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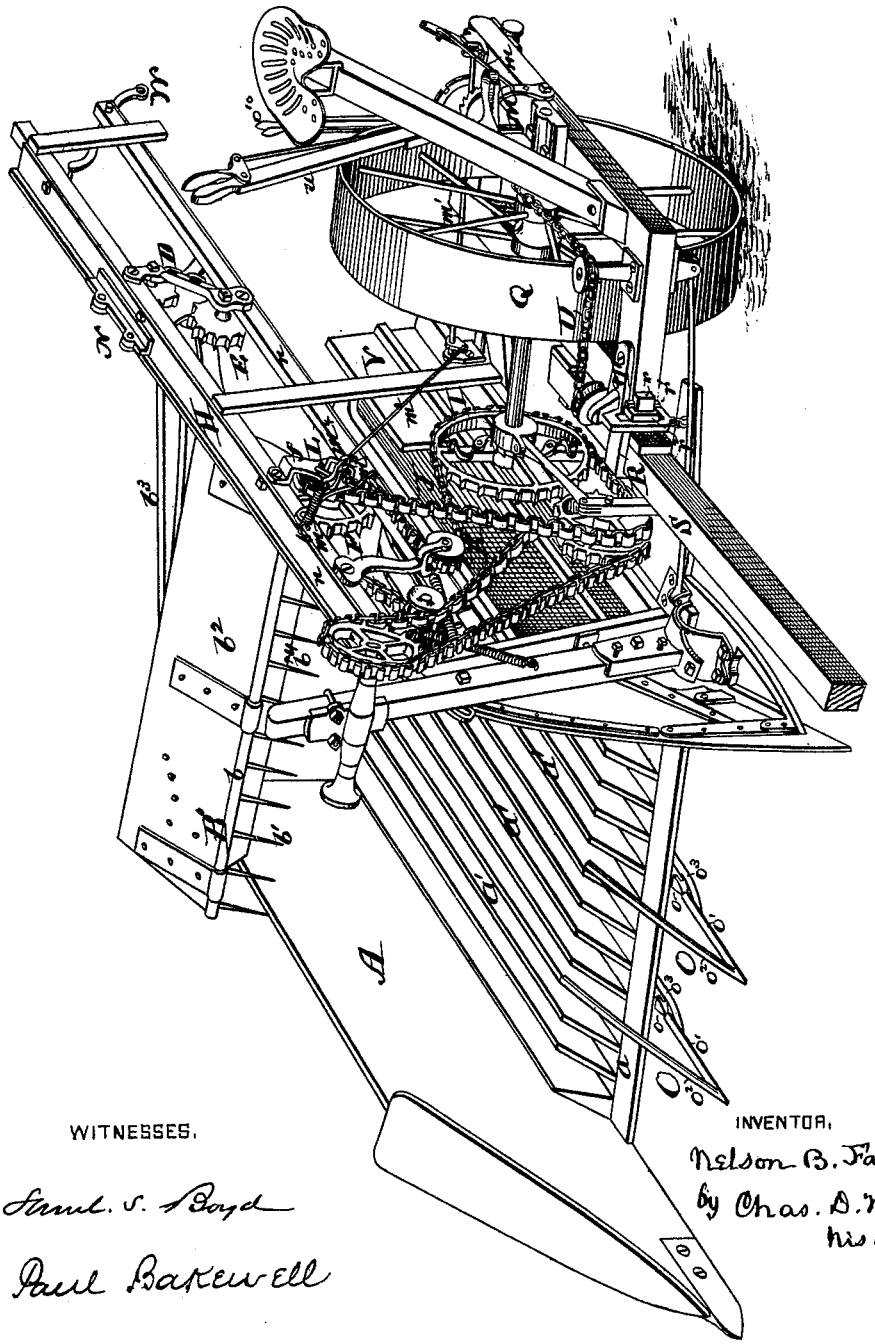
No. 202,802. Patented April 23, 1878.

