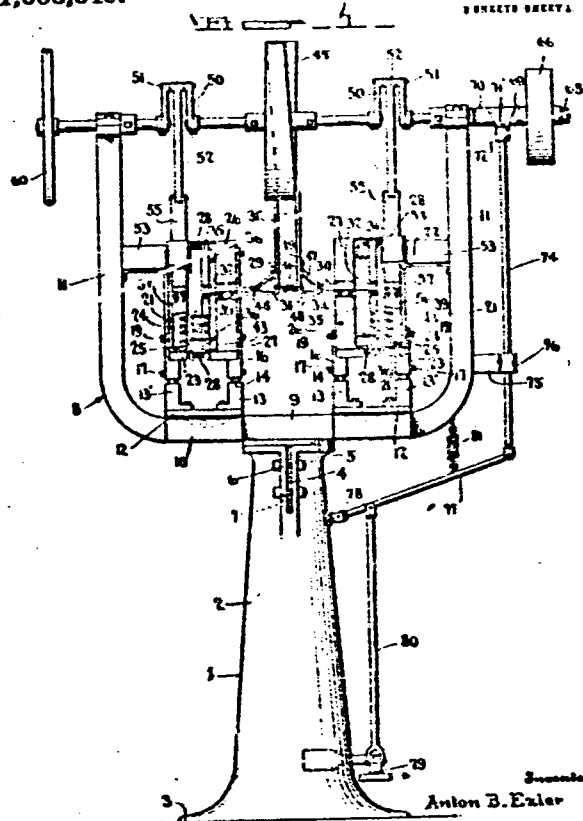


1,003,349.

A. B. EXLER.  
WELD FRANK CUTTER.  
APPLICATION FILED JAN. 10, 1911

Patented Sept. 12, 1911  
SHEET ONE



Witness  
A. B. Exler

Anton B. Exler

Inventor

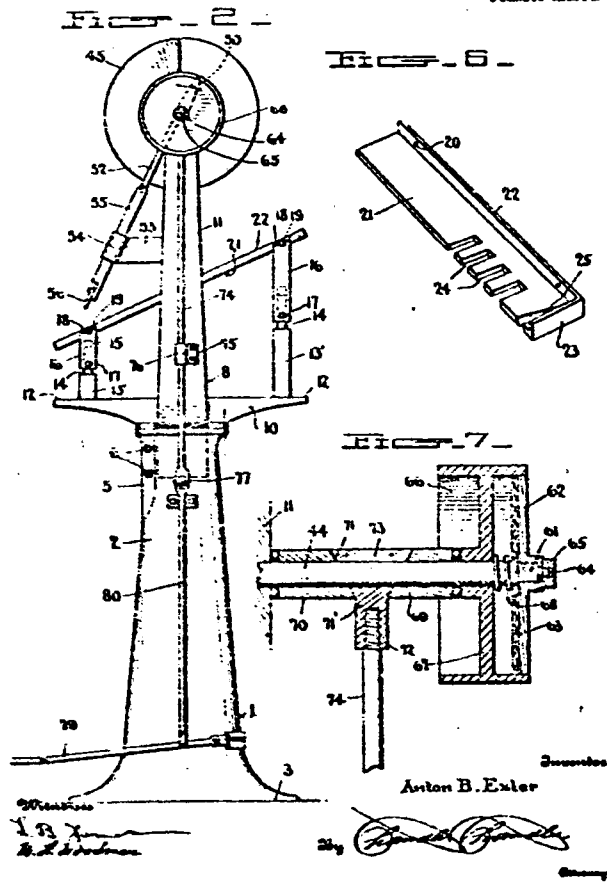
Attorney

A. B. EXLER.  
WELT SHANK CUTTER.  
APPLICATION FILED JAN. 30, 1911.

1,003,349.

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3 SHEETS-SHEET 1.



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WELT GRASS CUTTER.  
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1,008,349.

Patented Sept. 12, 1911.

SHEET-SHEET 2.

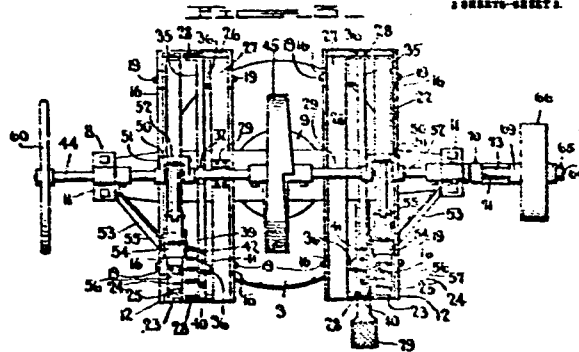


Fig. 4-

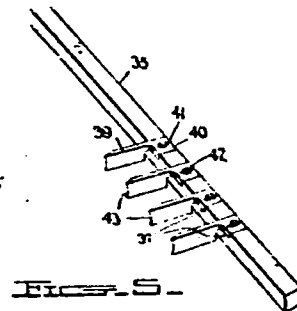
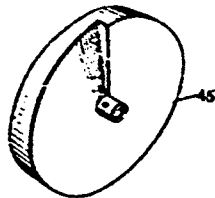


