No. 612,602. Patented Oct. 18, 1898.

H. B. CEASE.

GRAIN DRILL.

(Application filed Mar. 18, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

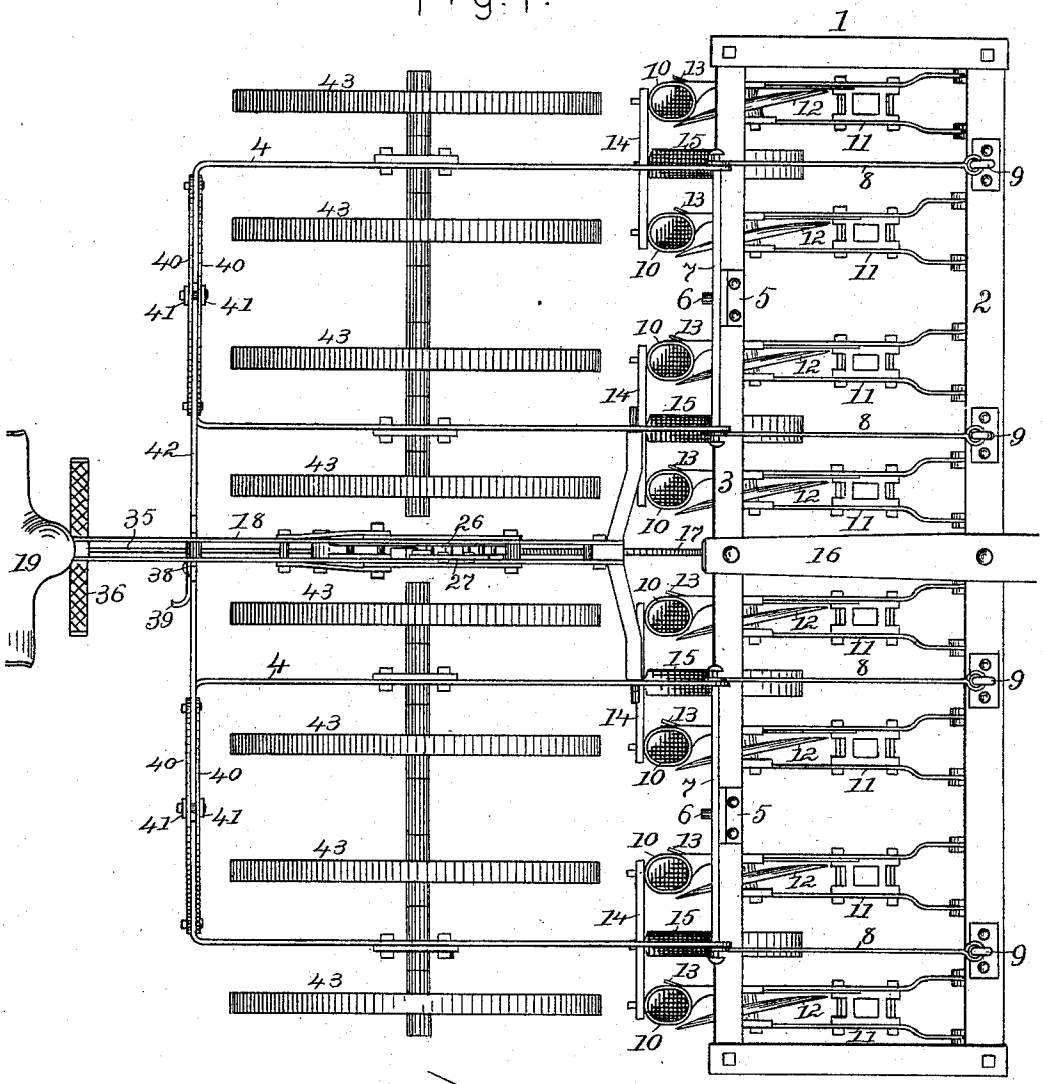
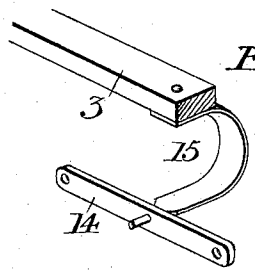


Fig. 6.



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Fig. 2.

