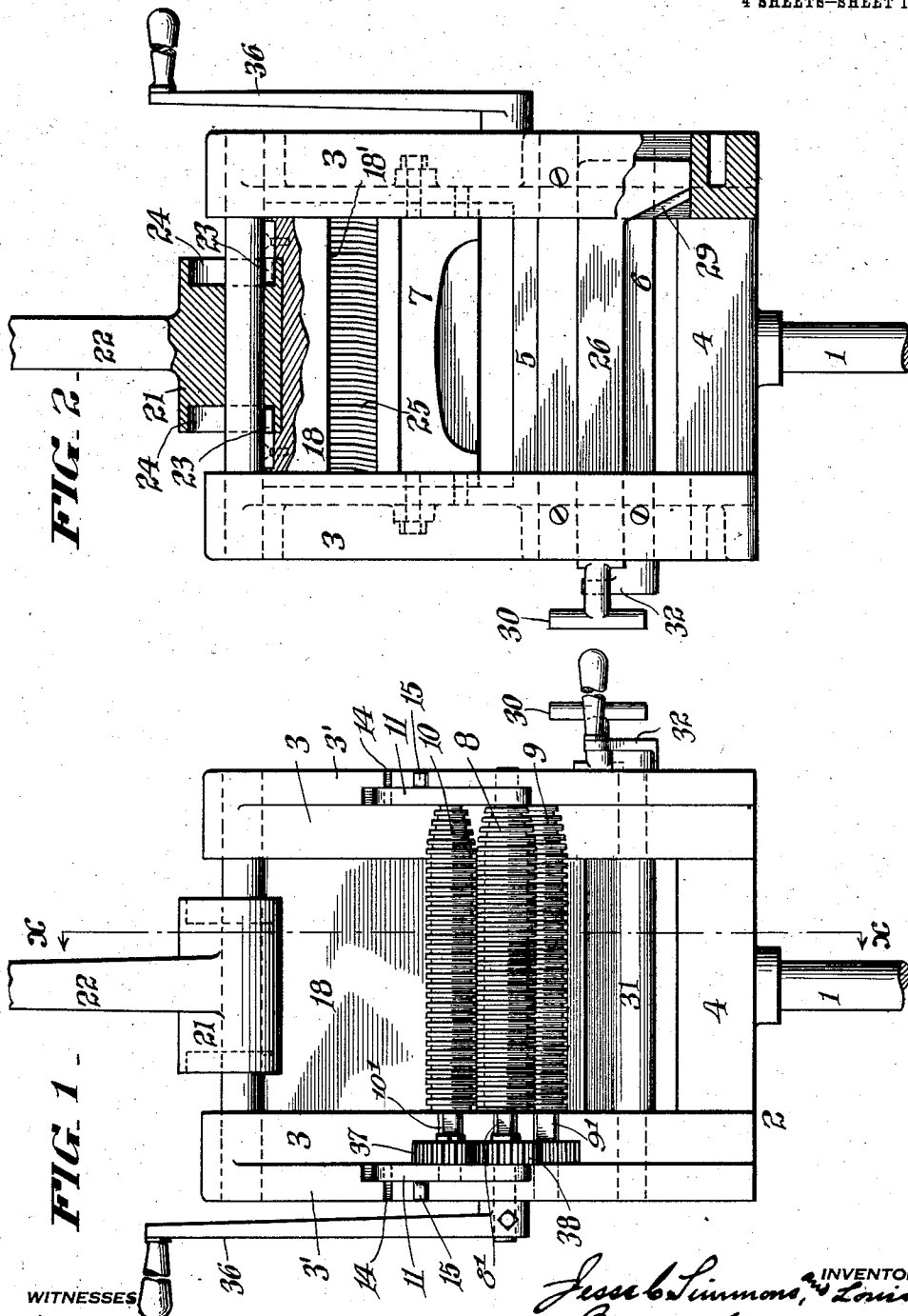


J. C. SIMMONS & L. BERZON.
 MACHINE FOR MAKING COILED EYELET LACING FOR LEATHER BELTING.
 APPLICATION FILED NOV. 8, 1911.

1,021,431.

Patented Mar. 26, 1912.

