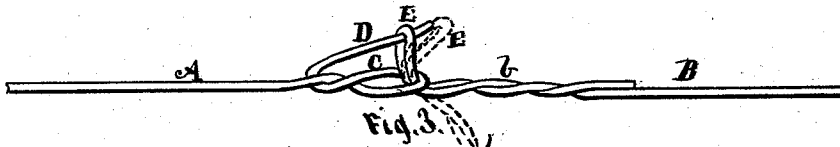
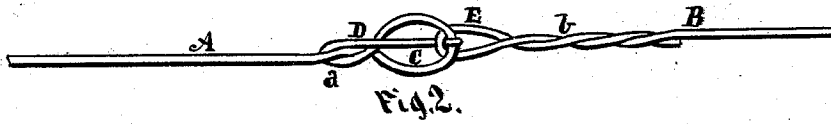


D. H. MATHIAS.

BALE-TIE.

No. 174,082.

Patented Feb. 29, 1876.



Witnesses:
Chas. J. Sackin
Geo. H. Thompson

David H. Mathias
by his Atty, Wm. H. Perkins

Inventor.

UNITED STATES PATENT OFFICE.

DAVID H. MATHIAS, OF ALBANY, NEW YORK, ASSIGNOR OF ONE-HALF
HIS RIGHT TO CORNELIUS VAN DERZEE, OF SAME PLACE.

IMPROVEMENT IN BALE-TIES.

Specification forming part of Letters Patent No. **174,082**, dated February 29, 1876; application filed
February 11, 1876.

To all whom it may concern:

Be it known that I, DAVID H. MATHIAS, of the city and county of Albany, State of New York, have invented certain Improvements in Bale-Ties; and I do hereby declare that the following is a description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of the two connecting ends of the tie disconnected. Fig. 2 represents a view, from above, of the same when connected. Fig. 3 is a perspective view of the same connected. Figs. 4, 5, and 6 represent perspective views of the same, when the elastic force of the bale is exerted on the connecting ends of the tie. Fig. 7 is a modification of the buckle end of the tie.

My invention relates to a wire tie having a buckle form of connection; and consists of the combinations of devices hereinafter described, whereby the two ends of the tie may be readily and securely connected.

The object of this invention is to form a ready and firm connection of the two ends of the tie, in which a tongue, grasped by an opposite loop, is supported by a loop beneath, from either its upper or its inner side, while said loop is itself supported by the loop grasping the supported tongue.

To enable others skilled in the art to make and use my invention, I will proceed to describe it in reference to the drawings and the letters of reference marked thereon, the same letters indicating similar parts.

In the drawings, A represents one end of the tie, and B the opposite end, each of which ends are formed for a locking-connection with the other in a manner not unlike a tongue-buckle connection in the operation of the several parts. The end A of the tie, which I denominate the buckle end, has a portion of the wire turned back on itself, so as to form the loop C and the twisted neck *a*. A tongue, D, is also provided, which tongue starts from the neck *a* and extends over the loop C, and past the end of the same, as shown in the several figures, and may be formed by an untwisted portion of the wire, bent forward from the neck over the loop, as in Figs. 1, 2, 3, 4, 5, and

6; or it may be formed from a portion of a third wire twisted in the neck, as in Fig. 7. The opposite end B has also a portion of its wire turned back on itself, and twisted with a neck, *b*, and a loop, E, forward of said neck. The loop E is bent to an angle with the said neck, and is made with an extension of opening sufficient to receive the tongue D, and be capable of passing up through the loop C of the opposite end.

The manner in which the said ends are to be operated to effect a connection is as follows: The end B is inclined relatively with the end A, as shown by dotted lines in Fig. 3, when the loop E is passed up through the loop C and slipped over the tongue D, when the end B is drawn forward to bring the neck *b* to a horizontal position, as shown by full lines in Fig. 3, when the connection will be made.

The manner in which the several parts of this tie operate in practical use is as follows, to wit: When the connection has been made, as shown in Fig. 3, and the bale has been released from the pressure of the press, the elastic force of the compressed bale, exerted on the tie, will tend to draw the two ends apart. In the strain thus exerted the loop E will slip in the loop C, and draw down the tongue D from position shown in Fig. 3 to that shown in Fig. 4, when the end of the said tongue will be brought to bear on the upper side of loop C, and receive from the said loop a support, while the loop E will be somewhat straightened from what it was before the strain was exerted, and will be partially held by an engagement with the loop C, which will be somewhat contracted in its extension from what it originally was before the exertion of said strain.

If the elastic force of the compressed bale is excessive the tongue D will be bent downward from position shown in Fig. 4 to that shown in Fig. 5, and the terminating end of said tongue will be bent at an angle with its rear portion, as shown in said figure, and the angle of said end thus formed will be drawn against the inner edge of loop C, and receive from the same an adequate support to hold the loop E of the opposite end, while loop E will be straightened out almost entirely. To prevent the tongue D from sinking from position

shown in Fig. 4 to the bent form shown in Fig. 5 the terminating end of the said tongue may be bent down slightly hooking, as shown in Fig. 6.

It is readily seen that the tongue D is grasped by the loop E at a point contiguous with the supporting edge of loop C, while loop C is itself supported by the strained loop E.

It is also readily seen that the distance of the downward bend, given to the tongue D, from that shown in Fig. 3 to that shown in Figs. 4 or 5, and the gradual contraction of the sides of loop C, and the slipping of loop E through loop C, eases the connecting parts from a sudden check to the strain exerted, and permits the several parts to each receive their set in a gradual manner, without the least liability of the strands in contact cutting each other.

This buckle feature of connection enables

me to form the tie of lighter or smaller diameter of wire, and have a connection of parts that will be at once easy to effect and secure reliability when the connection is made.

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

1. In a tie, the buckle end A, comprised by the loop C, neck *a*, and tongue D, when combined to operate substantially in the manner set forth.

2. The loop E of end B, in combination with loop C and tongue D, extending from the rear of loop C and past the front of the same, for operation substantially as set forth.

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Witnesses:

CHAS. J. SELKIRK,

GEO. A. THOMPSON.