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A. C. KRUEGER.

BELT TRIMMING MACHINE.

No. 255,638. Patented Mar. 28, 1882.

Fig. 3.

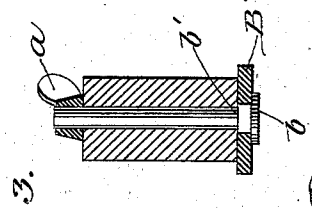


Fig. 1.

Fig. 4.

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A. C. KRUEGER.

BELT TRIMMING MACHINE.

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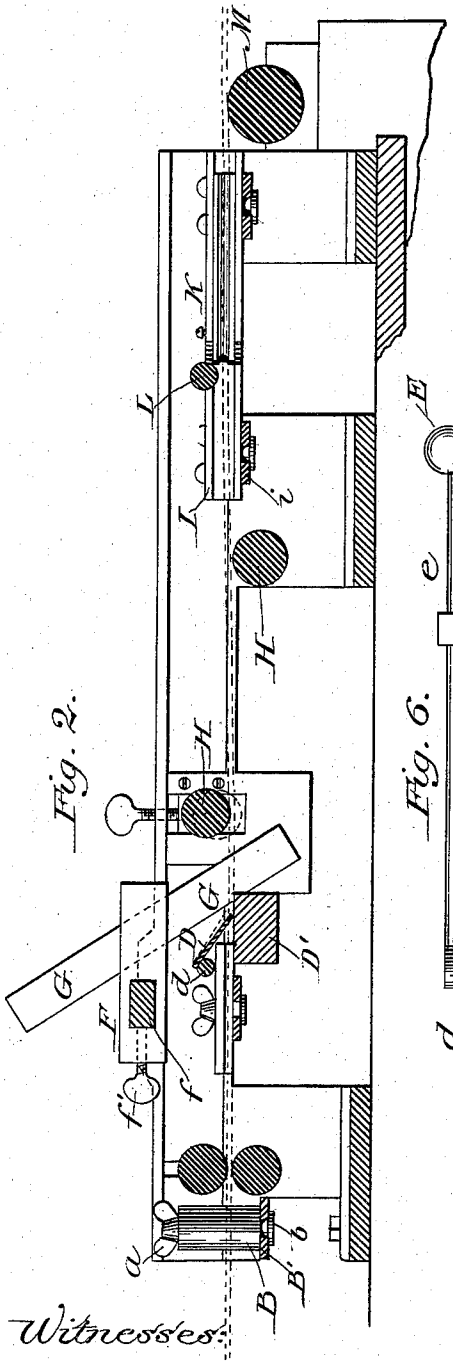


Fig. 2.

