F. W. MERRICK.

LEATHER SCARFING MACHINE.

APPLICATION FILED AUG. 31, 1912.

1,141,253.

Patented June 1, 1915.

4 SHEETS—SHEET 1.

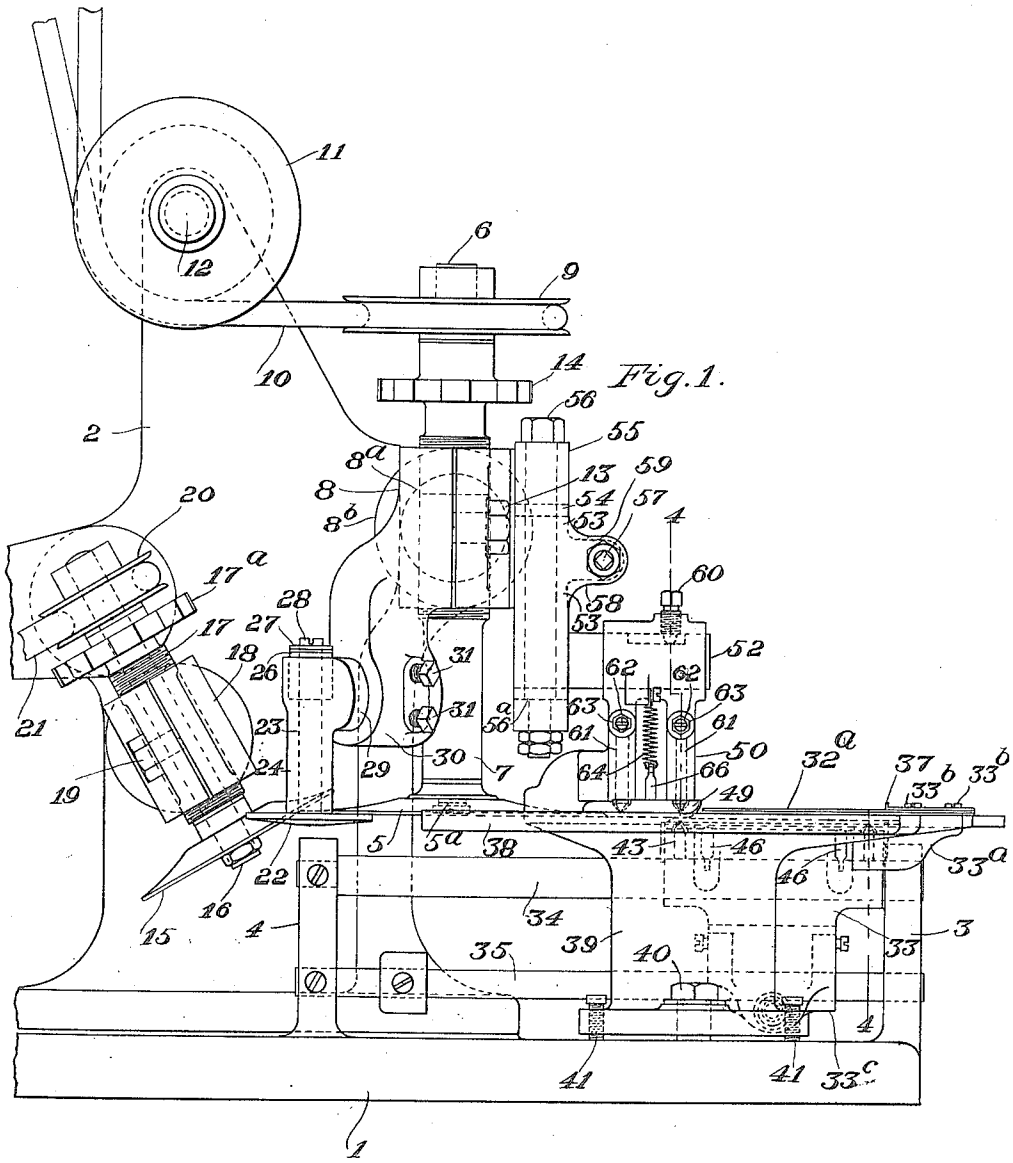


Fig. 1.

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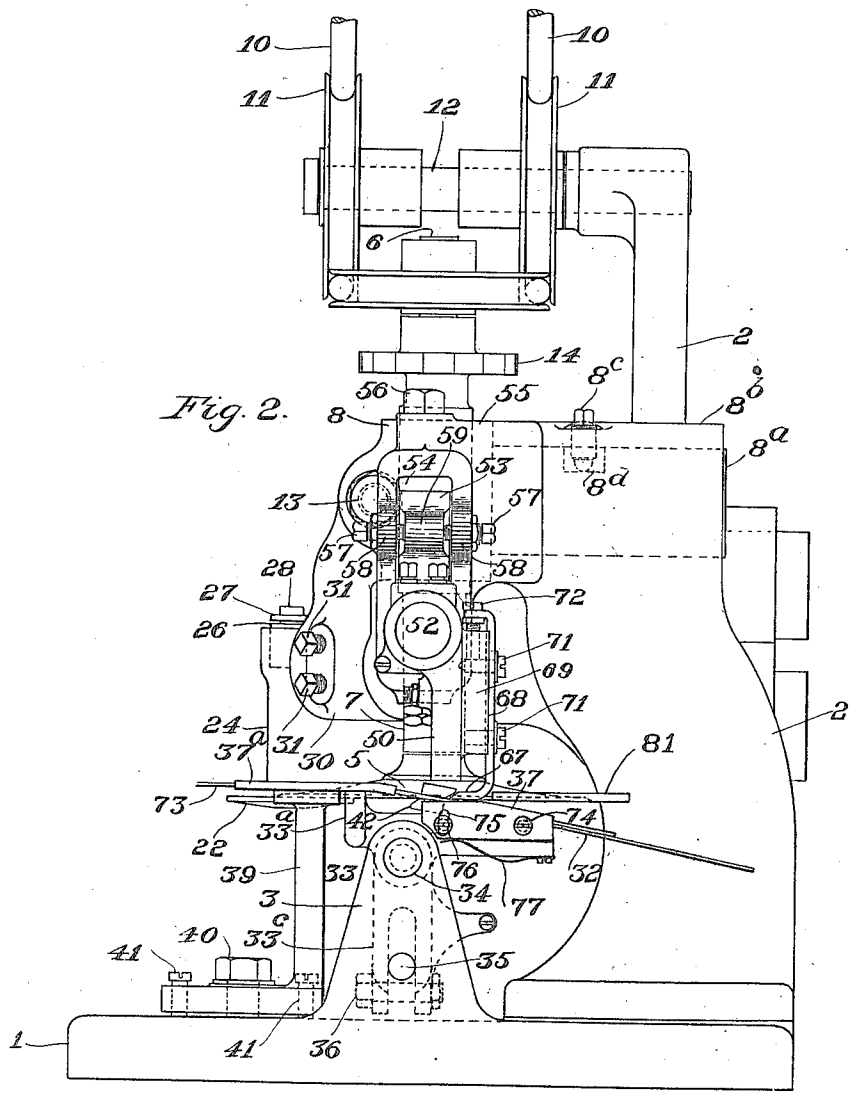
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4 SHEETS—SHEET 2.

