

May 19, 1964

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3,133,434

PRESSER FOOT FOR HIGH SPEED SKIVING MACHINE

Filed Sept. 11, 1962

4 Sheets-Sheet 1



FIG. 7.

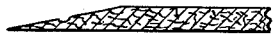


FIG. 8.



FIG. 9.



FIG. 10.

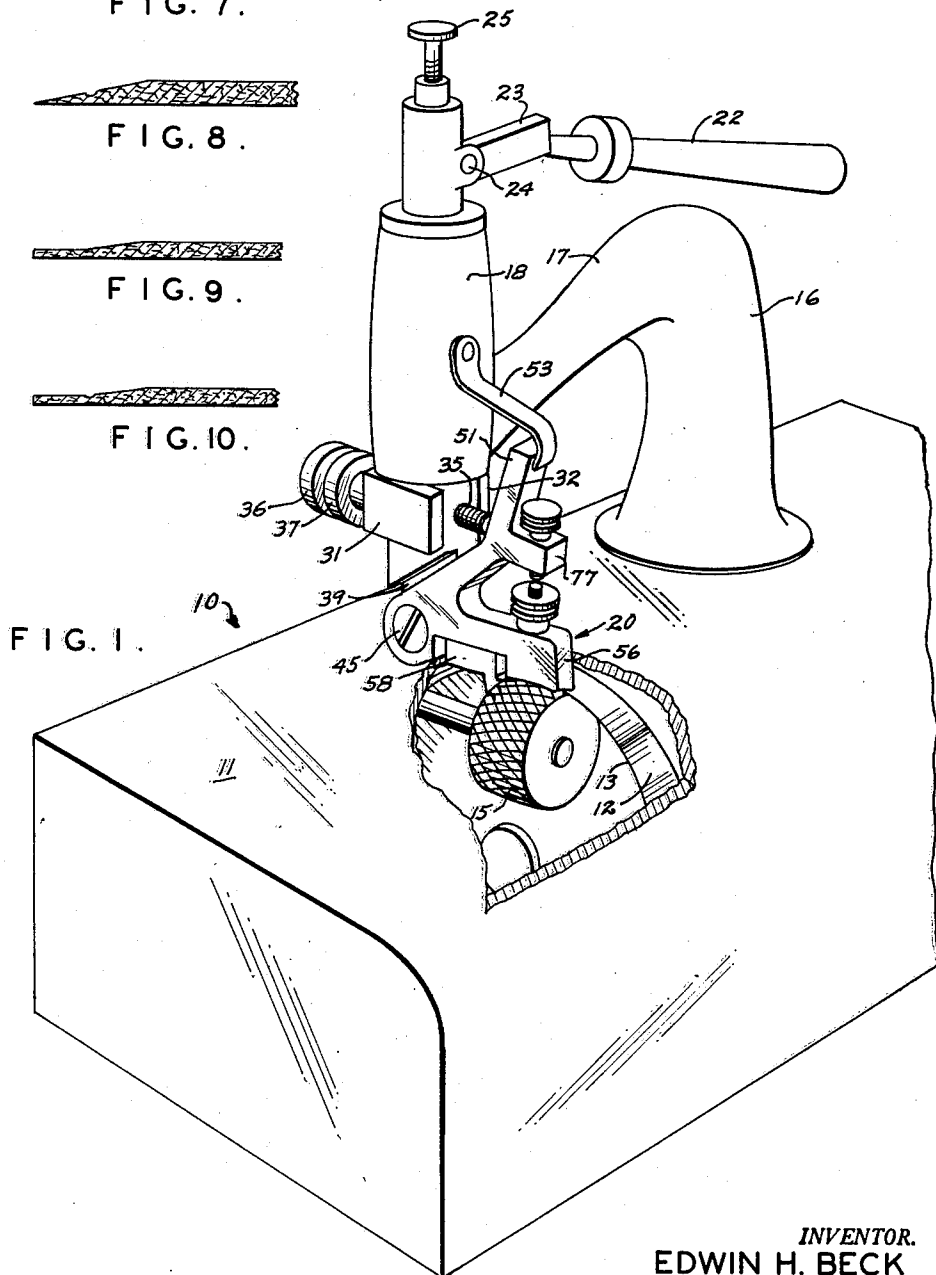


FIG. 1.

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4 Sheets-Sheet 2

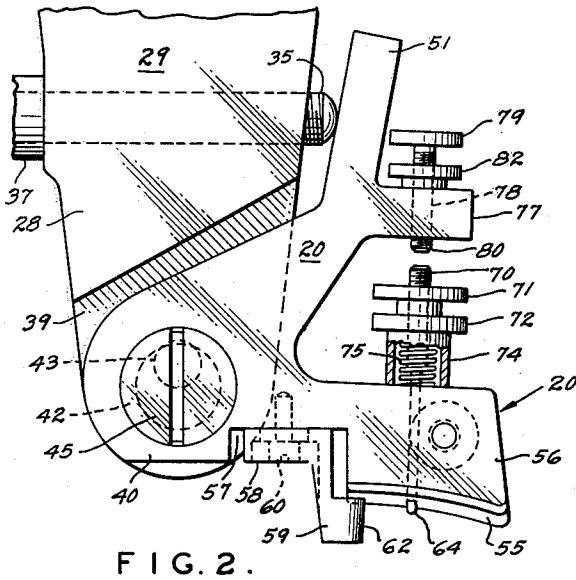


FIG. 2.

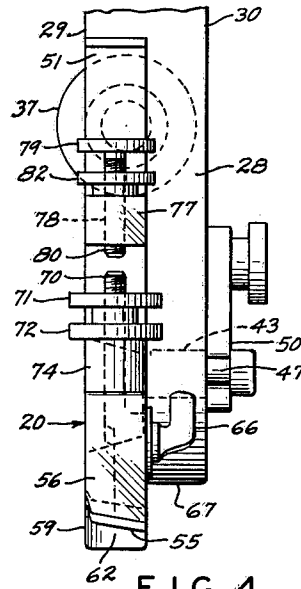


FIG. 4.