Fig. 1.



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No. 202,802. Patented April 23, 1878.

Fig. 2.

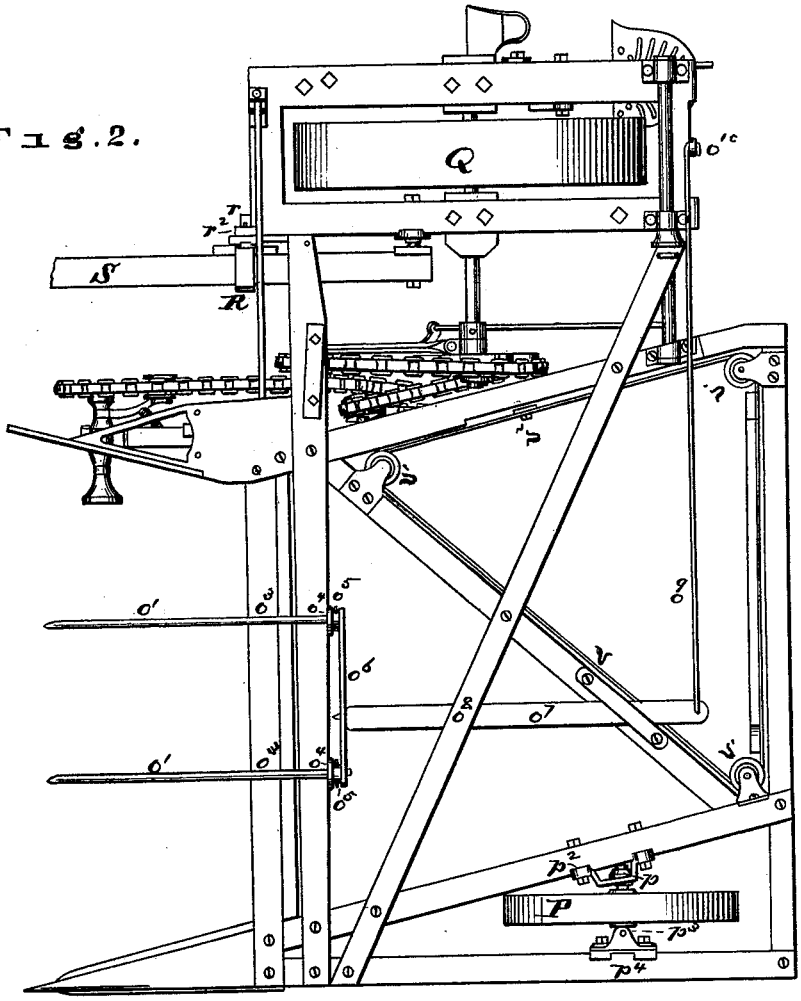

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Fig. 3.

