

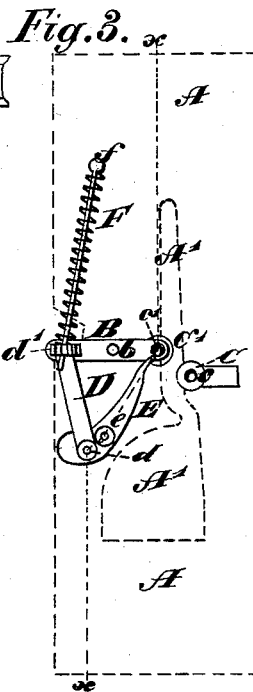
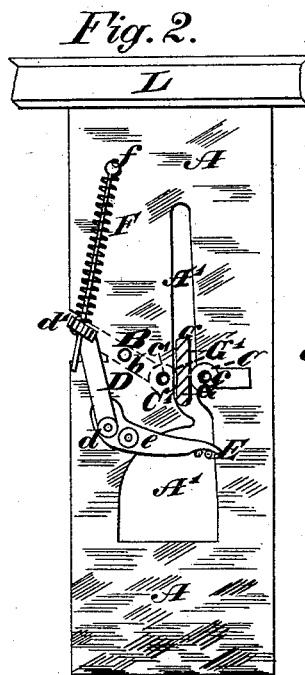
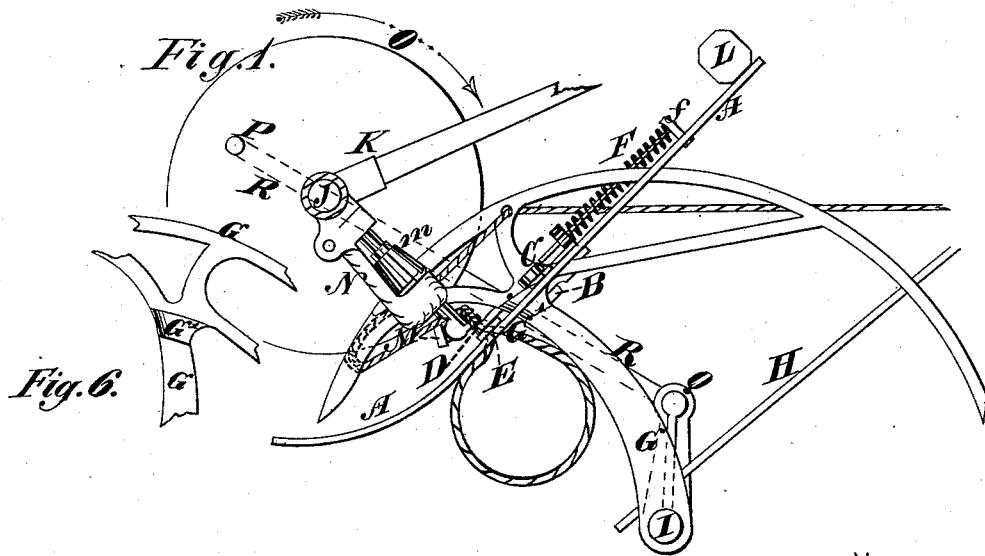
(No Model.)

J. W. WEBSTER.

GRAIN BINDER.

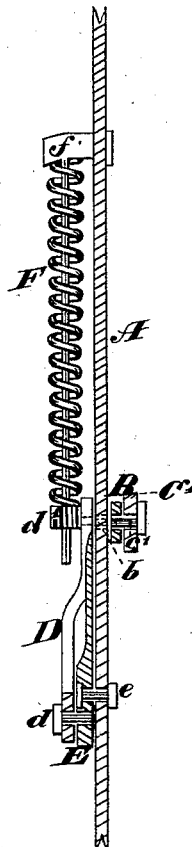
No. 264,005.

Patented Sept. 5, 1882.



*Fig. 4.*

*Fig. 5.*



*Witnesses:*  
Lawrence Bealing  
John B. Caspare

*Inventor:*  
John W. Webster.

# UNITED STATES PATENT OFFICE.

JOHN W. WEBSTER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM DEERING, OF SAME PLACE.

## GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 264,005, dated September 5, 1882.

Application filed May 1, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. WEBSTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Binders, of which the following is a specification.

The object of my invention is to provide means for engaging the twine as it is brought by the needle around the gavel and to carry it positively into a certain position in relation to the tying mechanism.

My improvement may be attached to any form of binder, but is here shown as adapted to a form now much used, and which is shown and described in Letters Patent to John F. Appleby, February 18, 1879, No. 212,420.

As my invention consists in the improvement of a single part, I will only describe the machine as a whole in general terms.

In the drawings, Figure 1 is an end view of so much of the machine as is necessary to show the relative positions of the parts that operate in connection with my improvement. Fig. 2 is a plan of the breastplate—a plate of metal acting as a shield to the tyer—and shows also my improvement connected therewith. Fig. 3 is an outline of the same plate, showing the parts in another position. Fig. 4 is a sectional edge view of the same plate in the line *xx* of Fig. 3, somewhat enlarged, and shows the attachments and manner of pivoting. Figs. 5 and 6 are details.