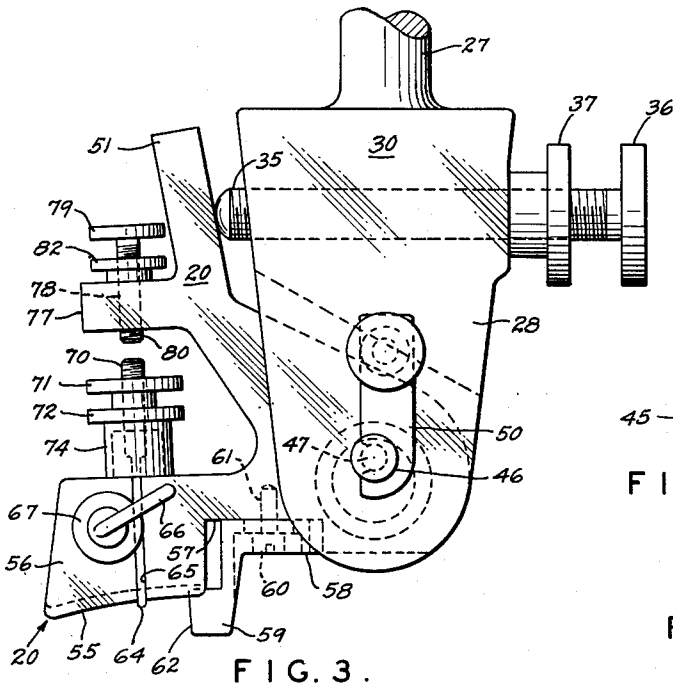


FIG. 3.

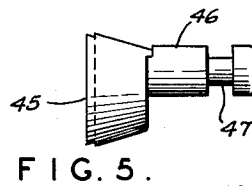


FIG. 5.

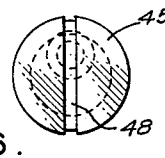


FIG. 6.

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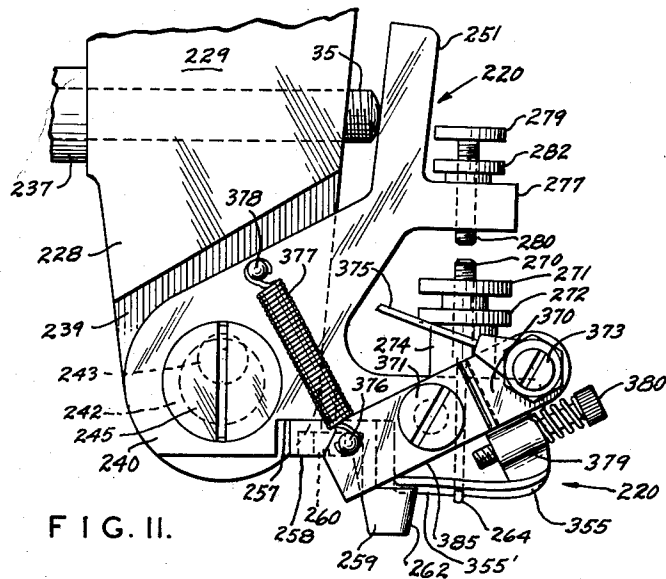
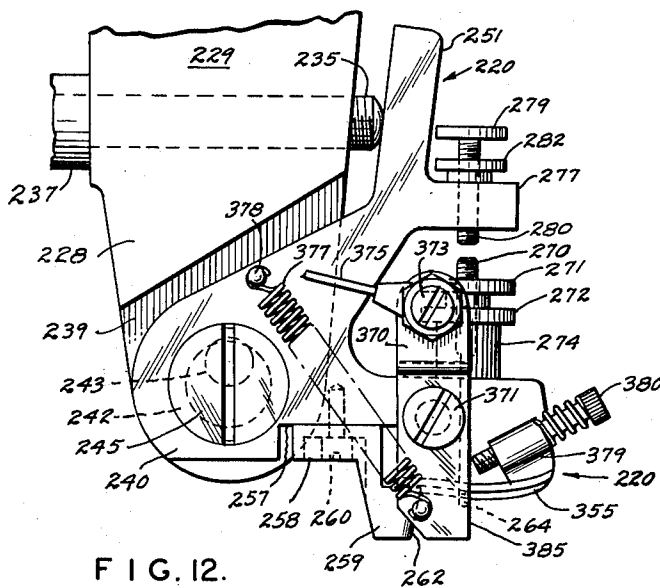
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PRESSER FOOT FOR HIGH SPEED SKIVING MACHINE

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4 Sheets-Sheet 3



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PRESSER FOOT FOR HIGH SPEED SKIVING MACHINE

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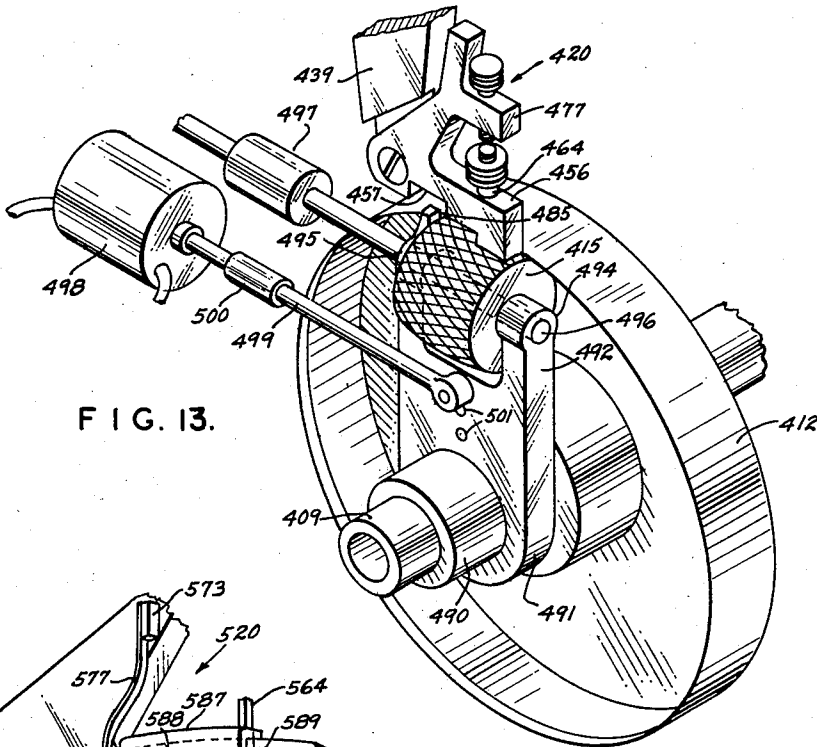


FIG. 13.

