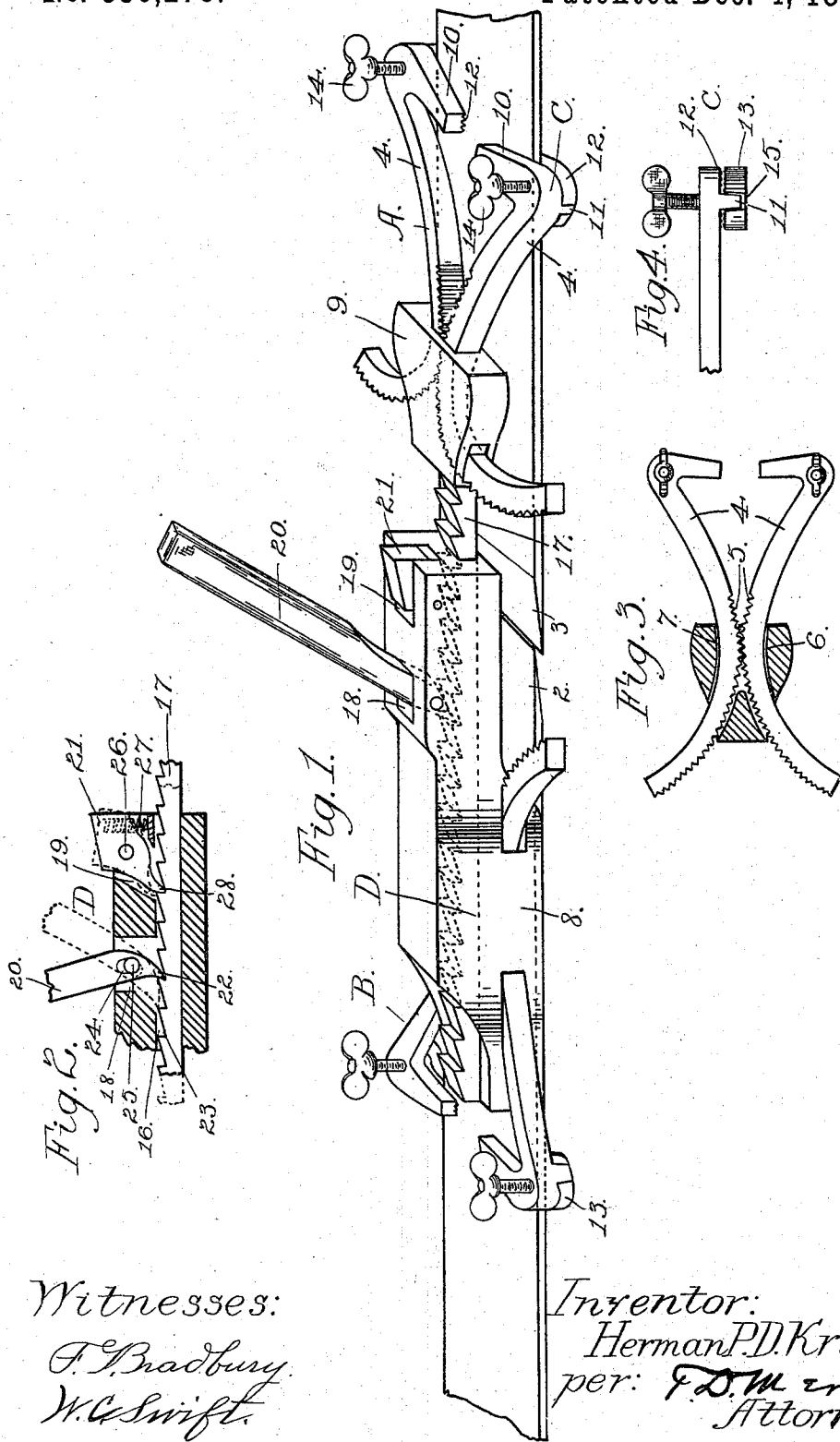


(No Model.)

H. P. D. KRUEGER.
BELT TIGHTENER.

No. 530,278.

Patented Dec. 4, 1894.



Witnesses:

F. Bradbury
W. C. Swift

Inventor:

Herman P. D. Krueger.
per: F. D. M. *crum*
Attorney.

UNITED STATES PATENT OFFICE.

HERMAN P. D. KRUEGER, OF BLOOMING PRAIRIE, MINNESOTA.

BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 530,278, dated December 4, 1894.

Application filed June 12, 1894. Serial No. 514,289. (No model.)

To all whom it may concern:

Be it known that I, HERMAN P. D. KRUEGER, of Blooming Prairie, Steele county, Minnesota, have invented certain Improvements in Belt-Tighteners, of which the following is a specification.

My invention relates to improvements in belt clamps, its object being more particularly to provide means especially applicable for drawing together the ends of elevator belts while on the pulleys, for the purpose of riveting or lacing.

To this end my invention consists of the pair of adjustable self-binding clamps adapted to be attached to the respective ends of the belt and connected by suitable take-up mechanism, the whole being so constructed as to be readily applied to the back of elevator belts without interfering with the buckets or slats secured to the opposite side.

