(No Model.)

2 Sheets—Sheet 1.

A. E. PETERSON.

BELT STRETCHING MACHINE.

No. 442,135. Patented Dec. 9, 1890.

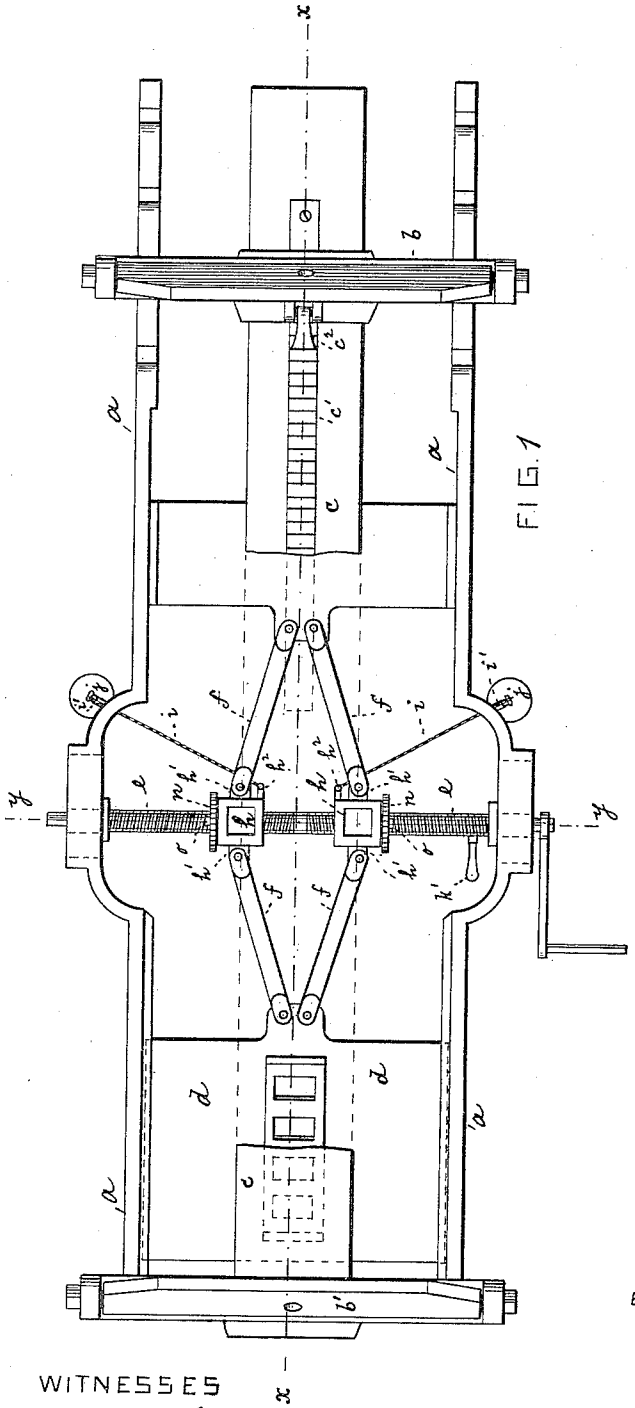

FIG. 1

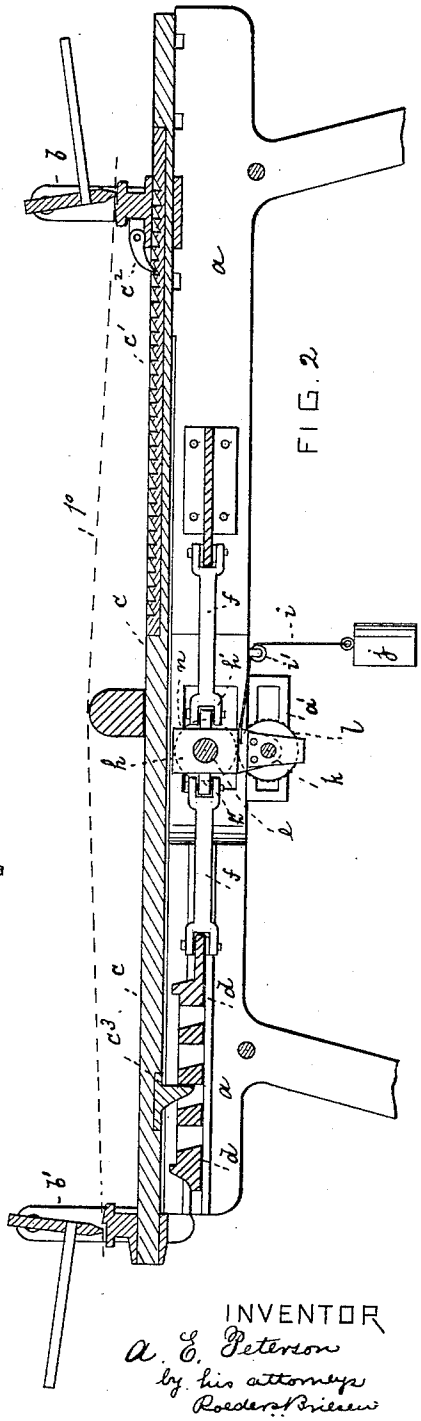

FIG. 2

WITNESSES

W. C. St. Lowe

Wm. Wagner.

INVENTOR

A. E. Peterson

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

(No Model.)

2 Sheets—Sheet 2.

A. E. PETERSON.