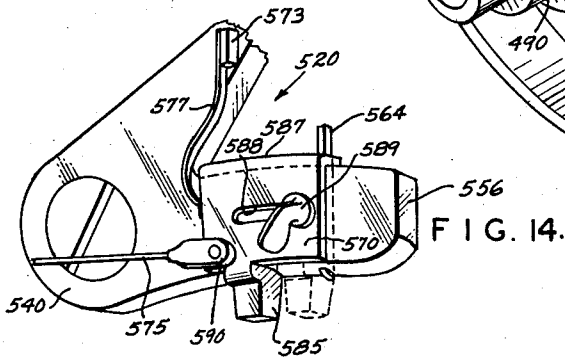


FIG. 14.

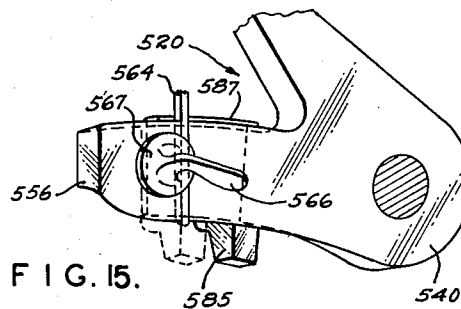


FIG. 15.



FIG. 16.



FIG. 17.

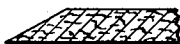


FIG. 18.

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3,133,434 PRESSER FOOT FOR HIGH SPEED SKIVING MACHINE

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Filed Sept. 11, 1962, Ser. No. 222,909
25 Claims. (Cl. 69—9.5)

This invention relates to so-called high speed skiving machines and more particularly to a presser foot for such a skiving machine which is quickly convertible to make either a plain or a grooved skive which plain skive, or grooved skive, is variable in both angle and length. The presser foot, according to this invention, is further selective in its operational features to provide a variable edge spacing for the grooved skive. As it will appear from the following description, the combination of features in this one mechanism enhances the utility of the machine in which the presser foot is used by adapting the machine to perform the variety of cuts often necessary on the edge of a leather blank without involving interchangeable parts and subsequent expert readjustment of these interchangeable parts. This application is a continuation-in-part of Serial No. 135,910, filed September 5, 1961, now abandoned.

One form of machine, according to this invention, hereinafter described is adapted to two kinds of skiving operation without major adjustment. In certain parts of a shoe, or on parts of shoes of certain styles, two kinds of skive are all that is required. With this form of machine, it is possible to readily change the machine to make a skive with or without a groove for a fold at the will of the operator. It will be understood, of course, that other so-called adjustments are provided to position the presser foot angle and position in the machine so that variation in the length of bevel cut, or variation in length of a splitting cut, may be obtained. Once the position of the foot is adjusted, the change from a groove kind of skive to a plain skive is selected at will by the operator.

Other forms of machine, according to this invention, are adapted to three kinds of skiving operation without major adjustment. Again in certain parts of a shoe, or on parts of shoes of certain styles, at least three kinds of skive are required to meet these requirements. With certain forms of this invention, it is possible to readily change the machine to make these different kinds of skive at the will of the operator. As in the first form, adjustments are provided to position the presser foot angle and position in the machine so as to change the length of bevel cut or length of splitting cut obtained. These adjustments, when once made, set up the machine to meet specifications. Thereafter changes can be made from one kind of skive to another at the will of the operator.

In cases where certain parts of shoes require more than one kind of skive, it is advantageous to have a machine capable of change at the will of the operator to change from one kind to the other. Otherwise it is necessary to have two or more machines set up so that each can make one of the kinds of skive required, or, change the setup of the machine for each kind of skive.

It is an object of this invention to provide a presser foot for a skiving machine which will cut a beveled edge of variable length on a leather blank.

It is a further object of this invention to provide a presser foot for a skiving machine which can perform a splitting cut of variable length upon a leather blank.

It is still another object of this invention to provide a presser foot for a skiving machine which can perform the operation of cutting a folding groove spaced from

the edge of a leather blank in either a beveled cut or a splitting cut.

It is still another object of this invention to provide a presser foot for a skiving machine which can perform the operation of cutting a folding groove in the skive at a variable distance from the edge of the leather blank.

It is still another object of this invention to provide a presser foot for a skiving machine which can make a continuous cut or a plurality of cuts along the edge of a leather blank which will differ only in the presence or absence of a folding groove.

It is still another object of this invention to provide a skiving machine which can make different kinds of a skive cut on a leather blank at the will of the operator while the machine is in operation.

Further objects and advantages of this invention will appear from the following detailed description which is in such full, concise and exact terms as to inform any one skilled in the art with the information necessary to make and use the invention when taken with the accompanying drawings, forming a part thereof, and in which:

FIG. 1 is an environmental view in perspective showing the work feeding side of a skiving machine equipped with a presser foot constructed in accordance with this invention;

FIG. 2 is a side view in elevation taken from the work feeding side illustrating the construction of the presser foot on an enlarged scale;

FIG. 3 is a view similar to FIG. 2 of the opposite side of the presser foot;

FIG. 4 is an end view of the presser foot shown in FIGS. 2 and 3;

FIGS. 5 and 6 are side and end views respectively of the eccentric pin for mounting the presser foot on the guiding rod of the skiving machine;

FIGS. 7-10, inclusive, illustrate the various kinds of skiving operations performed by this single presser foot; FIGS. 11 and 12 illustrate in side elevational views still another form of the invention;

FIG. 13 is a schematic illustration in perspective showing still another modification of the invention;

FIGS. 14 and 15 are perspective views in side elevation of still another form of the invention;

FIG. 16 is illustrative of one kind of skive which can be performed by the machines shown in FIGS. 11-15 when the parts are adjusted to make a bevel skive;

FIG. 17 is illustrative of a second kind of skive which can be performed by the machines shown in FIGS. 11-15; and

FIG. 18 is illustrative of a third kind of skive which can be performed by the machines shown in FIGS. 11-15.

