No. 669,470.

Patented Mar. 5, 1901.

F. B. SHUSTER.

COTTON BALE TIE.

(No Model.)

(Application filed June 8, 1899.)

Fig. 1.

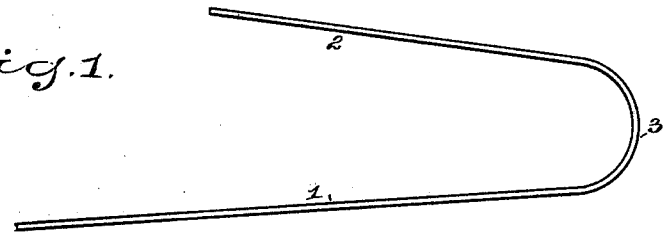


Fig. 2.

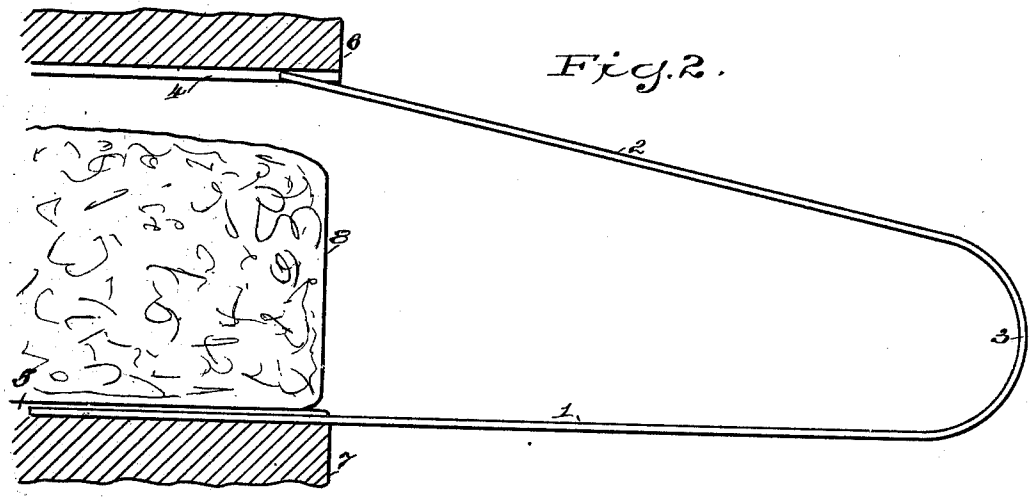


Fig. 3.

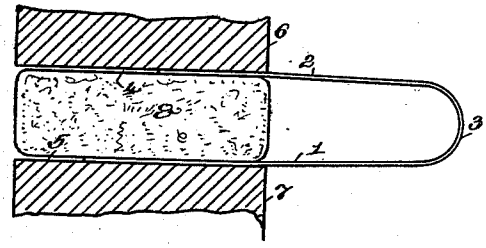


Fig. 4.

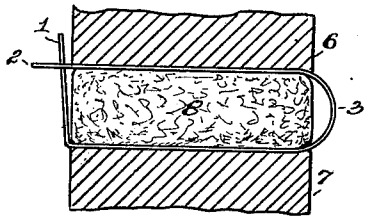


Fig. 5.

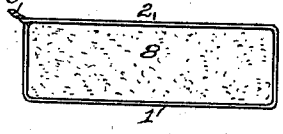


Fig. 6.

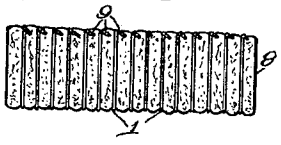
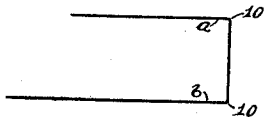


Fig. 7.



Fig. 8.



WITNESSES

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COTTON-BALE TIE.

SPECIFICATION forming part of Letters Patent No. 669,470, dated March 5, 1901.

Application filed June 8, 1899. Serial No. 719,764. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN B. SHUSTER, a citizen of the United States, and a resident of New Haven, in the county of New Haven, and State of Connecticut, have invented certain new and useful Improvements in Cotton-Bale Bands, of which the following is a specification.

My invention is an improved article of manufacture relating to cotton-bale bands. The present cotton-bale band consists of a thin flat metal band of sufficient flexibility to be wrapped around a bale and fastened.

My invention consists of a U-shaped wire band formed from a single piece of wire, which is bent near its center, so as to be substantially U-shaped, the diameter of the circle of the crown of the tie being smaller than the thinnest bale, and which band is adapted to embrace the top, bottom, and one side of the bale when such bale is being carried up by the lower platen of a compressor, and the legs are fastened by suitable mechanism connected with such compressor.

To enable others to understand my invention, reference is had to the accompanying drawings, in which—

Figure 1 is a detail side elevation of my improved band just as it is made and sold on the market. Fig. 2 is a broken sectional elevation of the upper and lower platens of a cotton-bale compressor with a broken section of a cotton-bale resting upon the lower platen in the act of being carried upward to the upper platen, also a bale-band whose free ends or legs are inserted in grooves in the outer surface of the two platens preparatory to forcing the said band into position. Fig. 3 is a reduced sectional view of the upper and lower platens with a bale being compressed between them, showing also a bale-band in a more advanced position than shown at Fig. 2. Fig. 4 is a view, similar to Fig. 3, showing the bale-band fully inserted with the lower and longer leg of the tie folded over the front side of the cotton-bale and intersecting the short or upper leg at the upper corner of the bale and in readiness for such ends to be twisted about each other by the proper mechanism. Fig. 5 is an end elevation of a bale after the compression and tying process. Fig. 6 is a front side elevation of the bale shown at Fig. 5, showing the twisted ends folded down against the surface of the bale. Fig. 7 is an end elevation of a compressed cotton-bale when the legs of the tie are of equal length and the ends of such band twisted together at the center of the bale.

