(No Model.)

E. E. BIEDERMAN.

MEANS FOR SECURING TWINE IN BALLS.

No. 423,116. Patented Mar. 11, 1890.

Fig. 1.

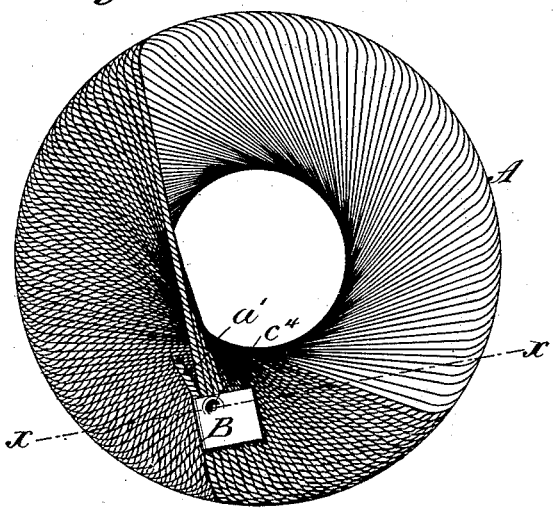


Fig. 2.

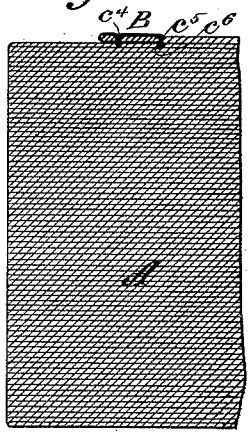


Fig. 4.

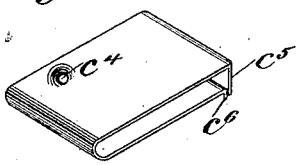


Fig. 3.

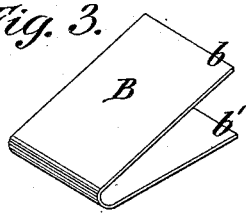
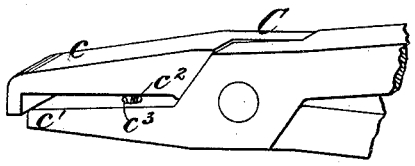


Fig. 5.



Witnesses:-
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by his Attorneys
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UNITED STATES PATENT OFFICE.

EDWIN E. BIEDERMAN, OF BROOKLYN, NEW YORK.

MEANS FOR SECURING TWINE IN BALLS.

SPECIFICATION forming part of Letters Patent No. 423,116, dated March 11, 1890.

Application filed November 5, 1889. Serial No. 329,369. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. BIEDERMAN, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Means for Securing Twine in Balls, of which the following is a specification.

Heretofore in the balling of twine it has been found difficult to secure the outer course of the twine after the twine has been wound into a ball of sufficient size so that said course will not become loosened and unwound from the ball.

My improvement is designed to overcome this difficulty, and in carrying it into effect I employ a metallic clasp by which the outer course of the twine is secured to the next adjacent course or courses, so as to prevent its becoming loosened.

In the accompanying drawings, Figure 1 is an end view of a ball of twine embodying my improvement. Fig. 2 is a section thereof, taken on the line $x\ x$, Fig. 1. Fig. 3 is a view of a clip which I may employ previous to the same having been applied to the ball of twine. Fig. 4 is a view of the same after it has been applied to the ball of twine. Fig. 5 is a view of a pair of pinchers partly broken away to save space, but adapted to clamp the said clip upon the twine and press it into the form shown more clearly in Fig. 4.

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

A designates a ball of twine, which may be wound in the usual or any convenient manner. a' designates the outer course of the twine, which is normally loose after the winding of the ball has been completed. In order to secure this outer course so as to prevent it and adjacent courses from becoming unwound from the ball, I employ a clip B. The form illustrated consists of a strip of sheet metal bent at about midway in its length, so as to form the two jaws $b\ b'$. When the ball has been fully wound, the jaw b' is passed between the outer courses of the twine and the courses next beneath them, and the jaw b is passed upon the outer sides of the outer courses. The clip is then firmly clamped upon the courses which it embraces, and particularly upon the outer or loose course a', so as to firmly secure said outer or loose course against being unwound from the ball. I have illustrated a convenient means for securing this result, consisting of a pair of pinchers C. One of the jaws c of said pinchers is bent downwardly at its outer end, so that when said jaws are brought together said bent-down portion will lap past the outer end of the jaw c'. The jaw c is also provided with a pin c^2, adapted to extend into an aperture c^3 in the jaw c' when the jaws are brought together. The pinchers being placed about the clip and the jaws being brought together the clip will be bent into the form shown more clearly in Fig. 4. The pin c^2 will cause an indentation c^4 to be formed in the upper jaw of the clip, which indentation will operate to form an internal projection on the jaw and to firmly secure the outer course of the twine to the next adjacent course or courses, while the downwardly-bent portions $c^5\ c^6$ which have been formed upon the clip will operate to firmly secure the clip to a number of the courses and effectually prevent lateral displacement.

My improvement is very inexpensive and effectually prevents the unwinding of the ball from the outside while the clip is in position, thus avoiding the necessity that has frequently to be gone through with under the old method of rewinding the ball.

What I claim as my invention, and desire to secure by Letters Patent, is—

A clip for a ball of twine, consisting of a piece of sheet metal bent to form two jaws $b\ b'$, one of said jaws being provided with the bent portion c^5 and the other with the bent portion c^6, and one of said jaws being provided with an internal projection, as c^4, substantially as specified.

EDWIN E. BIEDERMAN.

Witnesses:

HENRY T. BROWN,

GEO. BARRY.