BELT STRETCHING MACHINE.

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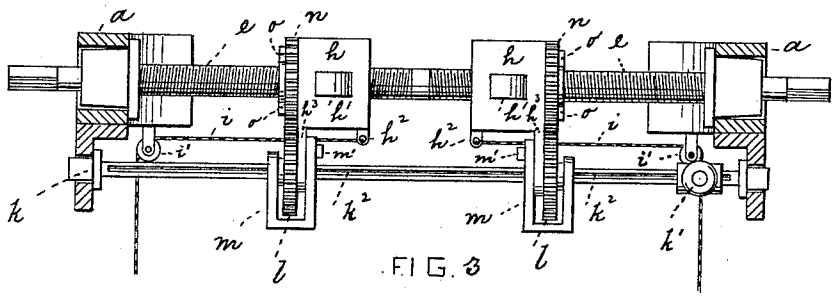

FIG. 3

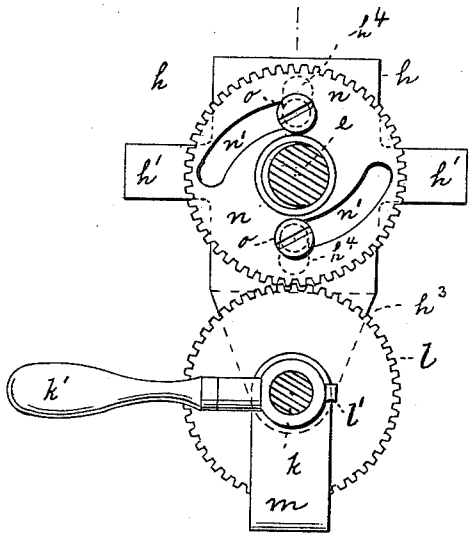

FIG. 4

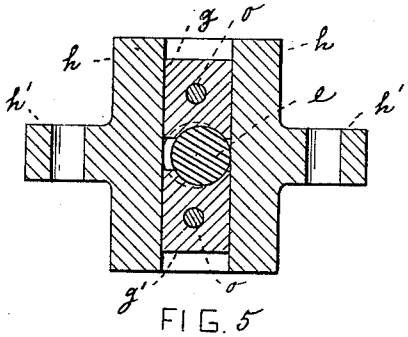

FIG. 5

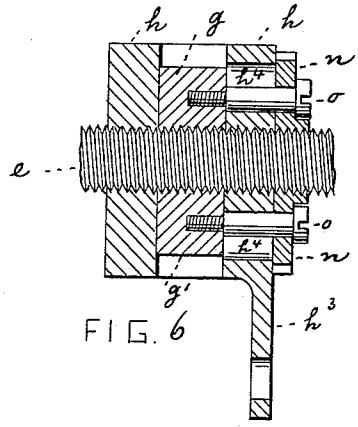

FIG. 6

WITNESSES

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UNITED STATES PATENT OFFICE.

