(No Model.) 2 Sheets—Sheet 1.

D. C. B. ROBINSON.

BELT STRETCHER.

No. 328,862. Patented Oct. 20, 1885.

Fig. 1.

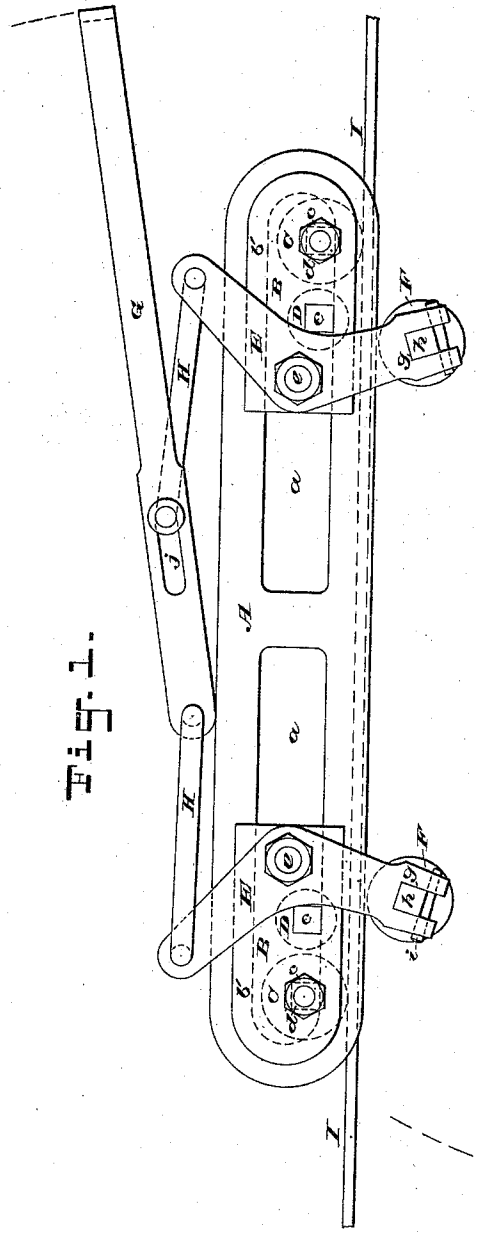
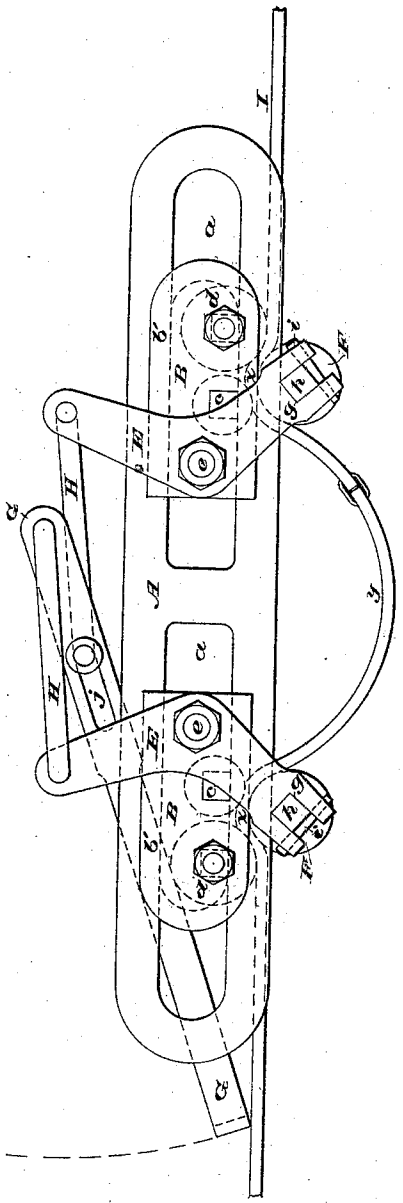


Fig. 2.



WITNESSES:

Geo. H. Fraser.

Geo. Dawson

INVENTOR:

Don C. B. Robinson

By his Attorneys,

Burke, Fraser & Connett

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

D. C. B. ROBINSON.

BELT STRETCHER.

