W. J. YOUNG.

SKIVING MACHINE.

APPLICATION FILED JUNE 14, 1905.

1,033,366.

Patented July 23, 1912.

4 SHEETS—SHEET 1.

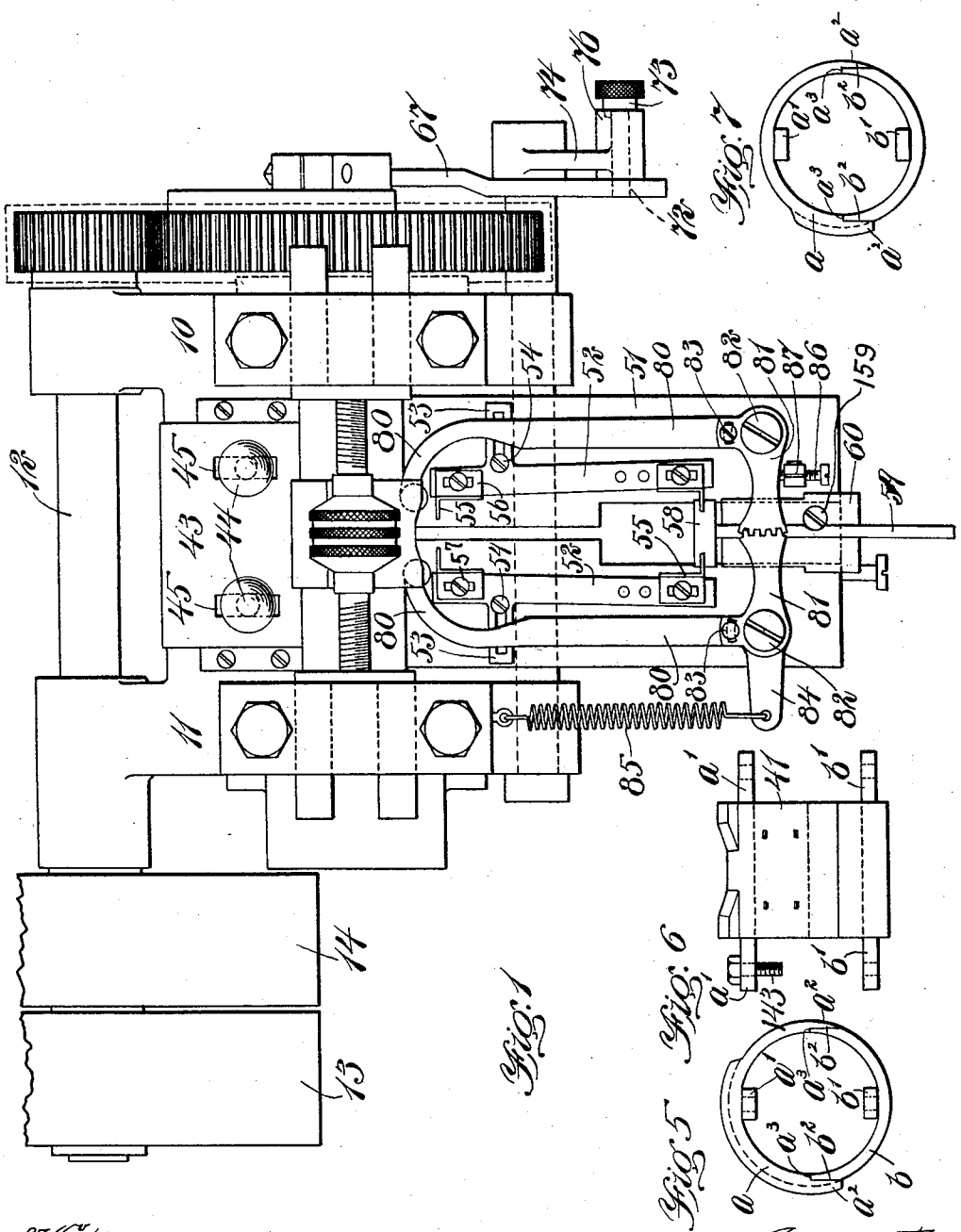

