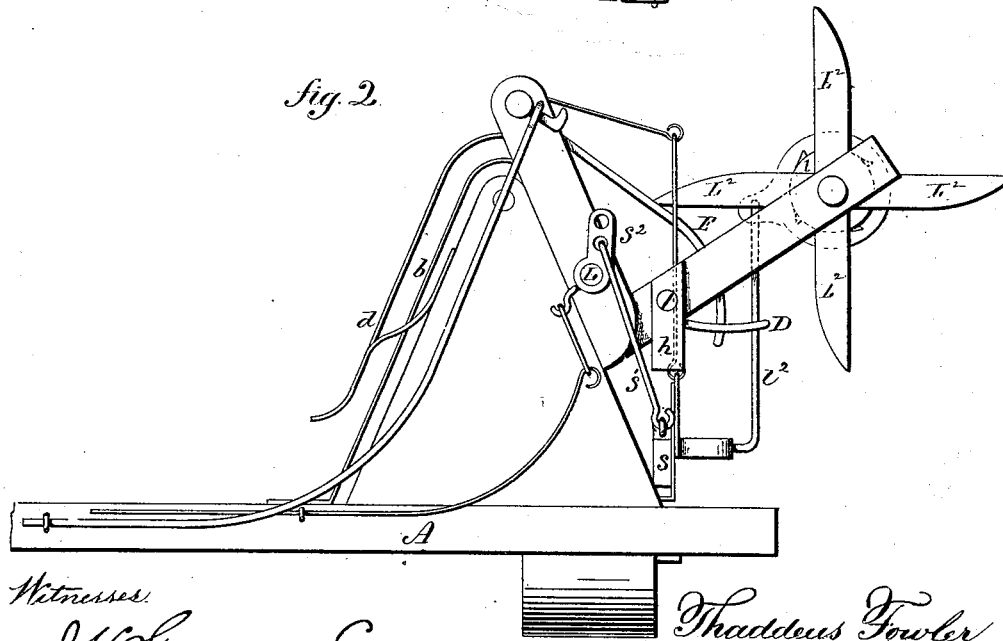
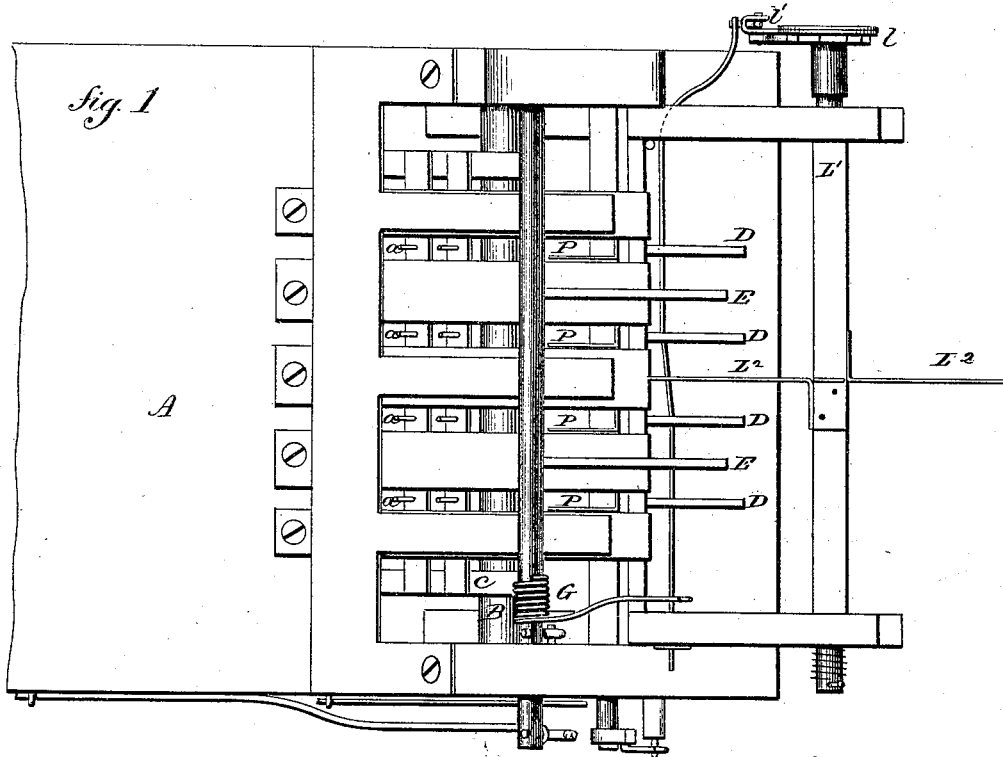


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GRAIN-BINDER.

No. 181,664.

Patented Aug. 29, 1876.