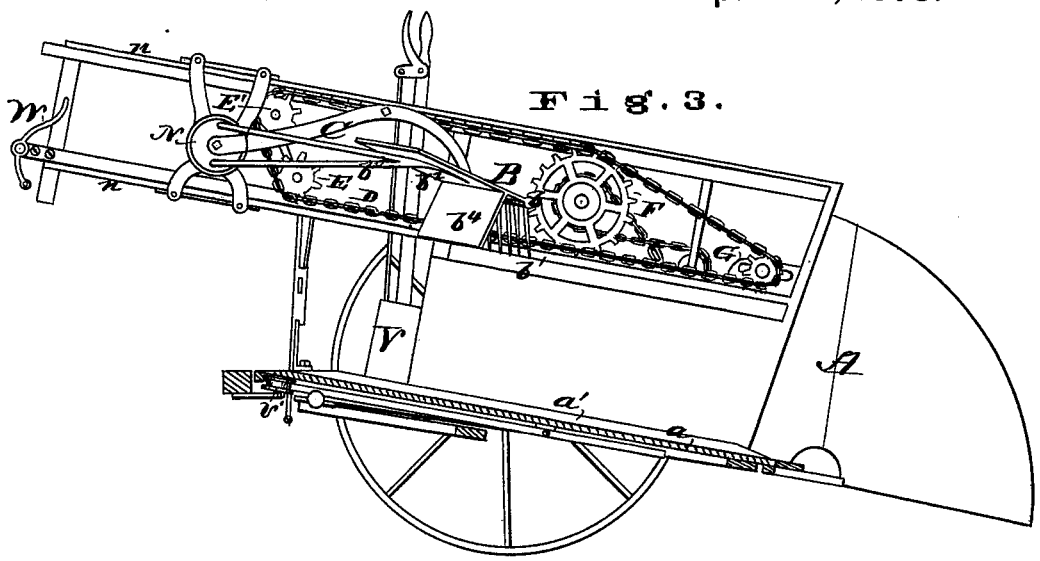

Fig. 5.

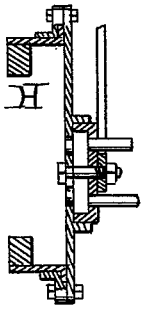

Fig. 4.

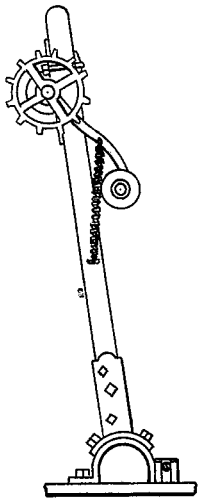

Fig. 6.

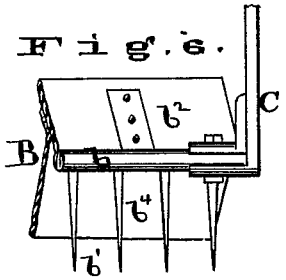

Fig. 7.

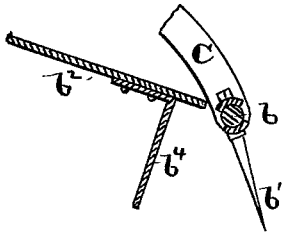

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Fig. 8.

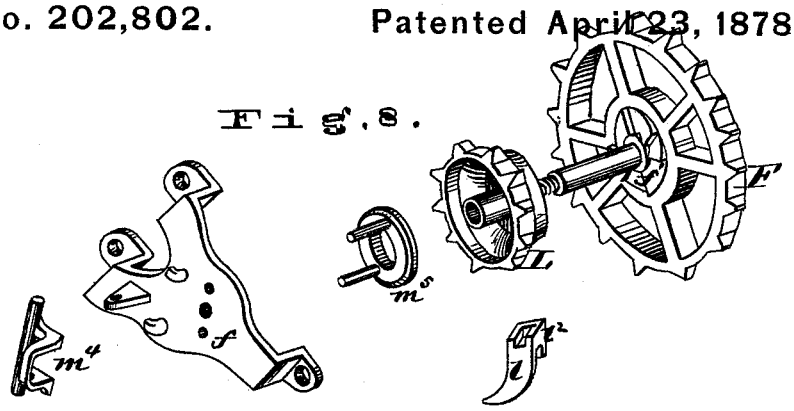


Fig. 9.

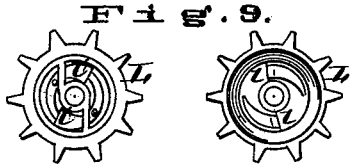


Fig. 10.

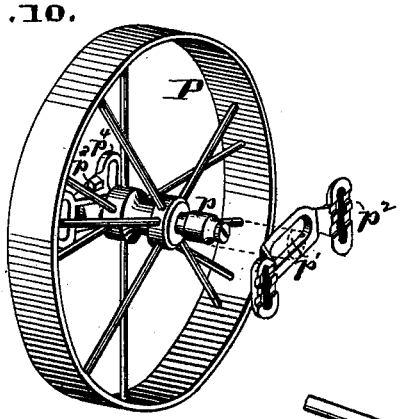


Fig. 11.