The construction and operation are as follows:

The improved bale-band is made of round wire of suitable size and consists of the two legs 1 and 2 and the crown or semicircular end 3, the diameter of the circle of the crown being smaller than the thinnest bale to which the band is to be applied. These bands are made in this form and sold on the market to be used in connection with any form of mechanism that is capable of folding over and twisting their free ends or legs about each other. This mechanism is not shown, as it forms no part of my present invention. To use this form of band to advantage, the grooves 4 and 5 are formed in the platens 6 and 7 to freely admit the legs of said band, but are not large enough to allow unnecessary play. It will be observed that the opening or distance across the open end of the band is greater than the circle or crown 3. In other words, the legs form an obtuse angle. This is an important feature in point of economy in baling.

With the present method of baling a gang of men are stationed at the front of the compressor and another gang at the rear. The ends of the flat bands are passed through the grooves of the lower platen from the front side of the compressor and then passed around the bale from the rear through the grooves of the upper platen to the front, where they are fastened by hand. This arrangement not only consumes more time, but requires a larger force of men.

With my improved band the long leg 1, where the legs are of unequal lengths, (see Fig. 2,) is inserted into the groove 5 of the lower platen 7 when such platen is rising. Then the upper leg is inserted in the groove 4 of the upper platen 6 just about the time the distance between the two platens is reduced to the normal distance between the legs of the bale-band at its mouth. Then the further

continued movement of the lower platen will compress such legs and cause them to exert an outward pressure against the bottom of the grooves in the upper and lower platens. This will hold them in place until all the bands are thus inserted, which can readily be done by two men, where four are now needed with the present flat band. When all of the U-shaped bands are thus inserted, they are pushed in until the crown 3, Fig. 3, rests against the side of the bale 8, and this may be done before the bale is fully compressed.

Another important advantage of the spreading feature of the legs of the band is that owing to the fact that the diameter of the circle of the crown of the tie is smaller than the thinnest bale the ends of said legs are sprung firmly against the bottom of the grooves 4 and 5 of the platens, which keep such ends out of contact with the jute bagging which surrounds every bale, for if the ends of the legs once came in contact with such bagging the band could not be inserted. When the ends of the ties project from the front side of the compressor, the lower legs, which are made longer, are all folded up by one operation and by a folder (not shown) until they cross, as shown at Fig. 3, when the ends are turned about each other to form the twist 9, as shown at Fig. 5.

The object in making the bend of the bale crowning or semicircular in shape is that the original package or bale put up at different gins varies in thickness to such an extent that it is impossible to give each bale the same amount of compression, and therefore the compressed bales will vary in thickness accordingly. Now if instead of making the band crowning it were made with the square corners 10, as shown at Fig. 8, it would be impossible to straighten out these square or angular corners when the bales varied the slightest either way from the distance between the points *a b;* but with the crowning feature of the band it will be readily seen that the circular end of the band will draw around the corners of the bale whether such bale be larger or of the same size as the circular formation of the band, and such circular formation will readily conform to the side of the bale, as shown at Figs. 5 and 7, while it would be impossible for the angular end, as shown at Fig. 8, to do so under the same circumstances.

In Fig. 7 is shown the band where the legs are made of equal length and the ends of such legs twisted at the center of the bale.

I am well aware that the use of wire as a means for holding a bale of merchandise together is not new; but in every instance where wire is used it is simply bound around the bale like a string and fastened. The bale-band above described possesses new and distinctive features not heretofore embodied in the system of wiring bales. It is an article of merchandise, not merely a piece of wire that can be bent by hand, and thus made to answer the purpose. It must be of a uniform construction in order to secure economical and efficient results. If the legs are too long, this excess must be cut off, thus causing waste, and if they are too short the entire band is worthless. It is necessary, as before mentioned, that the semicircular end, length of legs, and angle of such legs be so constructed that the band will readily fit all the variations that occur in cotton-bales. For that reason these bands must necessarily be the product of a machine in order to secure that uniformity and economy so necessary for good results.

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

1. The herein-described improvement in cotton-bale bands consisting of wire that is bent between its ends into substantially U shape, the free ends of the legs diverging and having a springing tendency, the distance between the legs of the bands being less at the bend or substantially equal to the finished bale to which it is to be applied.

2. The herein-described improvement in cotton-bale bands consisting of a wire bent into substantially U shape, the free ends of which have a normally outward-diverging springing tendency, one leg being longer than the other and adapted to embrace the bottom and one side of the bale, the distance between the legs of the bands being less at the bend or substantially equal to the thinnest bale to which it is to be applied, substantially as described.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 7th day of June, A. D. 1899.

FRANKLIN B. SHUSTER.

Witnesses:
SIG. DORMITZER,
F. A. FAIRCHILD.