Since this invention is primarily concerned with a construction of the presser foot which is used in a skiving machine, this description will be limited to such parts of a standard skiving machine, such as shown at 10, as will facilitate an understanding of the instant invention. The skiving machine 10 has a work table 11 along which the blanks are fed to the exposed edge of a knife 12. In most standard skiving machines, the knife 12 is cylindrical and has a sharpened edge 13 which performs the cutting operation on the leather blank. The movement of the blank against the edge 13 of the knife 12 is controlled by a feed roller 15 over which the work blank is fed. As the blank passes over the feed roller 15 and under the presser foot mechanism, generally indicated as 20; the edge of the blank is skived by being pressed against the rotating knife edge 13 of the knife 12. These parts disposed in this relation are common to a standard form of skiving machine which includes, of course, all the necessary mechanism for driving the knife 12 and the feed roller 15 as well as perform-

ing adjusting operations between the two to maintain the proper relationships. The skiving machine 10 has a bracket 16 integral therewith which projects upwardly from the work surface 11 and has an arm 17 extending over the work surface which supports the head 18. Within the head is a guiding rod (not shown) operated vertical within the head 18 by the locking handle 22 on the locking lever 23 which is pivoted as at 24 to move the guiding rod vertically within the head 18 as the handle is moved up and down on its pivot 24. At the top of the head 18 is an adjusting screw 25 by which the downward movement of the guiding rod is limited. The guiding rod aforementioned is shown in FIG. 3 as 27 and its lower end 28 is tapered downwardly at its front and back sides, as shown in these views. The side faces 29 and 30 of the guiding rod are flat surfaces which are received between the cheeks 31 and 32 integral with the head 18. One of these cheeks 31 is shown in FIG. 1 quite clearly. There is a tapped hole extending front to back of the tapered end of the guiding rod 29 which receives a threaded adjusting pin 35 having a thumb screw 36 integral therewith and projecting to the rear of the head 18. On the threaded screw 35 is a jam nut 37.

The guiding rod lower end 28 is recessed as at 39 so as to accommodate the heel end 40 of the presser foot 20. As will be seen from FIG. 2, the heel end 40 has a tapered aperture 42 and aligned with this aperture 42 is a plane hole 43 in the tapered end portion 28 of the guiding rod 27. The tapered hole 42 receives the tapered head 45 of an eccentric pin shown in FIGS. 5 and 6. Integral with the head 45 is an eccentrically located stem portion 46 grooved at 47. In FIG. 6, the head 45 of the eccentric pin has a screwdriver slot 48 by which it can be located. The eccentric pin, as aforementioned, has its tapered head 45 within the tapered opening 42 and its eccentric stem 46 projecting through the hole 43 in the tapered end portion 28 of the guiding rod 27. A pivoted latch 50 has an end aligned with and received in the slot 47 of the eccentric pin thereby fastening the pin in the tapered end portion of the guiding rod. The latch 50 is releasable from the groove 47 when desired, but it does not retain the eccentric pin against rotation. Thus, when a screwdriver is inserted in the slot 48 and the eccentric pin turned, it is possible to raise and lower the heel portion 40 of the presser foot 20, or move the presser foot forwardly or backwardly with respect to the guiding rod 27. It will be understood that the movement imparted between the foot and the guiding rod is a compound one, and, as the pin is rotated, the adjustment will be in a circular path.

Since the eccentric pin 46 forms a pivotal support for the presser foot 20, it will be readily appreciated that adjustment of the thumb screw 36 and jam nut 37 will control the angular position of the leg 51 of the presser foot 20 with respect to the guiding rod 27. The leaf spring 53 has an end disposed at the outer face of the leg 51 to retain the leg 51 firmly in engagement with the pin 35. The adjustment provided by the thumb screw 36 acting on the leg 51 will change the angular position of the working face 55 of the presser foot with respect to the knife 12.

Extending forwardly from the heel 40 of the presser foot 20 is a foot portion 56, whose under surface forms the working face 55. Between the working face 55 and the heel 40 is an arch 57 which receives a base 58 of an edge guide 59. A screw 60 extends through a slot in the base 58 into a tapped hole 61 in the face of the arch 57. By loosening the screw 60, the edge guide relationship to the working face 55 may be varied to vary the position of the guide face 62 thereon with respect to a grooving finger, such as 64, which can protrude from the working face 55. The edge guide 59 can be held against twisting by rib and groove mating surfaces in the under surface of the arch 57 and the top

surface of the base 58. These will permit sliding of one relative to the other, but not twisting.

As shown in the drawings, the edge guide 59 (FIG. 4) is the same width as the foot 55, but the width is subject to variation since the narrower the edge guide the more uniform the width of skive made between an inside curved piece and an outside curved piece providing the right edge of the guide remains in the same location. The right side of the edge guide 59 is the side which just clears the knife edge. If, therefore, sharp turns are required, it will be advantageous to use a narrower edge guide with the left side of guide 59 spaced closer to the right side which remains close to the knife edge. This keeps the pivot about which the blank is swung close to the knife edge for either a cut on an outside curved edge, or an inside curved edge.

The grooving finger 64 is mounted in a slot 65 in what may be termed the back face of the presser foot 20 which slot 65 extends from top to bottom of the foot portion 56. Threaded in the back face of the foot portion 56 is a thumb screw 66 having a flange 67 which can overlap the back face or edge of the grooving finger 64 and hold the grooving finger 64 positioned against sliding movement with respect to the slot 65.

Grooving finger 64 has a threaded upper end 70 mounting a jam nut 71 and a lower setting nut 72 in threaded engagement with the end 70. Setting nut 72 has a hollow face 74 confining a coil spring 75.

Disposed above the foot 56 and spaced therefrom is an arm 77 threaded at 78 to receive a thumb screw 79 which may be termed an upper limit screw. This upper limit screw 79 has an end 80 which may be adjustably positioned with respect to the threaded end 70 on the grooving finger 64 and limit its upper movement when the spring 75 lifts the grooving finger 64 after release of the wing nut 66. The limit screw 79 may also be provided with a jam nut, such as 82, to lock the limit screw in adjusted position.