Fig. 2.



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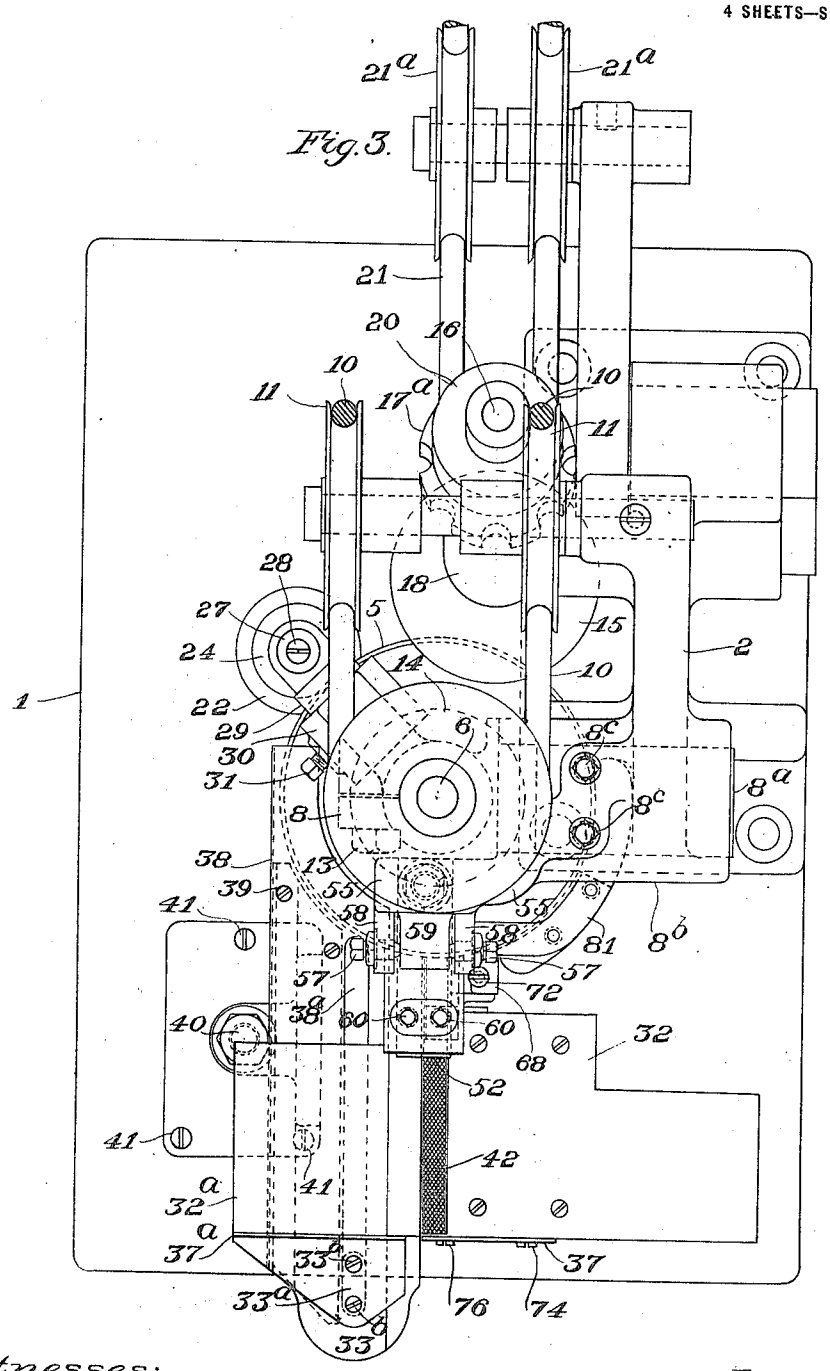
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

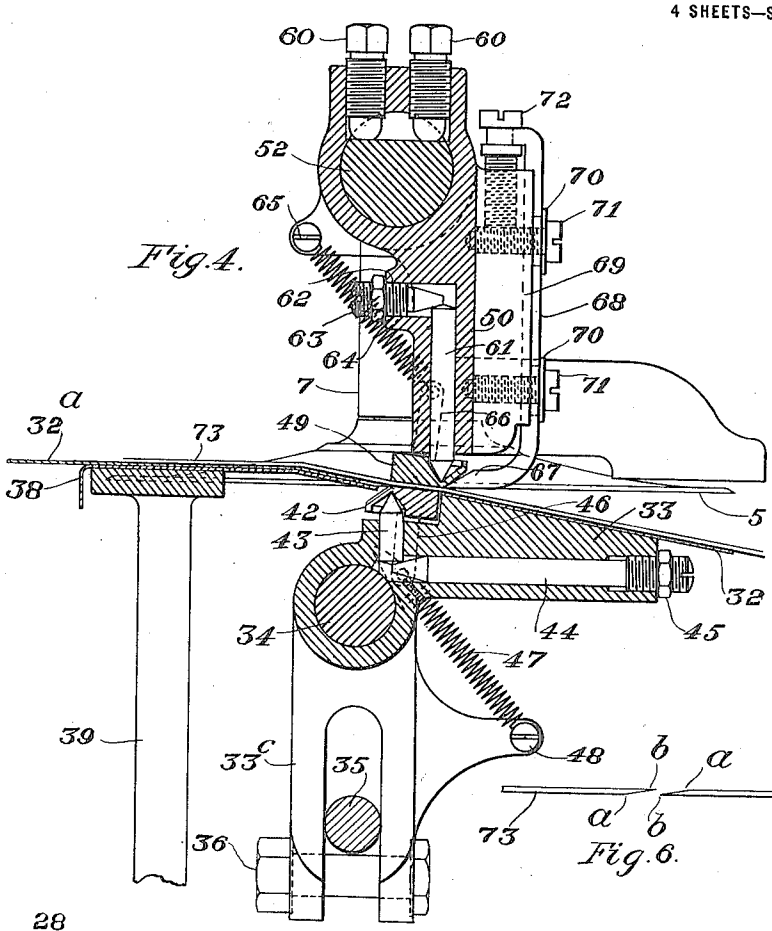
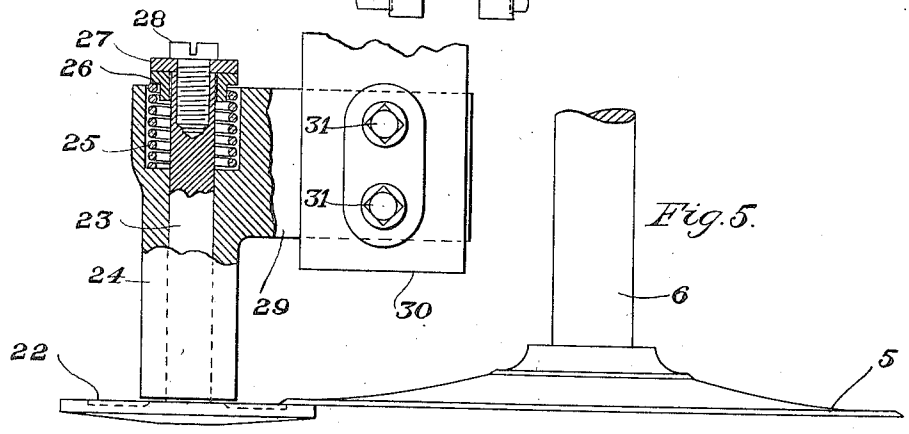