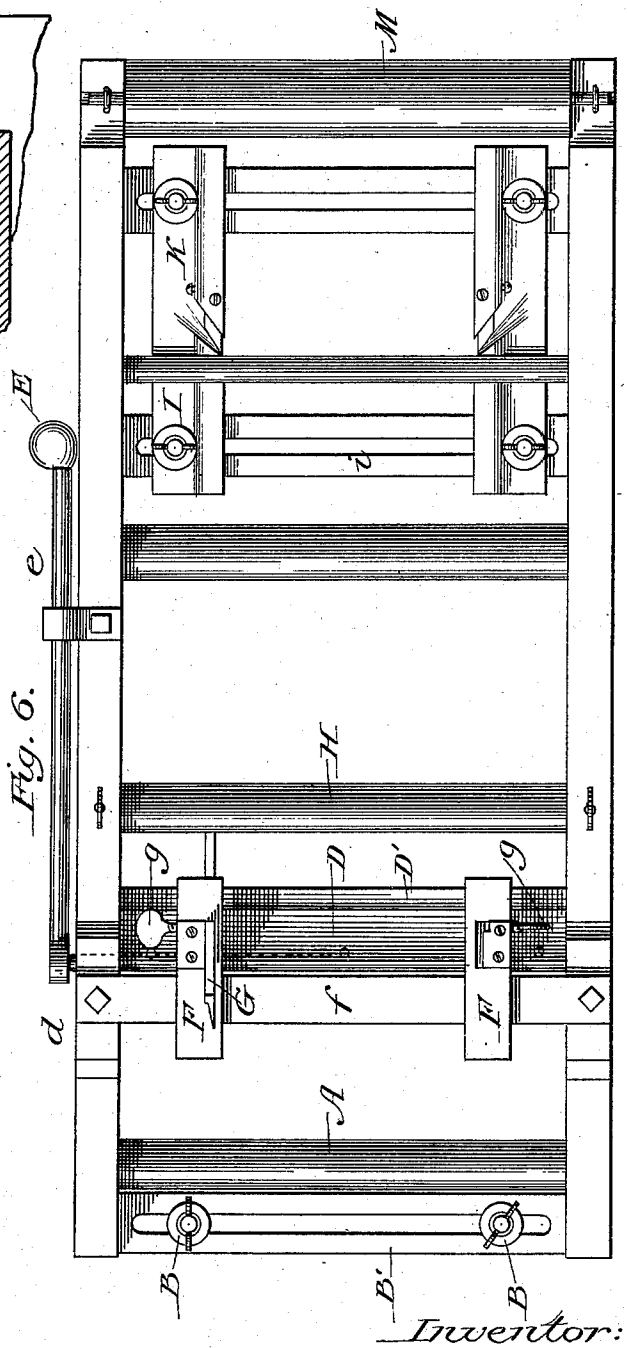


Fig. 6.

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A. C. KRUEGER.

BELT TRIMMING MACHINE.

No. 255,638. Patented Mar. 28, 1882.

Fig. 5.

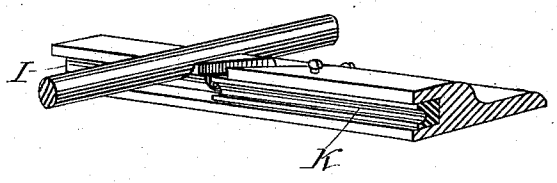


Fig. 7.

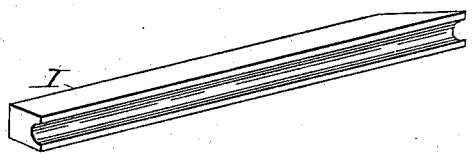


Fig. 8

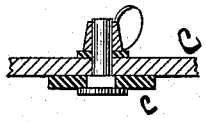


Fig. 9.

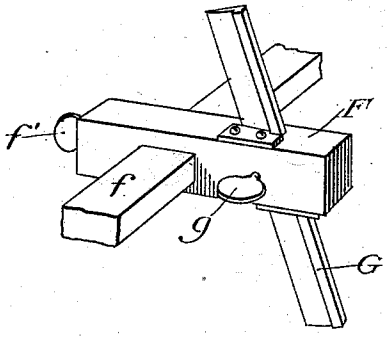


Fig. 10.

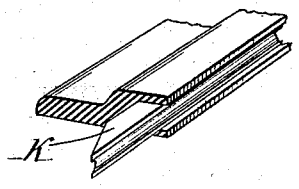


Fig. 13.

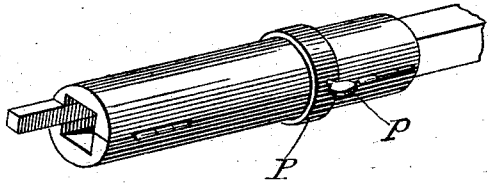
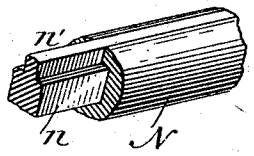


Fig. 12



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A. C. KRUEGER.

BELT TRIMMING MACHINE.

No. 255,638. Patented Mar. 28, 1882.

Fig. 11.