Fig. 1

Fig. 4

Fig. 6

Fig. 5

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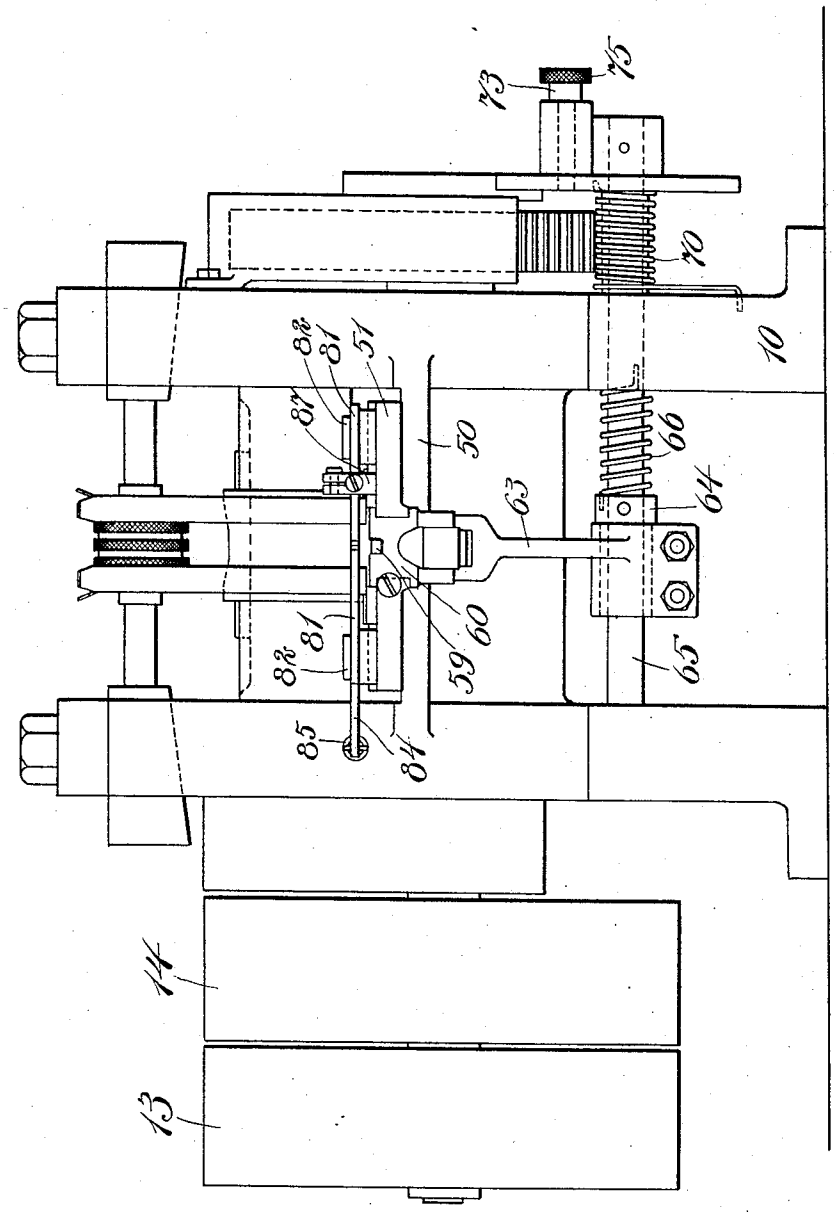
4 SHEETS-SHEET 2.

Fig. 2.