4 SHEETS—SHEET 1.



WITNESSES
 Thomas W. Smith
 Helen J. Miller

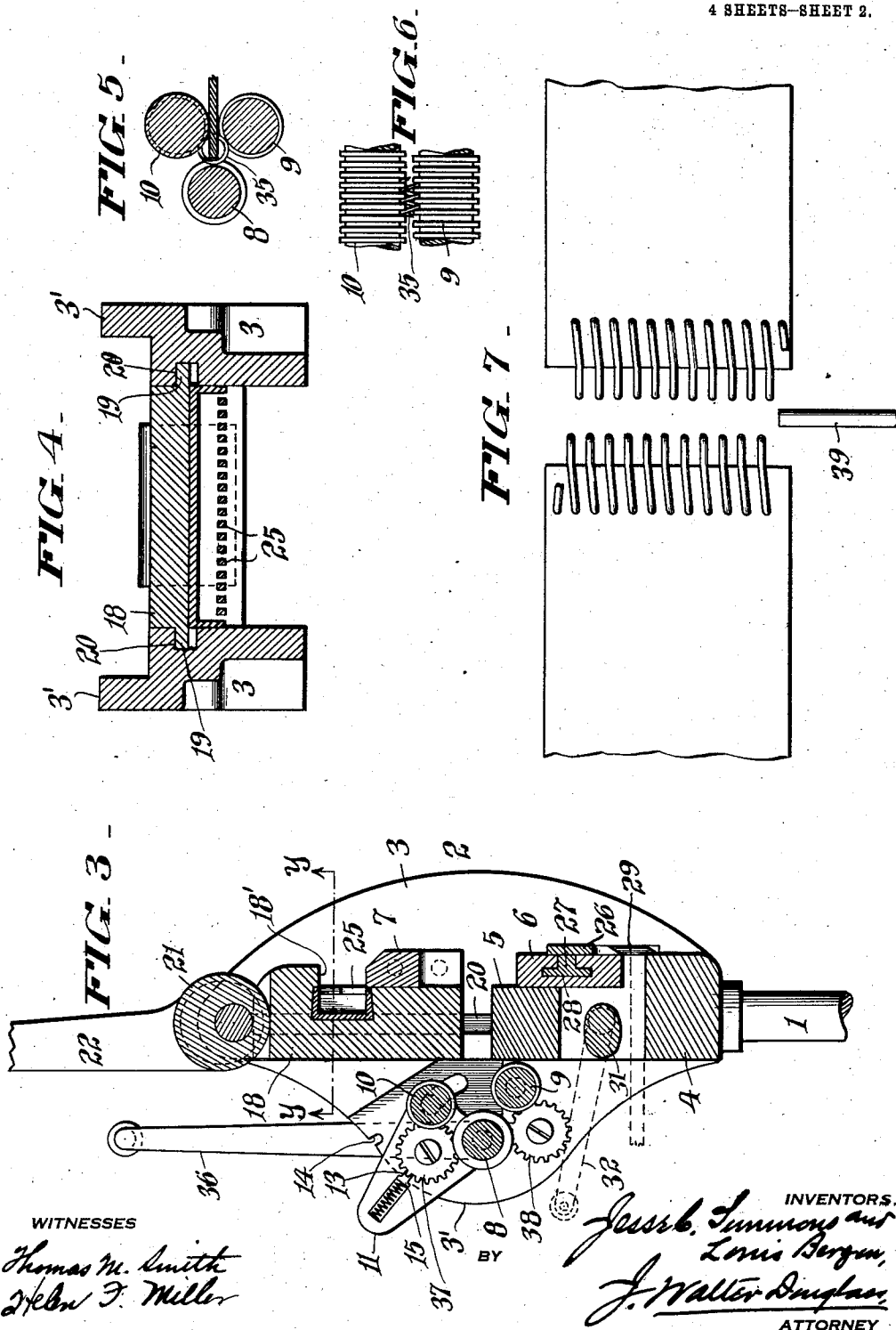
