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J. S. ENGLE.

BELT TIGHTENER AND STRETCHER.

(Application filed July 6, 1901.)

(No Model.)

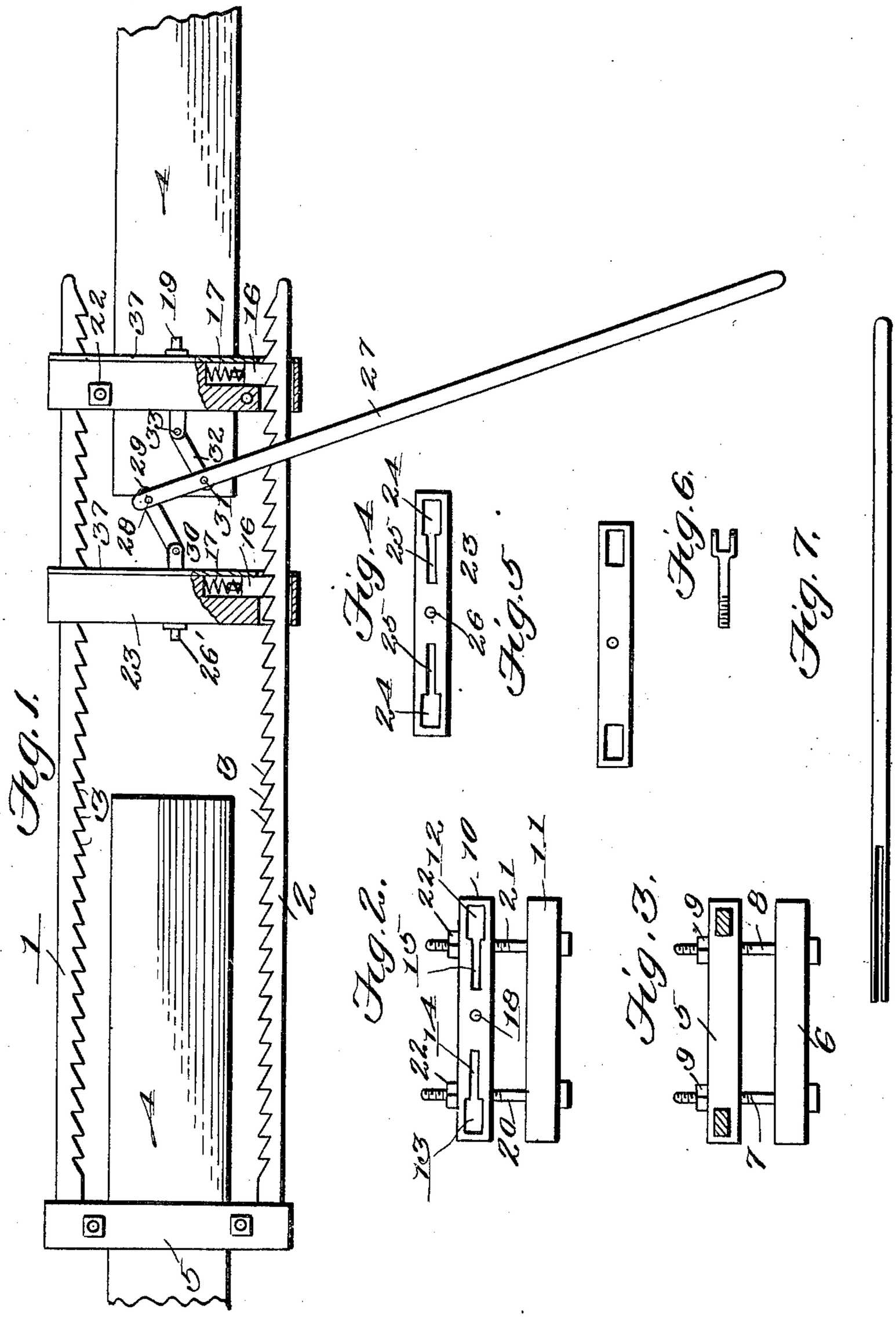

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

JACOB S. ENGLE, OF CORSICANA, TEXAS.

BELT TIGHTENER AND STRETCHER.

SPECIFICATION forming part of Letters Patent No. 688,240, dated December 3, 1901.

Application filed July 6, 1901. Serial No. 67,357. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. ENGLE, a citizen of the United States, residing at Corsicana, in the county of Navarro and State of Texas, have invented new and useful Improvements in Belt Tighteners and Stretchers, of which the following is a specification.

This invention relates to a certain new and useful improvement in belt tighteners and stretchers, and is also adapted for tightening and stretching ropes, wires, and the like.