Operation

From the foregoing description, it will be apparent that the presser foot 20 is mounted for adjustment in various ways. Its setting with respect to the knife 12 is widely variable because of the numerous adjustments, and it is, therefore, capable of forming many types of skiving operations without replacement of the presser foot 20. To reiterate here, the thumb screw 25 limits the downward movement of the guiding rod 27 and, therefore, is a vertical positioning means of the working face 55 with respect to the knife 12. When the operating handle 22 is moved to lower the presser foot 20, the setting of the thumb screw 25 will determine its vertical spacing with respect to the knife 12. The angle setting thumb screw 36 varies the angle of the working face 55 with respect to the edge of the knife 12, and by operation of the thumb screw 36, the length of the bevel can be changed on the edge of the blank, all other adjustments being held constant. Likewise, the adjustment of the screw 25 will control the depth of cut made by the knife 12 in the blank, all other adjustments being constant.

There is still another adjustment for both angle and length of cut and this is the eccentric pin 45. The rotation of this pin by a screwdriver will change both the angular relation of the presser foot with respect to the guiding rod, and the position of the guiding edge 62 of the edge guide 59 with respect to the rear face of the feeding roll 15. It is primarily useful for the latter purpose, and, of course, its spacing with respect to the supporting feed roll 15 is important to proper operation of the machine. The position of the edge guide 62 may be varied in spacing with respect to the grooving finger 64, but once this has been set by adjusting the screw 60 in the slot of the base 58, it usually remains fixed. The function of the grooving finger is to form a groove in the skive so that the edge of the leather may be folded, and this groove determines the line of fold. Once the desired amount of

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fold is determined, the spacing of the edge guide 59 with respect to the grooving finger 64 usually remains constant, but the other adjustments which can be made readily without removing the presser foot 20 are altered from time to time, as the circumstances require, so as to produce the desired angle of bevel, length of bevel, etc.

FIGS. 7 and 9 illustrate two examples of kinds of skive which are possible by adjusting the position of the foot, its angle or the setting of the edge guide on the foot. Thus, it is possible by adjustments to obtain a wide variety of skives since both the length of cut, the angle of cut and the depth of cut are variables. After these settings are made to position the foot then it is possible to change from a plain skive to a grooved skive while the machine is in operation. The presser foot of this invention is capable of producing either a plain or a grooved skive at the choice of the operator. In FIGS. 1, 2 and 3, the position of the grooving finger projects from the lower working face 55 of the presser foot and is secured in this position by the wing nut 66. The grooving finger projects sufficiently to force the leather underneath the grooving finger downwardly against the knife edge far enough to produce a slight groove. When a groove is not necessary, wing nut 66 is first loosened allowing the grooving finger to retract flush with the working face 55 and then tightened to hold it retracted. Limiting screw 79 is adjusted so that when end 70 contacts the end 80, the grooving finger is flush with the working face 55. Loosening the wing nut 66 allows spring 75 to expand until end 70 contacts end 80. Subsequent tightening of the wing nut 66 retains the grooving finger flush with the working face 55. To change to a grooving operation, all that is necessary is to loosen the wing nut 66 and press down on the jam nut 71 until the skirt of the lower setting nut 72 comes in contact with the upper surface of the presser foot 56. In the particular modification described, the operation of the grooving finger is a manual one, but it is contemplated that by the simple expedient of connecting the finger to a control, which could be mechanical, electrical or pneumatic, manual operation could be converted to power operation. The mechanism, just described, provides the convertible feature in this invention whereby a quick change can be made to and from a grooved skive.

FIGS. 7 and 8 show examples of the kind of skives which can be performed by the above described embodiment shown in FIGS. 2-4. FIG. 7 shows a plain beveled skive made with the grooving finger 64 retracted. FIG. 8 shows a grooved beveled skive made with the grooving finger in active position, all other adjustments remaining fixed.

FIGS. 9 and 10 show other examples of the plain and grooved skive of which the machine is capable after adjustments have been made in the position of the presser foot setting from the setting which produced the skives shown in FIGS. 7 and 8. For example, the skive produced by FIGS. 9 and 10 results from changing foot position by screwing in the knob 36. Position of the foot 56 and edge guide 62 can also be changed to increase or decrease the length of cut.

The second embodiment of this invention, shown in FIGS. 11 and 12, is more versatile than the preceding described structures. Corresponding parts to those heretofore described will be identified by the same reference characters with 200 added.

Presser foot 220 has a leg 251, a heel end 240 and a foot portion with a working face 355 and 355'. The edge guide 259 has a guide face 262 and a base portion 258 anchored adjustably in the arch portion 257 of the presser foot 220 by a screw 260. A grooving finger 264 is adjustably mounted in a slot in the rear face of the presser foot 220 in the same manner as heretofore described in the previous embodiment. Like parts of the grooving finger and its stop means are indicated by the same reference character in this embodiment with 200 added. The construction permits retraction of the groov-

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ing finger 264 from an extended predetermined adjusted position to a retracted position flush with the working face 355. The mechanism provided also permits return of the grooving finger to its predetermined extended position as shown in FIG. 11.

On the front face of the presser foot 220 (the face opposite the knife) is a second edge guide member 370 pivoted thereto on a screw 371 threaded in a tapped hole in the front face of the presser foot 220. The upper end of the pivoted guide 370 has a screw anchor bolt 373 to which an actuating wire 375 is secured. The actuating wire 375 may be attached at its opposite end to a foot treadle control, or the like, on the floor, so that when the foot treadle is operated, tension in the chord 375 pivots the edge guide 370 from the position shown in FIG. 11 to the position shown in FIG. 12. The pivoted edge guide 370 also has an anchor 376 for one end of a coil spring 377 which is secured at its opposite end to an anchor point 378 on the presser foot 220.

