J. THAYER.

BALE-TIE TIGHTENER.

No. 181,020. Patented Aug. 15, 1876.

Fig. 1.

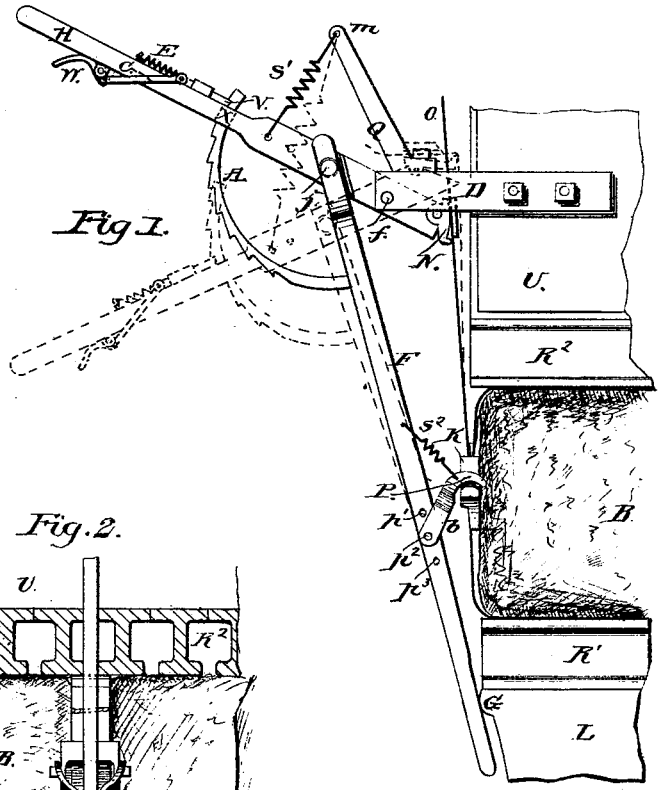


Fig. 2.

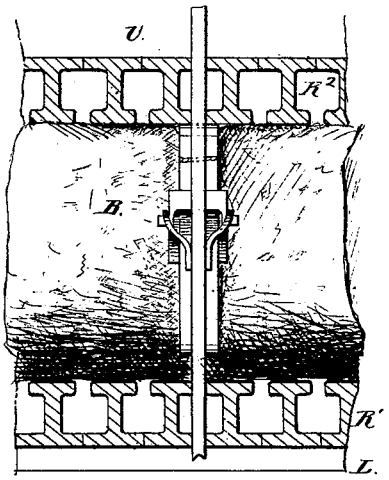
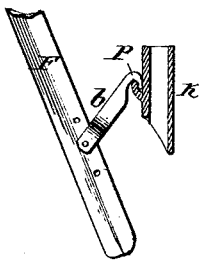


Fig. 3.



Witnesses:

M. Gardner.

A. F. Eastman

Inventor:

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UNITED STATES PATENT OFFICE.

JASPER THAYER, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE-HALF HIS RIGHT TO CHARLES H. CHASE, OF SAME PLACE.

IMPROVEMENT IN BALE-TIE TIGHTENERS.

Specification forming part of Letters Patent No. **181,020**, dated August 15, 1876; application filed May 22, 1876.

To all whom it may concern:

Be it known that I, JASPER THAYER, of New Orleans, Louisiana, have invented an Improvement in Apparatus or Machines for Tightening Iron Bands around Bales, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to draw the bands or hoops around the compressed bale to a state of great tension, and, when so drawn by the machine, to enable the operators to secure the band in the tightened condition without permitting the bale to expand within the inclosing bands to the great extent that has been the case heretofore, where the bands have been imperfectly tightened by inadequate or imperfect appliances, such as are in common use.

My invention is an improvement upon or addition to the devices described in the Letters Patent of the United States, No. 170,054, granted to Charles H. Chase, of New Orleans, and reference is hereby made to the specification of said Letters Patent to more perfectly understand my improvements.

Figure 1 shows the bale B in the press, between the lower platen L and the upper platen U. The band or hoop is marked *o*, and one end of it is secured to the buckle K, through which the loose end passes upward to the nipper-jaws or clamp N, after it has been made to encircle the bale by passing up over and around it, as shown in Fig. 1, with the free end grasped by the nippers N, which are upon the end of the hand-lever H, to which the manual force of the workmen is applied when the tightening operation is being performed.

The hand-lever H is supported upon a suitable fulcrum, *f*, secured to the upper platen of the press by a bracket, D. F is a pushing or straining bar, connected by a joint, *j*, to the lever H; and this bar F, near its lower end, at adjustable points p^1 p^2 p^3, is made to carry the pulling-bar *b*, which, at its outer end, is provided with suitable claws or a hook, (shown at P,) adapted to grasp or be easily attached to the buckle K, which may be conveniently provided with horns, lugs, or a socket, to readily receive the hook P, by means of which the strain from the force exerted upon the hand-lever H is made to hold and draw the buckle down, while the corresponding strain, acting upon the free end of the band through the outer end of the hand-lever, by means of the nippers N, draws the loose end upward through the buckle to any desired degree of tension, which is maintained by properly clamping, wedging, or otherwise at the place in the buckle where the free end of the band passes through it.