Fig. 6.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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LEATHER-SCARFING MACHINE.

1,141,253. Specification of Letters Patent. Patented June 1, 1915.

Application filed August 31, 1912. Serial No. 718,164.

To all whom it may concern:

Be it known that I, FRANK W. MERRICK, a citizen of the United States, residing at Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Leather-Scarfing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention comprises various improvements in machines of the class employed for transversely severing a strip of leather or other material with an inclined scarfing cut by which the end is beveled or skived off from a transverse shoulder at one surface of the strip to a feather edge at the other surface thereof. One important use for which a machine embodying the said improvements is designed is that of scarfing the ends of strips of leather in readiness for being joined together end to end, so as to produce a continuous pieced strip or ribbon. The joining is effected in practice by applying glue or other cement to two scarfed ends which are to be connected together, and then overlapping the two ends and pressing them together. It is important that the lapped scarfed portions, or scarfs, of the two ends which are laid together should be of exactly equal length from shoulder to feather edge, regardless of differences in the thickness of the two ends. It is important, also, that the cut should be made on straight transverse lines, so that the feather edge shall be straight and free from unevenness and raggedness, and also that the shoulder where the scarfing begins shall be straight and even. It is important, also, that the cut should be made at right angles across a strip, and that the shoulder and feather edge should extend parallel with each other across such end, in order that when the scarfed meeting ends of a succession of short strips are joined together end to end the feather edge of every strip shall match with the shoulder to which it is applied and the said strips may produce a straight pieced strip or ribbon. My machine has been contrived with especial reference to the attainment of these ends, as well as others also important and useful.

A leading feature of invention is the combination with a cutter of means for varying the relative obliquity of the work and cutter in proportion to the thickness of the strip operated upon so that the length of scarf shall be unaffected by the thickness of the strip, and shall be the same for strips of different thicknesses. This result is attained by automatically varying the obliquity in proportion to the thickness to present each thickness to the same extent of length of edge, whereby the length of scarf is unaffected by difference of thickness. Preferably, I employ reversely disposed members or work-gages between which the work is presented to the edge of the cutter, both of said members rocking about axes which approximately intersect the said edge.

Other features of invention are referred to hereinafter.

A machine embodying the various features of the invention is illustrated in the drawings, in which,—

Figure 1 is a view in side elevation of the said machine. Fig. 2 is a front view of the said machine. Fig. 3 is a plan thereof. Fig. 4 is a view in section on line 4, 4, of Fig. 1, on an enlarged scale. Fig. 5 is a partly sectional detail view of the cutting disk and the edge-straightening or setting device therefor.

The machine shown in the drawings comprises, essentially, a cutter, a fixed work-gage adjacent the edge of said cutter and with which one surface of the strip to be cut and scarfed makes contact, a work-carrier which is moved to feed the strip to the action of the cutter, and reversely-disposed work-gages rocking about axes which approximately intersect the edge of the cutter. It contains, also, a grinder for the cutter, for use in sharpening the edge of the latter, and a cutter-edge straightener.

The machine-frame comprises the bed or table 1, the main upright portion 2 provided with supports for the cutting disk, grinder, cutter-edge straightener, fixed work-gage and adjacent rocking gage; and the front and rear low uprights 3, 4, serving to support the guide-rod 34, on which the movable work-carrier is mounted and slides, and the supplemental rod 35 which retains the work-carrier from turning, as hereinafter explained.

The cutter by which the scarfing is effected may in general be of any approved character suitable for the purpose in view. In this instance it is a cutting-disk. The latter is shown at 5. The direction of the plane of rotation of the cutter may vary in practice, as preferred. In this instance the

cutter rotates in an approximately horizontal plane, such plane being slightly inclined with respect to the path of movement of the work-carrier so that the cutter dips forwardly. Thereby the body-portion of the cutter back of the edge clears the cut surface of the strip below the cutter. The cutter is mounted with capacity for adjustment to vary the plane of its rotation with respect to inclination, as explained later herein. This adjustability is required in order to enable the best angle of inclination to be found so that the edge of the cutter shall not in operation tend to gouge into or override the stock being operated upon. A horizontal or approximately horizontal plane of rotation considerably facilitates the presentation of the strips to be operated upon to the action of the cutter, but the invention is not restricted thereto. To provide an unobstructed path of movement for the work-carrier across the under face of the cutting disk, the said disk is mounted upon the lower end of the vertical shaft 6, which is supported in a long sleeve-bearing 7 that is mounted in the socket 8 supported from the upright portion 2 of the machine-frame, the disk being cupped underneath and the head of the screw 5^a, Fig. 1, which secures the disk to the shaft being contained within the hollow at the under side thereof. To provide for actuating the cutting-disk, a grooved band-pulley 9 is fixed upon the upper end of shaft 6. This band-pulley receives a driving-band 10 which, on its way to and from pulley 9, passes around grooved guide-pulleys 11, 11, mounted on a stud 12 projecting horizontally from upright 2. By means of said band the shaft 6 and cutter are rotated. To insure with certainty that the cutting-disk shall rotate in a predetermined plane, the upper and lower ends of sleeve-bearing 7 fit closely against the hubs of pulley 9 and cutter 5, so that the cutter-shaft 6 is prevented from having end-play in said bearing. The plane of rotation of the cutting-disk is adjusted vertically, *i. e.*, axially, with relation to the plane of movement of the work-carrier by adjusting sleeve-bearing 7 vertically. To permit of such adjustment the sleeve-bearing is screw-threaded externally, and the socket 8 is screw-threaded internally. To prevent accidental loss of adjustment the socket 8 is made as a split-socket, and it is provided with a bolt 13 by means of which its sides may be drawn together to tighten them upon the exterior of the sleeve-bearing. By unscrewing the said bolt the split-socket may be loosened to relax its hold upon the sleeve-bearing, whereupon the latter may be rotated to adjust the same, after which the split-socket may be tightened upon the sleeve-bearing to retain the adjustment. For convenience in thus rotating the sleeve-bearing for purposes of adjustment it is provided with the thumb-wheel 14.

