(No Model.)

H. BRAND.

BELT TIGHTENER.

No. 486,155. Patented Nov. 15, 1892.

Fig. 1.

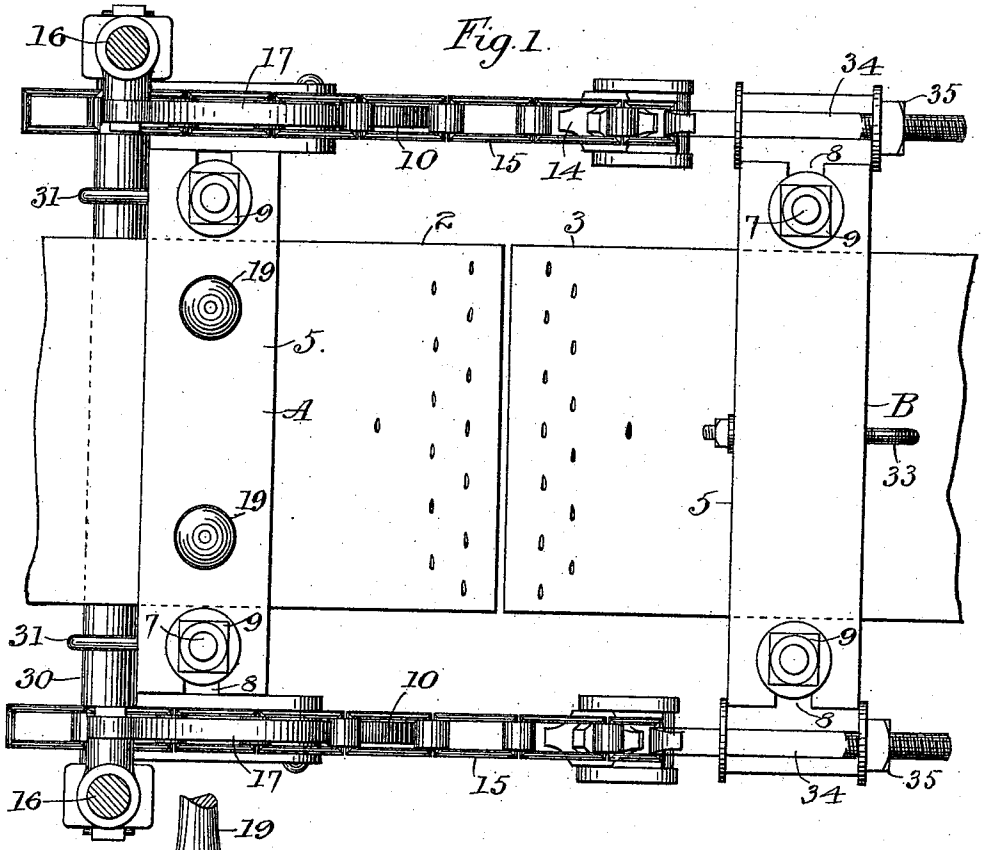
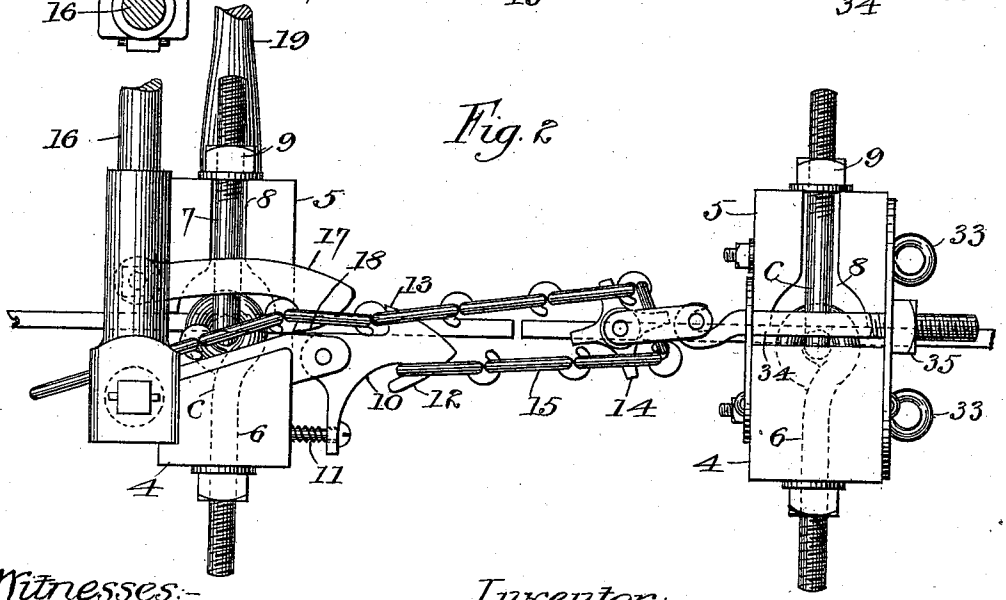


Fig. 2.



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

UNITED STATES PATENT OFFICE.

HENRY BRAND, OF DULUTH, ASSIGNOR OF ONE-FOURTH TO ARCHIBALD JOHNSON AND RUFUS DAVENPORT, OF ST. PAUL, MINNESOTA.

BELT-TIGHTENER.

SPECIFICATION forming part of Letters Patent No. 486,155, dated November 15, 1892.

Application filed April 18, 1892. Serial No. 429,612. (No model.)

To all whom it may concern:

Be it known that I, HENRY BRAND, of Duluth, St. Louis county, Minnesota, have invented certain Improvements in Belt-Tighteners, of which the following is a specification.