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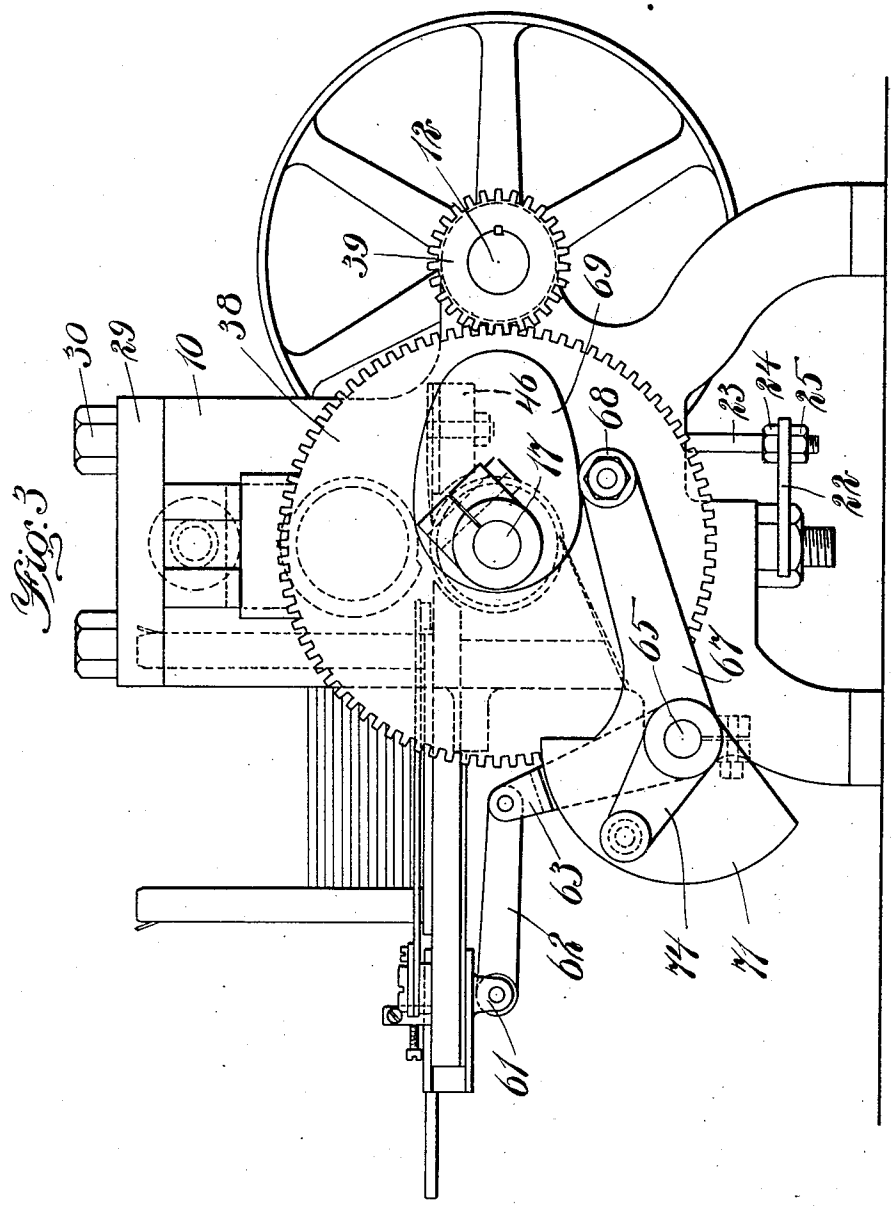