My invention further consists in the features of construction hereinafter particularly described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a perspective view of my improved belt clamp shown in operative position. Fig. 2 is a sectional detail view of the rack-bar, operating lever and pawl. Fig. 3 is a sectional detail view of one pair of the adjustable self-binding elevator clamps; and Fig. 4 is a detail elevation of one side of the clamp proper.

In the drawings, 2 and 3 represent the meeting ends of a belt, my improved device being shown attached thereto.

A and B represent the pair of similar opposite clamps of the device. These clamps are made up of the oppositely curved bars 4, the bars of the clamp A working in the similarly curved diverging paths 6 and 7 in the guide block 9 and those of the clamp B in similar paths in the lower portion 8 of the block D. The bars 4 have their inner edges 5 serrated, whereby when the clamps are secured upon the belt the bars engage and are held from movement through the block by the opposite thrust of the bars upon the walls of the guide. At the outer ends of the clamp bars are the clasps C, formed by the inwardly curved portion 10 provided with the downwardly projecting lug 11 fitting into a groove 15 in the loose member 10 to hold the same from twist-

ing when the belt is under tension, the members 13 and 13 being held in contact by means of the thumb screw 14 passing through the member 10 and threaded into the member 13, the inner faces 12 of the members being serrated so as to more tightly grip the belt.

Formed integral with the guide block 9 and working in the longitudinal path 16 in the upper part of the block D is the rack bar 17, provided with teeth 23 upon its upper edge. Passing through the opening 18 in the top of the block D is the lever 20, loosely pivoted therein by means of the pin 25 passing through the curved slot 24 in the lever, and bearing in the side walls of the opening. The lower end 22 of the lever is sharpened to engage with the teeth of the rack bar so as to move it forward in its path. Pivoted in the opening 19 in the rear of the block D by means of the pin 26, is the pawl 21, normally held with its point 28 in engagement with the teeth of the rack bar by means of the spring 27, thereby preventing backward movement of the bar but permitting any forward movement.

As will be seen from the drawings, the clamp A is on a higher plane than the clamp B, so that the end of the belt carried by the clamp A will overlap the opposite end of the belt, thus making them more easily worked upon.

In the operation of my device the clamps A and B are adjusted to the width of the belt to be tightened, by sliding the bars 4 into or out of their grooves in the blocks until the clasps C are sufficiently separated to grasp the sides of the belt, the rack bar having been previously extended so as to allow for the proper amount of tightening. The ends of the belt are then passed between the members 10 and 13 of the clasps and the thumb screws tightened, firmly securing the belt therein. The rack bar is then worked forward in its groove by means of the lever 20 working on the pin 26 as a fulcrum, the point of the lever meshing with the teeth of the rack bar and forcing it forward with each backward movement of the lever, the pawl 21 engaging with the teeth of the rack bar and holding it from backward movement. The curved slot 24 through which the pivot pin 26 of the lever passes allows the point to follow a tooth of the rack in its forward move-

ment and be retracted therefrom to engage another tooth. The operation is repeated until the ends of the belt are in proper position to be laced.

5 I claim—

1. In a belt tightener, the combination with the take-up mechanism, of the pair of clamps adapted to engage the opposite edges of the belt, the oppositely curved bars connected respectively to said clamps, and the guides for said bars connected to said take up mechanism, adapted to engage and hold said bars from longitudinal movement therein so long as the clamps are held from lateral movement.

15 2. In a belt tightener, the combination with the take-up mechanism, of the block connected thereto having oppositely converging curved guides therein, the similarly curved bars slidable in said guides, and the clamp carried by each of said bars for engaging the belt.

3. In a belt tightener, the combination with the take-up mechanism, of the connected guide block, the pair of clamps for engaging the opposite edges of the belt, and the oppositely curved bars connected to said clamps and working in the guides in said block, whereby when the clamps are secured upon the belt the bars are held from movement through the block by the opposite thrust of the bars upon the walls of the guides.

4. In a belt tightener, the combination with the take-up mechanism, of the pair of clamps for engaging the opposite edges of the belt, the oppositely curved bars connected to said clamps and the guides for said bars automatically securing them and the take up

mechanism in adjusted positions, determined by the spread of the clamps.

5. In a belt tightener, the combination with the take-up mechanism, of the clamps for engaging the opposite edges of the belt, the bars connected to said clamps and oppositely and similarly curved and provided with teeth upon their convex adjacent faces, and means connected to the take-up mechanism for holding said toothed surfaces in engagement.

6. In a belt clamp, the combination with the lever actuated rack-bar and the catch block adapted to automatically engage and prevent the backward movement of said bar, of the adjustable clamps secured to said block and bar, consisting of oppositely similarly curved bars having inner serrated meshing edges, said bars being located in diverging curved paths in the heads of the block and bar.

7. In a belt clamp, the combination with the lever actuated rack-bar and the catch block adapted to automatically engage and prevent the backward movement of said bar, of the adjustable clamps secured in diverging curved paths in the heads of the block and bar, and consisting of oppositely similarly curved bars having inner serrated meshing edges and having at their outer ends the in-turned clasps for engaging the belt.

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

HERMAN P. D. KRUEGER.

Witnesses:

G. S. BRAINERD,
L. O'TOOLE.