

J. L. SHEPPARD.
Bale-Band Tightener and Band.

No. 207,902.

Patented Sept. 10, 1878.

Fig. 1.

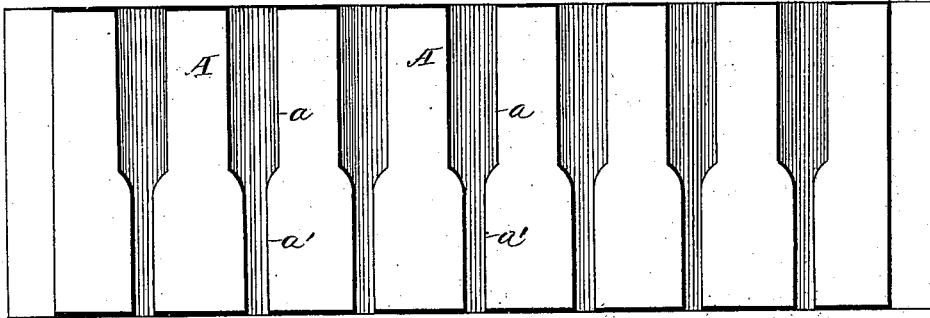
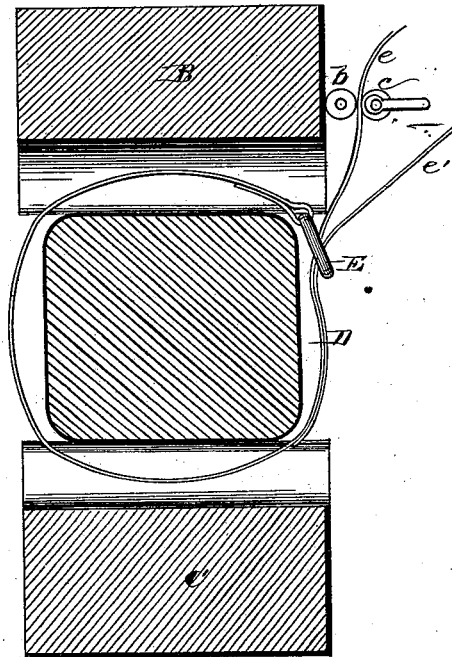


Fig. 2.



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Fig. 3.

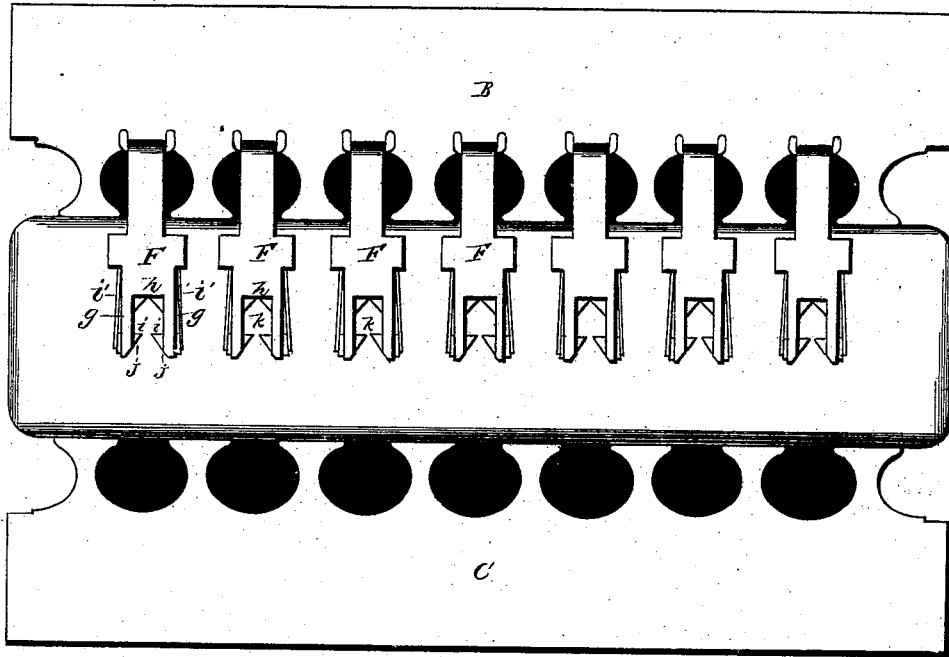


Fig. 4.