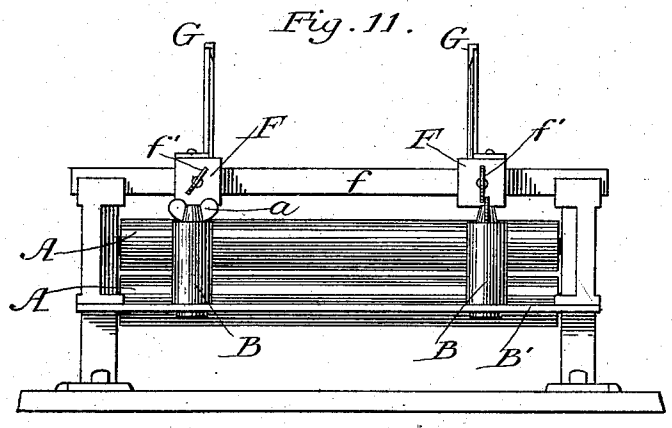
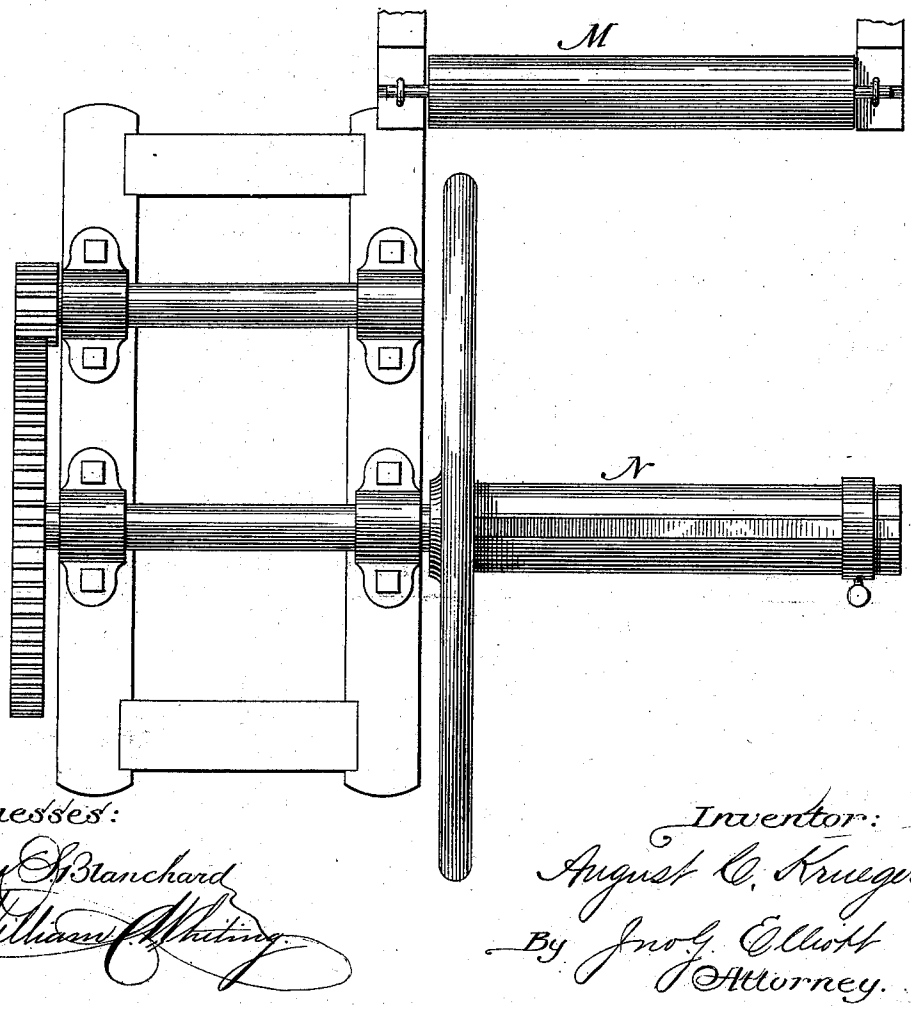


Fig. 14.



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UNITED STATES PATENT OFFICE.