Fig. 5-

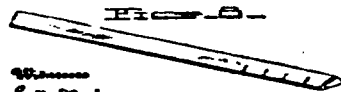


Fig. 6-

By *[Signature]*  
Attorney

Anton B. Exler

By *[Signature]*  
Attorney

1,003,349. WELT-SHANK CUTTER.

ANTON B. EXLER, Washington, Mo. Filed Jan. 19, 1911. Serial No. 603,549.

*To all whom it may concern:*

Be it known that I, ANTON B. EXLER, a citizen of the United States, residing at Washington, in the county of Franklin, State of Missouri, have invented certain new and useful Improvements in Welt-Shank Cutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in shoe machinery and more particularly to a machine for operating upon welts and my object is in general to improve the construction and increase the efficiency and utility of machines of this character.

More particularly, the invention resides in the provision of a machine for slitting and cutting shank welts, the two operations being performed simultaneously and in the further provision of means for operating upon both inside and outside welts.

With the above and other objects in view, the invention consists primarily in a frame to which is secured a welt supporting trough, a slitting knife carrier mounted to reciprocate toward and from the trough, a plurality of slitting knives carried therein and adapted to slit the previously skived edge of the welt, a cutting off knife adapted to make a beveled cut, and means operated by a shaft journaled transversely in the frame for causing the desired movement of said knives.

The invention further consists in a certain construction, combination and arrangement of parts and details as is hereinafter more fully described, pointed out in the appended claims, and illustrated in the accompanying drawings which show a preferred embodiment of the invention.

In these drawings which are attached to and form a part of this application, Figure 1 is a front elevation of the complete machine. Fig. 2 is a side elevation of the machine. Fig. 3 is a plan of the same. Fig. 4 is an enlarged detail perspective of a double faced plate cam used in operating the knives. Fig. 5 is a perspective view of one of the slitting knife members. Fig. 6 is a detail perspective of a welt feeding trough. Fig. 7 is a detail section showing the clutch mechanism. Fig. 8 is a detail perspective view of a welt as it comes from the machine.

Referring more particularly to these views, in which similar reference numerals designate corresponding parts throughout, 1 indicates in general the base of the machine, comprising a supporting pillar 2 having an outwardly flared base 3. The pillar, which

is preferably formed of cast metal has its upper extremity provided with a longitudinal slot 4, the metal adjacent the slot being extended outwardly and then recessed to form pockets 5 in which are seated tightening bolts 6 which pass through aligning drilled apertures 7 in the confronting faces of the slots, the whole construction constituting a grip device for securing the machine head. This head which will in general be designated 8 comprises a cylindrical stock portion 9 adapted to be gripped in the split top of the column as described, a base frame 10 which carries the stationary portions of the welt operating mechanism, and a pair of standards 11 in which is journaled the operating shaft.

Referring more particularly to the head base 10 it will be seen from Fig. 1 that the latter is provided with the two symmetrically disposed longitudinal platform pieces 12, the same being preferably cast integrally with the head. Each of these platforms serves as a mounting for a welt supporting and slitting device, and since the two mechanisms are precisely alike the description of one will serve for both. Secured to the platform 12 by bolts, rivets or other suitable fastenings are the four stationary leg members 13 and 13', the former reference numerals applying to the two inside legs and the latter to the two outside legs. Each of these leg members is formed with a reduced upper extremity 14 adapted to slide in the bore 15 of an upper leg portion 16, and a set-screw 17 serves to secure the telescoping members at any fixed extension. Adjacent their upper extremities the leg portions 16 are provided with transverse slots 18.

Adjustably secured by means of bolts 19 passing through the slots 18 of the leg members 16 is the welt holder or trough shown in detail in Fig. 6, the said bolts co-acting with tapped openings 20 formed in the outside or vertical angle of the holder. Referring to Fig. 6 for the specific construction of the holder, it will be seen that the same comprises a table portion or base 21, the outside and forward edges of which are provided with upward extensions 22 and 23 respectively which form guard walls. The base portion 21 is provided adjacent its forward end with a plurality of inwardly extending slots 24, and in advance of these the V-shaped notch or aperture 25 is formed.