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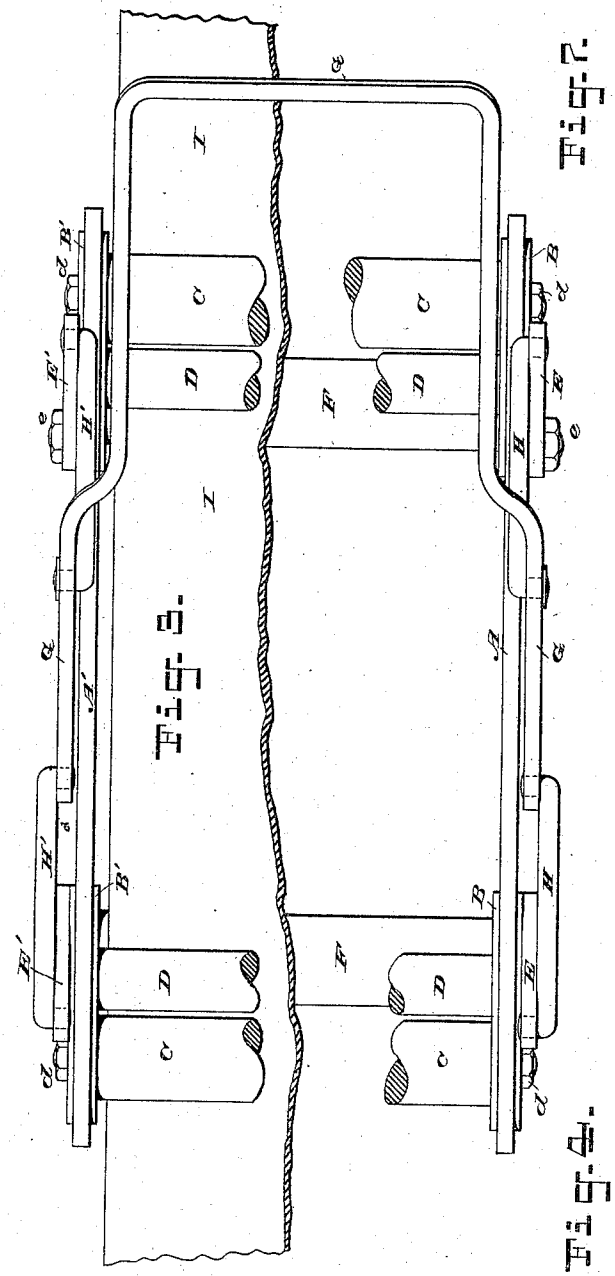


Fig. 1.

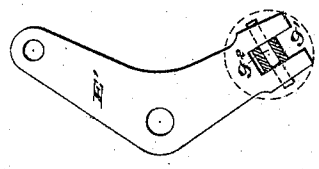


Fig. 2.



Fig. 5.

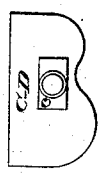


Fig. 6.

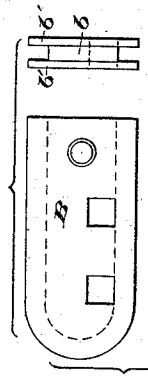


Fig. 4.

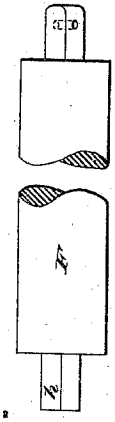


Fig. 3.

WITNESSES:

Geo. H. Fraser.

Geo. Robinson

INVENTOR:

Don C. B. Robinson

By his Attorneys,

Burke, Fraser & Connolly

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

DON C. B. ROBINSON, OF MADISON, INDIANA.

BELT-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 328,862, dated October 20, 1885.

Application filed May 18, 1885. Serial No. 165,827. (No model.)

To all whom it may concern:

Be it known that I, DON C. B. ROBINSON, a citizen of the United States, and a resident of Madison, Jefferson county, Indiana, have invented certain new and useful Improvements in Belt-Stretchers, of which the following is a specification.

My invention relates to that class of devices which are designed to take up the slack of the belt while it is still on the pulleys and hold it stretched while being cut, repunched, and relaced; and my object is to provide a simple, inexpensive, and effective machine for this purpose wherein a compound-lever movement effects both the clamping and the stretching.

The novel features of my invention will be hereinafter fully set forth, and particularly defined in the claims.

In the drawings, which serve to illustrate my invention, Figure 1 is a side elevation of the stretcher, showing it resting on the belt and in position to be operated. Fig. 2 is a similar view showing the lever thrown over and the belt clamped and partly stretched. Fig. 3 is a plan of the stretcher partly broken out at the center. The belt is shown in the upper half of the figure. Fig. 4 shows one of the slides detached in side, end, and edge elevation. Fig. 5 is a plan view of one of the links detached. Fig. 6 is a view of the ends of the removable bar of the stretcher detached. Fig. 7 shows one of the angle-levers. Fig. 8 illustrates a modification of the stretcher, which will be hereinafter described.

A A′ are the two like side frames of the stretcher, provided each with like slots, *a a*. As both ends of the stretcher are constructed precisely alike, a description of one end will suffice for both.

In the two slots *a a* of the two side frames are fitted two like slides, B B′. This slide I usually construct of a body-plate, *b*, which is just wide enough to fit into the slot, and a trifle thicker than the side frame A. To the sides of this plate are fitted two like plates, *b′ b′*, which are wider than *b*, and serve to prevent the slide from escaping laterally from the slot. The two slides B B′ are connected by cylindrical or rounded bars C and D, which have square or similarly-shaped tenons *c c*, that fit into corresponding holes in the slides. The tenons on the bar D do not project through the slides; but each tenon on the bar C is provided with a screw-threaded prolongation that projects beyond the slide, and on these are screwed nuts *d*. By this means the side frames, A A′, are properly distanced. The bars C D may be of any length, according to the width desired for the stretcher.