The split-socket 8 is supported by means of a stem 8^a which projects laterally from one side thereof and enters a socket 8^b with which the upright portion 2 of the machine-frame is furnished. The stem is secured within the said socket by means of two clamping screws 8^c, 8^c, that occupy threaded holes tapped through the wall of the socket and take bearing upon the exterior of the said stem. The inner ends of the said screws 8^c, 8^c, bear upon a transversely flattened portion 8^d of the stem 8^a (Fig. 2) at opposite sides of the axis (Fig. 3). The split-socket and parts carried thereby may be adjusted transversely of the machine (Figs. 2 and 3) to place the edge of the cutter-disk in the required relations transversely with respect to the work-presenting devices, by sliding the stem 8^a lengthwise within the socket 8^b after the screws 8^c, 8^c, have been loosened. To permit this adjustment the flattened place 8^d is made broader than the inner portions of the screws, as shown in Fig. 2 in dotted lines. To adjust the cutter-disk into the required plane of rotation, in respect of inclination, the respective screws 8^c, 8^c, are turned. In consequence of being arranged to act on the transversely flattened surface of the stem at opposite sides of the axis, the turning in of one screw and turning out of the other will positively adjust the stem, socket, etc., angularly around the axis of the stem and hold it securely in adjusted position. This means of adjustment enables the cutter-disk to be set to rotate in either a horizontal plane or one inclined to any desired degree with relation to the horizontal.

At 15 is the grinder-disk by means of which the cutting-edge of the cutter 5 is sharpened. The said grinder-disk 15 rotates in a plane that is inclined with respect to the plane of rotation of the cutter, so that when the grinder-disk is adjusted with relation to the cutter to cause the under face of the grinder-disk to make contact with the cutter it bears obliquely upon the top of the edge of the cutter. The grinder-disk is mounted upon the lower end of a supporting shaft 16 that is mounted in an inclined position within a sleeve-bearing 17, which is externally-threaded and fitted within an internally-threaded socket 18 upon upright 2, such socket being split and provided with a tightening bolt 19, and said shaft 16 being furnished at its upper end with a grooved pulley 20 receiving a driving-band 21, by which the shaft 16 and the grinder-disk are rotated. On its way to and from the pulley 20 the said driving-band is guided by idler-pulleys 21^a, 21^a, Fig. 3. The sleeve-bearing 17 is furnished with a thumb-

wheel 17ª for convenience in rotating the same to adjust it and the shaft 16 endwise to cause the grinder-disk to bear upon the upper edge of the cutter.

For the purpose of straightening out into line with the edge of the cutting-disk 5 the bur produced upon such edge by the action of the grinder-disk 15, and keeping the edge truly straight and radial and thereby in the best condition for cutting, I employ the non-abrasive edge-straightening and setting-disk 22 (see more particularly detail view Fig. 5). This disk 22 is mounted upon the lower end of a journal 23 projecting below the supporting bearing 24. The axis of the said disk and journal is beyond the periphery of the cutting-disk, and the peripheries of the two disks overlap, as shown best in Fig. 5. The upper side-face of the disk 22 is kept in contact with the under side-face of the cutting-disk at the edge of the latter by means of an expanding spiral spring 25 occupying a chamber in the upper portion of the bearing 24, in which it is confined between the bottom of the chamber and a radial flange on a loose collar 26 held upon the upper end of the journal by means of a washer 27 and flanged screw 28. The disk 22 is rotated by the frictional contact of the under surface of the cutting-disk. In order that the edge of the disk 22 may lap past the edge of the cutter-disk without having a shoulder produced thereon as a result of wearing away in consequence of its rubbing contact with the cutter-disk, the top of the disk 22 is cupped or hollowed out next its hub, as indicated in dotted lines in Fig. 5. To provide for adjustment of the disk 22 into proper working relations with the cutting-disk, the supporting bearing 24 is furnished with a horizontally projecting stem 29 which enters a horizontal socket 30, in connection with the supporting socket 8 for the sleeve-bearing 7 of the shaft 6 of the cutting-disk. The stem 29 is adjustable lengthwise within the said socket, so that the disk 22 may be set closer to or farther from the center of the cutting-disk. Adjustability of the disk 22 to secure parallelism of the same with the cutting-disk, and proper flat rubbing contact of the faces of the two disks with each other, is secured by making the stem 29 and the interior of the socket 30 cylindrical so that the stem may be turned within the socket. To effect the angular or turning adjustment, and secure the arm against undesired turning or endwise movement, I provide a pair of adjusting and clamping screws 31, 31, working in threaded holes tapped in the socket 30, and making contact by their inner ends with a flattened transverse surface of the stem 29, as in the case of the adjusting arrangement already described in connection with the stem 8ª of socket 8, and also the arrangement shown at the top in Fig. 4 and described later herein.

For the presentation of the strip which is to be scarfed to the cutter I provide a movable work-carrier 33, shown best in Figs. 1 and 4, upon the top of which is mounted a work-supporting plate 32. An arm 33ª, Figs. 1 and 3, projecting forward and upward from carrier 33, has the forward portion of a second work-supporting plate 32ª attached thereto by means of screws 33ᵇ, 33ᵇ, Fig. 3. The said work-carrier has a cylindrical bearing (Fig. 4) made therethrough horizontally from front to rear, which bearing receives and fits the fixed cylindrical rod 34 by which the work-carrier is supported, and by which it also is guided as it is moved horizontally rearward from its position in Fig. 1 toward the cutter, and forward from the cutter in returning it to its position in Fig. 1. The said rod 34 is mounted at its ends in the stationary upright portions 3 and 4 of the machine-frame. A downwardly projecting forked portion 33ᶜ, Fig. 4, of the said work-carrier straddles a second fixed guide-rod 35, also mounted in said uprights 3 and 4. By the contact of the opposite sides of the said forked portion of the work-carrier with the lower guide-rod 35 at opposite sides of the center of the latter, the work-carrier and work-rest are restrained from undesired rocking upon the guide-rod 34. By means of an adjusting bolt 36 applied to the said forked portion, the sides of the latter are caused to fit snugly against the guide-rod 35 between them, and any looseness of play may be taken up. Thereby the required precision in the position of the work-rest constituted by the plates 32, 32ª, as it presents the strip to the cutter is secured. Any accidental sidewise tilting or rocking of the work-carrier and work-rest at such time would injuriously affect the results in scarfing. The plates 32, 32ª, of the work-rest are furnished at the front ends thereof with upstanding flanges 37, 37ª, (Figs. 1, 2 and 3) constituting guide-shoulders against which the front edge of the strip to be operated upon is laid.