Supported in parallel relation to the holder and spaced therefrom is the slitting knife carrier designated as a whole by 26 and comprising a stationary guide piece 27 in the form of a bar of rectangular section, and secured to the inside legs 13 by fastenings similar in design to those of the welt holder. Adjacent the ends of this bar are secured the laterally directed loops 28, and

to the upper surface of the bar is bolted a relatively small casting 29 in which is formed the transverse guide opening 30.

Adapted to reciprocate in the aperture 30 is the slitting knife operating bar 31 which as shown is of rectangular section and provided on its outward end with extensions 32 in which are formed drilled apertures. Secured by means of bolts 34 passing through these apertures is a slitting knife carrier bar 35, the ends of which engage the guide loops 28. Small helical tension springs 36 are secured to the inner face of the bar 35 and to the stationary member 27, the tendency of the springs being to normally retain the carrier bar in the inward position.

In order to secure the slitting knives in their carrier, the latter is formed with the parallel sided channels 37, in the bases of which are formed tapped openings. The slitting knives, as shown in Fig. 5 comprise two portions, the knife proper the plane of which is substantially vertical as here shown at 39, and the root portion 40, the plane of which is disposed at an angle to that of the blade. In this root portion is formed a slot 41 by means of which the knife may be adjustably secured for longitudinal movement in the carrier slots 37, a bolt 42 forming the fastening means. By this construction it will be seen that the knife edge shown at 43 may be adjusted for any depth of cut desired, and since the knives are independently adjustable the welt slits may be made of varying depths in any proportion as is desired, and wear due to regrinding of the knife edges may be conveniently taken up.

Journaled in the standards 11 is the transverse operating shaft designated as a whole by 44. Midway the length of this shaft a

double faced plate cam 45 is keyed. Referring to Fig. 4 it will be seen that this cam has its surfaces formed as parts of helical planes, the helix of one surface being 180 degrees in advance of the other. The slitting knife operating bars 31 are actuated from this cam by means of upwardly extending feet 31' which bear against the two faces of the cam and held in contact therewith by means of the springs 36. Additional pressure to insure positive action of the bars is gained by the use of a small spring 46 connecting the confronting terminals of the pieces 31', and in order to more securely brace the operating bars, triangular struts 47 are secured to the terminals 31' and to the bar extensions at 48 and 49 respectively. Relatively near the ends of the shafts 34 it is bent to form cranks 50 and on the crank pins 51 of these cranks are journaled connecting rods 52. Secured to the standards 11 are the inwardly extending arms 53 in the ends of which are formed guide sleeves 54 inclined forwardly and downwardly as shown. Adapted to reciprocate in these

sleeves and operated by the connecting rod 52 are the cut-off knife carriers 55 to the lower ends of which are secured the knives 56, which as shown in Fig. 1 are provided with adjusting slots 57 similar to those of the slitting knives. The cut-off knife edges are ground at an inclination to the axis of the knife in order to make a beveled cut as will hereinafter appear.

One extended end of the operating shaft 44 is provided with a hand wheel 60 and the other end is, as shown in Fig. 3, provided with the driving mechanism and clutch of which the following is a more particular description. The outer extremity of the shaft 44 is squared as shown at 61 and on this squared extension is mounted a friction disk 62, the inner face of the disk being provided with a leather wearing surface as shown at 63 the squared portion is provided with a reduced and threaded extremity 64 by means of which a securing nut 65 may be made to grip the disk 62 against the shoulder formed at the juncture of the squared and cylindrical portions of the shaft. Loosely mounted upon the said cylindrical portion and adjacent the disk is a driving pulley 66 having a friction face 67 adapted to contact with the leather surface 63 but normally held away from the same by a helical spring 68 coiled around the shaft and bearing against the confronting faces of the disk and pulley. Slidably mounted upon the shaft and inside of the pulley is a sleeve 69, and the outward extremity of this sleeve is preferably provided with some species of annular thrust bearing not shown. The inner end of the sleeve 69 is cut at an angle to the axis, and a stationary sleeve 70 which

may be secured to the frame journals has its outer extremity 71 also cut at an angle to the axis the confronting ends of the stationary and movable sleeves being disposed to converge. Slidably mounted for vertical movement between these confronting ends is the clutch operating yoke 71', comprising a stock portion 72 adapted to be secured to a suitable operating rod, and an upper bifurcated portion 73, the forks of which converge downwardly to co-act with the confronting ends of the sleeves.

The operating rod above mentioned comprises in the present instance a tubular member 74 threaded into the stock portion 72 and extending downwardly parallel to the standard 11, this parallel relation being maintained by a guide arm 75 secured to the standard 11 and provided at its outward extremity with a slide bearing 76. The lower end of the rod 74 is pivotally connected to a transverse lever 77 journaled at 78 and operated by a foot treadle lever 79 through a connecting link 80. In order to normally retain the operating rod in its upward or inoperative position a tension spring 81 is

secured to the lever 77 and to the standard 11 as shown.