In order to avoid any slack in the band, and to cause it to lie close to the bale while receiving the desired tension, I so construct the pushing-bar F that its lower end is guided in the proper direction by the front edge of the lower platen L, or by a suitable guide-strip or bolster placed parallel to or against or upon the front edge of the lower platen, as shown at G; and I hinge the pulling-bar *b* to the pushing-bar F, as shown at p^2, so that the claw end thereof, P, will be free to move in the proper line, to permit the band to occupy the shortest length or distance around the bale, which is not the case with any machine in which the claw or hook grasping the hook or buckle is forced out of proper position or line, in consequence of such side strains as exert themselves whenever no positive guide or direction is given to the lower end of the straining or pushing bar F.

One marked peculiarity of my invention in its operation is, that the band is drawn and tightened around the bale by being strained or pulled from both ends of the band, instead of being tightened by the movement of one end of the band only, while the other end remains nearly or quite stationary, as is the case in other machines. By drawing, as my machine does, about equally from both ends of the band, there is very much less frictional resistance of the band on the bale, which, of itself, greatly conduces to the efficiency and ease of performing the operation, which is one of the most important purposes of my invention.

To facilitate the application of the tightening-machine to the band, and to keep the hand-lever out of the way when not in actual use-

I apply a spring, s^1, to lift it, as shown in Fig. 1, the upper end of the spring being supported by a rod or cross-bar, *m*, in such a manner as to allow it to slide or travel across as the machine is applied to one band after another.

The cross-bar *m* is held in place by a pair of brackets, as shown at Q. The claw-bar *b* is similarly supported in an elevated position by means of the spring s^2, which pulls it up out of the way when the claws or hook is disengaged from the buckle.

To further facilitate the operation, the operator, after he has got sufficient strain upon the band by force of the lever to have free use of himself while adjusting the wedge and driving the same into the buckle to secure the band, I use a lock, C, to hold the lever H to any point attained on its downward motion, as shown in the drawings. A is the segment of a circle, one end of which is attached to the pushing-bar F by a loose or stationary joint, as may be found most practical, at a proper distance from the top. The other end, being free, passes upward and through a slot or mortise, X, in the lever-bar H, at a corresponding distance from the fulcrum of the lever, so as to allow it to have a free and easy passage through the mortise when the lever is being raised or lowered. On the outer edge of the segment notches are cut, of suitable shape to allow the catch V, which is securely fastened on top of lever H, to be forced against the segmental strip A by means of a pushing spiral spring, E, to catch in the notches on the segmental strip and lock the lever at any desired point. E, the spiral spring, is attached to the top of the lever, and operates the catch V, as shown in the drawings.

To loose or unlock the tooth of the catch, trigger W is used, which is attached to the catch V by means of longitudinal arms to the lever H. The trigger is operated by a backward motion, for the purpose of relieving the tooth of the catch from the notches in the segmental strip.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In bale-band-tightening machines, the combination, with the hand-lever and pushing-bar, of a pulling-bar, provided with a hook or claw adapted to engage the buckle, said pulling-bar being connected to said pushing-bar by a movable joint, substantially as set forth.

2. In bale-band-tightening machines, the combination of the pushing-bar with a guide-piece or guiding-edge of the platen, suitably arranged to direct and steady the pushing-bar while the strain is being applied by the operators, substantially as set forth.

3. The combination, with the hand-lever, of a spring supported by a cross-bar, said spring serving to keep the hand-lever elevated in proper position to apply the band to the clamp on the end of said hand-lever preparatory to applying the strain, substantially as set forth.

4. In band-tightening machines, the arrangement of the strain-developing parts, whereby both ends of the band are made to receive the tightening force, and both ends yield to such force in substantially an equal degree, substantially as and for the purpose described.

5. The combination, with the pushing-bar and jointed pulling claw-bar, of a spring to elevate the claw-bar, substantially as and for the purpose described.

6. The combination, with the pushing-bar and lever, of a segment of a circle, notched on its outer edge, used, in connection with the lock and catch, for the purpose of holding all the strain that may be exerted upon the hoop or band by the downward pressure upon the lever at the point attained, relieving the operator, and allowing him free use of himself to adjust and drive the wedge into the buckle, thereby securing the ends of the band, substantially as set forth.

7. The combination of the slot or mortise in the lever, which is a guide for the free end of the segmental strip, also the manner of attaching the segmental strip to the pushing-bar, substantially as set forth.

8. The combination devices, as shown and described, consisting of the pushing-bar and pulling-bar, in connection with the guide-strip, claws, and griping device, springs for lifting the lever and pulling-bar, the notched segmental strip, the manner of attaching to pushing-bar, the slot in lever-guide for free end of segmental strip, the catching device, together with spiral spring and trigger, for compressing cotton, substantially as and for the purpose described.

JASPER THAYER.

Witnesses:
THOMAS C. CONNOLLY,
HENRY H. BURTON.