E E′ are two like angle-levers fulcrumed at *e e* on the oppositely-arranged slides B B′, as clearly shown. In the lower end of lever E is formed a square or angular slot, *g*, and in the corresponding end of the lever E′ is formed a similarly-shaped seat, *g′*, as seen in Fig. 7. These are designed to receive the squared or angular tenons *h* on a removable rounded or cylindrical bar, F. This bar is mounted in the levers by pivoting or hinging one of the tenons on its end in slot *g′* in lever E′ by a pin, g^2, and then slipping the other into the slot *g* in lever E, where it is retained by a suitable key, *i*. Thus the bar F is hinged to lever E, and remains permanently attached to same. The rounded bars C and D form one jaw of the clamp and stretcher, and the bar F the other or movable jaw.

It being understood that both ends of the stretcher are constructed alike, and that at each end there is a clamping mechanism such as I have just described, I will now describe the means by which the clamping and stretching is effected.

G is the operating-lever, which is usually made of a bar bent into the form of a bail, and this lever is coupled to the pairs of bent levers B B′ B B′ by four like links, H H′ H H′, which may be simply round rods with journals bent on their ends, as seen in the detached view, Fig. 5. I usually loosely rivet the journals of the links to the levers, and provide slots *j* in the branches of lever G, where the upper set of links are coupled, to increase the leverage at the latter part of the clamping and stretching operation.

I will now describe the operation of the machine. The bars F are released at one end and turned down out of the way, and the stretcher placed on the belt I over the point where it is laced. The bars C D, at each end, rest on the belt. The bars F are now replaced in the lower ends of the angle-levers under the belt, and properly secured by the keys. The stretcher will then appear as in

Fig. 1. The lever G is now pulled over and pressed down to the position seen in Fig. 2. The first part of the operation serves to clamp the belt at two points, *x x*, between the bars F C D, and the second part of the operation serves to stretch the belt by bringing the slides toward each other, as clearly shown in Fig. 2, where *y* represents the slack of the belt between the clamping-points. The surplus portion of the belt may now be cut out, and the belt repunched and relaced. The stretcher is then taken off by throwing back the operating-lever and removing the bars F.

It will be observed that when the belt is stretched and the lever is thrown over and pressed down, as in Fig. 2, the lever will stand in this position. It should be forced down until it rests on the bars C D at that end. By mounting one pair of links H H′ outside of the operating-lever and the other pair H H′ inside they will not interfere with each other. I contract the lever G laterally in order that it may pass freely inside of or between the angle-levers when it is pressed down.

I usually make the several bars C, D, and F cylindrical, for convenience, as I prefer to construct them of gas-pipe or tubing for the sake of lightness; but it is only essential that they shall have rounded faces where they grip the belt, in order that they may not injure or cut the same. The bars C and D may be made in one, if desired. In Fig. 8 I have shown an end view of such a bar with a recess in its under side to correspond with the recess formed between the two bars C and D. In this construction one tenon *c* serves in lieu of the two on the bars, as constructed separately. The plates *b′* require no other fastening to plate *b* of the slide than that afforded by the attachment of the bar C and the angle-lever. Where the slack of the belt is more than the stretcher will accommodate some of it may be taken up by hand after the stretcher is in place and before the belt is clamped fast.

It will be observed that my clamp and stretcher comprises a slotted frame, two like lever-clamps mounted to slide in the frame, and a lever connected to said two clamps in such a manner that by one movement of this operating-lever both clamps are simultaneously set on the belt, and then simultaneously brought toward each other to effect the stretching of the belt. These are the essential features of my invention.

Having thus described my invention, I claim—

1. A belt clamp and stretcher comprising a frame with slots to receive two sliding lever-clamps, the said sliding clamps, and an operating-lever connected with the levers of the clamps by links, substantially as described, whereby one movement of the operating-lever serves first to set both the clamps and then to draw them together, as set forth.

2. A belt clamp and stretcher comprising the slotted side frames, A A′, the four slides B B′, the bars C D, connecting said slides, substantially as set forth, the angle-levers E E′, fulcrumed on the slides, the removable bars F F, mounted in the ends of said levers, the operating-lever G, and the links connecting said lever with the angle-levers, substantially as set forth.

3. In a belt-stretcher, the combination, with the slotted side frames, A A′, of the slides B B′, each constructed of a body-plate, *b*, and two side plates, *b′ b′*, and the two bars C and D, each provided with square tenons fitted into similarly-shaped holes in the slides, and the nuts on the ends of bar C, substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

DON C. B. ROBINSON.

Witnesses:
ISAAC WAGNER,
JAMES E. LEWIS.