In the operation of the machine a shank welt which has been previously skived as is shown in Fig. 8, is placed in the welt holder, the thin edge of the welt being directed toward the inside. The knives being properly adjusted, rotation of the shaft 44 causes the incline knife edge 56 to move downwardly toward the aperture 23 of the welt holder base 21. The cutting edge of the knife operates upon the welt to produce the diagonal beveled cut shown on the welt end in Fig. 8. Simultaneously the rotation of the plate cam causes the knife carrier 35 to move inwardly and the knives carried thereby enter the slots 24, thus slitting the thin edge of the welt to a predetermined depth. The operating mechanism of one side of the machine produces a welt slitted and cut to fit the slip sole of the right hand shank curve while the operating mechanism of the other side produces a welt for a left hand shank curve, and since the cranks 50 and the faces of the plate cam differ in phase by 180 degrees it will be seen that the operating stroke of one mechanism is simultaneous with the withdrawal stroke of the mechanism on the other side. The clutch which as described is of the self releasing variety is conveniently worked by the foot of the operator through connections shown and the hand wheel is provided in order to facilitate the adjustment of the knives.

It will be seen from the above description that I have provided a simple and efficient machine for cutting and slitting shank welts simultaneously, and that the same is adapted to operate upon both right and left hand curves, a single plate cam and crank shaft serving for both. The improved machine may be constructed in any desired size and for both manual and power operation and it will also be understood that various changes of design to conform to personal judgment and manufacturing requirements may be made without departing from the spirit of the invention.

What I claim is:

1. A machine of the class described, including a welt holder, a welt cutting knife, a plurality of welt slitting knives, and means for simultaneously actuating said cutting knife and said slitting knives.

2. In a machine of the class described, in combination, a frame, including a welt holder, a welt cutting knife mounted for reciprocation in said frame, a plurality of welt slitting knives, a common carrier bar for said knives, means for securing said bar for reciprocation in said frame, and means for simultaneously actuating said cutting knife and said slitting knives.

3. In a machine of the class described, in combination, a frame, including a welt holder, a cutting knife mounted for reciprocation in said frame, a plurality of slitting knives, a common carrier bar for said knives, means for mounting said bar for reciprocation in said frame, a shaft journaled in said frame, a crank and a cam carried by said shaft, means operated by said crank for causing the reciprocation of said cutting knife and means operated by said cam for causing the reciprocation of said slitting knives, a crank and a cam being timed to produce simultaneous operation of said knives.

4. In a machine of the class described, in combination, a frame, a pair of welt holders mounted thereon, a cutting knife in operative relation with each of said holders, a set of slitting knives in operative relation with each of said holders, and means for operating said knives to simultaneously cut and slit the welt.

5. In a machine of the class described, in combination, a frame, a pair of welt holders mounted thereon, a cutting knife mounted for reciprocation in said frame, a set of slitting knives in operative relation with each of said holders, a shaft journaled in said frame, a pair of cranks and a cam secured to said shaft, means for connecting said cranks to each of said cutting knives respectively, and means for connecting said cam with both sets of slitting knives, the cranks and cam being timed to produce simultaneous operations upon a welt carried in one of said holders and consecutive operations on welts carried in each of said holders.

6. In a machine of the class described, in combination, a frame, a pair of welt holders mounted thereon, a cutting knife in operative relation with each of said welt holders, means for adjusting said knives, a set of slitting knives in operative relation with each of said holders, each set comprising a plurality of knives mounted for independent adjustment on a common carrier bar, a shaft journaled in said frame, a pair of cranks and a cam secured to said shaft, means for connecting said cranks to each of said cutting knives respectively, and means for connecting said cam with said carrier bar, the cranks and cam being timed to produce simultaneous operations upon a welt carried in one of said holders and consecutive operations on welts carried in each of said holders.

7. In a machine of the class described, in combination, a frame, a pair of welt holders mounted thereon, a cutting knife in operative relation with each of said welt holders, means for adjusting said knives, a set of slitting knives in operative relation with

each of said holders, each set comprising a plurality of knives mounted for independent adjustment on a common carrier bar, a shaft journaled in said frame, a pair of cranks and a double faced plate cam secured to said shaft, connecting rods secured to said cranks and to each of said cutting knives respectively, members mounted for reciprocation in said frame and secured to each of said carrier bars respectively, the confronting ends of said members being disposed in operative relation to the faces of said cams respectively, and a tension spring connecting said confronting ends said crank and cam being timed to produce simultaneous operations upon a welt carried upon one of said holders and consecutive operations on welts carried in each of said holders.

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

ANTON B. EXLER.

Witnesses:

J. F. SCHROEDER,

GEORGE SCHROEDER.