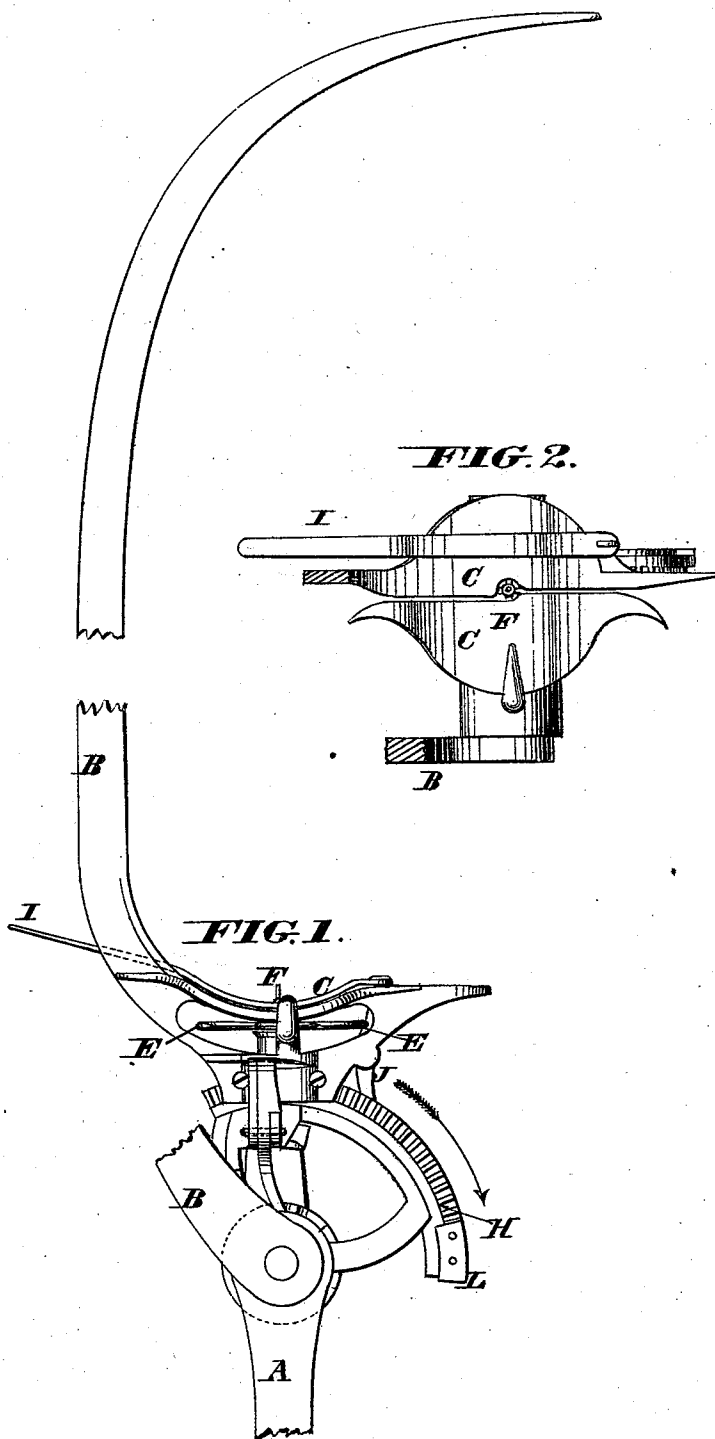


J. GARRARD.
GRAIN-BINDER.

No. 174,225.

Patented Feb. 29, 1876.



WITNESSES
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Alex. Galt

INVENTOR
Jephtha Garrard
By Knights & Co. Attorneys

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FIG. 3.

