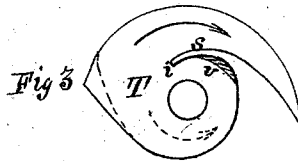
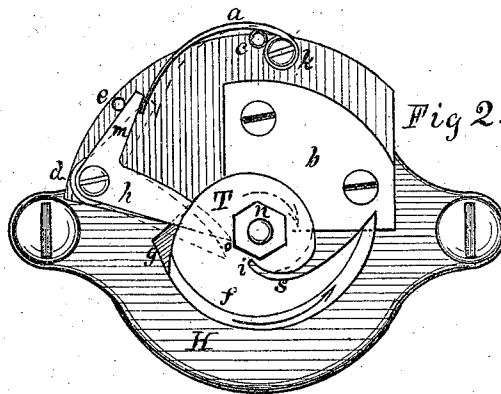
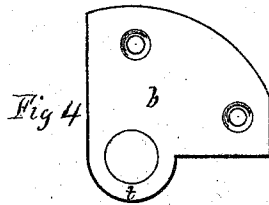
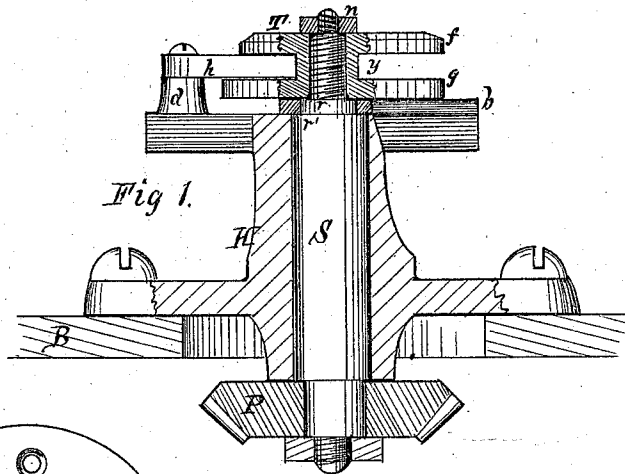


J. F. GORDON.
Grain-Binders.

No. 140,822.

Patented July 15, 1873.



Witnesses.

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Att'y

UNITED STATES PATENT OFFICE.

JAMES F. GORDON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 140,822, dated July 15, 1873; application filed October 24, 1872.

To all whom it may concern:

Be it known that I, JAMES F. GORDON, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Wire-Twisters for Grain-Binding Harvesters, of which the following is a specification:

The object of this invention is to provide the wire-twister of this class of grain-binders with a clearing device that shall prevent the possibility of the twister becoming clogged by fragments of straws, wire, or other substances. Its nature consists mainly in the employment of a spring-latch, which acts upon the twister in such a manner as to effectually clear the wire-clamping groove of all obstructions during its entire operation.

Figure 1 is a sectional elevation of the twister and its supporting stand. Fig. 2 is a plan or top view of the twister T, having my clearer attached. Fig. 3 is an inverted view of the twister T. Fig. 4 is a detached view of the cutter-plate or blade *b*. The drawings represent the invention.

One of the greatest difficulties in binding grain with wire by automatically-acting machinery I have found to be in the liability of the wire-clamping slot of the twister-head getting clogged with fragments of wire and straws. I have effectually overcome this liability by bifurcating the twister-head T, as shown in Fig. 1, and placing a clearer-latch, *h*, between the upper and lower plates *f* and *g*. The channel *y* should be deep enough to permit the point of the clearer-latch at *o* to reach nearer the axis of the twister than is the termination *i* of the wire-slot *s*. The clearer *h* may be made, as shown in Fig. 2, and pivoted upon the stud *d*, formed on the hanger H. The spring *a* is secured to a similar stud at *k*, and the tension-lug *c* holds it outward and presses the arm *m* against the lug *e*. The cutter-blade *b* is made as shown in Fig. 4, and receives the upper end of the shaft S, upon which is formed a shoulder to work against the under side of the cutter-blade, and the twister-head T is attached to the shaft by a right-hand screw. The head

is screwed down firmly against the shoulder *r*, embracing the collar *t* of the blade between the head and the other shoulder *r'*, which renders certain the close working of the two cutting-edges together, the lower side of the twister constituting the upper cutter-blade.

By making the cutter-blade *b* to encircle the shaft S it becomes impossible for the wires to be drawn in between the blade and the shaft.

The twister, blade *b*, and the shaft S are all made of steel, which secures them from serious wear.

The nut *n* is attached by a left-hand thread, and by this method of attachment for the head it is prevented from becoming detached by the constant changes in the direction of rotation of the shaft.

The lower plate of the twister-head is cut away, as shown at *v*, Fig. 3, to afford better clearance.

If desired the twister may be made in two parts. The spring *a* might be extended and so arranged that the end should rest in the groove *y* of the twister, and thus be made to do away with the clearer-latch *h*.

The pinion P is suitably attached to the shaft, so as to drive it in either direction alternately. The hanger H is bolted to the bed B of the twister-frame.

The operation of this twister is the same as that heretofore used by me, as shown in my patent of May 12, 1868, except that when the wire has been cut off in this case and given the desired number of twists, the rotation of the head is reversed and the clearer *h* wipes out any fragments of straws, wire, or other accumulations from the wire-slot *s*, thereby rendering it sure to act in every instance. The wire is cut off and the twisting done when the head rotates in the direction of the full line arrow, the clearer *h* assuming the position indicated by the dotted lines to allow the wire hanging vertically through the slot *s* to pass. When the wire is twisted and the bundle dropped from the machine, the head rotates in the direction indicated by the dotted arrow, and everything that might other-

wise hang in the slot *s* is forced out by the point of the clearer.

An eccentric collar might be applied to the twister-head and made to act as a clearer by revolving with the twister in its forward direction, but being prevented from turning backward.

What I claim as my invention is—

A wire twister-head in combination with a clearer *h*, or its equivalent, arranged to operate conjointly, as and for the purposes set forth.

JAMES F. GORDON.

Witnesses:

WM. S. LOUGHBOROUGH,
F. H. CLEMENT.