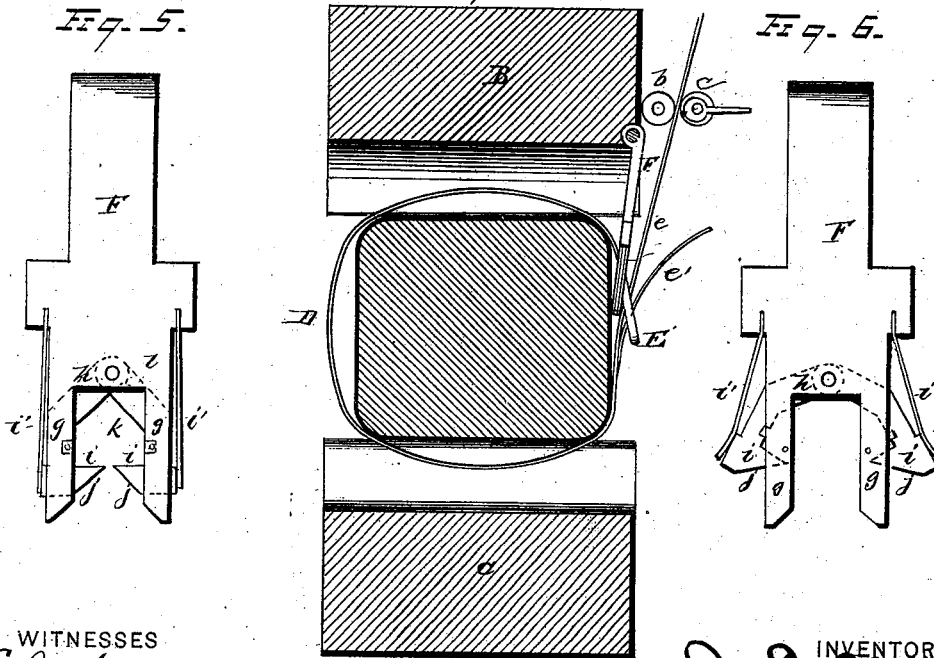


Fig. 5.

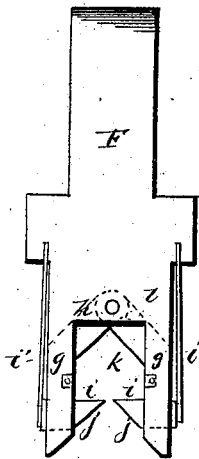
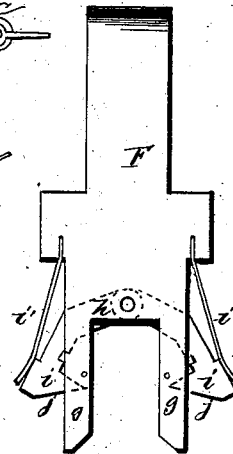


Fig. 6.