My invention relates to improvements in devices designed for the tightening of belts or the drawing together of their ends to be laced or spliced, its object being to provide means for tightening or splicing the belt while on the pulleys.

To this end my invention consists in providing a pair of clamps, which are adapted to be secured, respectively, to the ends of the belt, so as to firmly grip and hold them. The clamps are connected by means of chains, one on each side, and are drawn together by means of gravity-dogs pivoted to hand-levers and adapted to drop into engagement with the links of and pull upon the chains. Spring-actuated retaining dogs or catches underneath engage successively links forward of the first dogs and hold the chains from backward movement, while the levers are turned to carry the first dogs forward into engagement with other links. The chains are preferably connected to the retaining-dogs and carried around sprockets on the opposite clamp and back over the first, thereby giving increased power to the apparatus.

My invention further consists in the construction and combination hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of my improved apparatus shown applied to the ends of a belt, and Fig. 2 is a side elevation of the same.

In the drawings, 2 and 3 represent the meeting ends of a belt, to which tension is to be applied to bring them together for lacing.

A and B are the clamps, which are secured upon the ends 2 and 3. These clamps are made up of two cross-bars 4 and 5, the cross-bar 4 placed underneath the belt and the cross-bar 5 above the same and then connected together by means of the hinged bolts C, the lower members 6 of which are passed through and secured to the cross-bar 4. The upper members 7 engage the end grooves 8 in the cross-bar 5, and are secured therein by means of the nuts 9, so as to clamp the bars tightly together. Pivoted to the lower bar of the clamp A are the dogs 10, provided with springs 11, which tend to throw these upward. These dogs are fitted with hooks 12 on the under side and the catches or hooks 13 on the upper side. The clamp B is provided with sprockets 14 in line with the dogs 10 and connected therewith by means of the chains 15, one end of each of which is secured upon the hook 12, then carried over the sprockets back into engagement with the hook 13 and back over the chain. Mounted upon the rock-shaft 30, which turns in bearings 31 upon the clamp A, are the operating-levers 16, which carry the gravity-dogs 17, provided with beveled catches 18, adapted to engage the links of the chains 15 just back of hooks 13 of the dogs 10. With the parts in the position shown in Fig. 2, on throwing the levers 16 backward or toward the left the hooks or dogs 17 draw the chains back over hooks 13 of the dogs 10. These hooks spring up into the links successively as they pass and hold the chains from return movement when released by the forward movement of the levers 16. The forward movement of the levers carries the dogs 17 along over the links successively and with the return movement causes the dogs to engage the clamps and draw them along the sprockets, thus bringing the clamps and the ends of the belt closer and closer together. This operation is repeated until the required tension has been secured or the ends of the belt drawn close enough together for lacing.

While my invention is shown applied to a belt, it is evident that it may be similarly applied to other things than belts which can be secured between clamps, such as wires, ropes, cables, &c.

In order to prevent any rocking of the clamp A during the operation of the levers, I prefer to provide standards 19, extending upward therefrom, which may be held in the hand and used to steady it, thus assisting in the operation.

I claim—

1. In a device of the class described, the combination of the pair of clamps, their connecting-chain, the lever pivoted to one of said clamps, provided with an attachment for engaging the links of said chain, so as to pull upon the same as the lever is thrust in one direction, while free to slip along the chain with the reverse movement of the lever, and the automatic retaining devices adapted to engage the chain and retain its tension when released by the lever, substantially as described.

2. The combination of the pair of clamps, the chain extending from one to the other, the lever pivoted to one, the dog carried by the lever, adapted to automatically and successively engage the links of the chain, and an automatic catch adapted to successively engage the links of the chain and retain the tension thereof, substantially as described.

3. In a belt-stretcher, a chain-tension device comprising, in combination, a relatively-fixed support, a lever pivoted thereon, a gravity-dog connected to said lever and lying upon the top of said chain and adapted to successively engage the links of the same, and a spring-actuated catch underneath said chain, adapted to successively engage its links as carried forward by the operation of the lever and to hold it from return movement when released from said lever, substantially as described.

4. In a device of the class described, the combination, with the clamps, of the chain attached to one and running over and past the other, the pivoted lever upon said second clamp, the gravity-dog pivoted to said lever, and lying upon the top of said chain and adapted to automatically engage the links thereof and apply tension thereto by the operation of the lever, and the retaining-catch underneath said chain, automatically engaging its links and holding it from return movement when released by said dog, substantially as described.

5. The combination, with the pair of clamps, of the chains connected to one, running over sprockets upon the other and returning over the first, the levers pivoted to said first clamp, the gravity-dogs carried thereby adapted to run freely in one direction along said chains and to engage the same and apply tension thereto with the reverse movement of the levers, and the catches underneath the return part of the chains, engaging their links and retaining the tension applied by said levers, substantially as described.

6. The combination of the pair of clamps, the chains connecting the same, the lever-operated dogs mounted upon one of the clamps, adapted to automatically engage and apply tension to the chains, and means for automatically retaining said tension, substantially as described.

7. In a device of the class described, a belt-securing clamp comprising, in combination, the upper and lower cross-bars, the bolts hinged to one bar and fitting into the end grooves in the other bar, and the securing-nuts threaded upon said bolts, substantially as described.

8. The combination of the pair of clamps, the chains connecting the same, the lever-operated devices mounted upon one of the clamps, adapted to engage and apply tension to said chains, the automatic retaining devices also mounted upon said clamp and adapted to retain said tension, and the standard or arm upon said clamp, by means of which it may be held from rocking under the action of said lever, substantially as described.

In testimony whereof I have hereunto set my hand this 9th day of April, 1892.

HENRY BRAND.

In presence of—

DAVID W. EVANS,

H. J. COOPER.