In the drawings, A is the breastplate, made of suitable strength and of proper width to form a substantial support for all the parts connected with it. It is slotted at A' to permit the point of the needle to pass through it. This plate is between the grain and the tyer, and is connected with the frame of the latter by any suitable means, so that they may be retained in fixed relative positions. On this plate is pivoted the lever B, near its central point, *b*. One end of this lever projects somewhat into the slot A', and is provided with the roller C', which is free to revolve on the stud *c'*. The other end is provided with the eye through which passes the eyebolt, as shown in Fig. 4.

D is a connecting-link, jointed to B at the eyebolt *d'*, this eyebolt serving as a pivot.

The lever B is located on the side of the plate next which the bundle is formed, and the connecting-bar, the tucker, the eyebolt, and the spring on the opposite side. The breastplate is cut away to permit the movements of these parts at the eyebolt *d'*, as shown in Figs. 2 and 3.

The connecting-link D is jointed at one extremity to the tucker E at *d*, and E is pivoted to the breastplate A at *e*. The pivot *e* is so located that the tucker can be so swung that its longer extension can strike across and down along the slot A'.

B and E being connected by the link D, it will be readily understood that any vibrations of the former on its pivot will be transmitted to E.

F is a spring supported on a rod, *f*, which is attached at one end to the breastplate, near its top. The other extremity of this rod passes through the eye in the pivotal eyebolt. (See Fig. 4.)

G is the needle, of the form usually seen in the class of binders referred to. It is secured to the shaft I. It is provided with a track, G'. (See Fig. 6.)

O is a wheel for giving motion to the parts of the binder, and is keyed to the shaft J.

K is the discharge-arm for throwing the completed bundle from the machine.

L is a part of the binder-frame serving as a support for the upper end of the breastplate A.

M is a tyer of the form now much used. Any form may be substituted.

N is the tyer-frame. It also forms a bearing for the shaft J.

P is a wrist-pin on the wheel O.

Q is a crank-arm secured to the shaft I, and gives the latter its oscillating motion. Between the wrist-pin on the wheel and the crank-arm extends the connecting-rod R.

The wheel O receives its rotation in the direction shown by the arrow in Fig. 1 by being connected with the harvester in the usual manner. The tyer may be operated by a segmental bevel-gear on the shaft J.

For a proper understanding of my invention

it is only necessary to take into account the movement of the needle, which is the only part of the binder that operates in connection with the tucker to give it motion.

5 The operation of my invention is as follows: The grain is carried in the usual manner through the passage formed by the deck-board H and the breastplate A. By the rotation of the wheel O the needle is made to advance and  
10 its point to pass through the grain, and the gavel thus separated is carried downward. In this movement the twine is carried around the sheaf and brought within reach of the tucker. Soon after the point of the needle passes  
15 through the slot in the breastplate the track G' on the needle reaches the anti-friction roller on the lever B, and the said lever is forced to rock on its pivot b. This rocking movement is imparted to the tucker E by means of the  
20 connecting-link D. When the end of the lever B is forced downward and out of the path of the needle the parts will be in the position shown in Fig. 2. During any further advance of the needle the roller C' will run on the track  
25 G' of the needle G, and it will be seen that after the tucker is once brought downward it will remain approximately stationary, although the needle will still have slight motion. The tucker is shown in this last its operating position, or, more properly, in its act of holding the  
30 twine in definite relation to the tyer, which position is shown in Figs. 1 and 2. The length of the long arm of the tucker is such that when the needle at G' engages the roller C' the point  
35 of the tucker shall just escape the needle itself and catch the twine drawn along the needle. Any resistance to the yielding of the lever B

under the pressure of the needle will tend to force the said needle in the opposite direction, or away from the lever B. The roller C, per- 40 manently located on the breastplate opposite the lever, will resist any such tendency. When the needle is retracted so far that the roller C' is permitted to pass off the end of the track G' on the needle it is at liberty to follow the lat- 45 ter upward. The aforesaid rocking movement of the lever B compresses the spring F, and the force thus accumulated returns the tucker and its connections to the positions of rest shown in Figs. 3 and 4. The tucker, receiving 50 its motion from the needle alone, will always be operated in its proper time. A track shown on the side of the needle opposite the one traversed by the roller C' is provided, so that the needle may ride smoothly over the anti-friction 55 roller C.

What I claim is—

1. The combination of the needle G, provided with the track G', with the oscillating lever B, provided with the anti-friction roller, substan- 60 tially as described.
2. The combination of the plate A, provided with the anti-friction roller C, and having slot A', with the tucker E, and the lever B, provided with the anti-friction roller C', obstruct- 65 ing the said slot, and the needle G, provided with suitable tracks, substantially as described.
3. The combination of the lever B, connecting-link D, tucker E, and spring F with the needle G, substantially as described.

J. W. WEBSTER.

Witnesses:

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