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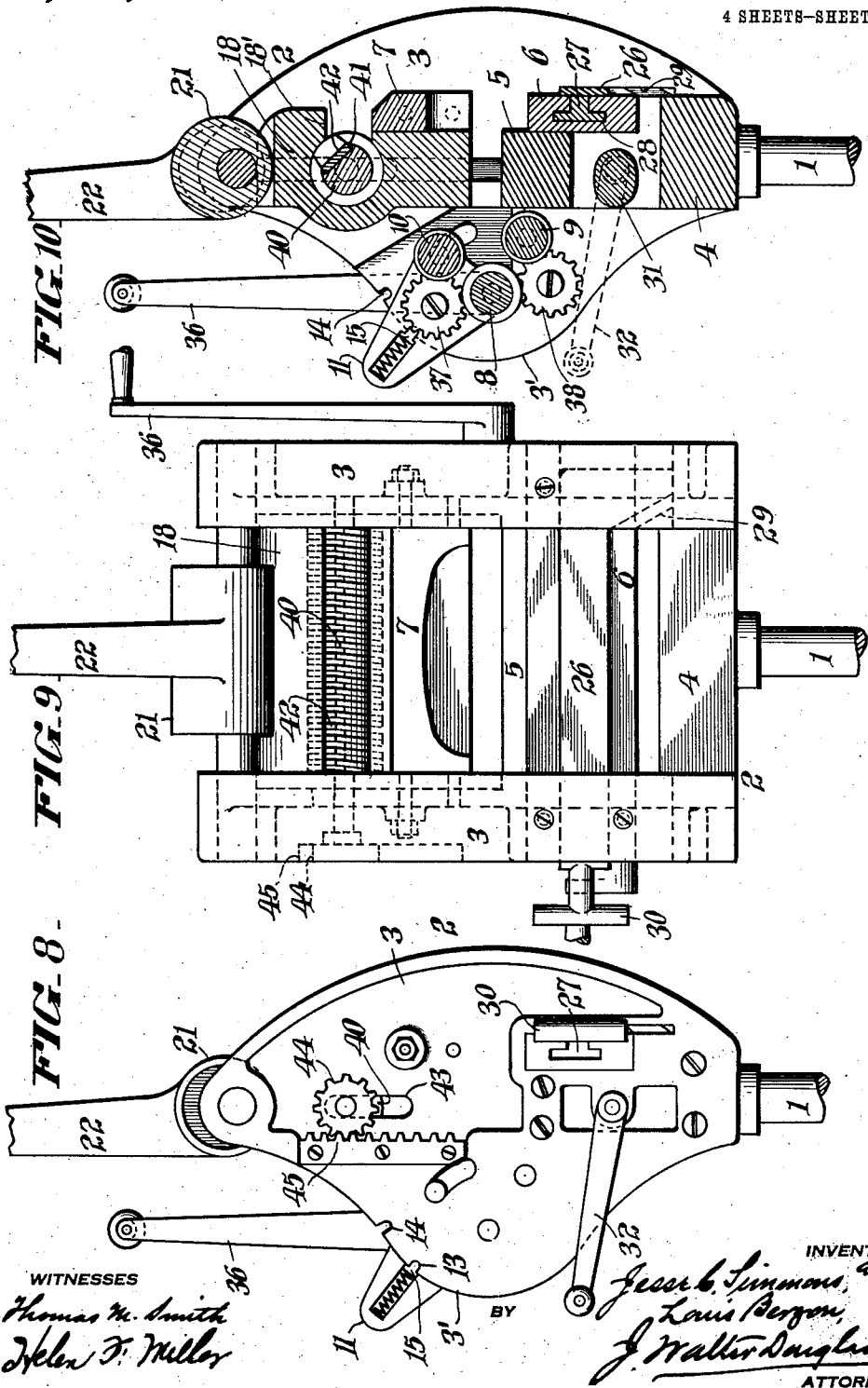