At the left, Figs. 2 and 4, the work-rest is elevated above the edge of the cutter, and for a part of its width is horizontal. This portion rests upon a stationary apron 38 fixed upon the flat top of a standard 39, mounted upon the bed or table 1 of the machine-frame. Apron 38 extends to the rear sufficiently far to enable its rearmost portion, which is upwardly inclined, to overhang the edge of the cutter and constitute a guard therefor, and the upright 39 extends to the rear to a point close to the said edge, so as to support the apron close to the latter. The apron prevents the work, or the operator's fingers, from becoming entered

between the work-rest and the cutter and injured by the latter. In the movements of the work-carrier the horizontal portion of plate 32ª slides upon and is supported by the apron, the latter having a longitudinal slot 38ª, Fig. 3, therein in which extension 33ª of work-carrier 33 works. The upright 39 is furnished with a foot-portion that is clamped by a bolt 40 to the bed or table 1, and is supplied with three adjusting screws 41, 41, 41, by means of which the height of the apron may be regulated to give the required height to the overlying portion of the work-rest, and to suit that of the cutter-disk, and its top surface may be given a horizontal position or one inclined either transversely or from front to rear to suit the position and inclination of the cutter-disk.

From a point at the left of the rocking gages or pressers which presently will be described, the tops of the work-carrier 33 and work-rest 32, 32ª, incline downward toward the right in Figs. 2 and 3, so that at the right of such radial line the work-rest is below the plane of the cutter. Thus the plane of the upper surface of the work-rest intersects the plane of the cutting edge of the cutter at a slight angle, so that a strip of leather lying upon the work-rest and advanced by the rearward movement of the latter to the cutter would be cut obliquely with respect to its upper and lower surfaces. I do not utilize the work-rest, however, as a support for the strip at the point in the length of the latter where the cutting is to take place. I employ a rocking work-gage or presser 42, Figs. 2 and 4, working in a slot or opening in the work-rest between the plates 32, 32ª. This work-gage is mounted on the work-carrier 33, upon pivotal points constituted by the conical upper ends of upright pins 43, 43, Figs. 1 and 4, located, respectively, near its front and rear ends. The work-gage 42 is formed at its under side with conical recesses, the small upper ends of which rest upon the said points. The left-hand edge of the said work-gage is immediately above the said pivotal points, and the distance vertically between such edge and the points is so small that in rocking movements of the work-gage the said edge does not change its position vertically to an appreciable extent, although the remainder of the width of the work-gage rises and falls. I locate such edge almost exactly in the plane of the cutting edge of the cutter, locating it just far enough below the said edge to provide for clearance as the work-rest is moved rearward and the work-gage 42 passes in under the cutter. To provide for vertical adjustment of the pins 43, 43, as desired in setting the work-gage 42 with reference to the cutting-edge of the cutter, adjusting screws 44, 44, one of which is shown in Fig. 4, are provided in connection with work-carrier 33. These screws extend horizontally within holes in the carrier, their threads being located at their outer ends, where they engage internal threads within the carrier, lock-nuts 45, Fig. 4, being provided to obviate accidental loss of adjustment. The inner ends of the adjusting screws are cone-shaped and extend under the pins 43, 43, which rest thereon. By means of the said screws and their conical inner ends, a very delicate adjustment of the pivotal points of the work-support may be secured, and the position of the corresponding edge of the work-gage 42 with relation to the plane of the edge of the cutter may be adjusted to a nicety. The said work-gage is spring-actuated, to swing it upward upon its pivots. Herein I have shown it provided with depending pins 46, 46, each thereof having connected thereto one end of a contracting spiral spring 47 having its other end connected at 48 with a projection from the forked lower portion of the carrier.

The normal position of the work-rest is at the front of the machine, where it is shown in Figs. 1 and 3. It being in such position, the strip to be scarfed is laid upon it and the work-gage 42, one edge of the strip being placed against the upturned flanges or shoulders 37, 37ª, and then the work-carrier is pushed by the operator to the rear, toward the cutter. This movement of the work-carrier, work-rest and work-gage 42 carries the strip under a second rocking work-gage or presser 49 mounted at the lower end of a support 50. The upper portion of the said support is bored transversely to fit upon a cylindrical stud or stem 52 projecting forward from a block 53, shown in dotted lines in Fig. 1, and partly in Fig. 2, within the opening 54 of an arm 55, extending transversely from the main upright 2 of the machine-frame. The block 53 is vertically adjustable within the slot or opening of the arm 55 in order to enable the height of the support 50 to be adjusted. In this instance the said block is bored vertically and is internally screw-threaded to fit upon the threaded stem of a bolt 56, the upper and lower portions of which are fitted to holes in the upper and lower portions of the arm, these portions of the bolt and arm being unthreaded, and the head of the bolt being at the top of the arm. The bolt is supported vertically by its head resting upon the top of the arm, and a shoulder 56ª near its lower end resting upon the top surface of the lower portion of the arm, and through its threaded engagement with the block 53 it supports the latter and the parts carried thereby. By turning the bolt 56 the block and the support 50 are adjusted vertically. This enables the upper rocking work-gage 49 to be set at the proper height

