots 17 formed in the sides of the frame, and this roll is yieldingly supported by 85 springs 19 which encircle guide-pins 20 depending from the boxes and which bear on the bushings 21 that are screw-threaded into the base of the frame. The guide-pins 20 extend down through the bushings and are 90 guided thereby, and each guide-pin carries at its lower end a headed screw 22 which passes through a bracket 23, the head 24 of the screw acting to limit the upward movement of the guide-pins 20 and boxes 16 by 95 its engagement with said bracket. An adjustment of the bushings 21 will effect an adjustment of the tension of the springs 19, and by adjusting the screws 22 in the ends of the pins the normal position of the roll 100 4 may be varied. The roll 5 is sustained in two boxes 25 that are also mounted in the slot 17, and we will preferably employ springs 26 between the boxes, which springs operate normally to elevate the roll 5. 105

The roll 4 may be oscillated in any suitable way, although we have herein shown for this purpose an arm 27 fast on the end

of the shaft of the roll and connected by a link 28 with a lever 29 that is pivoted to the frame at 30 and slotted at 90. The lever 29 is actuated by a crank pin or roll 31 which is received in the slot 90 and is rigid with a shaft 33. This shaft may be driven in any suitable way and we have herein shown a gear 32 fast on the shaft and meshing with and driven from a pinion 34 on a driving shaft 35 which has the driving pulley 36 thereon. With this construction it will be observed that at each rotation of the gear 32 the feed roll 4 will oscillate forwardly and then backwardly to its normal position again. We will preferably provide some suitable clutch mechanism (not shown) between the pulley 36 and the shaft 35 for bringing the machine to rest after the gear 32 has made each complete revolution.

As stated above, the scarfing operation is performed by moving the feed rolls 4 and 5 transversely of the cutting edge of the knife 3 during their feeding movement, and in the present embodiment of our invention we provide for this transverse movement of the feed rolls by the following mechanism: Each box 25 has extending therefrom a projection preferably in the form of a screw 37, and these projections 37 are acted on by rolls 38 carried by arms 39 rigid with a rock shaft 40. The shaft 40 has extending therefrom another arm 41 carrying a roll at its end which is adapted to be engaged by a cam member 42 mounted on the shaft 33. said cam member being constructed and timed to rock the shaft 40 thereby to depress the upper roll during the forward feeding movement of the roll 4.

When the machine is at rest the roll 5 is normally elevated from the roll 4 by the springs 26 sufficiently to permit the piece of leather 15 to be scarfed to be inserted between the rolls, as seen in Figs. 2 and 9, an adjustable gage 45 being provided to properly position the leather. When the machine starts to operate the first movement is to depress the roll 5 onto the leather 15 and then to force both rolls and the leather downwardly to bring the leather hard against the edge of the knife, as shown in Fig. 2. At this time the roll 4 begins its forward feeding movement and during such movement the cam 42 continues the rocking movement of the shaft 40 and the consequent downward movement of the rolls transversely to the cutting edge of the knife, thereby causing the knife to cut diagonally through the leather 15. By bringing the roll 5 firmly onto the leather and the leather firmly onto the edge of the knife before the forward feeding movement of the roll 4 begins, the leather will be cut, as shown in Fig. 3, that is, the knife will first cut a sort of gouge 48 in the work and thereafter said knife will cut straight through the work di-

agonally, this being due to the fact that the leather is pressed hard against the knife before the roll 4 begins to turn. Moreover, by this means the line where the knife enters the work will be perfectly square and a square cut can be produced.

We prefer to scarf the leather so that the end of the scarf will have a blunt or thick edge 49, as shown in Fig. 3, rather than a knife edge, and this may be accomplished by properly positioning the gage 45 and by so timing the transverse movement of the rolls that the knife will emerge from the strip of leather at the end, as seen in Fig. 3, rather than at the side. A piece of leather scarfed in this way has a thickened end 49 at one end of the scarf and a shoulder or gouge 48 at the other end. The advantage of scarfing leather in this way is that a much better joint can be made where the two scarfed ends are sewed together as, for instance, in the formation of a belt, for upon referring to Figs. 8 and 12, it will be seen that when the two scarfed ends are brought into juxtaposition the thickened edge 49 on one end will fit into the gouge 48 on the other end and a perfectly smooth joint can be produced. Where the leather is scarfed to a feather edge the thin or feather edge is very likely to become broken or torn after the belt has worn some, but with the thickened edge 49 this does not happen, and by making the gouge 48 the leather can be scarfed with the thickened edge and a splice can be made which is perfectly smooth and without any portions that are thicker than the body of the belt. The cam 42 for giving this lateral movement to the rolls 4 and 5 is especially made so as to permit the scarf to be of different lengths and so as to make more or less of a gouge 48 at the beginning of the scarf, as desired. As herein shown we have provided the cam 42 with the adjustable section 50 which is arranged so that the eccentricity thereof can be varied, as well as the abruptness of the rise thereof. As herein shown this cam section 50 is pivoted at one end upon the eccentric portion 51 of a pin 52 that is mounted in a boss 53 formed on the cam member 42, said pin having the thumb-piece 54 by which it may be turned. The turning of this pin 51 will throw the end 55 of the cam section 50 radially or toward and from the axis of the cam 42. The other end of the cam section 50 rests on the end of the adjusting screw 56 which is screw-threaded into the body of the cam 42 so that by manipulating said screw 56 the end 57 of the cam section may be thrown toward or from the center. The length of the scarf depends upon the eccentricity of the surface of the cam section 50 and this depends upon the adjustment of the screw 56. The main portion of the cam member 42 is concentric and the movement