Fig. 3

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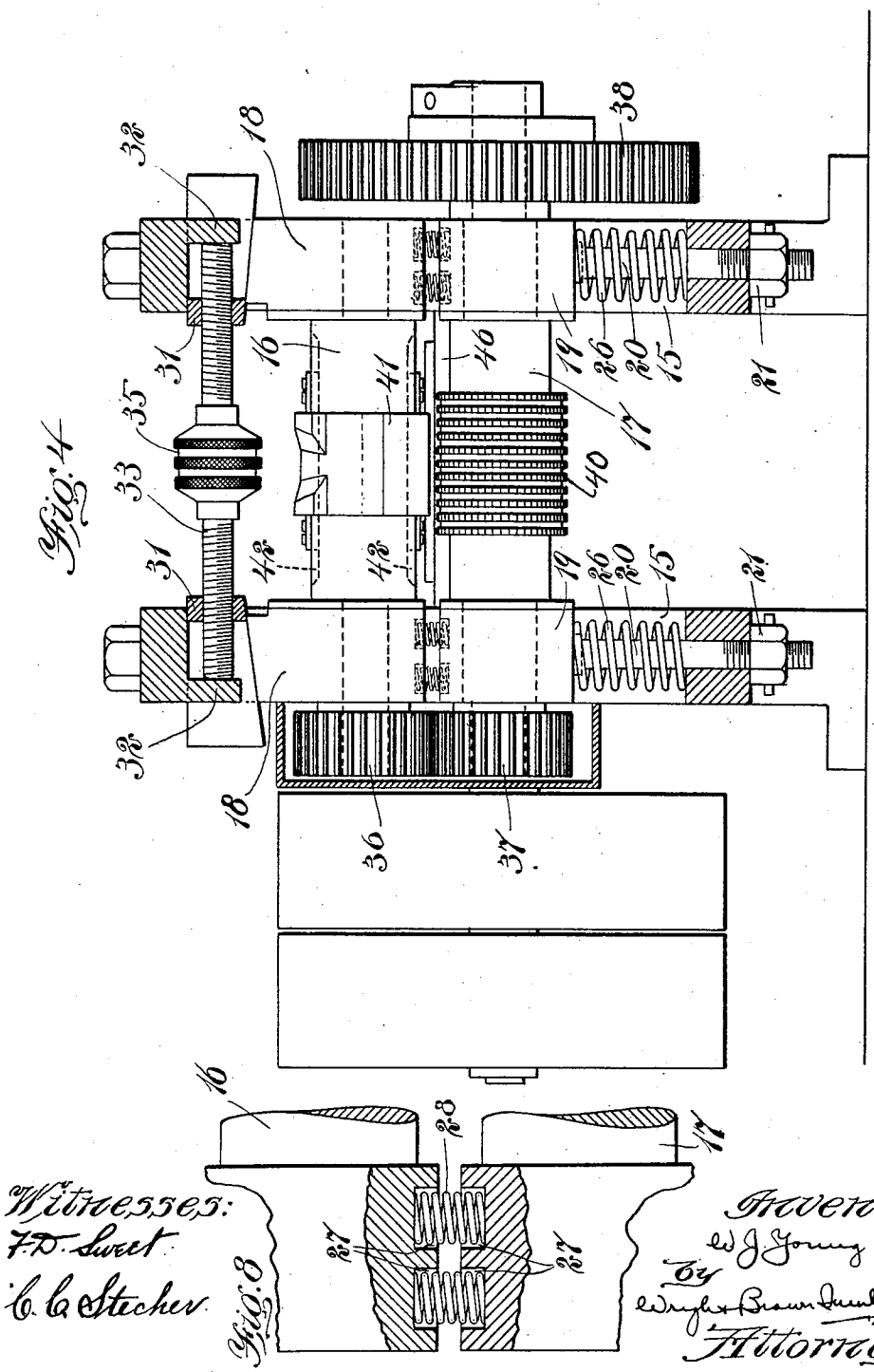

Fig. 4

Fig. 8

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UNITED STATES PATENT OFFICE.

WILLIAM J. YOUNG, OF PEABODY, MASSACHUSETTS, ASSIGNOR TO W. J. YOUNG MACHINERY COMPANY, OF LYNN, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SKIVING-MACHINE.

1,033,366. Specification of Letters Patent. **Patented July 23, 1912.**

Application filed June 14, 1905. Serial No. 265,194.

To all whom it may concern:

Be it known that I, WILLIAM J. YOUNG, of Peabody, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Skiving-Machines, of which the following is a specification.

This invention has relation to skiving or gouging machines, so called, such as are utilized for skiving top-lifts, shanks, counters and other parts of boots and shoes.

It has more particular relation to that type of such machines in which are employed a feed-roll and a rotary matrix having a depression in its periphery to receive the work.

The object of the invention is to provide certain improvements in machines of the character indicated whereby they are rendered more durable, more accurate in operation, and more efficient than heretofore.

Referring to the accompanying drawings, which illustrate one embodiment of the invention, to the details of which it will be understood the invention is not limited,—Figure 1 represents in plan view a skiving machine having a matrix particularly adapted for skiving or gouging shanks. Fig. 2 represents a front elevation of the same. Fig. 3 represents a side elevation. Fig. 4 represents a transverse vertical section of the same. Figs. 5 and 6 represent one of the detachable matrices. Fig. 7 illustrates another matrix which may be utilized. Fig. 8 represents a vertical longitudinal section of a portion of the machine and illustrates the springs which are arranged between the journal-boxes of the matrix and the feed-roll.