ALEXANDER E. PETERSON, OF NEW YORK, N. Y.

BELT-STRETCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,135, dated December 9, 1890.

Application filed September 12, 1890. Serial No. 364,757. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER E. PETERSON, of New York city, New York, have invented an Improved Belt-Stretching Machine, of which the following is a specification.

This invention relates to an improvement in belt-stretching machines of the kind shown in my patent, No. 431,074, of July 1, 1890. The machine described in said patent is provided with a pair of clamps, one fixed and one movable, and between which the belt is stretched. The movable clamp is secured to a slide reciprocated by the turning of a screw-shaft.

The object of the present invention is to cause the slide and the movable clamp to move inward automatically after the belt has been stretched, thus dispensing with the backward turning of the screw-shaft and saving about half the time for operating the machine.

The invention consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a top view of my improved belt-stretching machine with the bar *c* partly broken away. Fig. 2 is a vertical longitudinal section on line *x x*, Fig. 1; Fig. 3, a vertical cross-section on line *y y*, Fig. 1. Fig. 4 is a side view of box *h* and wheels *n l*; Fig. 5, a vertical longitudinal central section through box *h*, and Fig. 6 a vertical transverse section through box *h*. Figs. 4 to 6 are drawn on an enlarged scale.

The letter *a* represents the frame of the machine, carrying a fixed and a movable clamp *b b'*, respectively. The movable clamp *b'* is rigidly secured to one end of a bar *c*, the other end of which is provided with a rack *c'*, which is let into the face of the bar. The bar *c*, with its rack, is free to slide through the fixed clamp *b*, which is held in place by notches formed on the edge of frame *a* and shown in Fig. 1. The fixed clamp *b* is provided with a click c^2, that engages rack *c'*. This click permits the bar *c*, with the movable clamp *b'*, to be drawn in a direction away from the fixed clamp, (to stretch the leather;) but it prevents the clamps from coming together before the click is raised out of the rack. In order to draw the bar *c* with the movable clamp *b'* in a direction away from the fixed clamp, as described, the bar *c* is by a nose c^3 coupled to a fixed clamp. The bar *c* engages by nose c^3 a slide *d*. This slide is operated by a right-and-left screw-shaft *e*, which is surrounded by nuts. The nuts, by reciprocating upon the screw-shaft, impart a rectilinear motion to the slide *d* through the links *f*. All this is described in my patent above referred to and forms no part of the present invention.

This invention has reference more particularly to a novel mechanism for causing the slide *d* to move inward automatically after it has been moved outward and has stretched the leather. This mechanism is as follows: The nuts that embrace the shaft *e* are divided or split, each nut being composed of an upper half *g* and a lower half *g'*. The sections *g g'* are contained in a box *h*, loosely surrounding the screw-shaft *e*, and to lugs *h'* of which the links *f* are pivoted. The nut-sections are free to recede from one another by moving up and down within the box, so as to release the shaft *e*. To lugs h^2 of boxes *h* are connected by chains *i* the weights *j*. The chains *i* run over pulleys *i'* toward the sides of the machine, and thus it is plain that the weights have a tendency to draw the boxes *h* apart. This, however, can only be done when the divided nuts have released their engagement with the screw-shaft.

