

(No Model.)

A. A. SOUTHWICK & F. A. WITTICH.

BALE TIE.

No. 277,432.

Patented May 8, 1883.

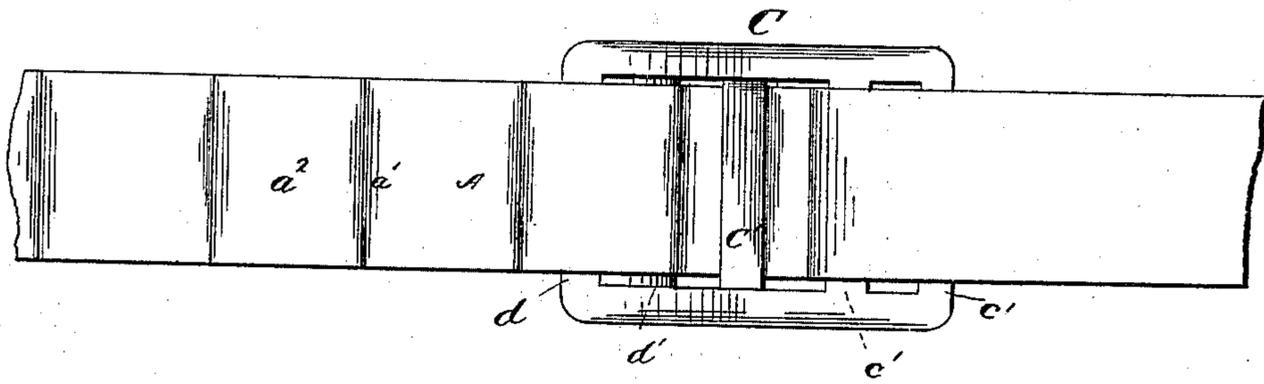


Fig. 1

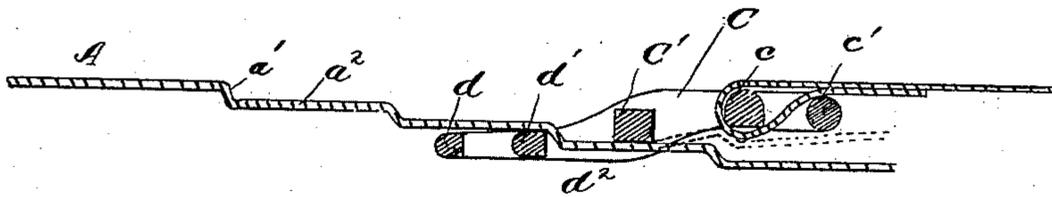


Fig. 2.

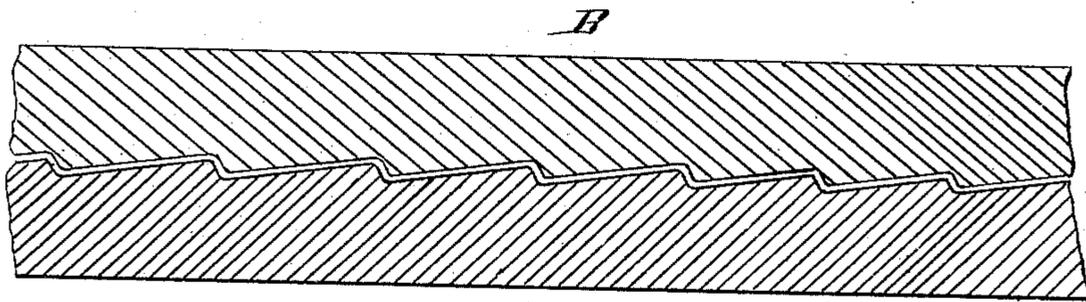


Fig. 3.



Fig. 4.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

AMOS A. SOUTHWICK AND FREDERICK A. WITTICH, OF ASHTABULA, OHIO;  
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## BALE-TIE.

SPECIFICATION forming part of Letters Patent No. 277,432, dated May 8, 1883.

Application filed April 3, 1883. (No model.)

To all whom it may concern:

Be it known that we, AMOS A. SOUTHWICK and FREDERICK A. WITTICH, citizens of the United States, residing at Ashtabula, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Bale-Ties; and we do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to cotton-bale ties; and the novelty consists in the construction, adaptation, and arrangement of parts, as will be more fully hereinafter set forth, and specifically pointed out in the claims.

The object of the invention is to produce a tie for cotton and other bales which shall combine cheapness of material and manufacture, efficiency and durability in service, and simplicity of application; and to these ends the invention consists in the mechanisms fully illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a top plan view of the device in position upon a bale. Fig. 2 represents a central longitudinal section, showing the position of the bands when the tie is in use. Fig. 3 is a longitudinal section of the dies employed for shaping the free end of the metal strap according to our invention; and Fig. 4 is a detail section, showing a portion of the strap thus shaped.

