S. J. CHAPMAN.

Bale-Tie

No. 196,432. Patented Oct. 23, 1877.

Fig. 1.

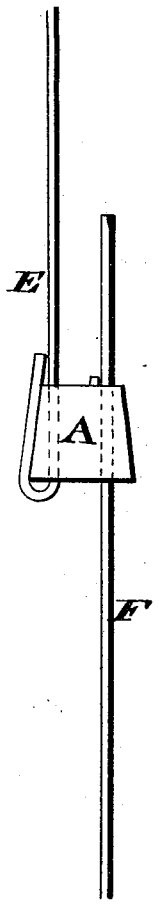


Fig. 2.

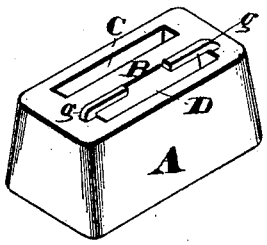
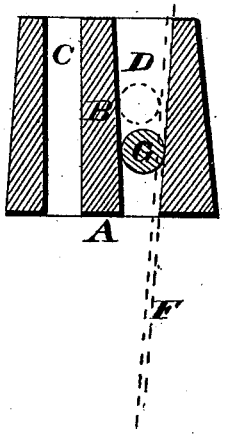


Fig. 3.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

SAMUEL J. CHAPMAN, OF CHARLESTON, SOUTH CAROLINA, ASSIGNOR OF ONE-HALF HIS RIGHT TO DANIEL SEYMOUR SILCOX, OF SAME PLACE.

IMPROVEMENT IN BALE-TIES.

Specification forming part of Letters Patent No. **196,432**, dated October 23, 1877; application filed March 27, 1877.

To all whom it may concern:

Be it known that I, SAML. J. CHAPMAN, of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Bale-Tie; 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 improvements in bale-tie fasteners; and consists, first, in a self-locking tie made of a metallic piece having two through-slots, in one of which the end of a band is inserted and bent over, as is ordinarily done, while the second slot is larger and of a wedge-shaped transverse section, in which operates a free cylindrical roller, and which automatically ties the band; second, in making this large wedge-shaped slot of a reducing size, such as to prevent the removal of the roller therefrom at its smaller end opening, while its larger end opening is provided with flanged guards, which permit the passage of the band, and yet arrests the dislodgement of the roller from its slot.

The tie is made of malleable iron, together with the guard-pieces; but, if desired, other suitable material may be substituted therefor.

Referring to the drawings, Figure 1 represents my device as applied to the two ends of a bale-band. Fig. 2 shows the tie alone and in a perspective view. Fig. 3 is a cross-sectional view of the same.

The tie A is preferably made as an oblong rectangular piece of metal, but any other suitable form may be used, if desired. Two through-slots are made in its longitudinal body, having an intervening central body partition, B. These slots are each a little longer than the bale-band is wide, so as to allow the latter to be easily introduced therein. One of these slots, C, has its walls parallel, while the other slot, D, is made wedge-shaped in transverse section.

As shown in Fig. 1, the smaller slot, C, is nearest the bale, and secures the end E of the band by the latter being passed through the slot and turned over in a return bend, which binds the ends against the side of the compressed bale when the band is bound about it. This holds in good engagement the one end of the band while the opposite end is passed through the larger slot, D, thus completing the circuit of the bale. Within this large slot D is placed a cylindrical roller, G, preferably a little shorter than the length of the slot, and of diametrical dimension about equal to the cross-measurement of the slot near its smaller end opening, but of relative size to the latter, such as to prevent any possibility of its removal from the slot at this end. The larger end opening, through which the roller is first placed in the slot, is of a size greater than the combined cross-measurement of the roller and the band, and from this dimension the inclined side walls of the slot reduce it to the width of the smaller end opening. The large end opening prevents any withdrawal therefrom of the roller after it is once introduced in its wedge-shaped slot, by means of the guards *g*. The latter I make in the same piece with the tie, and of malleable iron, or other analogous flexible material, so that while they are first at right angles to the face of the tie on which they are made, to allow the roller to be placed in its slot, they can afterward be readily turned over each toward one another, and their main body made parallel with the tie.

This roller I have shown being of a plain or smooth surface; but I desire to be understood that the peculiar surfacing of the roller is immaterial, and the same may be grooved, fluted, or in any way corrugated, instead of plain, if so desired.

Upon drawing the free end, F, of the band, by any desired means, so as to girt the bale as tightly as is desired, the roller working in the large slot D allows of the full and free movement of the band in the line of direction of the increasing cross-measurement of this slot, since the tendency of the passing band end is to carry the roller toward the larger end opening of the slot, and abundance of room is afforded for both the roller and the band; but upon slackening the tension upon this band end F, any tendency of the latter to withdraw from its slot causes the roller to be carried toward the smaller end opening of the slot, and the band is accordingly at once jammed in between the wall of the slot and the side of the

roller, the transverse section of the slot being of such size as to arrest the roller about midway the depth of the slot, and hence form a locking device approximately in the longitudinal central portion of the slot. The guards *g* prevent the roller from being dislodged from its slot at the large end opening, as the band passes up through the slot in the line of direction of said larger end opening, while the size of the slot at its smaller end opening itself prevents the removal of the roller from out that end, and the roller is consequently secured in this slot subject only to the free travel in the line of the depth of the latter. The band is thus firmly tied by this automatic operation, and all tendency toward its withdrawal is resisted and successfully met by the jamming or biting action of the roller as it compresses the band between itself and the opposite wall of the slot.

This bale-tie is devised with especial reference to application in band-tightening machinery, and its construction derives its merit peculiarly in view of my application for Letters Patent for band-tightener filed April 7, 1877. It will therein be seen that the partition-wall between the two independent through-slots serves a purpose answered only by its relation to the connecting parts, as set forth, and by reason of it the stop-bar in the tightening apparatus is enabled to perform its functions. Taken in its relation to this band-tightener, the tie made as is following claimed presents its features of meritorious construction.

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

1. A bale-tie formed with two independent through-slots for the attachment of the two ends of the band, one of said slots being wedge-shaped, and provided with a wedge or roller, which serves to automatically lock the band, substantially as and for the purpose set forth.

2. The tie made with two independent band-end slots, one of which is wedge-shaped in cross-section, and provided with a loose cylindrical roller, substantially as and for the purpose described.

3. The tie made of an oblong rectangular piece of metal with independent slots for the two ends of a band, the one adapted to be nearer the bale being of less cross-measurement than the outer slot, in which latter the free end of the band is automatically secured, substantially as and for the purpose described.

4. In a self-locking tie having independent slots for the respective ends of a band, the combination, with the wedge-shaped slot, of flanged guards, whereby the loose roller is held in place, substantially as and for the purpose described.

5. The combination, with the wedge-shaped slot, of guard-pieces, made of malleable iron or other suitable material, whereby they may be readily bent over the slot after the introduction of the roller therein, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of March, 1877.

SAMUEL J. CHAPMAN.

Witnesses:
N. A. QUINN,
JNO. BARRY.