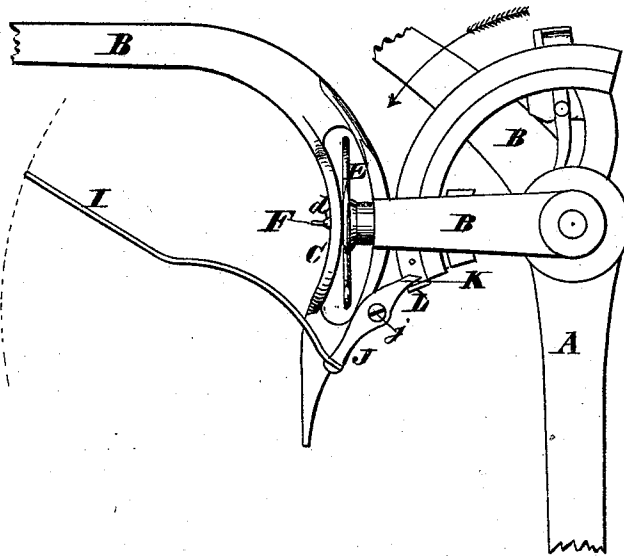
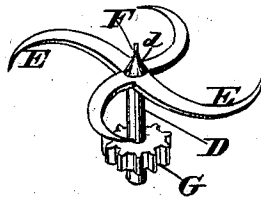


FIG. 4.



WITNESSES

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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. **174,225**, dated February 29, 1876; application filed November 11, 1875.

To all whom it may concern:

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

My invention relates to certain improvements in the system of grain-binders described in Letters Patent granted to me under date of the 26th of October, 1875. In the said patents I have described a twister constructed with a prominence projecting beyond the plane of the twisting-arms, and with a grain-holder or cradle adapted to permit the bundle to round itself under the pressure of the binding-wire.

My present improvements consist, in part, in combining with the prominence or spindle of the twister a point projecting from the apex thereof, at right angles to the plane of rotation of the arms, for the purpose of catching either part of the wire which may first arrive at the point of the spindle, and preventing it from slipping off said point until the other wire shall reach it, so that the two may be twisted together.

The invention further consists in the combination of a discharging-arm with a cradle or grain-holder, operating as hereinafter described.

In the accompanying drawing, Figure 1 is an elevation of the cradle, the twister, and their accessories. Fig. 2 is a plan or top view of the same. Fig. 3 is an elevation of the side opposite to that shown in Fig. 1, showing the cradle in a different position. Fig. 4 is a perspective view of the twister.

A A represent parts of the stationary frame, and B B carrying-arms. C represents the cradle, grain-holder, or cover of the twister, to which one or more of the carrying-arms B are directly connected. The twister consists of a spindle, D, terminating in a converging projection, *d*, preferably of conical form, and a suitable number of radial arms, E. F rep-

resents a thin parallel-sided prolongation projecting from the apex of the cone *d*, in a line perpendicular to the plane of rotation of the arms E, or coincident with the axis of the spindle D. G represents a pinion keyed on the spindle, and serving to impart rotation to the twister, when the rotation of the cradle and carrying-arms brings the said pinion into gear with the stationary segment-rack H. The arrows indicate the direction of the rotation of the cradle and carrying-arms. I represents a discharging-arm, adapted to rest within the bed or cradle C, as shown in Figs. 1 and 2. The said arm is rigidly united to a lever, J, which is fulcrumed at *j*, and projects downward or backward, so that its heel K will come in contact with a lug, L, on the end of the segment-rack H, at the completion of the twisting action, so as to tip the arm I into the position shown in Fig. 3, and thereby discharge the finished sheaf from the cradle.

The point F, projecting longitudinally from the apex of the cone *d*, serves to retain either part of the wire which may first reach the point, so that both may be twisted together. This longitudinally-projecting point, to prevent the slipping of either wire from the cone, is found, by experiment, to constitute an important improvement in a twister of this construction.

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

1. A twister constructed with a prominence projecting beyond the plane of the twisting-arms, and a needle-point projecting from the apex of said prominence at right angles to the plane of rotation.

2. The discharging-arm, in combination with the cradle and the lug for actuating said arm, substantially as set forth.

JEPHTHA GARRARD.

Witnesses:

OCTAVIUS KNIGHT,
WALTER ALLEN.