On the foot portion is a threaded boss 379 into which is threaded a set screw 380 which acts as a limit stop during rotation of the pivoted edge guide 370. The limit stop is usually set so that the edge 385 of the edge guide aligns with the forward face of the grooving finger 264 when the actuating chord 375 is tensioned by the foot treadle. When treadle pressure is released, the tension of the chord 375 relaxes and spring 377 takes over to retract the edge guide 370 to the position shown in FIG. 11. Now it will be readily recognized that if the working face 355 of the presser foot 220 is properly contoured, it will be capable of producing not only a grooving type of skive with the edge guide 370 retracted, but also a bevelled type of skive when the edge guide 370 is brought into operation as in FIG. 12. In this sense, it performs exactly the same operation as retracting the edge guide 64 in the prior embodiment. In this modification, the working face 355 is shorter in the toe portion as will be seen from comparison with the toe portion 56 of the presser foot 20. From this description, it will be realized that the presser foot 220, with the parts adjusted as shown in FIG. 11, can produce a grooved type of skive similar to that shown in FIG. 17, and, with the parts adjusted as shown in FIG. 12, can produce a short bevelled skive, such as shown in FIG. 18. The short bevelled skive will be similar to a portion of the groove skive performed by the parts, when adjusted as shown in FIG. 11. With the parts, shown as adjusted in FIG. 11, and the grooving finger 264 retracted, the skive will resemble that shown in FIG. 16. In the first embodiment described, the grooving finger 64 is a means movable into and outwardly of the working face of the presser foot to convert from a grooving skive to a plain skive. In the second embodiment of this invention shown in FIGS. 11 and 12, the means movable into and outwardly of the working face of the presser foot to convert from a grooving skive to a plain skive can be either the swing edge guide 370 or the retractable grooving finger 264. In this respect, FIGS. 11 and 12 show a machine which is more versatile than the preceding described structures. In addition, the nose portion of the working face 355 from the toe back to the grooving finger has a different angular relation from that shown in the first described embodiment. It inclines upwardly with respect to the heel portion of the working face 355'.

What has been said about the operation of the structural parts illustrated in FIGS. 1-10 applies to the operation of the structural parts indicated by similar reference characters in FIGS. 11 and 12. This construction permits three distinct kinds of skive as illustrated in FIGS. 16-18. With both edge guide 385 and grooving finger 264 retracted, a skive, like that shown in FIG. 16, can be obtained when the foot is adjusted as to one position and angle of setting. With the grooving finger in an active position projecting from the working face 355, but with the swing edge guide retracted as in FIG. 11 a skive like

that shown in FIG. 17, can be obtained provided the adjustment of angle and position of the foot 220 remains unchanged. With the swing edge guide 385 active, as in FIG. 12, and the grooving finger 264 either projected or retracted, a skive like that in FIG. 18 can be obtained, provided again that the foot adjustments are not changed. Whatever the adjustment setting chosen for the foot 220, the operator has a choice of three kinds of skive from the same machine which can be made by operating manual controls for the swing edge guide and grooving finger.

Another form of the same invention, described in FIGS. 11 and 12, is shown schematically in FIG. 13. The same reference characters will be used to indicate like parts with 400 added. In this particular form in FIG. 13, the swing edge guide is mounted separate from the foot 420. For example, in FIG. 13 the driven shaft 409 for the knife 412 extends beyond the knife toward the left end of the machine 10. Rotatably mounted on this end of shaft 409 is a bearing sleeve 490 and slidable along the sleeve is a bearing portion 491 of a bracket 492. On the ends of spaced arms on bracket 492 are aligned bearings 494 and 495 in which is journaled a shaft 496 driven through a flexible telescopic drive gear including a shaft 497. Feed roller 415 is fixed on and driven by shaft 496 through its connection with telescopic and flexible shaft 497. An air motor cylinder 498 mounted on the frame of the machine 10 has a piston rod 499 connected to swing bracket 492 from one extreme position to another. There is an adjustment 500 in rod 499 to determine extreme positions forward and backward of the swing of bracket 492 with respect to the stroke of the air motor 498. The air cylinder is supplied with compressed air at its alternate ends through a manually controlled valve and suitable air hoses (not shown) but of standard construction. Swinging with the bracket 492 is a swing type edge guide 485 mounted on the boss 495. The foot 420 has an arch portion 457 extending from the heel portion of working face 455 to adjacent the front edge of grooving finger 464. Edge guide 485 can swing from one extreme position to the other along the arch portion 457 from a position in which its front edge aligns with the front of the grooving finger 464 to adjusted positions adjacent the heel of the foot 420. A series of holes 501 are provided for the connection of rod 499 which change the amount of travel although the air motor 498 has a constant stroke. Any suitable mechanism can be adapted to adjust the position of bracket 491 along shaft 409 to properly position the edge guide 485 in the arch 457 and feed roller 415 with respect to the cutting edge 413 of the knife 412.

In this form, an adjustable but fixed type of edge guide such as 262 in FIGS. 11 and 12 is not absolutely required but may be provided. Whether provided or not, however, the construction operates in the same manner as the form in FIGS. 11 and 12 and is capable of making the three kinds of skive, such as shown in FIGS. 16, 17 and 18.

A still further form of the invention is shown in FIGS. 14 and 15 which will perform the same kind of skiving operation as the form shown in FIGS. 11-13. In this still further form, parts having a corresponding function or operation to those heretofore described in FIGS. 11-13 will be given the same reference characters with 500 added. In this form, the foot portion 556 of the foot 520 mounts a retractable and extendable grooving finger 564 in the same manner as heretofore described with respect to FIGS. 1-4. Also mounted on the foot portion 556 is a slidable guide 570 with a flange 587 riding along the upper surface of foot portion 556. Guide 570 has a slot 588 which accommodates a thumb screw 589. The thumb screw 589 is in threaded engagement with a suitably located tapped hole in the side of foot portion 556 and may be tightened to frictionally hold the slide 570 in any desired position or loosened to permit slide movement, as desired. The lower edge of guide 570 carries the edge guide 585 which moves with the guide 570. A

leaf spring 577 has one end secured to lug 573 and its opposite end positioned against the back edge of guide 570 urging it to one extreme position shown in phantom lines in which the forward face of edge guide 585 is in alignment with the corresponding side of the grooving finger 564 when they are side by side. A cable 575 operated by a manual control, preferably a foot pedal, is attached to the guide 570 at 590. By tensioning the cable 575, spring force of spring 577 can be overcome and the guide moved to the rear. The forward and rearward position of edge guide 585 is determined by the position of the ends of slot 588 with respect to the thumb screw 589.