Referring to the drawings, in which similar letters of reference indicate like parts in all the figures, the buckle is formed so as to present five cross-bars, which, for convenience in this description, we will designate as "strap-bars," "tie-bars," and "binder." These bars, as thus designated, are arranged upon different planes for purposes which will be explained. The strap which it is designed to use in carrying out this invention is the ordinary hoop-iron of commerce, and the only preparation necessary for such iron is to compress a portion of its free end—say, fifteen inches more or less—between the dies B. These dies are of such conformation as to provide the free

end  $a$  of the strap A with a number of equidistant bearing-shoulders,  $a'$ , with slightly-rounded corners, and between each two adjacent shoulders,  $a'$ , with a plane portion,  $a^2$ , inclined from the bottom of one shoulder to the top of the next in one direction. These portions—that is to say, the plane portions or inclined portions  $a^2$  and the bearing-shoulders  $a'$ —are arranged nearly at right angles with each other, and care is taken that the metal is not weakened or the fiber destroyed by the bends being too abrupt. The metal strap thus prepared has its opposite end passed over, and under the inner strap-bar,  $c$ , and up and over the outer strap-bar,  $c'$ , so that the force of the confined material will bind this end of the strap between the body of the strap and the said bar  $c'$ . The sides of the buckle C from this point curves inward, as shown in Fig. 2, and near the central part is provided with the binder-bar  $C'$ , which is of approximately rectangular form, with its flat top surface nearly on a plane with the lower portions of the strap-bars  $c$  and  $c'$ , and with its lower flat portion nearly on a plane with the tops of the tie-bars  $d$  and  $d'$ . The arrangement of these parts, in order to obtain the best results, are very important, as this construction of buckle and the peculiar form given to the tie end of the strap are adapted to each other.

The material having been pressed, and the tie to be applied before the compressing force is removed, it is only necessary to pass the tie end of the strap through the buckle over the tie-bars  $d$  and  $d'$ , and under the binder until one of the shoulders  $a'$  finds a bearing against the inner side,  $d^2$ , of the tie-bar  $d'$ , when the parts assume the position shown in full lines. As soon as the great pressure is removed the strap assumes the position shown in dotted lines, the force of the expanding material bending the plane portion  $a^2$  sharply around the edge of the binder to make one holding-point, the binder holding the engaged shoulder  $a'$  fast in its contact with the tie-bar  $d'$ , and the buckle, as a body, shifting its position to make these points of contact more secure.

It will be observed that the shoulders  $a'$  are equidistant, their distance from each other being slightly less than the distance from the tie-bar  $d'$  to the strap-bar  $c$ , so that while one

shoulder  $a'$  has a bearing upon the face  $d^2$  of the bar  $d'$ , the next shoulder  $a'$  allows the strap to come closely up under the bar  $c$  to give the desired bend of the part  $a^2$  around the corner of the binder  $C'$ . For these and other reasons the form given to our tie should not be confounded with the simple corrugation or crimping which has been given to metal straps. In our invention each bend is given for a specific purpose, and each bend serves its purpose, as has been described.

In separating our improved tie from the bale, a blunt-edged instrument may be forced under the strap and a prying action given between the strap and the bar  $d$ , or the same instrument may be used to give the tie at the point where it is bent around the edge of the binder a smart rap, or both.

We are aware that changes in the form and construction shown and described can be made without departing from the spirit or sacrificing the advantages of our invention.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a cotton-bale tie, a strap, or ordinary

hoop-iron, formed by dies for a portion of its distance with shoulders  $a'$ , and inclined portions between the shoulders, the said shoulders being equidistant and the whole adapted to serve with a buckle, as set forth.

2. In a cotton-bale tie, and in combination with a strap of ordinary hoop-iron, formed with shoulders, as described, the buckle having tie-bars, strap-bars, and a binder-bar arranged on different planes, and the buckle being adapted to give a binding contact by reason of its curved form, as specified.

3. In a bale-tie, the combination of the buckle having strap-bars  $c$  and  $c'$ , the tie-bars  $d$  and  $d'$ , and binder-bar  $C'$ , arranged on different planes, with the strap  $A$ , formed with equidistant shoulders  $a'$ , and inclined portions  $a^2$ , as herein set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

AMOS A. SOUTHWICK.  
FREDERICK A. WITTICH.

Witnesses:

L. H. MEANS,  
C. B. WELLS.