AUGUST C. KRUEGER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CHICAGO RAWHIDE MANUFACTURING COMPANY, OF SAME PLACE.

BELT-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 255,638, dated March 28, 1882.

Application filed June 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, AUGUST C. KRUEGER, a citizen of the United States, residing in Chicago, county of Cook, and State of Illinois, have invented a certain new and useful Belt-Trimming Machine, of which the following is a specification.

My invention relates to improvements in belt-trimming machines in which rollers are employed for conducting the belting of leather to one or more knives operating upon one or both edges of the belting; and the objects of my invention are, first, to automatically feed the belting to one or more cutting-knives operating upon one or both edges; second, to direct the belting to the cutting knife or knives so that it will be trimmed evenly and straight both as to the thickness and length of the belting when in contact with the knife or knives; fourth, to trim belting of varying widths and thicknesses; fifth, to trim both edges simultaneously; sixth, to trim and finish or convex one or both edges of the belting successively and by a continuous operation; seventh, to trim one or both edges and, with or without convexing one or both edges, coil the belting as it passes from the cutting or trimming blades, for storage or shipment; and, finally, to provide means for removably securing the belting upon the coiling-drum. I attain these objects by devices illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of a machine embodying my invention with the frame-work and supports removed. Fig. 2 is a central longitudinal section of the same, showing the position of the belting during the operation of the machine; Fig. 3, a longitudinal section through one of the guide-rollers transversely of its supporting and slotted bar; Fig. 4, a detail perspective of one of the guide-plates at the front end of the machine; Fig. 5, a similar and sectional view, showing the concaved trimming-blades; Fig. 6, a plan view of my machine without the coiling-drum; Fig. 7, a perspective of one of the concave guides; Fig. 8, a longitudinal section through one of the guide-plates, showing the means for adjustably securing the same upon its slotted supporting-bar; Fig. 9, a detail perspective of one of the cutting-blades and its supports; Fig. 10, a perspective of one of the concave trimming-blades, with its supporting-plate in transverse section; Fig. 11, an end elevation of my machine; Fig. 12, a detail perspective of the coiling-drum; Fig. 13, a similar view of the modification of the same; and Fig. 14, a plan view of the coiling-drum, the actuating mechanism for the same, and the anti-friction roller supporting and conducting the belting on a plane above and to said drum.

Similar letters of reference indicate the same parts in the several figures of the drawings.

A A represent two horizontal pressure-rollers, journaled in the sides of the frame-work of the machine and extending its entire width, and adapted to flatten and, with other devices to be presently described, give tension to the belting during its passage through the machine. The upper roller is adjustable upon the lower roller by reason of its gravity and that it is journaled in an elongated bearing; but this upper roller may be made adjustable by means of a spring or by a sliding journal-box operated in the usual manner by a screw-threaded bolt.

In front of the pressure-rollers are two vertical guide-rollers, B B, which engage with the edges of and cause the belting to move in a straight line through the pressure-rollers to the cutting-blades without respect to the particular position which the belting may occupy with reference to the cutting-blades upon the bench or roller from which it is fed. These guide-rollers have an end bearing on a longitudinally-slotted transverse bar, B′, extending across the frame-work of the machine, and are adjustably held upon the slotted bar by means of headed bolts *b b*, which are inserted beneath the bar and through the roller, and are held by means of thumb-nuts, *a a*, upon their ends projecting above the rollers, thus enabling the adjustment of the vertical rollers toward or from each other, as the belting may be wide or narrow.

Bolts *b b* have adjacent to their heads, which are held against the under side of the bar, square shoulders *b′ b′*, which, entering the slot

in the bar, prevent the bolts from turning and the thumb-nuts from becoming loosened, and enable the tightening of the nuts without the necessity of holding the bolt.

In front of the pressure-rollers, and in a plane with their adjacent peripheries, are two horizontal guide-plates, C C, having L-shaped edges, (see Fig. 4,) and mounted upon a slotted bar, *c*, upon which they are similarly adjustable and for the same purpose as the guide-rollers, to which they are not only auxiliary in directing the strip to the cutting-blades, but, by reason of their overlapping the outer edges of the face of the belting, also in preventing the belting from curling upon its outer edges, which it has a tendency to do under a longitudinal strain.