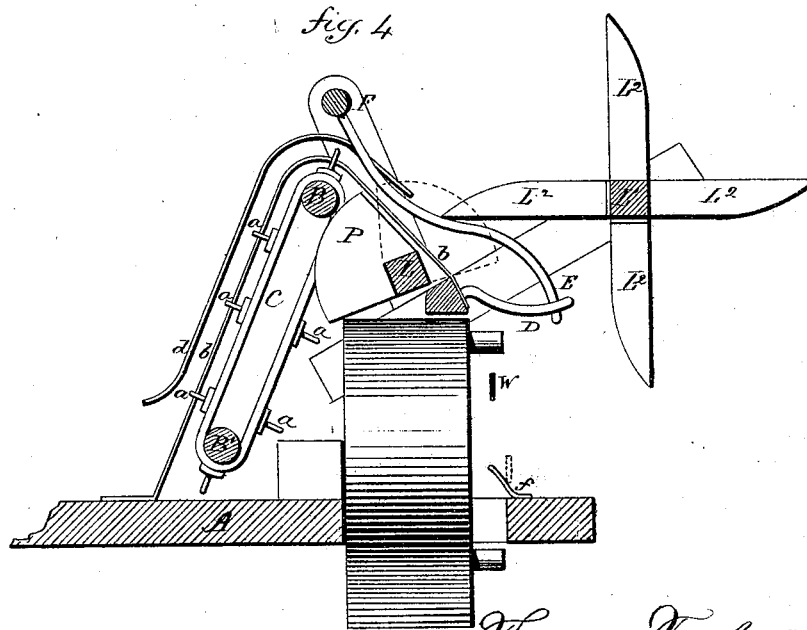
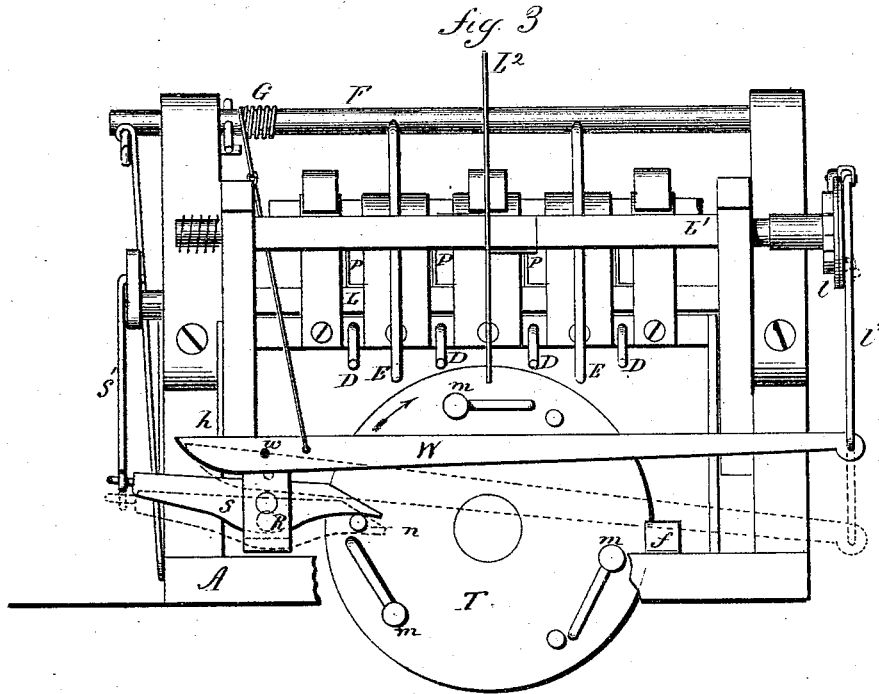
Witnesses:  
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*Clara Broughton*

*Thaddeus Fowler*  
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*John S. Case*

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*Thaddeus Fowler*  
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# UNITED STATES PATENT OFFICE.

THADDEUS FOWLER, OF SEYMOUR, CONNECTICUT, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JAMES G., WILBUR J., AND ISAAC S. RICHARDSON, OF LAKE CITY, MINNESOTA.

## IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. 181,664, dated August 29, 1876; application filed March 9, 1876.

*To all whom it may concern:*

Be it known that I, THADDEUS FOWLER, of Seymour, in the county of New Haven and State of Connecticut, have invented a new Improvement in Grain-Bundling Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent in—

Figure 1, plan view; Fig. 2, side view; Fig. 3, front view; Fig. 4, sectional view.

This invention relates to an improvement in machines for bundling grain.

In the usual construction of such machines the quantity of grain for each bundle is determined either by the judgment of the driver, or the machine is constructed so that at a certain time the discharge of the grain will occur. In the first case some degree of uniformity may be obtained; but to do that the constant watchfulness of the driver is essential. In the latter case the quantity for each bundle will vary according as the grain is thicker at one part of the field than another.

The object of this invention is the construction of a device which will act automatically to discharge the bundle when a certain predetermined quantity shall have been gathered therein; and the invention consists in a beater, which will press the grain into the holder, and, combined with a deliverer, which when the beater shall have attained a certain predetermined pressure upon the bundle, will, through the said beater, be caused to remove the gathered bundle from the holder, as more fully hereinafter described.

