No. 745,965. PATENTED DEC. 1, 1903.

H. LYON.

WELT SLITTING MACHINE.

APPLICATION FILED DEC. 1, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

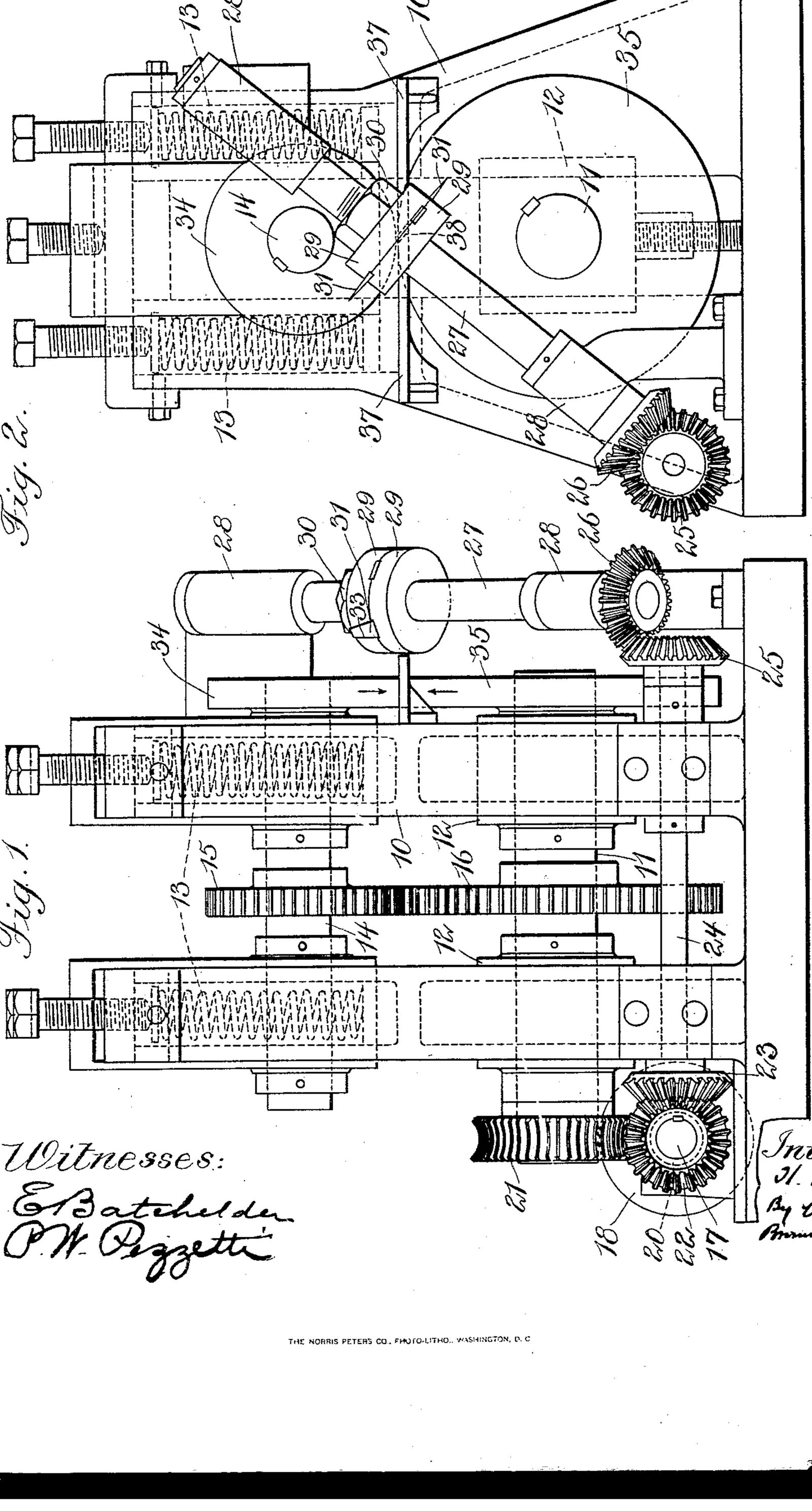

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Fig. 3.

