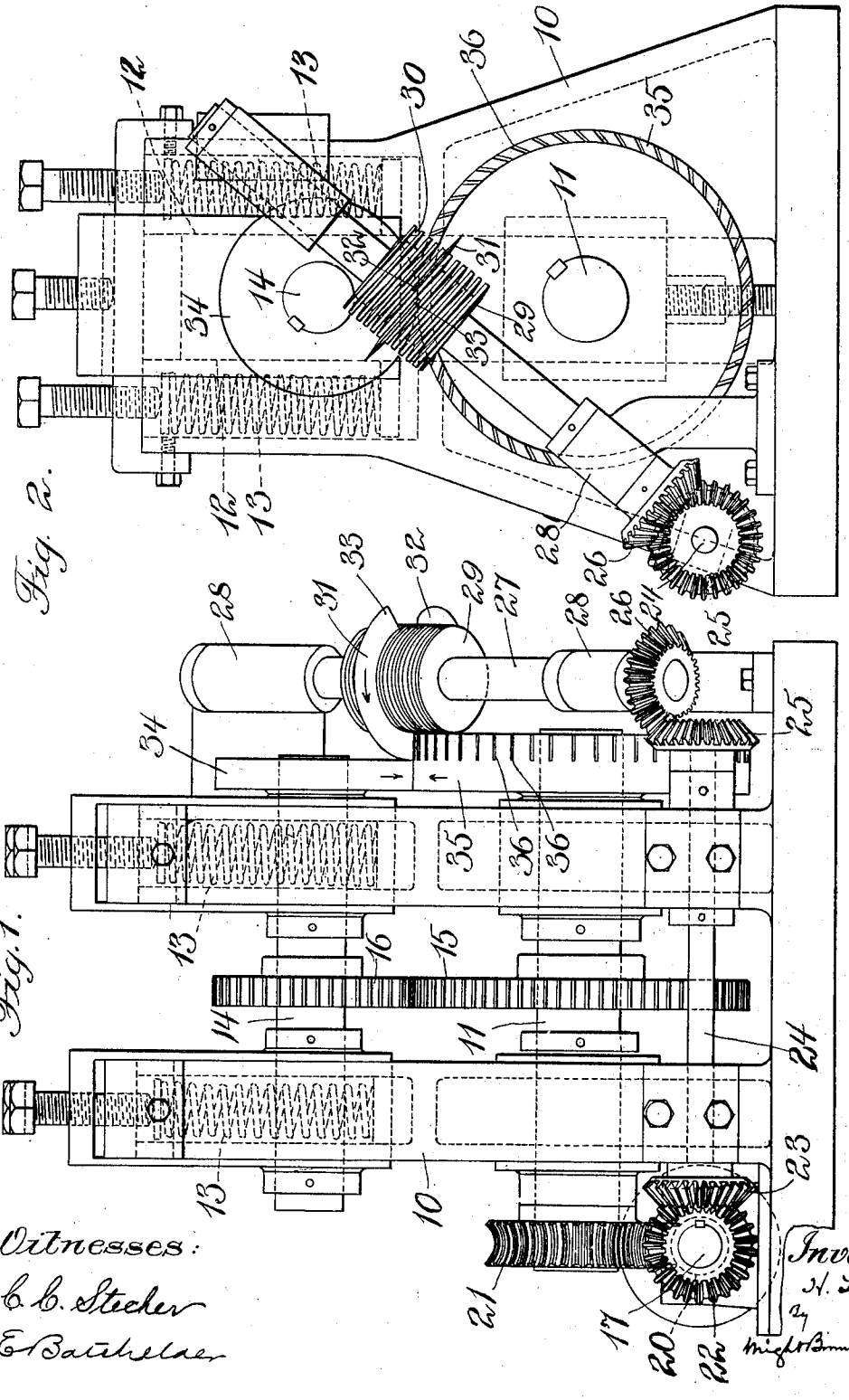
No. 737,430. PATENTED AUG. 25, 1903.

H. LYON.

WELT SLITTING MACHINE.

APPLICATION FILED OCT. 17, 1902.