The operation of this form is the same as that using a swing guide. With the guide 585 in the full line position the foot will perform the kind of skive operation to produce an edge contour as shown in FIG. 16, when the grooving finger is retracted in inactive position. With the edge guide in the same position and the grooving finger extended to active position the foot will perform the kind of skive operation to produce an edge contour as shown in FIG. 17. If the edge guide is moved to its forward position by the spring 577, the foot will perform the kind of skive operation to produce an edge contour as shown in FIG. 18, and this is so whether the grooving finger is in active or nonactive position.

Changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. A presser foot for a skiving machine comprising in combination,
 - (1) a foot portion on said presser foot,
 - (2) a working face on one side of said presser foot,
 - (3) an edge guide means arranged to project outwardly of said working face,
 - (4) a grooving finger means arranged to project outwardly of said working face intermediate the ends thereof and operative in cooperation with said edge guide means in one relative position of said means to perform one type of skiving operation and in another relative position between said means to perform another type of skiving operation, and
 - (5) means to retract either one of said means to a position to change the type of skiving operation performed from one to the other during a skiving cut.
2. In a skiving machine the combination comprising,
 - (1) a driven knife,
 - (2) a driven feed roller adjacent to said driven knife for engaging one side of a work blank and moving said blank to said knife,
 - (3) a presser foot for engaging the opposite side of said blank,
 - (4) a foot portion on said presser foot,
 - (5) a working face on one side of said presser foot,
 - (6) spaced means arranged to project outwardly of said working face at spaced locations therealong and operative in cooperation with said working face in one relative position of said means to perform one type of skiving operation and in another relative position of said means to perform another type of skiving operation, and
 - (7) means to change the relative position between said means and said presser foot to change the type of skiving operation while said presser foot remains stationary.
3. In a skiving machine having in combination, a driven rotary knife, a driven rotary feed roller adjacent to said knife for engaging one side of a work blank and moving said blank to said knife, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,
 - (1) means arranged to project outwardly of said working face at locations therealong and operative in cooperation with said working face when spaced along

said working face in one relative position between said means to perform one kind of a skive on the edge of the work blank and in another relative position changing the said spacing along said working face to perform another kind of skive on the edge of the work blank, and

(2) means to vary the relative position between said means and said presser foot.

4. In a skiving machine having in combination, a driven rotary knife, a driven rotary feed roller adjacent to said knife for engaging one side of a work blank and moving said blank to said knife, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

(1) means arranged to project outwardly of said working face forming an edge guide for the work blank and a grooving finger operative in one relative position with respect to said edge guide for pressing a portion of said blank against said rotary knife in one relative position of said means,

(2) means mounting said edge guide to be moved with respect to said grooving finger into another relative position with respect thereto to hold the work blank out of contact with said grooving finger so as to perform another kind of skiving operation on the edge of the work blank, and

(3) control means for moving said edge guide.

5. In a skiving machine having in combination, a driven rotary knife, a driven rotary feed roller adjacent to said knife for engaging one side of a work blank and moving said blank to said knife, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

(1) means arranged to project at an angle to said working face forming an edge guide for the work blank and forming a grooving finger operative in one relative position with respect to said edge guide and said working face for pressing a portion of said blank against said rotary knife,

(2) a movable mounting for said means for changing the relative position of said means with respect to said working face to change from one kind of skiving operation to another, and

(3) a control means for shifting the position of said means.

6. In a skiving machine having in combination, a driven rotary knife, a driven rotary feed roller adjacent to said knife for engaging one side of a work blank and moving said blank to said knife, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

(1) means arranged to project at an angle to said working face forming an edge guide for the work blank and forming a grooving finger operative in one relative position with respect to said edge guide and said working face for pressing a ridge in said blank against said rotary knife to cut a groove,

(2) a movable mounting for said grooving finger for retracting said finger to an inactive position with respect to the working face of said presser foot to change from a grooving kind of skiving operation to a plane skiving operation, and

(3) a movable mounting for said edge guide for moving said edge guide along said presser foot from a position wherein said grooving finger can engage the work blank edge being cut to perform a grooving kind of skiving operation to a position preventing operation of said grooving finger to perform a plain kind of skiving operation on the edge of said blank.

7. The combination as defined in claim 5 in which said edge guide is movably mounted on said presser foot.

8. The combination as defined in claim 5 in which said edge guide is movably mounted for swinging on said machine.

9. The combination as defined in claim 5 in which said

feeding roller is swingably mounted to move along the edge of said rotary knife.

10. The combination as defined in claim 5 in which said feeding roller is swingably mounted to move along the edge of said rotary knife and said edge guide is movable with said feed roller swinging movement.

11. The combination as defined in claim 6 in which said edge guide is mounted for swinging on said presser foot.

12. A presser foot for a skiving machine comprising in combination a foot portion, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a grooving finger movably mounted on said foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face and means for operating said grooving finger from its extended position to its retracted position.

13. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a grooving finger movably mounted on said foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face, adjustable means for determining the extended position of said grooving finger with respect to said working face and means to move said grooving finger to its adjusted extended position and to its retracted position.

14. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a grooving finger movably mounted on said foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face, adjustable means for determining the retracted position of said grooving finger with respect to said working face and means to move said grooving finger to its extended position and to its adjusted retracted position.

15. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a grooving finger movably mounted in said foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face, adjustable means for determining the extended and retracted positions of said grooving finger with respect to said working face and means to move said grooving finger to its adjusted extended position and to its adjusted retracted position.

16. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, means adjustably mounting said edge guide for movement in a direction along said working face, a grooving finger movably mounted on said foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from the adjusted position of said edge guide and movable to a retracted position with respect to said working face and means to move said grooving finger to its extended position and to its retracted position.

17. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a groov-

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ing finger movably mounted on said presser foot portion to move from an extended position in which its end projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face, adjustable stop means for determining the retracted position of said grooving finger with respect to said working face, a spring between said presser foot and said grooving finger acting to urge said grooving finger toward said stop means, and releasable means for holding said grooving finger in its extended position.

18. A presser foot for a skiving machine comprising in combination a foot portion on said presser foot, a working face on one side of said foot portion, an edge guide projecting outwardly of said working face, a grooving finger movably mounted on said presser foot portion to move from an extended position in which it projects outwardly of said working face spaced a fixed distance therealong from said edge guide to a retracted position with respect to said working face, adjustable stop means for determining the extended and retracted positions of said grooving finger with respect to said working face, a spring between said presser foot and said grooving finger acting to urge said grooving finger toward one of said stop means, and releasable means for holding said grooving finger against the action of said spring.