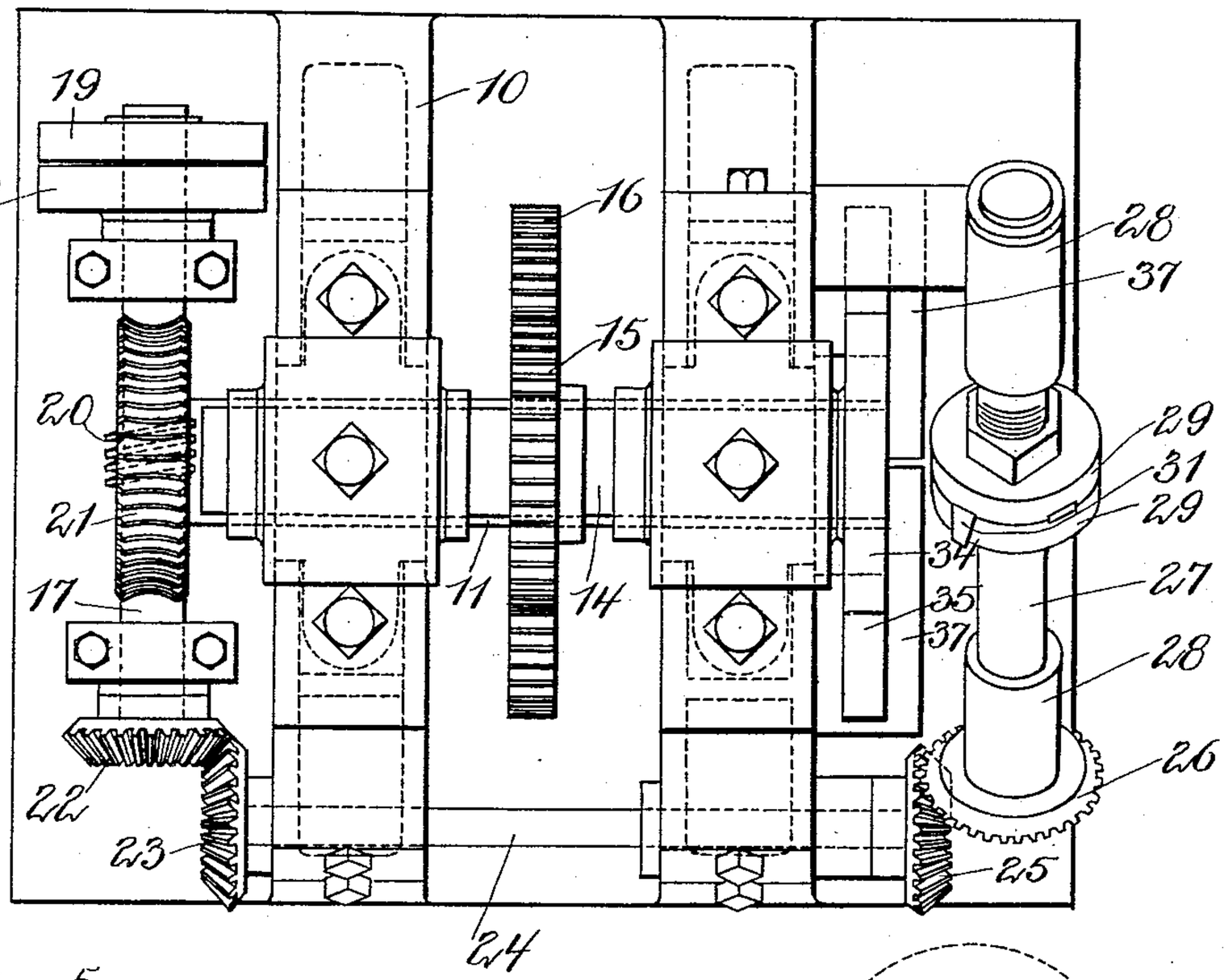


Fig. 5.