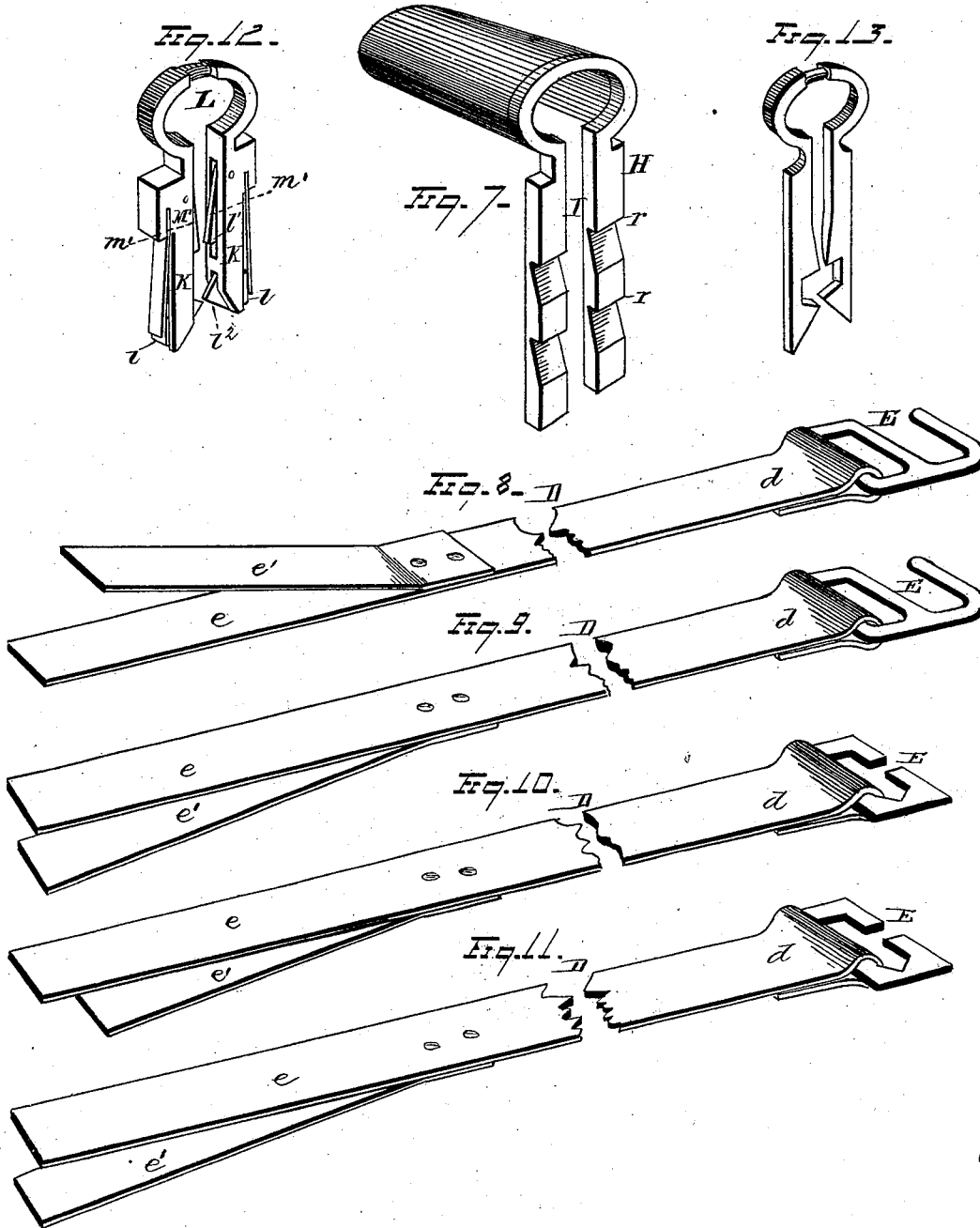
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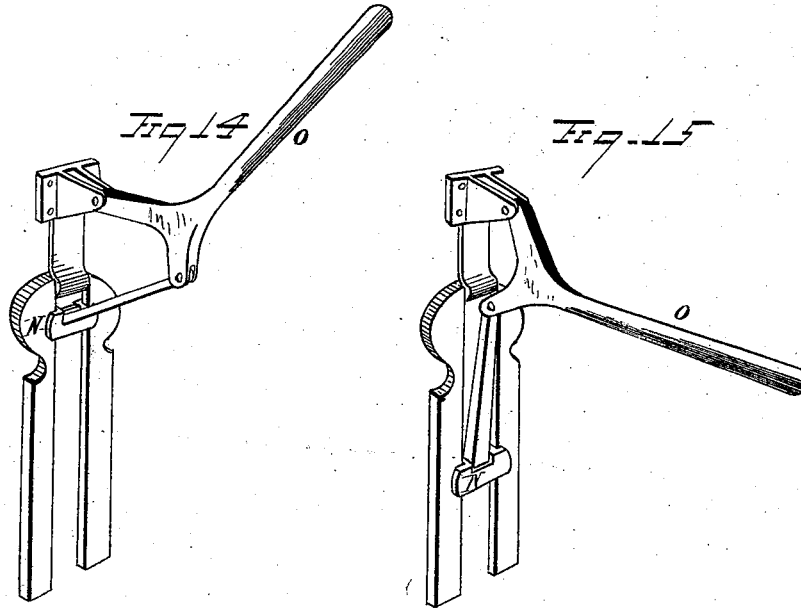
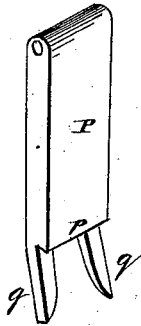


Fig. 16.