From the said drawings it will be observed that the machine illustrated as embodying the invention is provided with a frame comprising two side standards 10 11 in which is journaled the main power shaft 12. Fast and loose pulleys 13 14 are on the end of the shaft so that said shaft is driven by power as usually. The side standards are provided with two parallel upright guideways 15 15 in front of the shaft 12 for the reception of the bearing-boxes 18 18 and 19 19 in which are journaled the matrix and the feed-roll 17 respectively. Each of these boxes has laterally projecting guides or ribs which overlap the inner faces of the side standards to prevent their dislocation. The boxes 19 19 are limited in their upward movement by stops which consist of bars 20 projecting downwardly therefrom through the standards, and having their extremities threaded to receive nuts 21 which abut against the standards. The nuts are held against rotation by locking devices comprising yokes 22 adjustably secured upon pins 23 by nuts 24 25. The boxes 19 19 are supported by strong helical springs 26 which encircle the bars 20, the lower ends resting upon the lower end walls of the guideways and the upper ends engaging the bearing-boxes 19. The boxes 18 and 19 are separated, and their confronting faces or surfaces are socketed, as at 27, to receive springs 28. Any number of springs may be interposed between each pair of boxes. Their combined strength may be equal to but is preferably less than that of the springs 26, so that they will yield first when pressure is applied downwardly upon the boxes 18. The boxes 18 and the matrix 16 which is supported thereby are simultaneously adjustable to cause an adjustment of the feed-roll simultaneously therewith, with reference to the knife, and to effect their adjustment I may utilize the following mechanism.

The upper ends of the boxes 18 are outwardly beveled and between them and longitudinal bars 29 which are affixed to the tops of the standards by bolts 30 are arranged wedge-shaped yokes 31. The bars 29 have lugs 32 which extend down between the arms of the yokes as shown in Fig. 4. The wedge-shaped yokes are so arranged that when they are drawn toward each other the bearing-boxes 18 are forced downwardly against the tension of the springs 28. Arranged between the lugs 32 32, with its ends bearing thereagainst, is a right and left threaded screw-bar 33, in threaded engagement with the yokes. This screw-bar is provided with an enlarged milled center portion or head 35, by which it may be rotated to cause the wedges to approach toward or to be separated from each other, to effect a simultaneous adjustment of the boxes 18. The ends of the screw-bar bear against the lugs 32, as stated, so that it is unable to yield longitudinally and hence the rotation of the screw-bar adjusts the wedges and the bear-

ing-boxes 18 to a nicety. When the blank is fed between the feed-roll and the matrix, the feed-roll is forced downwardly, and the work is thus presented at different planes according to the adjustment of the matrix.

The matrix 16 and the feed-roll 17 have upon their projecting ends pinions 36 37 which intermesh, their teeth being long enough to permit of a limited separation of said pinions without their becoming unmeshed. On the end of the feed-roll 17, opposite the pinion 37, there is a large gear 38 which intermeshes with and is driven by a pinion 39 on the shaft 12, so that from said power shaft, power is transmitted to the two members for their rotation in opposite directions. The gearing hereinbefore described is covered by casings secured to the outside of the two standards 10 and 11.

The feed-roll 17 is constructed in the form of a shaft or cylinder, and it is provided with a corrugated or toothed portion 40, the points or teeth of which are adapted to penetrate the blank to a greater or less extent and feed it positively, and at the same time to force the blank firmly into the depressed portion of the matrix so that the blank may be properly skived or gouged.

Heretofore it has been customary to construct the matrix 16 in the form of a shaft or roll to receive a cylindrical shell or sleeve which constitutes the matrix proper, said shell being made in one piece and placed axially upon the roll, and therefore it has been necessary to either mount the matrix upon the end of the shaft, or else to remove the shaft bodily from the machine to permit the matrix to be placed upon it.

It is my purpose to utilize interchangeable matrices adapted for skiving counters, shanks or lifts, or other portions of a shoe, and to so construct the matrices that they may be attached upon the roll or shaft 16 without removing it from its bearings. To this end each of the matrices is made of a plurality of detachable longitudinally divided sections which are adapted to be secured together around the roll.

With reference to the drawings, it will be seen that in Figs. 4, 5, and 6, a matrix is there illustrated which is indicated as a whole at 41. Each matrix consists of a shell which is made in a plurality of sections, two for instance, as indicated at a and b respectively. These two parts are substantially semi-cylindrical interiorly, and they are adapted to fit accurately about the roll or shaft 16. It will be observed that said roll is provided with diametrically opposite longitudinal grooves 42 42, and that the portions a and b of the matrix are provided with internal ribs a' b' which project from the ends thereof, as shown in Fig. 6. These ribs are adapted to be seated in the grooves 42 and to be rigidly secured therein by screws 143 or other suitable fastening members passed through apertures in the projecting ribs a' b' and which are located outside the field of pressure of the matrix on the work. This shell-like matrix is formed with a suitable depression, properly shaped in accordance with the work that is to be skived or gouged.

Figs. 5 and 6 illustrate a matrix adapted for a shank, whereas in Fig. 7 a matrix is illustrated that may be utilized for skiving or gouging a lift.