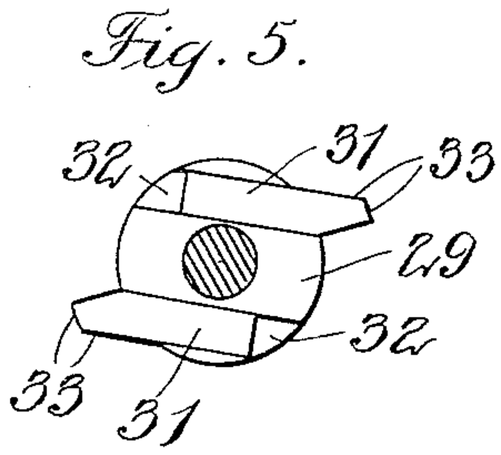


Fig. 4.

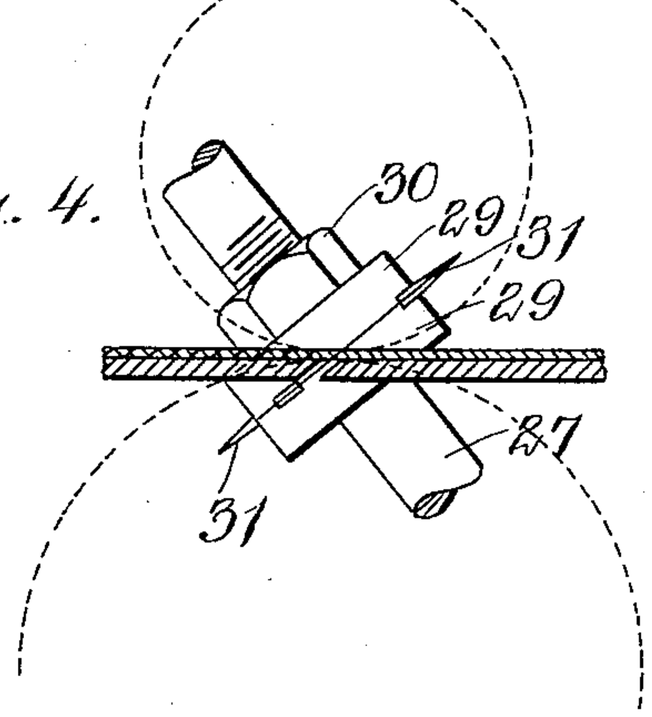
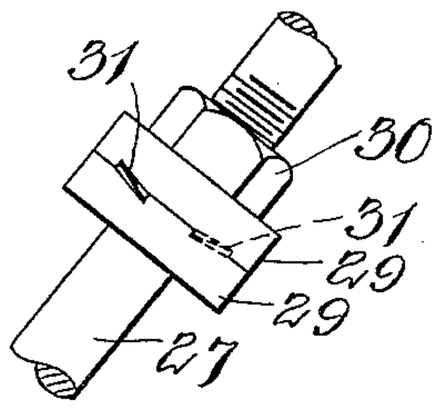


Fig. 6.



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UNITED STATES PATENT OFFICE.

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

WELT-SLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 745,965, dated December 1, 1903.

Application filed December 1, 1902. Serial No. 133,346. (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 welt-slitting machines employing a rotary cutter; and it has for its object to simplify and reduce the cost of the machine, particularly with regard to the parts for feeding the welt and supporting the edge which is being slitted and the construction of the cutter.