with reference to the edge of the cutter. To enable the support 50 and rocking work-gage 49 to be adjusted transversely about the axis of the bolt 56 so as to dispose the said work-gage with its axis and edges parallel with those of the lower rocking-work-gage 42, the block 53 is mounted with capacity to swing transversely around the stem of the bolt 56, and for convenience in effecting the transverse adjustment and securing the parts in adjusted position, adjusting-screws 57, 57, are fitted within threaded holes tapped in forwardly projecting ears 58, 58 on the arm 55 at opposite sides of a lug 59 projecting forward from the block 53. The inner ends of these adjusting-screws make contact with opposite sides of the said lug 59. By properly turning the said screws so as to cause them to act to swing the lug 59 in one direction or the other, the block 53 and with it its stem 52 and the support 50 mounted thereon, and the rocking work-gage 49 carried by said support, may be correspondingly swung in the same direction. The stem or stud 52 and the socket which it occupies in the upper portion of the support 50 are cylindrical, to permit the support 50 to be swung transversely around the said stem or stud so as to effect a bodily adjustment of the rocking work-gage 49 transversely with relation to the rocking work-gage 42. Without loss of parallelism this adjustment enables the distance between the pivotal axes of the rocking work-gages 42, 49, to be varied as required, in order to secure the desired length of cut and scarf. Adjusting-screws 60, 60, are provided in connection with the socket of the support 50, such screws engaging by their inner ends with a transversely-extending flat face on the stem or stud 52 at opposite sides of the axis of such stem or stud. These screws provide for angular adjustment of the support 50 around stem or stud 52, with resulting adjustment of the work-gage 49 transversely in the manner just referred to. In addition, they serve to fix the support 50 and its work-gage 49 at the required distance from the axis of the cutter, this distance being varied by shifting the support 50 lengthwise of the stem or stud 52, as will be apparent from Fig. 1, the flattened surface being long enough to provide for an ample range of adjustment. The rocking work-gage 49 is formed at its back, *i. e.* its upper side, with conical depressions or cavities receiving the conical lower ends of pivotal pins 61, 61, (see more particularly Fig. 4) which are mounted in vertical holes in the support 50, each of such pins having combined with its upper end an adjusting-screw 62 having a conical inner end that makes contact with the said upper end, the threaded portions of the adjusting-screws 62, 62, engaging with internally threaded portions of the walls of the transverse recesses in the support 50 in which the said screws are contained, the screws having lock-nuts 63, 63, to prevent accidental loss of adjustment. By means of a contracting spiral spring 64 having its upper end connected with a screw 65 on a lug projecting from the socket of the support 50, and its lower end engaged with a pin 66 projecting from the top of the rocking work-gage 49, the latter is held in engagement with the points of the conical lower ends of the pivotal pins, and is rocked on the said points so as to swing its opposite edge toward the lower rocking work-gage 42. As shown by Fig. 4, the pivotal points of the work-gage 49 are located immediately adjacent and above one edge of the said work-gage, such edge being the one which is located oppositely with respect to the pivotal edge of the rocking work-gage 42, so that the two rocking work-gages 42, 49, are pivoted oppositely with relation to each other.

Alongside the rocking work-gage 49 I locate the fixed gage 67, Figs. 2 and 4. The working end of the said fixed gage is beveled off to extend in under the outwardly-beveled side of the said rocking work-gage 49 adjacent its pivots, and such end is in position to bear upon the upper surface of the work immediately alongside the pivotal edge of the said rocking work-gage. The said fixed gage is given by adjustment a working position a trifle below the plane in which the edge of the cutting disk 5 rotates. The shank 68 of fixed gage 67 fits in a vertical guideway 69 upon one side of support 50, and is held therein by washers 70, 70, under the heads of screws 71, 71. An adjusting-screw 72 in connection with the upper end of the shank 68 of the fixed gage enables the height of the working end of the latter to be regulated to a nicety.

The forward end of the rocking work-gage 49 is upwardly-rounded, as shown in Fig. 1, to facilitate the entrance of the work beneath such end as the work, it lying upon the work-rest and rocking work-gage 42 with one edge thereof against the raised guides 37, 37ª, is carried toward the cutter by movement given to the work-carrier by the operator. As the work is carried in below the rocking work-gage 49, the latter and the rocking work-gage 42 carried by the work-carrier rock upon their pivotal mountings to accommodate themselves to the thickness of the strip that has been passed in between them. The respective rocking work-gages rock reversely upon oppositely-located pivotal axes, both located in or approximately in the plane of the edge of the cutting-disk. From this location of the two pivotal axes in or practically in the plane of the edge of the cutting-disk, and the location of the piv-

otal edges of the said rocking work-gages practically in the said plane also, it follows that the length of the oblique cut or scarf that is made in the strip, from the upper surface of the strip to the under surface thereof, is always the same, regardless of variations in the thickness of the strip. This is important, inasmuch as in joining together two strips, as 73, 73, Fig. 6, having their meeting ends scarfed as in such view, the length, in the case of each, of the inclined cut or scarf from the shoulder *a* to the feather-edge *b* should be the same, in order that when the said scarfed ends are overlapped with each other, with the feather-edge of one strip registered properly with the shoulder of the other strip, the feather-edge of the latter strip shall register exactly with the shoulder of the first strip, so that there shall be no thin place at the joint, due to a short incline or scarf being laid against a long one, and no projection of the feather-edge of one strip extending beyond the shoulder of the other. If there should be such projection, the feather-edge would not adhere to the surface upon which it was laid, usually the flesh side, but would remain loose and rise therefrom.

In consequence of the working end of the fixed work-gage 67 being set a little below the pivotal edge of the rocking work-gage 49, and a little to one side of the free swinging edge of the rocking work-gage 42, the upward pressure of the said swinging edge forces the upper surface of the work upward against the said working end of the fixed work-gage. Thereby a depression is made in the work by the said working end, at one side of a shoulder next adjacent the swinging edge of the rocking work-gage 42. As the work-carrier continues its rearward movement toward the cutter, the said depression and shoulder are extended across the width of the strip of leather. Being located immediately at one side of the pivotal edge of the rocking work-gage 49, which is located in the plane of the edge of the cutter, the said shoulder is intersected by the said plane, and consequently by the cut. The result is that the shoulder produced in the strip of leather by the working end of the fixed work-gage defines one edge of the cut across the work, and as such shoulder extends straight across the strip at right angles to the length of the latter it follows that the cut is straight and unwavering at the upper surface of the work, and that the feather-edge and shoulder *a* produced at such surface are both of them perfectly straight.

By the continued rearward movement of the work-carrier in feeding the strip of leather to the cutter the edge-guide 37 is carried back under the front end of the rocking work-gage 49. In order to enable the said edge-guide 37 to depress and pass under the said work-gage, it is pivoted at 74, Fig. 2, to the front end of the work-carrier, and slotted at 75 where the stem of the confining screw 76 passes through it, the slot permitting it to swing vertically upon its pivot. A spring 77 holds the edge-guide 37 normally in its elevated working position, but yields to allow said edge-guide to be depressed by the rocking work-gage 49 as the work-carrier is thrust rearward, and raises it again as the return movement of the work-carrier forward draws it out from under the said rocking work-gage 49. In the depressed position of edge-guide 37 its top portion still projects above the work-rest sufficiently to back up the edge of the leather immediately adjoining the cut. By thus backing up the front edge of the leather it prevents the leather from giving way edgewise under the effect of the pressure against the cutter, so as to feather at and adjacent the edge at which the cut is completed. In other words, it prevents the leather from being pressed and bent forward somewhat out of shape in such manner as to produce a curved line of separation with resulting thin projecting portion on one of the separated pieces of material and counter-part receding line of cut in the other piece.