A is the bed of the machine, which is arranged in connection with the reaper in the usual manner, and upon which the grain is delivered. B B' are two shafts, one above the other, arranged in bearings transversely to the bed, the upper forward of the lower, so that the surface of an endless apron or bands, C, on the rear, will travel upward from the bed. These bands are fitted with numerous

teeth, *a*, which serve to gather the grain as it is presented, and carry it upward between guides *b* and *d*, over and deliver it onto supporting-arms D, which, together with the hinged arms E above, forms the holder, and between which the grain is gathered. The arms E are hung to a shaft, F, upon which a spring, G, acts, tending to bear the arms E down upon the grain below them, but yielding or rising as the grain accumulates within the holder. The guides *b*, it will be observed, extend over to the arms D, practically making the arms D a part or extension of the under guide *b*. Below the lower guide or arms a shaft, L, is arranged, on which are one or more beaters, P. The shaft is arranged parallel to the shafts of the apron, and so that, as the shaft is turned, the beaters will be moved forward and into the space between the arms E and D, and so as to carry the grain into that space and press it down therein. This shaft is intermittently rotated to cause the beaters so to act by means of a lever, S, from one arm of which a rod, S<sup>1</sup>, connects to a lever, S<sup>2</sup>, on the said shaft L. The other arm is acted upon by a stud, *n*, on the wheel T, this wheel being the supporting-wheel of the frame, and which is revolved by the movement of the carriage over the earth, the direction of the revolution of the wheel indicated by an arrow. The stud *n* strikes its arm of the lever S, and, raising that arm, draws down the other, and with it turns the shaft L and the beaters P, as indicated in broken lines, Fig. 4. The lever S is hung in a movable fulcrum, R, the lowest position of the lever being indicated in broken lines, Fig. 3.

If the beaters meet with no resistance, they will turn forward to the extreme position without effect upon the fulcrum of the lever S; but as the grain accumulates in the holder and offers resistance to the beaters, so that they cannot move to their extreme forward position, then the cam on the wheel in its action on its arm of the lever will cause the fulcrum R to rise, because the other or connected arm of the lever cannot descend. To this fulcrum a lever, W, is hung at *w*. When the

fulcrum R is in its lowest position, it is held forward out of the reach of the studs on the wheel by an inclined stationary block, *f*. The other or shorter arm of the lever lies beneath a stationary lug, *h*. When the fulcrum R rises, it carries with it the fulcrum *w* of the lever W, the shorter arm striking the lug *h* and holding the shorter arm, the longer arm rises accordingly. On an independent shaft, L<sup>1</sup>, the radial delivering-arms L<sup>2</sup> are arranged, preferably four in number, and so that in revolving they will cover the grain gathered in the holder and take it therefrom. On the shaft L<sup>1</sup> is a ratchet, *l*, into which a pawl, *l*<sup>1</sup>, works. This pawl is connected to the longer arm of the lever W by a connecting-rod, *l*<sup>2</sup>, and as the longer arm of the lever W is raised, the pawl will be turned correspondingly around the face of the ratchet. This ratchet is provided with teeth, corresponding to the respective arms, and so soon as the movement of the longer arm of the lever W is sufficient to carry the pawl so far back as to engage a tooth, then the descent of the lever W will cause a corresponding rotation of the shaft L<sup>1</sup> and the deliverers L<sup>2</sup>.

As the lever escapes from the incline *f*, it moves inward toward the wheel T; then, as the wheel revolves, a stud, *m*, will strike the longer arm of the lever W and depress it, and if the previous rising of the lever has been sufficient to engage a tooth on the ratchet, then such forced descent of the lever will turn the shaft L<sup>1</sup>, and with it carry one of the deliverers through the holder, taking therefrom the gathered grain, the arms E yielding for

such delivery; but until the rising of the lever W is sufficient to engage the ratchet, its descent will have no effect upon the deliverers, and this extent of rising is dependent upon the adjustment of the beaters P, for so soon as the resistance of the grain is so great as to arrest the descent of the beaters at such point that the raising of the lever W will engage the ratchet the delivery will occur, and as the same quantity of grain is necessary to offer the required resistance, it follows that it will not occur until that quantity of grain has passed into the holders, and that each successive bundle will contain the same quantity of grain regardless of the extent of ground necessary to pass over to accumulate that quantity.

The bundles may pass to the binding-machine, or a binding-machine may be combined with this device, or the grain delivered to the ground to be otherwise bound.

I claim—

In a machine for bundling grain, the combination of the following elements: a holder to receive the grain, an automatic beater to press upon the grain in the holder, a deliverer to take the grain from the holder, a mechanism, substantially such as described, between the deliverer and the beater, whereby a predetermined position of the beaters will cause the action of the deliverers to remove the grain from the holder.

THADDEUS FOWLER.

Witnesses:

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