The section b of the mold is exteriorly flattened as at b^2 on its sides, and the section a is provided with lips or projections a^2 which overlap the sides of the section b, and with shoulders a^3 against which the edges of the section b will abut.

When the two sections of the matrix are secured upon the shaft or roll 16, they form to all intents and purposes a single matrix. The matrix is located in proper operative position with respect to the feeding roll 17, so that when a blank is fed between them, the body of the leather is crowded into the depression in the matrix by the teeth of the feed-roll and that portion of the leather which lies in the depression is skived off or removed by a knife which is indicated at 43. This said knife 43 is secured adjustably upon a cross bar 46 extending between the side standards by suitable fastening devices 44, passed through slots 45. The operative edge of the knife is properly located with respect to the matrix and the feed-roll to perform its function in the most desirable manner.

Mechanism is provided for sustaining and successively feeding the blanks automatically. 50 represents a cross-bar extending between the side standards upon which is placed a table 51. Upon this table is arranged a chute or receptacle for the blanks, said chute consisting of two side or base-bars 52 52 having lateral slotted projections 53, through the slots in which fastening devices 54 are passed into the table. At the ends of these bars are placed adjustable upright angle-bars 55 which constitute a receptacle or chute for the blanks, each angle-bar being provided with a slotted base 56, through which a fastening device 57 is passed into the side or base bar 52. A feeder or pusher 58 is arranged along the table 51 and its upper surface is slightly below the top surface of the base bars 52, as shown in Fig. 2, so that when the feeder or pusher is reciprocated, it operates to feed the lowermost blank in the pile into position to be grasped by the matrix and feed-roll. The table 51 is located in front of the working members and in such position that the blank will be introduced in the proper plane between the matrix and feed-roll by the feeder. This feeder is op-

ferred, and that the drawings are more or less conventional.

Having thus explained the nature of the invention, and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the modes of its use, I declare that what I claim is:—

1. In a skiving machine, a shaft, bearings for the ends thereof, a matrix separable laterally from said shaft without removing the shaft from its bearings, said matrix comprising a shell divided longitudinally into sections, said shaft having grooves and said sections having ribs projecting from their ends to fit said grooves, and fastening devices for attaching said ribs to said shaft.

2. In a skiving machine, a matrix consisting of a hollow cylinder or shell divided longitudinally into separate laterally detachable sections, said cylinder having a depression in its periphery, said sections thereof having complemental overlapping meeting edges, end bearings, and a shaft from which said matrix sections are removable without removing said shaft from its bearings.

3. In a skiving machine, the combination of a knife, a feed-roll, and a rotatable matrix, all coöperating to feed and skive a blank, and bearings in which both ends of said feed-roll and said matrix are journaled, said matrix comprising a shaft or roll extending continuously from one end to the other thereof, an external shell or hollow cylinder longitudinally divided into separable sections transversely removable from said shaft or roll, and means outside the field of pressure for attaching said sections to said roll.

4. In a skiving machine, a knife, a rotatable matrix, a feed-roll, a table in front of the matrix and the feed-roll, a holder for a pile of blanks comprising a pair of base-bars each having a slotted arm projecting laterally therefrom, fastenings passed through said slots whereby said base-bars are adjustable bodily toward and from each other and are rotatably adjustable about said fastenings, angle-bars having flat bases adjustably supported by each of said base-bars so as to be adjustable toward and from each other, and a feeder for successively feeding the bottom blanks in the pile.

5. In a skiving machine, a knife, a feed-roll, a rotatable matrix, a holder for a pile of blanks, and mechanism for feeding the blanks successively to the matrix and feed-roll comprising a rotary cam, a slide, a rock-shaft, a lever on the rock-shaft connected to the slide, a spring normally tending to retract said slide, a second lever on the rock-shaft, a clutch for connecting said levers, and a spring tending to hold said second lever against the cam.

6. In a skiving machine, a knife, a feed-roll, a rotatable matrix, a holder for a pile of blanks, and mechanism for feeding the blanks successively to the matrix and feed-roll, comprising a feeder, means for reciprocating said feeder, a manually-controlled device for rendering said feeder-reciprocating means inactive, and means for automatically retracting the feeder when the feeder-reciprocating means have been rendered inactive.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM J. YOUNG.

Witnesses:
GEO. W. BREED,
HARRIET L. BEAN.