At 81, Figs. 2 and 3, is shown a fixed guard for the edge of the cutter, located adjacent the fixed work-gage 67.

I contemplate in some cases employing a second fixed work-gage, like that shown at 67, at the underside of the work-rest, to act against the under surface of the leather immediately adjacent the pivotal axis of the rocking work-gage 42.

What is claimed as the invention is:—

1. In a scarfing machine, in combination, a cutter, reversely-disposed members between which the work is presented to the edge of said cutter, said members respectively having opposite axes substantially coincident with their working faces and approximately in the plane of the said edge, and means for swinging the respective members toward each other to close them together upon the work.

2. In a scarfing machine, in combination, a cutter, reversely-disposed oppositely-swinging members between which the work is presented to the edge of said cutter, and cone-pivots for the said members having the points thereof located substantially coincident with the working faces of said members and approximately in the plane of the said edge.

3. In a scarfing machine, in combination, a cutter, reversely-disposed oppositely-swinging members between which the work is presented to the edge of said cutter, cone-pivots for the said members having the points thereof located substantially coincident with the working faces of said mem-

bers and approximately in the plane of the said edge, and means for adjusting the said cone-pivots with relation to the said plane.

4. In a scarfing machine, in combination, a cutter, reversely-disposed oppositely-swinging members between which the work is presented to the edge of said cutter, said members respectively having opposite axes substantially coincident with their working faces and approximately in the plane of the said edge, and means for relatively adjusting the pivotal axes of said members transversely of said axes to vary the distance therebetween and the length of cut.

5. In a scarfing machine, in combination, a cutter, a work-gage movable toward the cutter with the work in the feeding of the latter to the edge of the cutter, a second work-gage coöperating with the first work-gage in presenting the work obliquely to the said edge, and means for effecting relative adjustment of said work-gages in such manner as to vary the length of the scarfing cut.

6. In a scarfing machine, in combination, a cutter, and reversely-disposed members between which the work is presented to the edge of said cutter, said members rocking about opposite axes substantially coincident with their working faces and approximately in the plane of said edge.

7. In a scarfing machine, in combination, a cutter, and means arranged to present the work in an oblique position to the edge of said cutter, and automatically to vary the obliquity in proportion to the thickness to present each thickness to the same extent of length of edge, whereby the length of scarf is unaffected by difference of thickness.

8. A scarfing machine comprising in combination a scarfing cutter, and means for varying the relative obliquity of the work and cutter in proportion to the thickness of the work, arranged to utilize the same extent of length of edge with each thickness, whereby the length of scarf is unaffected by difference of thickness.

9. In a scarfing machine, in combination, a cutter, a work-gage, mounted to rock toward and from the plane of the edge of the cutter, a work-rest movable toward the said edge to feed thereto the work to be scarfed, and a work-gage arranged to move with said work-rest, also mounted to rock toward and from the said plane, the two work-gages being reversely disposed and arranged to coöperate to present the work obliquely across the said plane.

10. In a scarfing machine, in combination, a cutter, a work-gage rocking about an axis approximately in the plane of the edge of said cutter, a work-rest movable toward the said edge to feed thereto the work to be scarfed, and a work-gage moving with said work-rest and rocking about an axis approximately in the said plane, the two rocking work-gages being reversely disposed and arranged to coöperate to present the work obliquely across the said plane.

11. In a scarfing machine, in combination, a cutter, reversely-disposed members between which the work is presented to the edge of said cutter, said members rocking about opposite axes, and a work-gage adjacent one of said axes and defining the line of the cut at the corresponding surface of the work.

12. In a scarfing machine, in combination, a cutter, reversely-disposed work-gages between which the work is presented to the edge of said cutter, said work-gages rocking about opposite axes located approximately coincident with the working faces of said work-gages in the plane of the said edge, and a work-gage adjacent one of said axes and defining the line of the cut at the corresponding surface of the work.

13. In a scarfing machine, in combination, a cutter, reversely-disposed work-gages arranged to rock about opposite axes and to present the work between them obliquely across the plane of the edge of the cutter, a work-gage adjacent one of said axes arranged to define the line of the cut at the corresponding surface of the work, and means for adjusting transversely of said axes the distance between such work-gage and adjacent axis and the other axis.

14. In a scarfing machine, in combination, a cutter, a work-gage mounted to rock toward and from the plane of the edge of the cutter, a work-gage adjacent the axis of said rocking work-gage to define the line of the cut at the corresponding surface of the work, a work-rest movable toward the said edge to feed thereto the work to be scarfed, and a work-gage moving with said work-rest, also mounted to rock toward and from the said plane, the two rocking work-gages being reversely-disposed and arranged to coöperate to present the work obliquely across the said plane.

15. In a scarfing machine, in combination, a cutter, a work-gage rocking about an axis approximately in the plane of the edge of said cutter, a work-gage adjacent the axis of said rocking work-gage to define the line of the cut at the corresponding surface of the work, a work-rest movable toward the said edge to feed thereto the work to be scarfed, and a work-gage moving with the said work-rest and rocking about an axis approximately in the said plane, the two rocking work-gages reversely disposed and arranged to coöperate in presenting the work obliquely across the said plane.

16. In a scarfing machine, in combination, a cutter, a work-gage adjacent thereto, and a second work-gage movably mounted to feed the work to the edge of the cutter and arranged to coöperate with the first work-

gage in presenting the work obliquely across the plane of the said edge, the movement of the second work-gage carrying it across a face of the cutter.

17. In a scarfing machine, in combination, a cutter, a work-gage mounted to rock toward and from the plane of the edge of the cutter, a work-rest movable to feed the work to be scarfed to the said edge, and a work-gage movable with the said work-rest, also mounted to rock toward and from the said plane, the two work-gages reversely disposed and arranged to coöperate in presenting the work obliquely across the said plane, and the movement of the work-rest and second work-gage carrying them across a face of the cutter.

18. In a scarfing machine, in combination, a cutter, swiveling work-gages between which the work is presented obliquely to the plane of the edge of the cutter, a carrier for one of said work-gages, a support for said carrier, said carrier and support combined by means of a socket on one fitting a stud on the other, and oppositely acting set-screws applied to said socket and engaging said stud at opposite sides of the axis thereof, whereby the carrier and its work-gage may be adjusted transversely relative to the opposing work-gage.