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 vertical section of the edge-support and cutter operating on a welt. Fig. 5 represents a transverse sectional view of the cutter. Fig. 6 represents a side elevation showing a modified form of 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 an upper horizontal shaft 14. The two shafts are connected by gears 15 16, and the lower shaft is driven by a power-shaft 17 through a worm 20 and worm-gear 21, said power-shaft having pulleys 18 19. The shaft 17 also has a bevel-gear 22, meshing with a bevel-gear 23 on a shaft 24, the latter having 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 cutter hub or holder composed of plates 29 29, clamped together by a nut 30 and holding between them a pair of oppositely-projecting welt-slitting blades 31 31, the opposed faces of the plates 29 being slightly recessed or grooved at 32 32 to receive the blades, the grooves constituting chords of the holder on opposite sides of its axis of rotation. The cutting edges are located at 33 33 on the blades, and their inner portions are or may be semitangential, so as to give a shearing cut. If desired, however, the cutting edges may be radial instead of tangential.

The cutter is mounted opposite the point of tangency between an upper cylindrical feed-wheel 34, attached to the shaft 14, and a lower cylindrical feed-wheel 35, attached to the shaft 11, these wheels acting as feed-wheels for the welt which is advanced continuously between them, the blades 31 operating in a path at an angle to the path of the welt, so as to impart an inclination to the slits in the welt. Such inclination causes the tongues between the slits to lap-like scales, and slide easily on each other, whereby the welt may be easily bent or curved without "bunching" and the continuity of the slit edge preserved when this edge takes a salient curve.

37 37 are two fixed plates mounted adjacent to the space between the feed-wheels 34 35 and with an inclined slot 38 between them to receive the blades 31 of the cutter, said plates acting as a fixed bed for supporting the edge of the welt on both sides of the slitting-point against the thrust of the cutting-blades.

In operation the blades 31 act on the projecting edge of the welt which is feeding continuously between the wheels 34 35. Between the time that one blade 31 finishes its cut in the welt and the time that the opposite blade 31 begins its cut the welt feeds forward a small distance, so that the second cut is made at a fresh point on the welt, and the uniform feed of the welt and rotation of the cutter result in a regular succession of inclined slits along the edge of the welt. It will be noted that the two blades 31 are located in the same general plane normal to the axis of rotation of the shaft 27. I may arrange the blades 31 so that their planes coincide with this normal plane, in which case the cutting-blades will impart no movement of translation parallel to the direction of feed of the welt. Such movement is theoretically necessary, as the welt is fed continuously; but in practice if the blades are made quite narrow circumferentially of the cutter and, if desired, somewhat resilient the spring of the blades or the flexibility of the material of the welt, or both

factors combined, may be availed of to accomplish proper results, or the blades 31 may, as in the modification shown in Fig. 6, while remaining in the same general plane normal to the axis of rotation of the cutter, have their cutting portions inclined or pitched with respect to said plane, so as to operate as portions of helices or threads on the cutter, said portions constituting fins or projections inclined as a whole to the normal plane in which they lie.

Certain of the general features herein disclosed are described and claimed in my copending application, Serial No. 127,713. Consequently I do not herein claim them in a broad sense. The present machine, however, is somewhat simpler and cheaper to manufacture than the machine of the said application, particularly in respect to the construction of the welt feeding and supporting parts and the construction of the cutter, and I have found that it can be operated at about twice the speed of the aforesaid machine, as I obtain a plurality of cuts at each revolution of the cutter-shaft.

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, 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, and a fixed bed having provisions for supporting the projecting margin of the welt on both sides of the cutter, against the thrust of said cutter.

2. In a machine for slitting welts, means for feeding the welt in a predetermined path, and a rotary welt-slitting cutter mounted with its axis inclined to said path and having a plurality of cutting-blades or projections mounted in a general plane normal to said axis, the cutting portion of each blade constituting a projection or fin inclined as a whole to said plane.

3. A cutter for welt-slitting machines comprising a holder composed of plates and formed at the meeting plane of said plates with a groove extending between points on the outside edge of said holder and constituting a chord of the holder and a slitting-blade clamped between said plates and seated in said groove.

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

HARRY LYON.

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