The invention aims to construct a device for tightening and stretching belts, wires, ropes, or the like which can be easily attached to the object to be stretched or tightened, quickly and easily operated to draw up the slack of a belt, wire, or rope placed in such a manner so that the belt can be relaced, and one that can be readily removed after the slack has been taken up or the belt relaced.

The invention further aims to construct a device for tightening and stretching belts, wires, ropes, and the like which will be simple in its construction, rapidly manipulated, overcoming lack of lost motion in operating the same, strong, durable, efficient in its operation, comparatively inexpensive to set up and manufacture; and to this end it consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is a plan view shown partly in section. Fig. 2 is an end view of the adjustable clamp. Fig. 3 is an end view of the fixed clamp. Fig. 4 is a detail of the traveling bar. Fig. 5 is a detail of the plate for retaining the dogs in position. Fig. 6 is a detail view of the eyebolt. Fig. 7 is a plan of the operating-lever.

Referring to the drawings by reference-numerals, 1 and 2 denote a pair of rack-bars each provided with teeth 3. These rack-bars when in position are arranged so that one will be at an opposite side of the belt 4 or the wire, rope, or the like. Secured to one end of the bars 1 2 is the fixed clamp, adapted to secure thereto one end of the belt 4. This fixed clamp consists of upper and lower clamping-plates 5 6, having the clamping-bolts 7 8 extending therethrough. The clamping-bolts 7 8 project through the upper clamping-plate 5 and have mounted thereon the jam-nuts 9, which when screwed home securely hold one end of the belt between the clamping-plates 5 6, securing it to one end of the rack-bars 1 2.

Mounted upon the opposite end of the rack-bars 1 2 is the adjustable clamp, consisting of the upper and lower plates 10 11. The upper plate 10 is provided with a pair of oppositely-disposed openings 12 13, through which extend the rack-bars 1 2. The upper plate 10 is further provided with slots 14 15, in which are mounted the dogs 16, engaged by the spring 17. The function of the spring 17 is to normally keep the dogs 16 in engagement with the teeth 3 of the rack-bars. The upper plate 10 is also provided with an opening centrally thereof, as at 18, to receive the eyebolt 19. Extending through the plates 10 11 and projecting upwardly from the plate 10 is a pair of clamping-bolts 20 21, adapted to receive the jam-nuts 22 for clamping the opposite end of the belt, wire, or rope between the plates 10 11 for attaching the said end of the belt to the rack-bars 1 2 when it is desired to tighten or stretch it.

The reference-numeral 23 denotes a traveling bar which is provided with a pair of openings 24 to permit of mounting the traveling bar upon the rack-bars 1 2 and also to permit of the bar 23 traveling across the rack-bars. The traveling bar 23 is further provided with slots 25, in which are mounted a pair of spring-pressed dogs similar to the dogs 16. The dogs of the traveling bar are adapted to normally engage with the teeth 3 of the rack-bars. The traveling bar is further provided with an opening 26 to receive an eyebolt 26′, similar to the eyebolt 19. The eyebolts may be secured to the traveling bar 23 and upper plate 10 of the adjustable clamp in any desirable manner.

The reference-numeral 27 denotes an operating-lever which is pivoted at its inner end

by means of the stud or pin 28 to one end of the link 29. The opposite end of this link 29 is pivoted to the outer end of the eyebolt 26′ of the traveling bar 23, as at 30. The lever 27 is pivoted, as at 31, to one end of the link 32. The opposite end of this link 32 is pivoted, as at 33, to the eyebolt 19, attached to the upper plate 10 of the adjustable clamp. The inner end of the lever 27 is bifurcated to receive the end of the links 29 and 32.

The reference-numeral 37 denotes a plate for retaining the dogs in position.

The operation of the device is as follows: Assuming that the device is in position as shown in Fig. 1, the lever 27 is moved away from the operator, which causes the dogs to compress the spring 17, so that the dogs will ride over the teeth 3 and the rack-bars 1 2, releasing the adjustable clamp and causing the same to travel upon the rack-bars 1 2. When the adjustable clamp is moved by the foregoing operation, the distance will be one tooth of the rack, for the reason that after the spring 17 is compressed by the riding of the dogs up the inclined face of the teeth immediately at the end of this inclined face the springs will cause the dogs to engage in the adjacent tooth and prevent further movement of the adjustable clamp until the lever is brought back to its normal position and moved from the operator again, or, in other words, the movement of the adjustable clamp over the rack-bars will be an intermittent one. After the lever 27 is moved from the operator and returned to its normal position during the returning thereof the springs in the traveling bar will be compressed, permitting the dogs to ride over the teeth 3 of the rack-bars, so that the traveling bar 23 will be moved the distance of a tooth or a notch. The movement of the traveling bar 23 will be the same as that of the adjustable clamp, or, in other words, by moving the lever 27 away from and to the operator an alternating intermittent movement will be given to the adjustable clamp and traveling bar. The eyebolt 19 of the adjustable clamp forms a fixed fulcrum-point, so that the intermittent movement can be transferred to the traveling bar 23 by means of the lever 27 and its connection, and the eyebolt 26′ of the traveling bar forms a fixed fulcrum-point, so that the intermittent movement can be transferred to the adjustable clamp by means of the lever 27 and its connection. It will be evident that when the ends of the belt—for example, one secured to the fixed clamp and the other to the adjustable clamp—owing to the alternating intermittent movement given the traveling bar and adjustable clamp by means of the lever the belt will be stretched and tightened and that the same can be relaced, if desired.

