

J. GARRARD.
GRAIN-BINDER.

No. 179,294.

Patented June 27, 1876.

Fig. 1

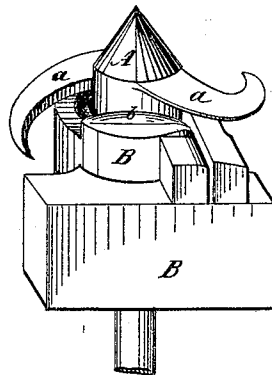


Fig. 2

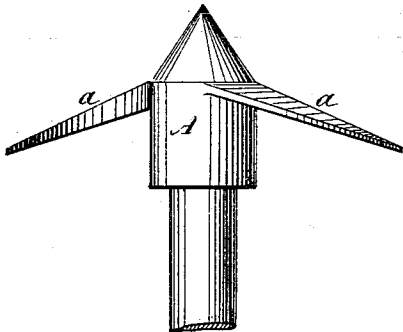


Fig. 3

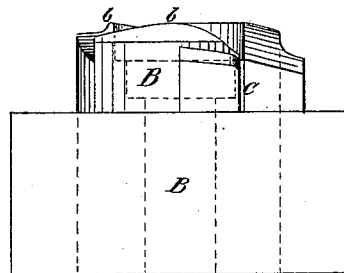


Fig. 4

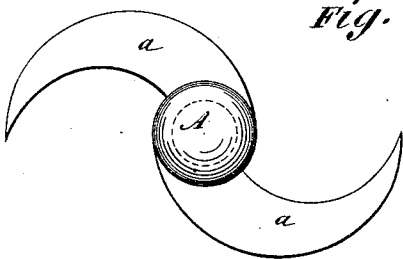


Fig. 5

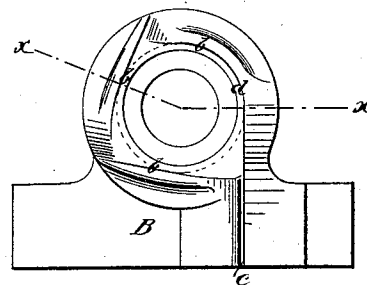
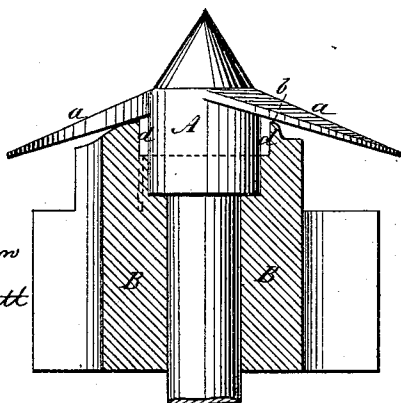


Fig. 6



Witnesses.
Walter Allen
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UNITED STATES PATENT OFFICE.

JEPHTHA GARRARD, OF CINCINNATI, OHIO, ASSIGNOR TO EXCELSIOR GRAIN BINDER COMPANY, (LIMITED,) OF NEW YORK, N. Y.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **179,294**, dated June 27, 1876; application filed April 21, 1876.

To all whom it may concern:

Be it known that I, JEPHTHA GARRARD, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Grain-Binders, of which the following is a specification:

My invention relates to an improved construction of twister, and devices for securing the ends of the wire band while being twisted, and releasing the same after the twist has been made.

The improvements consist, first, in constructing the arms of the twister beveled from the front to the rear edge, as hereinafter described.

The improvements consist, secondly, in combining, with a twister, a sleeve, or box constructed with concentric bearing-surfaces, each beveled or inclined from a highest point in every direction, except on the side toward the twister-axis, as hereinafter described.

The improvements consist, thirdly, in the combination of the twister and a sleeve or box, as hereinafter described.

In the accompanying drawings, Figure 1 is a perspective view of a twister, its bearing or box, and the pins that snub the wire. Fig. 2 is a side elevation of the twister. Fig. 3 is a top view of the twister. Fig. 4 is a top view of the twister-box or bearing and the pins. Fig. 5 is a side view of the same. Fig. 6 is a section of the same on the line *x x*, Fig. 4, showing the twister in elevation.

A is the twister; *a a*, the radial arms of twister. B is the box or bearing for the twister; C, a slot through which wire passes to twister; *b b b*, the pins for snubbing the wire; *d*, space between the working-surface or collar of twister-shaft and the pins. The circular dotted line in Fig. 4 shows that the working-surfaces of the pins are in the same circle.

The object of this invention is to twist the two loose ends of a wire band, which has been placed around a bundle of straw securely, and then to relieve the ends, and so discharge the bundle. This is accomplished by the shape of the pins and the shape of the twister-arms.

The general construction of the twister is that of the twister for which I received Letters Patent, dated October 26, 1875, and numbered 169,251.

A new feature of this present twister is the beveling of the under surface of the radial arms from the back edge to the front edge, so that the lower edge of the twister-arms in front shall come down to a given surface, while on its back edge it shall be sensibly removed therefrom. In twisting the ends of a wire band the space between the given surface and back edge need not exceed the diameter of the wire.

The pins, until the twister reverses, are substantially the sleeve of my Patent No. 169,252, dated October 26, 1875, and are constructed by cutting said sleeve into pins; and these pins are substantially portions of said sleeve, which are so cut and shaped as to offer a very slight arc of a circle as a working surface, instead of the complete circle of the sleeve. In fact, I do not limit my claim to an arc of a circle, but may use a bearing-surface of any proper form, even if it be an arc of a circle convex to the twister-shaft.

The pins are so constructed that the bearing-surface is at its highest point, and they bevel or decline from said point in all directions, except toward the shaft of twister, with which the inner surfaces of the pins and sleeve are parallel, or nearly so.

For the operation of these devices, in combination, I refer to my Patent No. 175,965, dated April 11, 1876. The operation of these devices is identical with the operation of devices in said patent, until the reverse motion begins as follows: The wire passes through the slot, when it is taken by the arm of the twister; at a half-revolution of twister the second wire is taken up; at a revolution and a half both wires are snubbed and held between the pins and the shaft of twister, free from all other holding. When the twist is completed the twister reverses, the arms draw the loose ends of the band over the bevel of the pins, and so throw them out of the hold between the pins and twister-shaft. The pins are so shaped that the wire can not catch.

The right is reserved to cover in a separate application mechanism for imparting the reverse motion to the twister.

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

1. The arm of a twister, constructed to bevel from the front to the rear edge, operating in combination with holding or bearing-surfaces *b*, substantially as described, and set forth.

2. A sleeve of concentric pins or holding-surfaces, beveling from a highest point in all directions, excepting on the side toward the twister-axis, substantially as described.

3. The combination of twister arms and sleeve, constructed substantially as described and set forth.

JEPHTHA GARRARD.

Witnesses:

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