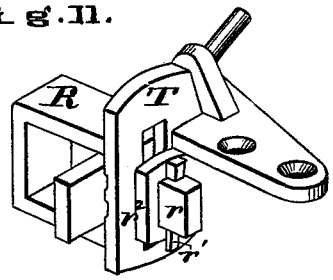
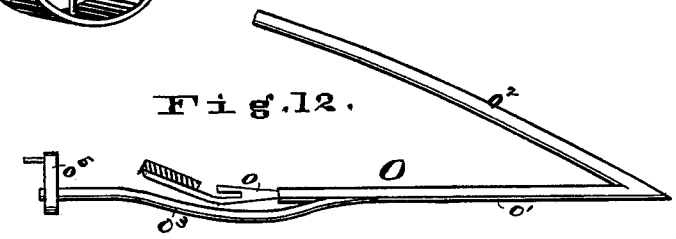


Fig. 12.



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UNITED STATES PATENT OFFICE.

NELSON B. FASSETT, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **202,802**, dated April 23, 1878; application filed December 2, 1876.

To all whom it may concern:

Be it known that I, NELSON B. FASSETT, of St. Louis, Missouri, have invented new and useful Improvements in Reapers, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a view, in perspective, of a reaper embodying my improvements; Fig. 2, a bottom view of the same; Fig. 3, a vertical longitudinal section through the reaper-platform, showing the inner side thereof; Fig 4, a detail, showing the reel-post; Fig. 5, a section through the rake-clutch wheel; Fig. 6, a perspective of the inner end of the rake; Fig. 7, a vertical cross-section of the rake; Fig. 8, views in detail, showing the rake-wheel, the rake-clutch wheel, and parts immediately therewith connected; Fig. 9, elevations, respectively, of the sides of the rake-clutch wheel; Fig. 10, a perspective, showing the grain-wheel and its bearings; Fig. 11, a perspective of the tongue yoke and holder; and Fig. 12, a side view of one of the grain-lifters.

The present invention relates, mainly, to the following points: the reaper-rake, its construction and operation, the means for separating the grain into different lots for binding, and for properly delivering each lot to the binder, the provision for raising or deflecting the uncut grain into a suitable position for cutting, and the mode of supporting the grain-wheel to facilitate the turning of the reaper.

Referring to the annexed drawing, A represents a reaper embodying my improvements. B represents the reaper-rake. It is made to travel forward and back over the platform in a nearly rectangular orbit. To this end it is supported by an arm, C, that, in turn, is pivoted to an endless chain, D, that is stretched over a series, E E′, F, and G, of sprocket-wheels, arranged in a vertical plane in a frame, H, upon the top of the side of the platform. Two of the wheels E E′, toward the rear end of the frame, support the chain in that direction, and the wheel G supports the forward end of the chain. Between these wheels, and nearer the wheel G, is another wheel, F, that aids in supporting the chain, and is also the means by which the chain is driven. It is journaled in a bracket, *f*, that is attached to the frame H.

In place of the arrangement of wheels shown, a single larger wheel might be used in place of the two wheels E E′, and the driving-wheel F might be moved forward and made to take the place of the wheel G, for any arrangement of wheels will suffice, provided thereby the chain D is stretched so as to assume a substantially rectangular form.

I represents a wheel on the main shaft of the reaper. A chain, J, leads from it, by an idler, K, to a rake-clutch wheel, L, that is loose on the shaft of the wheel F.