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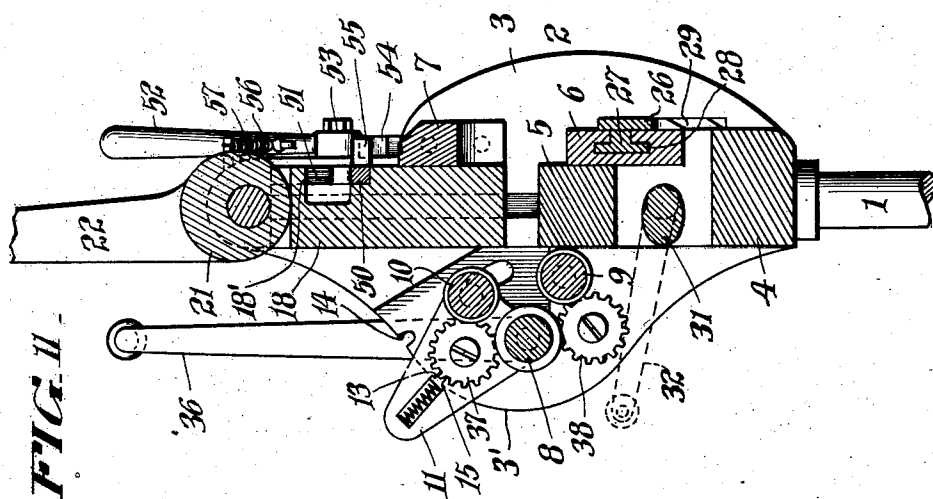
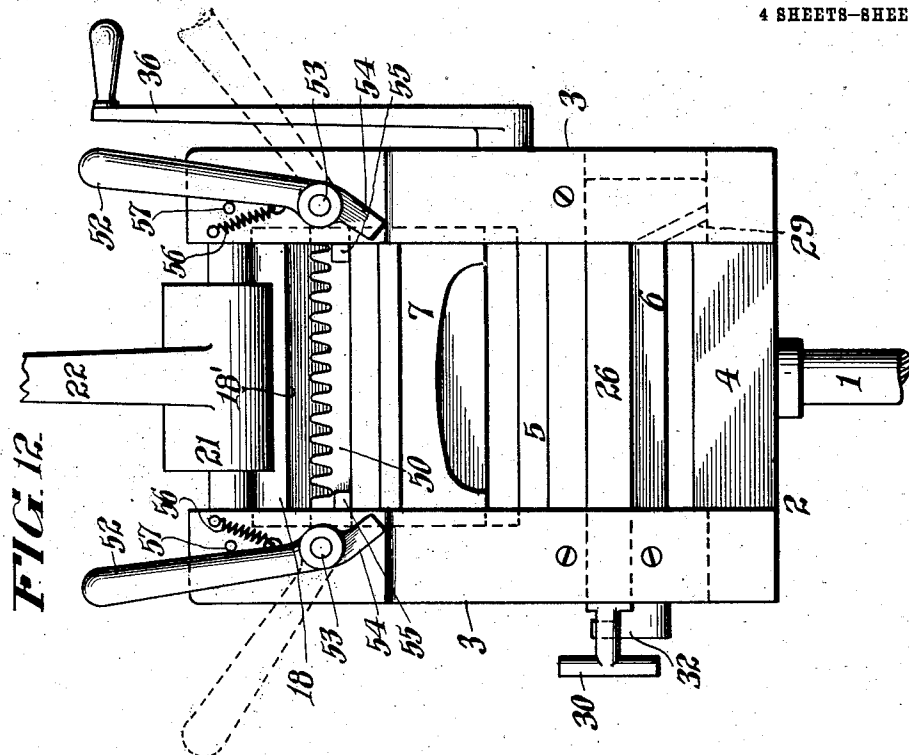


