S. D. LOCKE.

GRAIN-BINDER.

No. 178,786. Patented June 13, 1876.

Fig. 1.

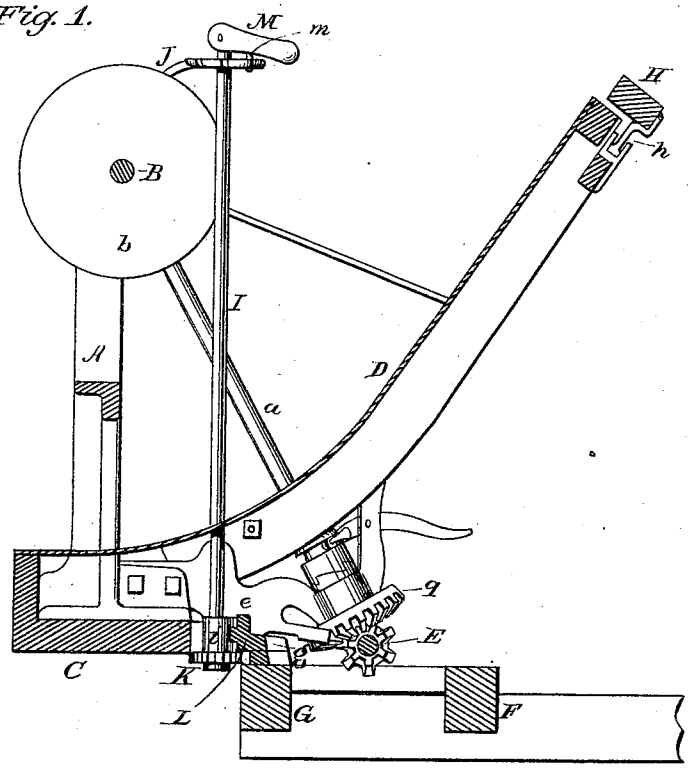


Fig. 4.

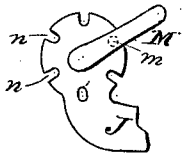


Fig. 2.

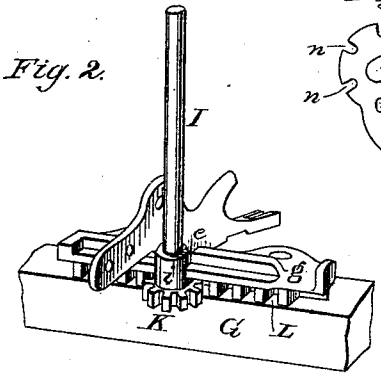
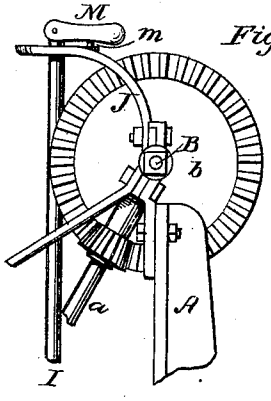


Fig. 3.



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SYLVANUS D. LOCKE, OF HOOSICK FALLS, NEW YORK.

IMPROVEMENT IN GRAIN-BINDERS.

Specification forming part of Letters Patent No. **178,786**, dated June 13, 1876; application filed March 23, 1876.

To all whom it may concern:

Be it known that I, SYLVANUS D. LOCKE, of Hoosick Falls, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Rack and Pinion, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to an improvement in automatic binding attachments for harvesting-machines; and it consists of a rack-and-pinion movement, whereby the driver can, at will, propel said binding attachment forward or backward on the harvester-frame to adjust the binding mechanism in accordance with the varying lengths of straw in different parts of the field.

That others may fully understand my improvement, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a transverse section of my binding-machine and the adjacent parts of my harvester, showing the operative mechanism of my device in position. Fig. 2 is a perspective of the rack and pinion in position. Fig. 3 is a front elevation of the upper end of the pinion-shaft, showing the manner of its support upon the binder-post. Fig. 4 is a plan of the upper bearing of the pinion-shaft with the stop-plate and lever-crank.

F G is the main frame of the harvester. E is a shaft taking motion from the main wheel and communicating the same, through the wheel *q* and shaft *a* and wheel *b*, to the shaft B, which propels the binding and compressing arms. A is the main post of the binder, which supports the bearings for the shaft B. It is firmly bolted to the base-plank C. D is the cradle or receptacle of the binder, into which the grain is delivered by the endless carrier or elevator. H is a bar of the elevator-frame, to which rails *h* are attached for the support and guidance of the upper end of the binder-frame. The lower part of the binder-frame travels upon rails *g*, which are angled or L-shaped in cross-section, and fit feet or brackets *e*, which are correspondingly notched, so that, when once in position, the said feet may freely slide lengthwise upon said rails, but cannot become detached therefrom, except by sliding off the ends thereof, which it may, as shown, Fig. 2.

The foregoing is descriptive of the structure which I have at present adopted, and which is shown in the accompanying drawings; but I do not design to be limited to the application of my device to the details of structure shown, as the same may be varied indefinitely without in any way affecting the operation of my improvement.

At the rear end of the binding-machine I locate a shaft, I, its lower end being supported in a box, *i*, which is a part of or attached to one of the feet *e*, and its upper end is supported by a bracket, J, which is bolted to the top of the post A. Attached to the lower end of the shaft I there is a pinion, K, and said pinion meshes with the teeth of a rack, L, permanently located upon the main-frame beam G of the harvester, and, as I prefer to make it, cast in one piece with the rail *g*, as shown in Fig. 2. It may, however, be separated, formed, and attached in any suitable manner.

It is manifest that the revolution of the shaft I will cause the foot *e* and the binding-machine to move forward or backward, according to the direction of said revolution, and said revolution is produced, at the will of the attendant, by means of crank-lever M, attached to the upper end of the shaft I, and conveniently within reach of the driver's hand while upon his seat. The lever M is pivoted to the shaft I, and upon its lower side there is a small stud, *m*, which engages with one of a series of notches, *n*, in the flattened disk-like top of the bracket J, through the center of which the shaft I passes. The engagement of said stud and notch serves as a lock to hold and retain the binder in any desired position, because said lock prevents the turning of the shaft I, and the engagement of the rack and pinion prevents any forward or backward movement without a revolution of said shaft.

When the binder is to be moved it is merely necessary for the driver to raise the outer end of the lever M, and rotate it and the shaft I until the desired adjustment is obtained. The weights of the lever M will cause it to lock as soon as released from the hand.

Having described my improvement, what I claim as new is—

1. The rotary shaft I, having thereon an operating-lever and a pinion, mounted upon and removable with an automatic adjustable binding-machine, combined with a stationary rack upon the harvester-frame, with which said pinion is in mesh, for the purpose set forth.

2. The shaft I on the binding-frame, having the pinion K at its lower end to engage with rack L, and weighted lever M, provided with a stud, *m*, at its upper end, and the locking-plate provided with notches, as set forth.

3. The foot *e*, having the L-shaped notch to fit the corresponding flange of the rail *g*, provided with the box *i*, for the lower end of the shaft I.

4. The rail *g*, having an L-shaped flange, as and for the purpose set forth, and the rack L, all cast in one piece, in connection with the pinion K and shaft I, to adjust the binding-machine, as set forth.

SYLVANUS D. LOCKE.

Witnesses:
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