NO MODEL. 2 SHEETS—SHEET 1.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

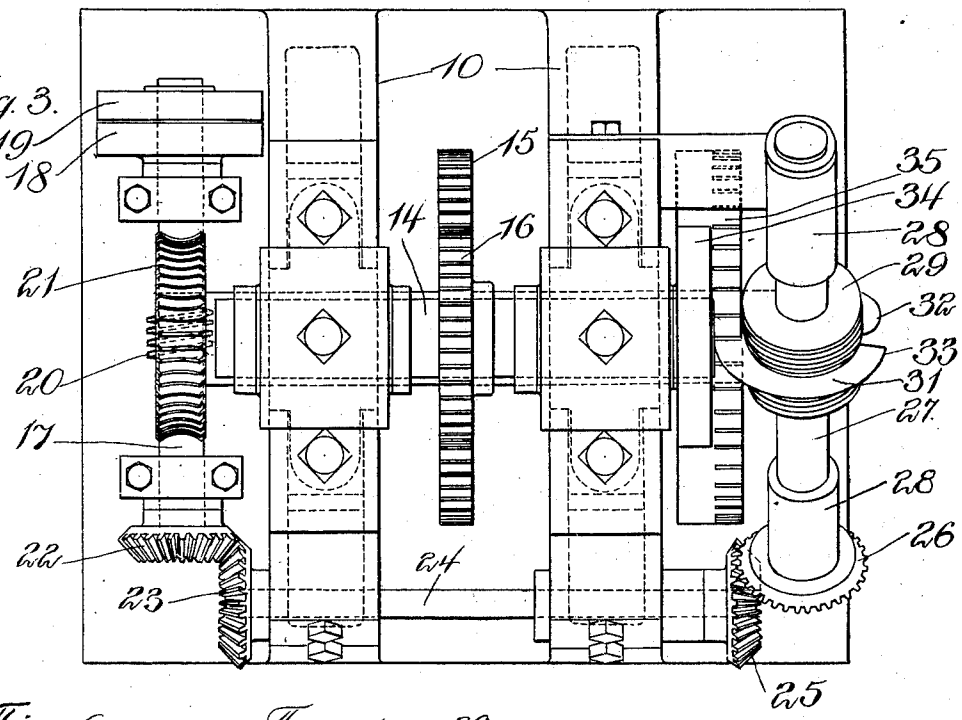


Fig. 6.

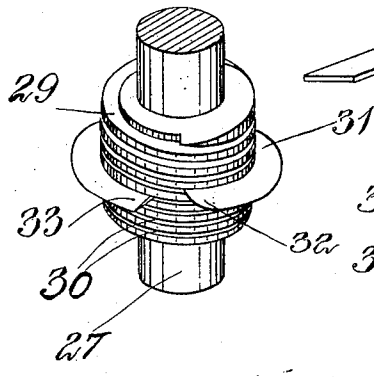


Fig. 4.

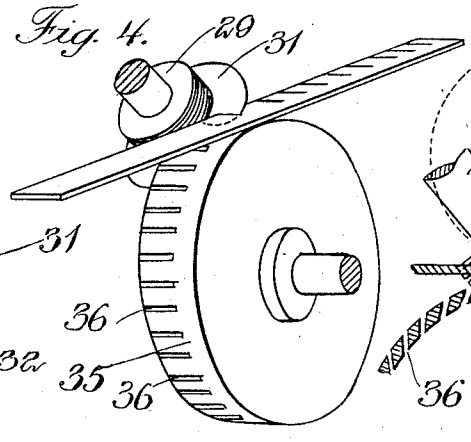
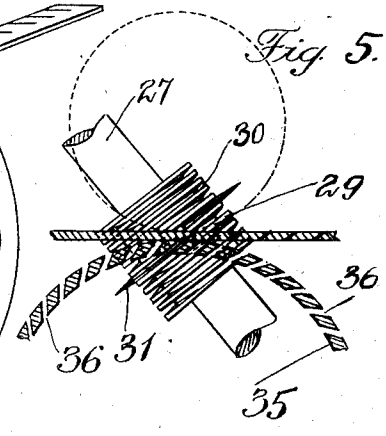


Fig. 5.



Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 737,430. Patented August 25, 1903.

UNITED STATES PATENT OFFICE.

HARRY LYON, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO OSCAR A. CAMPBELL AND SAMUEL H. NICHOLS, OF BROCKTON, MASSACHUSETTS, COPARTNERS UNDER THE FIRM NAME OF THE BROCKTON SUPPLY COMPANY.

WELT-SLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 737,430, dated August 25, 1903.

Application filed October 17, 1902. Serial No. 127,713. (No model.)

To all whom it may concern:

Be it known that I, HARRY LYON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Welt-Slitting Machines, of which the following is a specification.

This invention relates to a machine for forming a series of slits along one edge of a welt for a boot or shoe to enable the welt to be easily bent or curved without bunching, said slits being usually inclined, so as to cause the tongues between the slits to lap like scales and slide easily on each other and also preserve the continuity of the slit edge when this edge takes a salient curve. Heretofore it has been common to perform the slitting operation by an intermittent movement, the welt having a step-by-step feed movement and being subjected to the action of a reciprocating slitting-knife during the periods of rest.

The object of my invention is to enable the slitting of the welts to be accomplished by a continuous operation instead of by a reciprocating or intermittent motion, thereby greatly simplifying the machine, increasing its speed of operation and durability, and decreasing its cost. The machine is also adapted to slit rands or any other strip of material of the nature of a welt or rand.