19. In a scarfing machine, in combination, a cutter, swiveling work-gages between which the work is presented obliquely to the plane of the edge of the cutter, a work-gage adjacent one of said swiveling work-gages to define the line of the cut at the corresponding surface of the work, a carrier for the latter swiveling work-gage and the adjacent work-gage, a support for said carrier, with which the latter is combined by means of a socket on one fitting a stud on the other, and oppositely acting set-screws applied to said socket and engaging said stud at opposite sides of the axis thereof, whereby the carrier and its work-gage may be adjusted transversely relative to the opposing work-gage.

20. In a scarfing machine, in combination, a cutter, swiveling work-gages between which the work is presented obliquely to the plane of the edge of the cutter, a carrier for one of said work-gages, a support with which said carrier is combined by means of a socket on one fitting a stud on the other, oppositely acting set-screws applied to said socket and engaging said stud at opposite sides of the axis thereof, whereby the carrier and its work-gage may be adjusted transversely relative to the opposing work-gage, and means for adjusting the support vertically relative to the said plane.

21. In a scarfing machine, in combination, a cutter, swiveling work-gages between which the work is presented obliquely to the plane of the edge of the cutter, a carrier for one of said swiveling work-gages, a work-gage mounted on said carrier adjacent the said swiveling work-gage, a support for the said carrier, with which the latter is combined by means of a socket on one fitting a stud on the other, oppositely-acting set-screws applied to said socket and engaging said stud at opposite sides of the axis thereof, whereby the carrier and gages carried thereby may be adjusted transversely relative to the opposing swiveling work-gage, and means for adjusting the support vertically relative to the said plane.

22. In a scarfing machine, in combination, a circular cutter, opposite gages between which the work is fed to the edge of the cutter and presented obliquely to the plane of such edge, a carrier for one of said gages, a support for said carrier, and means for effecting transverse adjustment of said support and carrier angularly with relation to a radial line of said cutter.

23. In a scarfing machine, in combination, a circular cutter, opposite gages between which the work is fed to the edge of the cutter and presented obliquely to the plane of such edge, a carrier for one of said gages, a support for said carrier, with which the latter is combined by means of a socket on one fitting a stud on the other, oppositely-acting set-screws applied to said socket and engaging said stud at opposite sides of the axis thereof, whereby the carrier and gage carried thereby may be adjusted transversely relative to the opposing work-gage, means for adjusting the support vertically relative to the said plane, and means for effecting transverse adjustment of said support angularly with relation to a radial line of said cutter.

24. In a scarfing machine, in combination, a cutter, a work-rest movable to feed the work to the edge of the cutter, work-gages between which the work is presented obliquely to the plane of the said edge, one thereof moving with the work-rest and the other independent of the work-rest, and a flange carried by said work-rest and by which the rear edge of the work is backed-up against the action of the cutter-edge.

25. In a scarfing machine, in combination, a cutter, work-gages between which the work is presented obliquely to the plane of the edge of the cutter, one thereof moving with the work-rest and the other stationary, and a flange carried by said work-rest and by which the rear edge of the work is backed-up against the action of the cutter-edge, said flange constructed to be partly depressed by the stationary work-gage.

26. In a scarfing machine, in combination, a rotary cutter-disk, means for presenting the stock or material to be cut obliquely across the edge of said disk, and advancing it against such edge, and means to adjust

the plane of rotation of the disk in respect of forward inclination.

27. In a scarfing machine, in combination, a rotary shaft, a cutter-disk mounted upon one end of said shaft and having one face thereof unobstructed, to provide a clear path of movement across such face of the stock or material operated upon, means for presenting the said stock or material obliquely across the edge of such disk, and advancing it against such edge, and a support for said shaft adjustable to vary the plane of rotation of the cutter-disk in respect of forward inclination.

28. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon obliquely across the edge of said disk and feeding it to said edge, a shaft carrying said cutter-disk, an externally threaded bearing for said shaft engaging the latter to prevent end-play thereof, a screw-threaded support in which said bearing is mounted and adjustable axially to correspondingly adjust the plane of rotation of the cutting edge of the cutter-disk, and means for preventing accidental turning of the bearing and loss of adjustment.

29. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon obliquely across the edge of said disk and feeding it to said edge, a shaft carrying said cutter-disk, an externally-threaded sleeve-bearing for said shaft engaging the latter to prevent end-play thereof, an internally-threaded split supporting socket for said sleeve-bearing, and means to tighten such split socket upon the said sleeve-bearing to prevent loss of adjustment.

30. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon obliquely across the edge of said disk and feeding it to said edge, a shaft carrying said cutter-disk, a bearing for said shaft engaging the latter to prevent end-play thereof, means for adjusting said bearing axially to correspondingly adjust the plane of rotation of the cutting edge of the cutter-disk, and means for adjusting said bearing to vary the plane of rotation of said disk in respect of forward inclination.

31. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon obliquely across the edge of said disk and feeding it to said edge, a shaft carrying said cutter-disk, a bearing for said shaft, a mounting for said bearing, relative to which the bearing is longitudinally adjustable to adjust the plane of rotation of the cutting edge of the cutter-disk, and means for angularly adjusting the said mounting to vary the plane of rotation of said disk in respect of forward inclination.

32. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon to the edge of said disk to be scarfed, a shaft carrying said cutter-disk, an externally-threaded bearing for said shaft, an internally threaded socket or mounting for said bearing, having a rounded stem having a flattened portion, and oppositely-acting screws engaging the flattened portion and operating to adjust the socket angularly, to vary the plane of rotation of the cutter-disk in respect of inclination, and secure the socket in adjusted position.

33. In a scarfing machine, in combination, a cutter-disk, means for presenting the stock or material operated upon obliquely across the edge of said disk and feeding it to said edge, a shaft carrying said cutter-disk, an externally-threaded sleeve-bearing fitting said shaft and engaging with the latter to prevent end-play thereof, an internally-threaded split supporting-socket for said sleeve-bearing, means to tighten such split socket upon the said sleeve-bearing to prevent loss of adjustment, and means for angularly adjusting said socket to vary the plane of rotation of said disk in respect of inclination.

34. In a scarfing machine, in combination, a moving cutter, a revolving non-abrasive edge-straightener making flat contact by a radial face thereof with one face of the cutter and by which the edge of the cutter is kept straight and in the same plane, and means acting in a direction at right angles to said face to press the edge-straightener against such face.

35. In a scarfing machine, in combination, a moving cutter, a revolving non-abrasive edge-straightener making flat contact by a radial face thereof with one face of the cutter and by which the edge of the cutter is kept straight and in the same plane, a supporting stud or spindle on which said edge-straightener is mounted, and a spring acting to move said stud or spindle lengthwise and thereby keep the side of the edge-straightener pressed against the said face.

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

FRANK W. MERRICK.

Witnesses:
CHAS. F. RANDALL,
NATHAN B. DAY.