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UNITED STATES PATENT OFFICE.

JOHN L. SHEPPARD, OF CHARLESTON, SOUTH CAROLINA.

IMPROVEMENT IN BALE-BAND TIGHTENERS AND BANDS.

Specification forming part of Letters Patent No. **207,902**, dated September 10, 1878; application filed July 11, 1878.

To all whom it may concern:

Be it known that I, JOHN L. SHEPPARD, of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Band-Tighteners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in band-tighteners, the object being to provide an attachment for cotton and other presses which shall be of simple and durable construction, and adapted to take up and retain all slack band by steam or other motive power, while the bands are being secured by buckles of any approved form or style. Another object of my invention is to provide bale-bands for band-tighteners of such construction that a loop or return-bend may be formed in the band, to secure the same to any of the ordinary and well-known forms of bale-ties without relaxing the strain on the band, and hence obviating the necessity for slack band in securing the free end of the band to the buckle or tie.

My invention consists, first, in the bale-bands, each having an extra piece of band attached to one end, whereby strain may be exerted on one of said ends by the band-tightener, and the other one of said ends secured to the buckle or tie without releasing the strain on the band.

My invention further consists in the combination, with the platen of a cotton or other press provided with hinged slotted buckle-stops, of the triple-ended bale-band, whereby the buckles may be held by an adjustable stop or abutment, the position of which is regulated by the size and shape of the bale.

My invention further consists in certain details in construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of the platen of a press having grooves contracted in width near the front of the platen. Fig. 2 is a vertical

section of a press provided with one form of my improvement. Fig. 3 is a front elevation of a platen furnished with hinged buckle-stops. Fig. 4 is a vertical section of the platen of a press and the band-tightener and hinged buckle-stops, illustrating the position of the parts when employed in compressing the bales and securing the bands thereon. Fig. 5 is an enlarged view of one of the hinged buckle-stops with its hooks closed. Fig. 6 is a similar view with the hooks open. Fig. 7 is a modified form of buckle-stop, and Figs. 8, 9, 10, and 11 illustrate different forms of bands and buckles. Fig. 12 represents an enlarged view of a hinged buckle-stop provided with an opening in its upper end and spring-pressed jaws attached to its lower end. Fig. 13 shows a hinged stop with an opening through its upper end, and its lower ends adapted to be forced apart when they are pressed into the bale. Fig. 14 is a view, in perspective, of a hinged buckle-stop provided with a locking device; and Fig. 15 is a similar view, showing the buckle locked in place. Fig. 16 is another modification.

A are the railroad-bars attached to the upper platen of the press. The grooves *a* between the bars are contracted in width near the front of the platen, as at *a'*, sufficient space being provided for the passage of the band; but the buckle cannot pass between the bars at such contracted portions. The narrow grooves or contracted parts *a'* are of sufficient length to accommodate bales of different widths. In many cases the bales are much narrower than the platens, and hence the narrow grooves extend toward the center of the platen a sufficient distance to allow the buckles to rest against the bale and the bars when the band is being tightened.

In Fig. 2, B is the upper, and C the lower, platen of the press. To the upper platen of the press rollers *b c* are secured in any suitable manner. Roller *b* is driven continually by steam or other motive power, while roller *c* is journaled eccentrically, and is provided with a yielding bearing, the same or essentially the same as described in my Patent No. 165,374, dated July 6, 1875.