19. In a skiving machine having a work supporting surface, a driven knife contiguous to said surface, a driven feed roller contiguous to said driven knife for engaging one side of a work blank moved along said work surface and for propelling said work blank to said knife, a presser foot for engaging the opposite side of said blank, a bracket including a head, and a support for said presser foot vertically movable with respect to said head, the improvement comprising a vertical adjustment for said support with respect to said head for determining the spacing between said presser foot and said knife, an edge guide on said presser foot for engaging the periphery of said blank as it moves to said knife, an angular adjustment between said presser foot and said support for determining the angle of the skive cut along the edge of said blank, and an adjustment between said support and said presser foot for determining the position of said edge guide axially of said feed roller.

20. In a skiving machine having in combination, a driven rotary knife, work feeding means on said machine for moving a work blank against the edge of said knife, including a driven rotary feed roller adjacent said knife for engaging one side of a work blank, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

- (a) an edge guide means for the work blank mounted on one of said work feeding means to project toward the other of said work-feeding means for continuously engaging and positioning the edge of a work blank with respect to said knife to perform a skiving operation,
- (b) a grooving finger means for engaging the work blank mounted on one of said work feeding means and operative in one position with respect to said rotary knife for engaging and pressing a portion of said blank against said rotary knife to form a groove in the skive,
- (c) a movable mounting for one of the last said means (a and b) for changing the relative position of one of the last said means with respect to the other of the last said means to disengage said grooving finger means from the work blank to change from a grooved type of skiving operation to a plain type of skiving operation as the blank moves, and
- (d) means to change the relative position of the last said means (a and b) to change the type of skiving operation.

21. In a skiving machine having in combination, a

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driven rotary knife, work feeding means on said machine for moving a work blank against the edge of said knife, including a driven rotary feed roller adjacent said knife for engaging one side of a work blank, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

- (a) an edge guide means for the work blank mounted on one of said work feeding means to project toward the other of said work feeding means for continuously engaging and positioning the edge of a work blank with respect to said knife to perform a skiving operation,
- (b) a grooving finger means for engaging the work blank mounted on one of said work feeding means and operative in one position with respect to said rotary knife for engaging and pressing a portion of said blank against said rotary knife to form a groove in the skive,
- (c) a movable mounting for one of the last said means (a and b) for changing the relative position of one of the last said means with respect to the other of the last said means to disengage said grooving finger means from the work blank to change from a plain type of skiving operation to a grooved type of skiving operation, and
- (d) means to change the relative position of the last said means (a and b) to change the type of skiving operation.

22. In a skiving machine having a driven knife, a driven feed roller adjacent to said driven knife for engaging one side of a work blank and moving said blank to said knife, a presser foot for engaging the opposite side of said blank, a foot portion on said presser foot, and a working face on one side of said presser foot, the improvement comprising, a grooving finger on said machine arranged to extend in a direction toward the surface of the work blank which is opposite the surface of said blank engaged by said knife, an edge guide means also arranged to extend in the same direction as said grooving finger but spaced therefrom and across said knife, spaced from the knife edge and having an edge guiding portion for engaging the edge of the said work blank arranged in alignment with the side of said grooving finger to cause the edge of said blank fed to said knife to pass said finger for forming a plain type of skive on the edge of said blank, and control means for said edge guide means to retract said edge guiding portion in a direction along the cutting edge of said knife to expose said grooving finger for contact with the surface of said blank opposite said feed roller for forming a grooved type of skive on another portion of the edge of said blank.

23. In a skiving machine having a driven knife, a driven feed roller contiguous to said driven knife for engaging one side of a work blank and moving said blank to said knife, a presser foot for engaging the opposite side of said blank, a foot portion on said presser foot, and a working face on one side of said presser foot, the improvement comprising, an edge guide on said machine arranged to extend in a direction at an angle to said working face and at an angle to the cutting edge of said knife and the axis of said feed roller, means adjustably mounting said edge guide on said machine for movement in a direction along said working face, a grooving finger movably mounted on said machine with respect to said foot portion to move to an extended position in which its end projects into engagement with said blank spaced a fixed distance therealong from the adjusted position of said edge guide and to move from said extended position, and means to move said grooving finger to and from its extending position.

24. In a skiving machine having a driven knife, a driven feed roller contiguous to said driven knife for engaging one side of a work blank and moving said blank to said knife, a presser foot for engaging the opposite side of said blank, a foot portion on said presser foot, and a

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working face on one side of said presser foot disposed with respect to said feed roll to extend from an edge along a surface of said blank as it passes over said driven feed roller, the improvement comprising a grooving finger movably mounted on said machine to move from an extended position in which its end projects toward said knife to engage with a surface adjacent the edge of said blank adapted to be cut by said knife and to move from said extended position with respect to said knife, an edge guide means also arranged to extend at an angle to said working face and at an angle to the edge of said knife and the axis of said feed roller and having an edge guiding portion for engaging the edge of the work blank to be cut by said knife in a position in alignment with the side of said grooving finger for causing the edge of said blank fed to said knife to pass said finger when in its extended position to form a plain type of skive on the edge of said blank, and control means for said edge guide means to retract said edge guiding portion in a direction along the cutting edge of said knife to expose said grooving finger for contact with the surface of said blank opposite said knife for forming a groove type of skive on the edge of said blank.

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25. In a skiving machine having in combination, a driven rotary knife, a driven rotary feed roller adjacent to said knife for engaging one side of a work blank and moving said blank to said knife, and a presser foot with a working face for engaging the opposite side of said blank from said knife, the improvement comprising,

- (1) means arranged to project at an angle to said working face forming an edge guide for the work blank and forming a grooving finger operative in one relative position with respect to said edge guide and said working face for pressing a ridge in said blank against said rotary knife to cut a groove,
- (2) a movable mounting for said edge guide for moving said edge guide along said presser foot from a position wherein said grooving finger can engage the work blank edge being cut to perform a grooving kind of skiving operation to a position preventing operation of said grooving finger to perform a plain kind of skiving operation on the edge of said blank,
- (3) a control means for shifting the position of said edge guide.

No references cited.