D. C. LOWBER.

BALE-TIES.

No. 180,897. Patented Aug. 8, 1876.

Fig: 1.

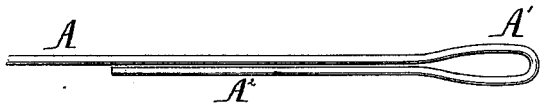

Fig: 2.

Fig: 3.

Fig: 4

Fig: 5.

Witnesses:

M. A. Cayless

Chas C. Stetson.

Inventor:

Daniel C. Lowber

by his attorney

T. D. Stetson

New York

UNITED STATES PATENT OFFICE.

DANIEL C. LOWBER, OF LIVERPOOL, ENGLAND.

IMPROVEMENT IN BALE-TIES.

Specification forming part of Letters Patent No. **180,897**, dated August 8, 1876; application filed July 17, 1876.

To all whom it may concern:

Be it known that I, DANIEL C. LOWBER, of Liverpool, Lancaster county, England, have invented certain new and useful Improvements relating to Bale-Ties, of which the following is a specification:

The improvement lies in the mode of securing the eyes formed in the ends of wire bale-ties. Slender ties of round wire, formed with an eye in each end, and one eye provided with a hook of stouter metal, have long been known and approved, but the formation of the eyes with the proper strength has involved difficulties.

An eye may be formed by simply doubling a sufficient quantity of the wire upon itself, and twisting. Twisting a wire of sufficient thickness is found to materially injure its texture unless the metal is annealed. Annealing is found to reduced the capacity to resist tensile strains.

I make the tie of hard or unannealed wire, and form the eyes by bending around a sufficient length at each end, holding the parts parallel to each other for a considerable distance by seizing with a fine wire or the like, and immerse the entire end in solder or some melted soft metal, which will have the effect of solder. The soldered joint avoids all the difficulties.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 represents the eye of hard wire, simply bent around; Fig. 2, the same, after being seized with fine wire; Fig. 3, the same, after being dipped in melted solder. The solder is represented in black, to make it more conspicuous. The ordinary hook, inserted after the eye is formed, is shown in light outline. Figs. 4 and 5 show a modification—Fig. 4 shows the eye before dipping, and Fig. 5 after having been dipped.

Similar letters of reference indicate corresponding parts in all the figures.

A is the main body of the wire; A^1, the band or eye proper; and A^2 an extension of the bent end, which is caused to lie parallel to the main part A for a sufficient distance, to to afford the requisite strength. B is a seizing of fine wire, wound on by the hand, or by any suitable machinery, and C is a coating of solder, which is applied by dipping the entire end of the tie in the melted soft metal. D is a stout hook, adapted to perform the usual function of serving as a stout means for engaging the ends of the ties together, by hooking, after the tie is stretched around a bale, into the eye opposite to that with which it is engaged. The hook should be only partially closed together when formed by machine, (not represented,) so that it may be inserted in the eye, and compressed together in place after the tie is completed and dipped or soldered.

Various substitutes may be applied instead of the fine holding-wire B.

Figs. 4 and 5 show two clips of thin sheet metal as thus employed. They may be applied by any suitable machinery.

My improved eye may be made at one end of the bale-tie only, the other end being formed in any ordinary or approved manner; but I prefer to form both ends alike, taking care, of course, to make the eye opposite to the hooked end sufficiently wide to receive the double hook D.

I claim as my invention—

1. A soldered-wire bale-tie formed with the eye A A^1 A^2 soldered, as and for the purposes herein specified.

2. The process herein described of forming a loop and securing the same, consisting in folding the bale-tie back upon itself, and dipping in solder, substantially as specified.

In testimony whereof I have hereunto set my hand this 14th day of July, 1876, in the presence of two subscribing witnesses.

DANIEL C. LOWBER.

Witnesses:

M. A. CAYPLESS,

A. HENRY GENTNER.