D represents my improved form of bale-band, which is also illustrated by an enlarged

view in Fig. 8. One end, *d*, of the band is attached to the buckle E. The other end, *e*, of the band has attached thereto, by rivets or in any other desired manner, an extra piece, *e'*, of band-iron, which may extend to the end of the band, as shown in Fig. 9, or only part way, as illustrated in Fig. 8. As represented in Fig. 2, the band is attached at one end to the buckle E, and the latter rests against the bars on the upper platen at that portion thereof where the narrow or contracted groove *a'* is formed. The band is placed within the groove between the two adjacent bars of the upper platen, and over the rear side of the bale, and within the groove between the two adjacent bars of the lower platen. The two ends *e e'* of the band are carried upward, and both ends passed through the ring of the buckle. The main or inner end, *e*, of the band is inserted between the continuously-driven rollers *b c*, and by forcing the latter against the former the peripheries of said rollers bear against each other with sufficient force to produce sufficient frictional contact with the band end to cause it to be moved or carried through the rollers, thus taking up all slack band. When the rollers have pulled all slack band out, the attendant, having one free hand, and the buckle being held firmly by the pull upon the band, bends and locks the outer piece of the band under the arm of the buckle, and at the same instant releases his hold upon the lever-handle of the tightener, and the pull upon the band immediately ceases, thus securely locking the band in place without the employment of any slack band or an automatic tie.

It will be observed that any of the ordinary and well-known forms of ties can be used in connection with my improvement. When the "arrow" or similar form of tie is employed (see Figs. 10 and 11) the pull of the tightener is exerted on the outer end, *e'*, of the band, while the inner end, *e*, is turned back, forming an inwardly-turned loop on the band.

Instead of forming narrow or contracted grooves between the bars on the platen, I may employ hinged buckle-stops F for accomplishing the same results. Stops F are hinged to the front of the press, one for each opening between the bars A. The lower end of stop F is provided with two jaws, *g*, located at a sufficient distance apart from each other to allow of the passage of the band, but serving as abutments to resist the passage of the buckle. A shoulder or recess, *h*, is formed on the jaws *g*, within which the buckle is seated when strain is exerted on the band, and the buckle prevented from vertical displacement. To the jaws *g* are pivoted the hooks *i*, which are inwardly forced by springs *v*. The lower edges of hooks *i* are beveled at *j*, for a purpose hereinafter described. When the hooks are in their normal position the bands rest within the opening *k* between the hooks and wall *l* of the stop, and thus the band may be raised or lowered by said stop.

The operation of the tightener, when the

hinged stops are employed, is as follows: The band ends are inserted in the openings *k* of the hinged buckle-stop, and the band drawn through until the walls of the buckle come in contact and rest against the jaws *g*. The ends *e e'* of the band are then drawn upward through the ring of the buckle, as shown in Fig. 4. The inner end, *e*, is passed between the pulling-rollers, and when the desired strain has been exerted on the band the other end, *e'*, is turned back beneath the arm of the buckle, thus firmly securing the ends of the band. Instead of first inserting the free end of the band through the opening in the hinged buckle-stop, and then drawing the entire length of the band through the buckle-stop until the buckle comes in contact therewith, the buckle ends may be first passed through the grooves in the lower platen, and from thence up and back through the grooves in the upper platen to the front of the latter. The lower end of the buckle-stop is moved away from the bale, and the buckle inserted within the stop, and the free end of the band inserted in the buckle. The ends of the band may be cut off close to the buckle after the ends have been locked to the buckle.

It will be observed that the hinged stop allows the tightener to be used with the same ease and facility in operating on narrow or wide bales. The lower end of the stop will rest upon the surface of the bale even if the bale is several inches narrower than the platens, or extends several inches outward beyond the faces of the platens. When strain is exerted on the end of the band it operates to force the jaws into the cotton, and as the beveled edges of the hooks come in contact with the compressed cotton they are forced open and the bands automatically released therefrom—that is to say, the sides of the buckles rest against the inner edges of the jaws and the end of the buckle against the end of the buckle-stop. When the jaws are spread apart it allows of the lateral movement of the buckle or of the buckle-stop, and hence the bale may be removed from the press, or the buckle-stops swung outwardly from contact with the several buckles, to admit of the ready removal of the bale.

I do not limit myself to the employment of separate hinged stops, as any number of stops may be attached to a single rock-shaft and the same effect produced. Again, the stops may be used without forming recesses in the jaws for the reception and retention of the buckle, and also the spring-pressed hooks may be dispensed with without departing from the spirit of my invention.

Instead of using hinged buckle-stops, slides H, as shown in Fig. 7, may be used therefor. In such case the openings I may extend up into the groove between the bars, and by means of the slide the same results can be accomplished, as hereinbefore set forth—that is to say, the buckles are provided with an adjustable abutment, through which passes the

band, whereby different-sized bales can be readily operated upon without changing the adjustment of any part of the tightener.