It is thought that the many advantages of my improved tightening and stretching device can be readily understood from the foregoing description, taken in connection with the accompanying drawings, and it will also be noted that minor changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a device of the character described, a pair of rack-bars, a clamp fixed thereto, a bar engaging with and traveling upon said rack-bars, a clamp engaging with and traveling upon said rack-bars, and mechanism connected with said traveling bar and clamp for imparting thereto an alternating intermittent movement.

2. In a device of the character described, a pair of rack-bars, a clamp fixed thereto, a bar engaging with and traveling upon said rack-bars, a clamp engaging with and traveling upon said rack-bars, an operating-lever, and separate connections between said lever and traveling bar and clamp for imparting thereto an alternating intermittent movement.

3. In a device of the character described, a pair of rack-bars, a fixed clamp adapted to receive one end of the object to be stretched or tightened, a traveling bar, means carried by said bar and adapted to engage in said rack-bars to permit of the movement of said traveling bar in one direction, an adjustable clamp mounted upon said rack-bars and adapted to receive the opposite end of the object to be tightened, means carried by said adjustable clamp and engaging with the said rack-bars to permit of the movement of said adjustable clamp in one direction, and means connected with said traveling bar and adjustable clamp for imparting an alternating intermittent movement thereto.

4. In a device of the character described, a pair of rack-bars, a fixed clamp adapted to receive one end of the object to be stretched or tightened, a traveling bar, means carried by said bar and adapted to engage in said rack-bars to permit of the movement of said traveling bar in one direction, an adjustable clamp mounted upon said rack-bars and adapted to receive the opposite end of the object to be tightened, means carried by said adjustable clamp and engaging with the said rack-bars to permit of the movement of said adjustable clamp in one direction, an operating-lever, and means connected with said lever and traveling bar and adjustable clamp for imparting an alternating intermittent movement to said traveling bar and adjustable clamp.

5. In a device of the character described, a pair of rack-bars, a fixed clamp adapted to receive one end of the object to be stretched or tightened, a traveling bar, means carried by said bar and adapted to engage in said rack-bars to permit of the movement of said traveling bar in one direction, an adjustable clamp mounted upon said rack-bars and adapted to receive the opposite end of the object to be tightened, means carried by said adjustable clamp and engaging with the said rack-bars

to permit of the movement of said adjustable clamp in one direction, an operating-lever, eyebolts connected to the traveling bar and adjustable clamp, and links connected to said eyebolts and said lever for causing, when said lever is operated, an alternating intermittent movement of said traveling bar and said adjustable clamp.

6. In a device of the character described, a pair of rack-bars, a fixed clamp connected to one end thereof and adapted to have secured thereto one end of the object to be tightened or stretched, a traveling bar provided with a pair of openings through which extends the said rack-bars, spring-actuated dogs carried by said traveling bar and adapted to engage in the teeth of the rack-bars to permit of the operation of said traveling bar in one direction, an adjustable clamp provided with a pair of openings through which extend the said rack-bars, spring-actuated dogs carried by said adjustable clamp and adapted to engage in the teeth of the rack-bars to permit of the operation of the adjustable clamp in one direction, and means connected with said traveling bar and adjustable clamp and adapted when operated, to impart an alternating intermittent movement to said traveling bar and adjustable clamp.

7. In a device of the character described, a pair of rack-bars, a fixed clamp connected to one end thereof and adapted to have secured thereto one end of the object to be tightened or stretched, a traveling bar provided with a pair of openings through which extend the said rack-bars, spring-actuated dogs carried by said traveling bar and adapted to engage in the teeth of the rack-bars to permit of the operation of said traveling bar in one direction, an adjustable clamp provided with a pair of openings through which extend the said rack-bars, spring-actuated dogs carried by said adjustable clamp and adapted to engage in the teeth of the rack-bars to permit of the operation of the adjustable clamp in one direction, an operating-lever, and connections between said operating-lever and said traveling bar and adjustable clamp and adapted when operated by said lever to impart an alternating intermittent movement to said traveling bar and adjustable clamp.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JACOB S. ENGLE.

Witnesses:
C. S. JESTER,
ELMO JEFFERS.