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4 SHEETS-SHEET 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JESSE C. SIMMONS AND LOUIS BERZON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGN-
ORS OF ONE-THIRD TO CHRISTIAN J. KRAYER, OF MOUNT HOLLY, NEW JERSEY.

MACHINE FOR MAKING COILED EYELET-LACING FOR LEATHER BELTING.

1,021,431.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed November 8, 1911. Serial No. 659,137.

To all whom it may concern:

Be it known that we, JESSE C. SIMMONS and LOUIS BERZON, both citizens of the United States, and residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have jointly invented certain new and useful Improvements in Machines for Making Coiled Eyelet-Lacing for Leather Belting, of which the following is a specification.

Our invention has relation to machines for producing coiled eyelet lacing for leather belting; and in such connection it relates more particularly to means, in such machines, to change the pitch of eyelet lacing beyond its bearing or mooring with the belting in order that complemental lacings may intermesh uniformly to establish parallelism of united sections of the belting after insertion of a raw-hide or other type of connecting cord to secure the sections to each other.

The principal objects of our invention are first, to provide a machine adapted to produce eyelet lacing for the terminals of belting so structurally arranged as to symmetrically unite through uniform intermeshings of the series eyelet lacings in respect to pitch as that the united sections of the belting may occupy true longitudinal edge relationship to each other when a raw-hide or other connector bar or cord is inserted there-through; second to provide a machine arranged to prepare the terminal edges of a leather belting by means of a trimming device for a coiled needle to perforate when caused to travel between channeled rolls to thereby enable a wire in spiral form to be introduced through the perforations and pressed then so as to assume a fixed relation on the belting and which when shifted in an irregular-shaped grating-like former, changes the pitch of the eyelet lacing beyond the edge of the belt section from an inclining pitch to that of a pitch in substantially straight courses, whereby when the series of eyelets of an opposite complemental section provided are brought into intermeshing relation the longitudinal edges of the united sections of the belting will occupy true parallelism in respect to each other; and third to provide a machine for inserting eyelet lacing in the terminal portions of leather belting sections and changing the pitch of the inserted eyelet lacing

beyond their moorings in the belt-sections so that complemental eyelet sections of the belting when united will evenly or symmetrically intermesh to occupy true parallelism of longitudinal edges on both sides of the belting.

The objects above defined are derived by the provision of certain means in machines of the character illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a rear elevational view of a machine in one form showing needle operating mechanism for perforating terminal sections of a belting. Fig. 2 is a front elevational view of the machine, partly in broken section. Fig. 3 is a sectional view on the line $x-x$, of Fig. 1. Fig. 4 is a sectional view on the line $y-y$, of Fig. 3. Figs. 5 and 6 are, respectively, detail views of the needle in operative position and the operating mechanism, of the machine. Fig. 7 is a plan view of the terminals of both sections of a belt, showing the resultant eyelet lacing thereof and pitch of the same beyond the point of their moorings in the respective sections and how symmetrically the eyelet lacings intermesh uniformly with each other. Figs. 8, 9 and 10 are respectively, side, front and sectional elevations of a modified type of the machine; and Figs. 11 and 12 are respectively, sectional and front views of still further modifications of the said machine.

In the drawings with reference to Figs. 1 to 4 inclusive, 1 represents a standard supported on a stand or bracket, not shown. At the upper end of the standard is supported a casting 2, consisting of side frames 3, 3, provided with cross-bars 4, 5, 6 and 7. The said side-frames extend rearward, and extensions 3¹, 3¹, have journaled thereto the ends of needle guide rolls 8 and 9. A third needle guide-roll 10, is mounted on movable brackets 11, one on each side of the said frame-work, and pivoted on the roll 8, in depressions on the inside of the side-frame extensions 3¹, 3¹. In the edge of the extensions 3¹, are formed notches 13 and 14, adapted to receive spring controlled pins 15. These pins lock the brackets 11, in required position mainly, for single or double belting. Only two notches have been shown but it will be understood that a number may be provided, if desired.

A sliding block 18, is mounted in the casting 2, and has extensions 19, adapted to move in grooves 20, in the side-frames 3. The block 18, is raised and lowered by means of a cam 21, pivoted in the side-frames and which is rotated by means of a lever 22. Pins 23, are carried by the block 18, and extend into the grooves 24, in the ends of the cam 21. These pins 23, form a loose connection between the cam 21 and block 18, so that when the cam is rotated it will carry the block upward with it. When this block is pressed down, it will be seen that the surface of the cam will operate upon it. The block 18, also carries what may be termed a grating 25, the purpose of which will be presently explained.

When a belting section is ready to be laced, it is necessary that the terminal ends be brought to a condition in which they are perfectly straight and smoothly trimmed. For this purpose is provided a knife 26, the back of which has a T-shaped lug 27, slidably mounted in a complemental shaped groove 28, of the block 6. The knife 26, is beveled as at 29, and carries at its outer end a handle 30, by means of which it may be drawn from one side of the machine to the other in trimming the end edge of the belt which has been laid upon the cross-bar 4, of the casting, as shown in dotted outline in Fig. 3. To hold the belt firm while it is being cut, is provided an eccentric 31, operated by means of a handle 32, whereby the belt is held against movement between the cam 31, and the cross-bar 4.