The depending legs of the slide (illustrated in Fig. 7) extend down as far as the lower platen, to prevent the escape of the band therefrom.

The faces of the legs or jaws are provided with any number of shoulders, *r*, to retain the buckle against vertical movement when the band is subjected to the action of the tightener.

Fig. 12 represents another form of hinged buckle-stop. The hinged jaws *k* are connected with an open ring, *L*, which latter is hinged to the front of the platen. The jaws are provided with spring-pressed catches or hooks *l* for supporting the bands, said catches having upper and lower shoulders, *l'* and *l''*, formed thereon. This form of stop has an opening extending in from the ends of the jaws to the groove in the platen. The buckle end of the band may be first inserted through the groove in the lower platen, then up and back through the groove in the upper platen, and the buckle passed through the ring *L*. The buckle is then forced down against the inclined portions *m'* of the spring-pressed catches, forcing them apart, and allowing the band to enter between the upper and lower shoulders of the catches or holders, where it is held while the band is being tightened and secured. Instead of inserting the buckle end of the band through the ring *L* from the rear, the opposite end of the band may be first inserted through the ring *L*, and carried around the rear of the bale and through the groove in the lower platen, and then up through the buckle, which will rest against the buckle-stop.

Fig. 13 is a hinged buckle-stop adapted to operate in the same manner as the form shown in Fig. 12, and differs therefrom in construction, in that the separate spring-catches are dispensed with and the jaws are yielding in themselves, to allow of the insertion and removal of the band.

Fig. 14 represents a hinged buckle-stop, provided with a slide, *N*, which is actuated by means of a T-lever, *O*, one arm of which is pivoted to the platen, while the other arm has pivoted thereto a link, the opposite end of which is attached to the slide *N*. The end of the band is inserted through the stop below the slide *N*, which is raised by means of the lever *O*.

When the buckle has been brought against the buckle-stop and the opposite end of the band passed through the buckle, the lever *O* is depressed, which operates to depress the slide *N* and carry with it the buckle. As the lever is depressed to its lowest position, the link-arm is carried to the rear of the pivotal point of the other arm of the lever, thus effectually locking the slide against any upward movement and securing the buckle in proper position.

Fig. 16 represents still another modification, the same consisting of a hinged buckle-stop, *P*, having a shoulder, *p*, at its lower end, from which project the fingers *q*. The buckle is retained between the fingers *q*, and is prevented from vertical movement by the shoulder *p*. In this form of hinged buckle-stop the band is not automatically released therefrom, but is released as the upper platen is raised and disengaged from the bale.

Instead of hinging the buckle-stops to the upper platen, they may be adapted to be hinged to the lower platen—as, for instance, the buckle-stop constructed in the manner illustrated in Fig. 13, may be hinged or otherwise attached to the lower platen, and in such position will serve as a retaining-hook.

It is evident that cams or sectors may be employed to pull the bands instead of rollers, though I prefer the employment of the latter, as a continuous pull can thereby be secured.

It is evident that many slight changes in the form and arrangement of the several parts may be devised, but which would not fall without the spirit of my invention, and hence I do not limit myself to the exact construction shown and described; but,

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

1. A bale-band having an extra piece secured to the side of the band near one of its ends, whereby the band is provided with three ends, each of which is equal in width to any part of the band, substantially as set forth.
2. In a band-tightener, the bands, each having its free end provided with an extra piece or end, whereby strain may be exerted on one of said ends and the other end locked to the buckle without the employment of slack band or relaxing the strain on the band until the locking is accomplished, substantially as set forth.
3. The combination, with the platen of a cotton or other press, of buckle-stops hinged to the platen, said stops provided with open slots leading from their lower ends to the grooves between the rails on the face of the platen, substantially as set forth.
4. The combination, with the platen of a cotton or other press, of buckle-stops hinged to the front of the platen, said stops provided with jaws and spring-pressed hooks, substantially as set forth.
5. In a band-tightener, the combination, with hinged stops, of triple-ended bale-bands, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of June, 1878.

JOHN L. SHEPPARD.

Witnesses:

H. M. TOVEY,
ALBERT LENGUICK.