The wheel L is provided with dogs *l l*, Figs. 8, 9, which, actuated by springs l^1 l^1, engage in a ratchet, *f′*, on the side of the wheel F, causing the wheels F and L to turn together, saving when the dogs are disengaged. This (and preferably) can be done as follows: The driver presses a step, M. This operates, through the rod *m*, shaft m^1, rod m^2, lever m^3, and hinge-stop m^4, Figs. 1 and 8, to depress a follower, m^5, upon the outer ends of the dogs *l l*. The latter are hung in openings in the clutch-wheel, as shown in Fig. 9, and when the outer ends of the dogs are depressed their inner ends are raised out of the ratchet *f′*. As soon as the pressure upon the step is relieved a spring, m^6, Fig. 1, raises the lever m^3, and the springs l^1 l^1 (whose points engage in openings l^2 l^2 in the dogs) operate to throw the dogs into the ratchet again. The arm C, at its forward end, is fastened to the rake-head *b*, and at its outer end is pivoted in a slide, N, that moves upon ways *n n*, that are respectively upon the top and bottom of the frame H. The rake B has the usual teeth b^1. It is further provided with a fender, b^2, extending from the rake-head upward and backward, as shown in Figs. 1, 3, 6, and 7.

A brace, b^3, preferably extends from the rear end of the arm C to the outer end of the fender. The rake B has also what I term a "hold-down," b^4, Figs. 1, 3, 6, and 7, extending from, or nearly from, the rake-head downward and backward. Its driving mechanism being in operation, the rake, starting from its position in Figs. 1 and 3, moves forward to the front of the platform *a* of the reaper, and then downward, bringing the teeth into the grain. The rake is then

drawn horizontally backward over the platform to the rear end thereof, when it is raised so as to clear the grain, and is then moved forward to its original position, its movement being caused by the chain D, and the character of the movement may be described as being of the four-motion order.

The slide moves forward and back with the rake, and serves to direct its movement. To support the slide when the rake is drawn to the rear of the platform, the ways *n n* are extended to the rear of the reaper. As the rake is approaching the forward limit of its stroke the fender b^2 serves to keep the grain that is just beyond the reach of the teeth b^1 from falling over the rake-head and becoming scattered upon the platform, and thus operates to divide the grain cleanly into different lots for binding. As the rake moves backward over the platform the hold-down b^4 serves to hold the heads of the grain down, so as to be properly delivered to the binder, for the present rake is especially adapted to reapers having a binder attachment at the rear end of the platform, as indicated in the drawing.

O O represent a series of what I term "grain-lifters"—one, two, or more, as desired. They are arranged in front of, and at right angles to, the platform *a*, and respectively pivoted to points *o o* projecting from the platform, and preferably to the guard-fingers. Their form is shown in Figs. 1 and 12, being triangular and pointing forward. They are preferably made of two bars or rods—a lower bar, o^1, pivoted at its inner end to the guards *o o*, and extending forward horizontally, or thereabout, to a suitable distance, and an upper bar, o^2, extending from the outer end of the lower bar o^1 backward and upward. The two bars are rigidly connected, and the point of their junction, or the nose of the lifter, is sharpened to readily penetrate the grain. The office of these lifters is to straighten or deflect fallen or inclined grain, or grain driven by the wind, so that it can be readily cut. Their operation is as follows: Let the grain be fallen or inclined—say, to the right. The lifters are then turned in the opposite direction, the effect of which is to incline the upper bar o^2 of the lifters to the left; then, as the grain encounters the lifters it is deflected by means of the upper bar into the desired position.

Any suitable joint will suffice to connect the lifter with the platform. I preferably make the guard *o* to enter a socket in the inner end of the lower bar o^1. This form of joint presents the least obstruction to the grain.

To turn the lifters the preferable means is the following: A rod, o^3, Figs. 1, 2, and 12, that at its outer end is rigidly connected with the bar o^1, extends backward through a bearing, o^4, on the under side of the platform, and at its inner end is provided with a crank, o^5, that turns transversely with the platform. The several cranks o^5 o^5 are united by a cross-bar, o^6. A lever, o^7, pivoted to the platform at o^8, is connected at its outer end to the cross-bar o^6, and at its inner end with a rod, o^9, that leads to the lower end of a pivoted lever, o^{10}, Fig. 1. As the upper end of this lever is moved to the right or left the lifters are inclined accordingly.