After the belt has been trimmed, it is necessary to perforate it near its edges in order that the wire lacing may be readily inserted. This is accomplished by sliding the belt-section over the bar 5, and top of the roller 9. The block 18, is then lowered by means of the lever 22, and cam 21, until the belt is securely held between the bottom of the block 18, and top of the bar 5. The channeled roller 10 is then rotated about the shaft 8, until it comes approximately in contact with the belt, and the pin 15 has entered either the notch 13 or 14, according to whether the belt is of single or double thickness. A needle 35, suitable to either single or double belting, is then inserted between the channeled rollers 8, 9 and 10, as illustrated in Figs. 5 and 6, and by means of the handle 36, the roller 8 is revolved, and the needle fed across the machine to thereby perforate the belt a correct distance from the terminal edge thereof. Each of the rollers 8, 9, and 10 has provided on one of its ends a pinion. In order to rotate the channeled rollers 8, 9 and 10, there are provided idler gears 37 and 38, meshing respectively with pinions on the rollers 8, 9 and 10. Each of the grooved rollers 8, 9, and 10 is tapered at one end in order that a

needle may be easily fed in; and the journals of the respective rollers 8, 9, and 10 are at 8¹, 9¹ and 10¹ flattened, in that portion located inside of the extensions 3¹ of the frame 3, in order that the needle may drop out when reaching the flattened portions and after having completed its work.

After providing the perforations in the belt-section it is removed from the machine, and a circular form of wire lacing is inserted in the perforations. It then becomes necessary to change the pitch of a certain portion of the lacing beyond the terminal edge in position, and so that the ends of the belting may match up or intermesh symmetrically and to avoid the providing of lacings which require to be arranged right and left handed. To accomplish this result is provided the above mentioned grating-like former 25, of Figs. 2, 3 and 4, the lower portion of which has a pitch of about $\frac{1}{8}$ of an inch, corresponding to the lacing in position in the belting section, while the upper portion is perfectly straight. The terminal end of the belting-section is manually placed over the bar 7, and with the eyelet lacing inserted in the slanting slotted portion of the grating-like former 25, and the cam 21, is revolved with the lacing flattened between the top of the bar 7, and the shoulder 18¹, of the block 18. At the same time the forward ends of the lacing are moved into the straight portions of the slots of the grating-like former, and the pitch of the eyelets thereby removed so that such portions of the eyelets assume a straight parallel relationship to each other. In Fig. 7, is clearly illustrated the character of the lacings in their assumed relationship in respect to each other, and how they are adapted to intermesh together for inserting a raw-hide or other type of connector 39, therethrough, for holding securely to each other.

In Figs. 8, 9 and 10, are shown modifications for completing the lacing after it has been run manually in the terminal end portions of belt-sections. In this type is used a cylinder 40, in which is cut a circular groove of about $\frac{1}{8}$ inch pitch. A dovetailed slot 41, is provided of small width and there is inserted a piece of steel 42, having straight threads to register with the pitch grooves of the cylinder 40, as clearly shown in Figs. 9 and 10. The ends of the shaft of the cylinder 40, extend through slots 43, in the side-frames 3, 3, and on one end is mounted a pinion 44, meshing with a rack 45, secured to the said side-frames. As the cam 21, is revolved, the pinion 44 will rotate by meshing with the rack 45, to cause the cylinder 40, to be rotated. The wire lacing will thereby be transformed from that with a pitch into a straight coursing of the lacing producing the same result as to their position beyond the terminal edges of the belt-

ing sections as illustrated in Fig. 7, and as was produced by or through the grating-like former 25, of Figs. 2 and 3, hereinbefore explained.