Pivoted on a transverse shaft, *d*, journaled in the sides of the machine above these guide-plates, is a broad horizontally-operating tension-blade, D, operating at an angle against block or plate of wood D′, having its face on a plane with that of the guide-plates and forming a solid base, over and between which and the swinging plate the belting travels and is held under tension by the swinging plate. This swinging tension-plate is operated by a lever or rod, *e*, secured to the end of shaft *d*, and carrying upon its free end a ball, E, which may be made adjustable along the lever to increase or diminish its effects upon the tension-plate by means of a set-screw passing through it and binding upon the lever.

Mounted above the guide-plates C C on a transverse bar, *f*, are blocks or heads F F, adjustable by means of set-screws *f′ f′* along said bar, each head being provided with a slot extending at an oblique angle from top to bottom, through which pass straight cutting-blades G G, as clearly shown in Fig. 2. These blades extend at an angle of about forty-five degrees to the plane of the passing belting, to facilitate cutting, and are adjustable by means of set-screws *g g*, so that as a portion of the edges becomes dulled by frequent use the blades may be shifted and a sharp edge presented, thus avoiding frequent sharpening. Blades G G may have a rib on their back and the blocks slotted to correspond to give a firmer bearing to the blades.

By loosening the set-screws *f′ f′* the heads F F may be moved along its supporting-bar and the blades adjusted to simultaneously trim both edges of the belting of varying widths, and should thin blades be used it is advisable to have an adjustable clamp connecting the lower ends of the blades with the plate D′ to hold them rigid against a lateral movement and prevent them from twisting when in operation.

In the rear of the inclined cutting-blades is an anti-friction roller, H, upon the lower face of which the passing belt moves and is prevented from rising. This roller may operate to depress the belting to cause the latter to travel on an incline against the blades for facilitating cutting.

A little forward of roller H, but underneath the belt, is a similar anti-friction supporting-roller, H′, over which the belting passes to a pair of guide-plates, I I, concavely grooved upon their operative faces, (see Figs. 7 and 10,) and supported upon two slotted bars, *i i*, in the same manner as guide-plates C C, before described.

K K are oppositely-arranged concave trimming-blades, the backs of which are square and fit in a corresponding groove in an L-plate, K′, contiguous to the concave guide, but slotted on top to allow the trimmings to pass away from the blades. The edges of these blades are on their forward ends, and are formed by a bevel on their backs, as clearly shown in Fig. 5.

Trimming-blades K K (so termed because they round and trim the edges of the belting after being operated upon by the straight knife-blades) are removably secured in the guides in any suitable manner, and while conforming to the shape of the guides project beyond the same sufficiently to successfully operate upon the belting as it passes from the guides.

It will be understood that owing to the variable thicknesses of different belting several sizes of concaved guides with corresponding knife-edges are necessary; but as they are readily removed from the machine, little or no inconvenience is experienced in making the substitution.

Resting upon the concaved guide-plates and forward of the trimming-blades is a pressure-roller, L, which may be adjustable, and is adapted to press or flatten the belting during its passage through the guides and to so hold the strip when presented to the trimming-blades.

In the rear of the convexed guide-plates is an anti-friction roller, M, over which the belting passes to a drum, N, (see Figs. 1 and 12,) which is on a plane slightly below the roller M, as clearly shown in Fig. 1.

Drum N is carried upon a shaft, *n*, having its projecting end squared and surmounted by a rib, *n′*, the drum having a T-groove corresponding therewith to adapt it to be removably passed upon the shaft.

The object in having the drum so secured upon the shaft is to prevent its turning upon the shaft when the shaft is revolved, the rib serving to permit the inner coil of the belt wound upon the drum to slacken when the drum is removed, so that the coiled belting may be readily removed.