P, Figs. 2 and 10, represents the outer or grain wheel of the reaper. The inner thimble-bearing *p* of its shaft rests in an elongated opening, p^1, in a bracket, p^2, and the outer bearing p^3 is pivoted vertically in a bracket, p^4, both of the brackets p^2 and p^4 being suitably attached to the reaper-frame and adjustable vertically thereon. In consequence of this manner of supporting the wheel it is enabled to oscillate horizontally, the inner bearing *p* moving to either end of the opening p^1, according to the direction of the movement of the reaper. If forward, the bearing moves to the rear end of the opening, and, if turning around, to the front end of the opening. The brackets p^2 and p^4 are so located on the reaper-frame, and proportioned, as to cause the shaft of the grain-wheel, when the reaper is moving forward, to be parallel with the line of the main wheel Q, but when the reaper is being turned, as when at the corners, to point to the center of the main wheel.

R represents the tongue-yoke. It embraces the tongue S, and on its outer side is provided with a shank, *r*, that projects through a slotted holder, T, that is attached to the forward end of the main wheel frame. The shank is perforated to receive a key, r^1. A washer, r^2, is arranged upon the shank inside the key. The outer face of the yoke and the inner face of the holder are similarly provided with a series of tenons and mortises, that interchangeably engage at any desirable point as the yoke and holder are drawn together by the key, and secure these parts at any preferable relative height without the need of making a hole in the tongue.

Provision is thus made for the vertical adjustment of the rear end of the reaper-platform, for, as the forward end of the main wheel frame is depressed, the rear end of the platform, by being pivoted to the rear end of the main wheel frame, is raised. It is desirable, however, for the platform to be as nearly level as is practicable. Therefore, when the rear end of the platform is thus raised or lowered, the front end is similarly raised or lowered by means of the usual chain U and lever *u*. These two parts, therefore, of the reaper operate in conjunction, when desired, to raise and lower the platform at the inner side. The brackets p^2 and p^4 constitute the third point of support of the platform, and they, as above stated, can be similarly raised and lowered. In this manner the reaper-platform can be placed at any desirable inclination or height.

To adapt the reaper to binder attachments that are arranged, as indicated in the drawing, to receive the grain at the rear end of the platform, thence to be moved sidewise, I make the rear end of the inner side of the platform in the form of a slide, V, Figs. 1 and 3, that

can be slid forward out of the way of the grain when the space is needed for the removal of the sheaf, and that can be drawn back again to fill out the side of the platform, and to properly direct the grain as it is being raked backward over the platform. These movements of the slide are properly caused by suitably moving a belt, *v*, that is carried around the pulleys v^1 v^1 v^1, Fig. 2, and connected with the slide at v^2. The belt is set in motion by means of a part (not shown) connected with the binder referred to; and the binding mechanism, in turn, is caused to operate at the proper intervals by means of an attachment on the reaper-rake coming in contact with or otherwise moving a trip-lever on the binder.

What I claim is—

1. The rake B, arm C, chain D, frame H, ways *n n*, wheels E E′, F, and G, and slide N, combined and operating substantially as described.

2. The continuous hold-down b^4, extending downward and backward from the rake-head *b*, as and for the purpose set forth.

3. The rake B, having the fender b^2 and the continuous hold-down b^4, substantially as described.

4. The oscillating grain-lifters O O, as and for the purpose described.

5. The combination of the guards *o o* and the oscillating lifters O O, substantially as described.

6. The combination of the oscillating lifters O O, rods o^3 o^3, bearings o^4 o^4, cranks o^5 o^5, bar o^6, lever o^7, rod o^9, and lever o^{10}, substantially as described.

7. The combination of the oscillating wheel P, the thimble-bearing *p*, the elongated bearing p^3, and brackets p^2 and p^4, constructed and operating substantially as described.

8. The combination of the tongue-yoke R, shank *r*, key r^1, washer r^2, and the holder T, substantially as described.

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