To cause the nuts to open or release the screw-shaft *e*, I employ the following construction: Within suitable bearings *a'* of the machine-frame *a* there is hung parallel to shaft *e* a rock-shaft *k*, to which motion is imparted by handle *k'*. The rock-shaft is provided with a keyway k^2, that is engaged by a key *l'* upon gear-wheels *l*, mounted upon the shaft. The gear-wheels *l* are embraced by U-shaped straps *m*, that are by bolts *m'* connected to lugs h^3 of boxes *h*. Thus the motion of the boxes along shaft *e* causes a corresponding motion of the gear-wheels *l* along shaft *k*. The gear-wheels *l* mesh into gear-wheels *n*, that loosely embrace shaft *e*. The wheels *n* are provided with a pair of eccentric grooves *n'*, one above and one below the shaft *e*, Fig. 4, thus constituting cams. The eccentric grooves *n'* are engaged by pins or screws *o* passing also through elongated slots h^4 of boxes *h*, and thence into the nut-sections *g g'*,

Figs. 5 and 6. It is clear that when the screws *o* are moved either away from or toward each other they will carry the nut-sections with them, and thus cause a disengagement of the nut-sections from or their engagement with the screw-shaft *e*.

The operation of the machine will be readily understood. The nuts being in engagement with the screw-shaft, and the boxes *h*, situated near the ends of the shaft, the latter is revolved, so as to cause the boxes to approach, Fig. 1. Thus the slide *d* is by links *f* pushed away from the screw-shaft, and the leather *p*, secured to the clamps *b b'*, is stretched. When the proper tension of the leather has been obtained, the clamps, with the leather, are removed from the machine, as usual, and placed aside. The leather is permitted to remain on the clamps for the usual length of time, sufficient to properly stretch the same. Then the click c^2 is raised out of rack *c'* and the clamp *b* is permitted to approach clamp *b'* to release the leather. It is evident that the clamp *b*, which was the fixed clamp when the leather was stretched, is the movable clamp when the leather is released. It has been termed the "fixed" clamp in this specification because it is fixed during the leather-stretching operation, to which operation this invention relates. The clamps and bar *c* having been removed from the machine-frame the rock-shaft *k* is turned to cause a slight revolution of wheels *l* and a corresponding slight revolution of wheels *n*. The turning of wheels *n* causes the screws *o*, confined by the eccentric grooves *n'*, to recede from one another; but the screws *o* carry the nut-sections *g g'* with them, and thus release such sections from engagement with shaft *e*. The weights *j* are now free to draw the boxes *h* away from one another or toward the ends of the shaft *e*. The boxes *h* by links *f* draw the slide *d* inward or back into its normal position, and the machine is ready for a new stretching operation. It will be seen that the receding motion of the boxes is almost instantaneous, and that thus considerable time is saved.

What I claim is—

1. In a belt-stretching machine, the combination of a slide with a screw-shaft, divided nuts traveling on the screw-shaft and adapted to be disengaged from the same, weights for drawing the nuts apart, and links for transmitting the lateral motion of the nuts to the slide, substantially as specified.

2. In a belt-stretching machine, the combination of slide *d* and screw-shaft *e* with divided nuts *g g'*, box *h*, containing said nuts, links *f*, connecting the box to the slide, and with cams *n* and pins *o* for raising and lowering the nuts, substantially as specified.

3. In a belt-stretching machine, the combination of slide *d* and screw-shaft *e* with divided nuts *g g'*, box *h*, containing said nuts and connected to the slide, and with cam *n* and pins *o* for operating the nuts, and with chain *i* and weight *j* for imparting motion to box *h*, substantially as specified.

4. In a belt-stretching machine, the combination of slide *d* and screw-shaft *e* with divided nuts *g g'*, an inclosing-box *a*, shaft *k*, intermeshing wheels *l n*, pins *o*, operated by wheels *n* and engaging nuts *g g'*, and with chain *i* and weight *j*, substantially as specified.

5. In a belt-stretching machine, the combination of shafts *e k* with wheels *n l*, mounted thereon, box *h*, strap *m*, secured thereto, divided nuts *g g'* within box *h*, pins *o*, engaging nuts *g g'*, and with the chain *i* and weight *j*, substantially as specified.

ALEXANDER E. PETERSON.

Witnesses:
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A. JONGHMANS.