It will be understood that the drum and shaft, when revolved by suitable gearing, (shown in Fig. 1,) are the power by which the belt or strip is drawn through the trimming-machine, the end of the belting of course being rigidly secured to the drum and shaft.

By constructing the drum as shown in Fig. 2 the end of the belt may be secured by inserting it between the drum and the rib; but I may make a two-part drum and hinge, the same as

shown in Fig. 13, using a tightening-ring, P, and screw *p* to clamp the drum upon the shaft. In some respects this latter construction is preferable for the reason that the drum may be swung open, and the end of the belting inserted, when the drum may be closed upon the shaft, and the clamping-ring P is quickly slipped upon the arm and tightened by the set-screw *b*, thus requiring less skill and time for attaching the belt.

In operation, after adjusting the parts to the width and thickness of the belting to be trimmed, the free end of the belting is passed between the vertical and pressure rollers, the first set of guide-plates, and thence under the swinging tension-plate, and is drawn by hand between the cutting-blades, the concaved guide and blades, and then secured to the drum, after which the tension-plate is lowered to its operative position and the drum set in motion, no further attention being required, except to remove the belting from the drum when it is full and insert another in the same manner.

Although I have shown and described my cutting and trimming blades in pairs it may be desirable in some instances to trim the belting upon but one side, in which case one of the blades is removed and the guide-plate substituted. So, also, both trimming-blades may be removed when it is not desirable to convex the edge of the belting, which is the case when the strip is quite thin.

While it forms no part of my invention, I may attach to my machine, for convenience in determining the amount of belting passing through it, a measuring or registering instrument, such as is commonly used in cloth, carpet, paper-manufacturing, and envelope machines, &c., for that purpose.

As my machine is at present constructed the roller H is best adapted for operating the measuring-instrument, for the reason that when the roller is depressed upon the already taut belting its movement is more positive with the belting than any of the other rollers.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a machine for trimming belting, one or more obliquely-arranged straight-cutting blades, one or more concave-trimming blades, arranged relative to each other, as and for the purpose described, and means for guiding and conducting the belting to said blades.

2. The combination, with the adjustable and straight-cutting blades, having their cutting-edges at an oblique angle, as described, of the laterally-adjustable blocks carrying said blades.

3. The combination, with the straight-cutting blades, of guide-plates, arranged in front of said blades and adapted to embrace the edges of and direct the belting in a straight line to said blades.

4. In combination with the straight-cutting blades, vertical guide-rollers and a horizontal pressure-roller intermediate the vertical roller and the cutting-blades.

5. The combination, with the pressure-rollers and with mechanism for drawing the belting through the machine, of a tension clamping-plate and a base support for the same, arranged between said mechanism and roller, for the purpose described.

6. The combination, with the pressure-rollers and with the actuating mechanism, of an adjustable and swinging tension-plate, arranged substantially and for the purpose described.

7. In combination with the straight-cutting blades, a tension-plate arranged below and just in front of said blades, as and for the purpose described.

8. In combination with the cutting-blades and with the swinging tension-plate, guides arranged in the rear of said blades and adapted to embrace the edges of the belting, as set forth.

9. The vertical guide-rollers, pressure-rollers, guide-plates C C, and tension-plate, in combination with the cutter-blades, all arranged and operating substantially as described.

10. The tension-plate and pressure tension-roller H, in combination with the obliquely-arranged cutting-blades between said plate and roller.

11. In a machine for trimming belting, the combination, with the guides, of one or more concave blades simultaneously adjustable laterally, as described.

12. The combination, with the concave guides and one or more corresponding trimming-blades, of a coiling-drum and an anti-friction roller intermediate said blades and drum and arranged in a plane above the drum, as and for the purpose described.

13. The combination, with a revolving shaft, of a winding-drum removably sleeved upon said shaft and provided with means, substantially as described, to prevent its rotation with the shaft.

14. The combination, with a revolving shaft having a projection T-shaped in cross-section, of a two-part hinged drum having a corresponding groove and means for detachably securing said drum to the shaft, as and for the purpose described.

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