Of the accompanying drawings, Figure 1 represents a side elevation of a welt-slitting machine constructed in accordance with my invention. Fig. 2 represents a front elevation thereof. Fig. 3 represents a top plan view. Fig. 4 represents a perspective view of the cutter and templet-wheel operating on a welt. Fig. 5 represents a sectional view of said parts. Fig. 6 represents a detail perspective view of the cutter.

The same reference characters indicate the same parts in all the figures.

In the drawings, 10 is a framework having fixed bearings for a lower horizontal shaft 11 and movable bearings 12 12, yieldingly depressed by springs 13 13, for a yielding horizontal shaft 14. The two shafts are connected by gears 15 16, and the lower shaft is driven from a power-shaft 17, having pulleys 18 19, through a worm 20 and worm-gear 21. The shaft 17 also has a bevel-gear 22, meshing with a bevel-gear 23 on a shaft 24, which has a bevel-gear 25 on its front end meshing with a bevel-gear 26 on an inclined shaft 27, mounted in fixed bearings 28 28. The shaft 27 carries a cylindrical hub 29, formed with a helical groove 30, in which is fixed a thin helical cutting-blade 31, forming nearly a complete turn around the hub. A short space is left for the insertion of the welt between the front or advancing end 32 of this cutting-blade and its rear or following end 33, and the outer edge of said blade is sharpened from the hub 29 outwardly along the curved advancing end of the blade and throughout the rest of its length. This curved advancing end 32 gives a shearing cut as the blade enters the material of the welt.

The cutting-blade 31 is mounted opposite the point of tangency between an upper cylindrical feed-wheel 34, attached to the shaft 14, and the unslotted inner portion of a cylindrical templet-wheel 35, attached to the shaft 11. These wheels 34 35 act as feed-wheels for the welt, which is fed horizontally between them, and the acting portion of the cutting-blade 31 is located at such an angle to the path of the welt as to give the desired inclination to the slits in the welt. In the outer portion of the templet-wheel 35 are formed slots 36 36, having an inclination corresponding to that of the cutter-blade 31 and located at a distance apart equal to the pitch of the helical groove 30 or distance between its adjacent convolutions.

In operation the welt or strip of material to be slitted along its edge is fed with a continuous movement between the upper and lower positively-driven feed-wheels 34 35. The cutting-blade 31 has a period of revolution corresponding to that of a worm in mesh with a gear corresponding to the templet-wheel 35, so that as the two rotate the blade 31 passes successively into the slots 36 of the wheel 35. As the welt is fed along its edge is continuously slitted by the blade 31, the advancing end 32 of said blade passing downwardly into the work, and the slotted portion of the templet-wheel 35 acts as a bed to prop-

erly support the work against the thrust of the cutting-blade.

It will be seen that the lower feed-wheel proper is the unslotted portion of templet-wheel 35 opposite the upper feed-wheel 34. The slotted part of the templet-wheel is of some assistance in feeding the work, but its feeding function is subordinate to its function as a support or bed. I may therefore vary the construction of this portion of the machine to a considerable extent without departing from the general principle of operation of the structure.

I claim—

1. In a machine for slitting welts, a welt-feeding wheel, means to continuously and positively rotate the same, a coöperating feed-wheel, and a continuously-rotating welt-slitting cutter mounted laterally opposite or in line with the feeding-point between said wheels and having its axis of rotation inclined to the path of the welt between the wheels, whereby a series of inclined slits is formed by said cutter in the margin of a welt projecting from between the feed-wheels.

2. In a machine for slitting welts, a pair of coöperating welt-feeding wheels between which a welt is adapted to be fed with its margin projecting in a lateral or axial direction from between the wheels, a rotary cutter mounted laterally opposite or in line with the feeding-point between said wheels and having its axis of rotation inclined to the path of the welt between the wheels, and a bed having provisions for supporting the projecting margin of the welt on both sides of the cutter, against the thrust of said cutter.

3. A cutter for welt-slitting machines having a hub formed with a helical groove, and a helical slitting-blade mounted in said groove.

4. In a machine for slitting welts, means for feeding the welt, a rotary cutter for slitting its edge, and a moving bed for supporting said edge formed with slots to receive said cutter.

5. In a machine for slitting welts, a helical welt-slitting blade and a welt-feeding wheel slotted to receive said blade.

6. In a machine for slitting welts, coöperating wheels between which the welt is fed, and a helical slitting-blade mounted opposite the space between the adjacent portions of their circumferences and inclined to said portions.

7. In a machine for slitting welts, coöperating wheels between which the welt is fed, one of said wheels being formed with slots to receive the slitting-blade, and a helical slitting-blade mounted opposite the space between the adjacent portions of the circumferences of said wheels in a position inclined to said portions and adapted to successively enter said slots.

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

HARRY LYON.

Witnesses:
C. F. BROWN,
E. BATCHELDER.