of the roll 5 against the leather and that of the leather against the knife blade before the roll 4 begins its movement is accomplished by the end 55 of the cam section and by adjusting the pin 52 the amount of the initial movement of the rolls transversely of the knife can be regulated and thereby the depth of the gouge 48. We will preferably provide the slot 90 and lever 29 with the curved or concentric portion 91 so that the roll 4 will remain at rest while the roll 5 is being brought against the leather and the leather against the knife blade and so that the forward feeding movement of the roll 4 will not occur until after the leather is firmly pressed against the cutting edge of the knife.

While we have described one embodiment of our invention we do not wish to be limited thereto as various changes may be made in the construction without departing from the scope and spirit of the invention.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In a leather-scarfing machine, the combination with a knife, of feeding means to feed leather toward the knife, means operating automatically in timed relation with said feeding means to produce a relative movement between the feeding means and the knife in a direction transverse to the feeding movement of the leather before the feeding means begins its movement thereby to bring the leather firmly against the knife edge and after the feeding means has commenced to move the leather toward the knife to continue to produce such relative movement whereby the knife will enter the leather abruptly and then cut diagonally across the leather.

2. In a leather-scarfing machine, the combination with a knife, of a feeding roll movable toward the knife in a direction transverse to the direction of feed, a rocking member to give transverse movement to the roll, a shaft for operating the feed roll, a cam on said shaft for rocking the member to give the feeding roll its transverse movement, and means for operating the shaft.

3. In a leather-scarfing machine, the combination with a knife, of feeding rolls mounted to move bodily transversely to the direction of feeding movement, an actuator for giving the rolls such transverse movement, a cam having an adjustable section to engage and operate said actuator, and means to adjust either end of said cam section radially.

4. In a leather-scarfing machine, the combination with a knife, of feeding rolls mounted to move bodily transversely to the direction of feeding movement, an actuator for giving the rolls such transverse movement, a cam having a pivoted cam section

to engage and operate said actuator, and means to swing said cam section about its pivot to vary the eccentricity thereof.

5. In a leather-scarfing machine, the combination with a knife, of feeding rolls mounted to move bodily transversely to the direction of feeding movement, an actuator for giving the rolls such transverse movement, a cam having an adjustable section to engage and operate said actuator, and means to adjust the leading end of said cam section radially.

6. In a leather-scarfing machine, the combination with a knife, of feeding rolls mounted to move bodily transversely to the direction of feeding movement, an actuator for giving the rolls such transverse movement, a cam having a pivoted cam section to engage and operate said actuator, means to swing said cam section about its pivot to vary the eccentricity thereof, and means to adjust the pivot of the cam section radially.

7. In a leather-scarfing machine, the combination with a frame, of a horizontally-arranged knife sustained thereby, an oscillating feed roll, a presser roll coöperating with the feed roll, a rotary member having a crank pin, and a lever connected to the oscillating roll and pivoted eccentrically of said rotary member, said lever having a slot in which the crank pin works.

8. In a leather-scarfing machine, the combination with a knife, of a feed roll to feed leather toward the knife, said roll being mounted for movement in a direction transverse to that of the feeding movement, feed-roll-rotating mechanism, means operating automatically in timed relation with said feed-roll-rotating mechanism to move the feed roll relative to the knife in a direction transverse to the feeding movement of the leather so as to bring the leather firmly against the knife prior to the commencement of the feeding movement, said means operating to continue such transverse movement while the feed roll is operating, and means to vary the amount which the feed roll moves transversely while the leather is being fed forward.

9. In a leather-scarfing machine, the combination with a knife, of a feed roll, sliding boxes in which said roll is mounted, projections extending from said boxes, a rock shaft, arms on the rock shaft engaging said projections, a shaft connected to the feed roll for operating the latter, and a cam on said shaft for operating the rock shaft thereby to give transverse movement to the feed roll.

10. In a leather-scarfing machine, the combination with a knife, of a feed roll, sliding boxes in which said roll is mounted, projections extending from said boxes, a rock shaft, arms on the rock shaft engaging said projections, a shaft connected to the

feed roll for operating the latter, and a cam on said shaft coöperating to give the rock shaft an initial turning movement before the feed roll begins its feeding movement
5 and to continue the turning movement of the rock shaft while the feed roll is rotating.

11. In a leather-scarfing machine, the combination with a knife, of feed rolls mounted to move bodily transversely to the
10 direction of feeding movement, an actuator for giving the rolls such transverse movement, and a cam having an adjustable section to engage and operate said actuator.

12. In a leather-scarfing machine, the
15 combination with a knife, of feed rolls mounted to move bodily transversely to the

direction of feeding movement, an actuator for giving the rolls such transverse movement, a shaft, connections between said shaft and feed rolls by which the latter are
20 operated from the former, and a cam on said shaft having an adjustable section to engage and operate the actuator.

In testimony whereof, we have signed our names to this specification, in the presence
25 of two subscribing witnesses.

JOHN F. DONNELLY.
HARRY LYON.

Witnesses:

LOUIS C. SMITH,
THOMAS J. DRUMMOND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