5 In Figs. 11 and 12, is illustrated another type of former in which is used a slidable toothed bar 50, having straight teeth of the depth to which the lacing is to be flattened. This bar is mounted in guideways 51, in the sides 3, 3, of the machine and is adapted to be raised and lowered by means of handles 52, pivoted at 53, to the side-frames, and having projecting lugs 54, engaging pins 55 on the bar 50. Springs 56 are provided to keep the handles 52 in an inoperative position against the stops 57. The wire lacing is then squeezed between the bottom of the slots formed by the teeth and the shoulder 18¹ of the block 18, with the result being the same as obtained by the previously described devices for changing the pitch of the eyelet lacings.

We do not wish to be understood as confining ourselves to specific constructive arrangements of the formers because still other means for accomplishing the desired result may be employed without departing from the spirit or scope of our invention; but

Having thus described the nature and objects of our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, a grooved block, a knife blade having a flanged support slidably mounted in the groove of said block and having a handle for drawing the knife blade from side to side of the machine, and means to hold a belt-section in the path of said knife blade while a terminal portion of said section is being trimmed and the said means being provided with an eccentric and an operating handle for manipulating said eccentric, for holding and releasing said belt-section.

2. In a machine of the character described, a grooved block, a beveled knife blade having a T-shaped lug engaging the groove of said block and having a handle for drawing the knife blade from side to side of the machine and means to hold a belt-section while the terminal portion is being trimmed, said means provided with an operating device to release the belt-section, after being trimmed.

3. In a machine of the character described, a block having an operating device, a series of positively actuated shiftable channeled rollers, a spiral needle adapted to travel between said rollers, said rollers arranged with a taper at one of their extremities, and the journals thereof near the other extremity flattened in one portion thereof, and means to lock said channeled rollers in any given shifted position.

4. In a machine of the character described, a bar for holding the belting-section while

being perforated, a grating-like former arranged with walls both straight and with a pitch for inserting the eyelet lacing of the belt-section, and means to actuate said former to change the pitch of the lacing in one portion after insertion in the belt-section.

5. In a machine of the character described, a bar for holding the belting-section while being perforated, a grating-like former arranged with walls both straight and with a pitch, and means to shift said former to flatten the lacing onto the belt-section and to change the pitch of the lacing beyond where secured to said belt-section.

6. In a machine of the character described, means to hold a belt-section while being trimmed by a knife shiftable sidewise of the machine, a needle for perforating the terminal edge portion of the trimmed belt-section, and a former for securing the inserted spiral wire forming the eyelet lacing of said section thereto and changing the pitch of said lacing beyond where secured to said belt-section.

7. In a machine of the character described, means to hold a belt section while being trimmed along the terminal edge thereof, a series of shiftable channeled rollers, a needle traveling between said rollers for perforating said belt-section, and a former arranged to permit of the flattening of the lacing to the belt-section and of the changing of the pitch of the lacing beyond where flattened to said belt-section.

8. In a machine of the character described, a series of shiftable channeled rollers, a spiral needle movable between said rollers for perforating a belt-section along the terminal portion thereof, a bar and a slotted former for inserting the lacing of said belt-section thereinto, and means for shifting said former to modify the pitch of said lacing.

9. In a machine of the character described, means to hold a belt-section while being trimmed by means laterally movable in the machine, a spiral needle traveling in channeled rollers for perforating said belt-section, and an irregularly slotted former provided with means for raising and lowering the same and thereby changing the pitch of spiral eyelet lacing of said belt-section beyond where secured in the perforations thereof.

10. In a machine of the character described, means to hold a belt-section while being trimmed along the terminal edge thereof, shiftable rollers, a needle movable between said rollers for perforating said belt-section, a former, consisting of a cylinder having pitch grooves, a metal strip arranged in a dovetailed slot, said strip having straight threads to register with the pitch grooves of said cylinder, the ends of

said shaft mounted in slots in the side
frames of the machine, and means to actu-
ate said shaft whereby said former is adapt-
ed to flatten the lacing to the belt-section
5 and to change the pitch of such lacing be-
yond where it is flattened to said belt-section.
In witness whereof, we have hereunto set

our signatures in the presence of the two
subscribing witnesses hereto.

JESSE C. SIMMONS.
LOUIS BERZON.

Witnesses:

J. WALTER DOUGLASS,
THOMAS M. SMITH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."