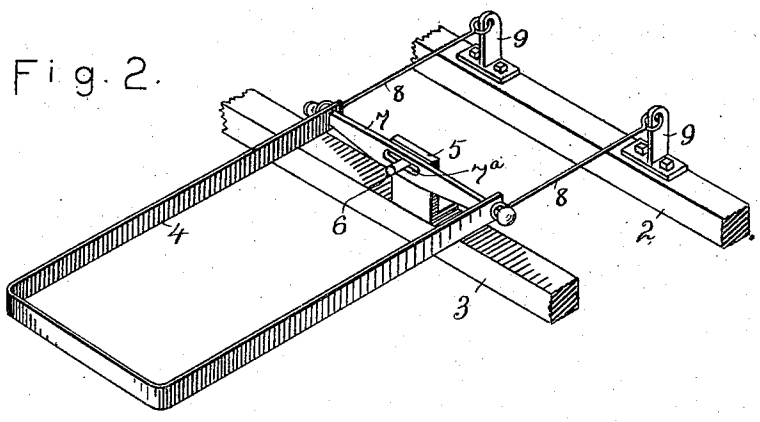
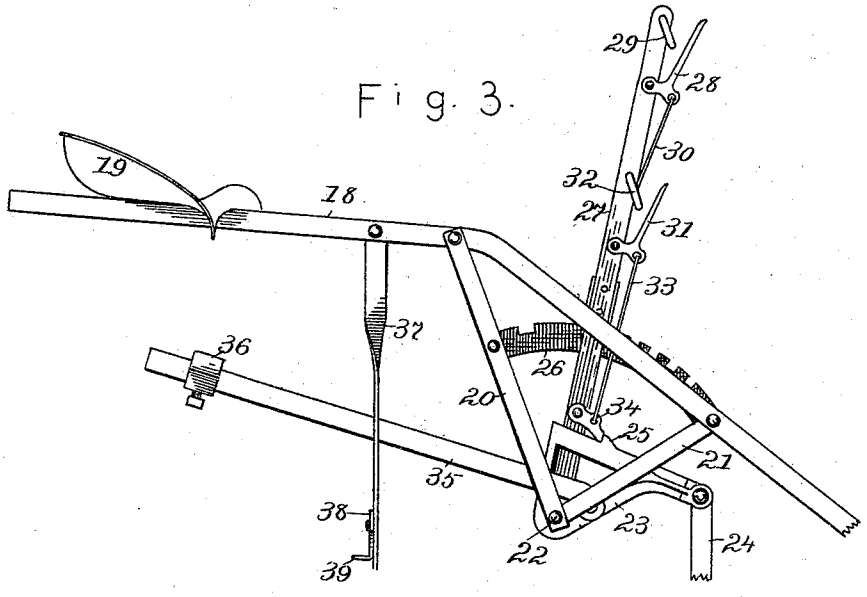


Fig. 3.



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3 Sheets—Sheet 3.

Fig. 4.

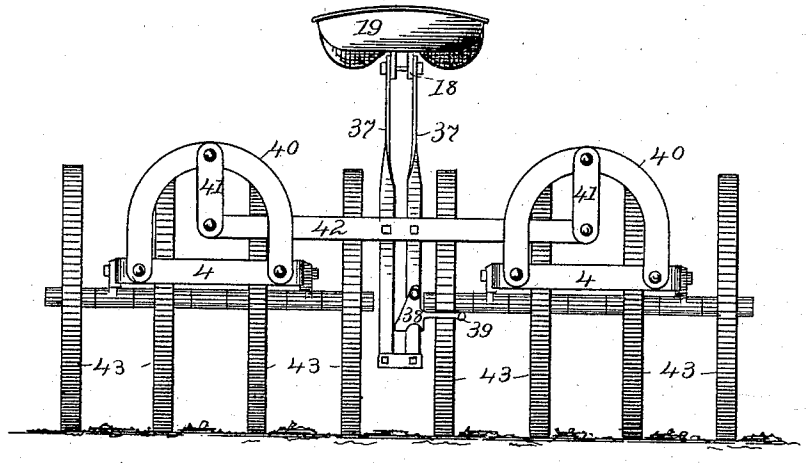
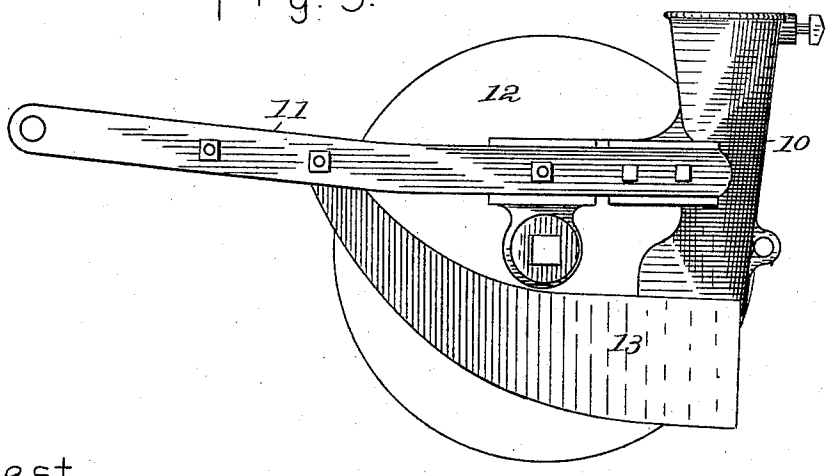


Fig. 5.



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UNITED STATES PATENT OFFICE.

HENDRICK B. CEASE, OF LINCOLN, ILLINOIS.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 612,602, dated October 18, 1898.

Application filed March 18, 1898. Serial No. 674,361. (No model.)

To all whom it may concern:

Be it known that I, HENDRICK B. CEASE, of Lincoln, in the county of Logan and State of Illinois, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

This invention relates to press-drills. It is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a plan of so much of a press-drill as is needed to explain my improvements. Fig. 2 is a perspective representation of the means employed to hitch the wheel-frames to the drill-frame. Fig. 3 is a side elevation of the mechanism used to lift and control the drill-frame. Fig. 4 is a rear elevation of the mechanism used to distribute the weight of the driver between the wheel-frames. Fig. 5 is a side elevation of one of the furrow-openers. Fig. 6 is a perspective representation of one of the springs used to depress the runners yieldingly.

The frame 1 for the drill mechanism has a front cross-bar 2 and a rear cross-bar 3. The wheel-frames 4 have cross-bars 7 at their forward ends, and such cross-bars are longitudinally slotted, as shown at 7^a in Fig. 2. Brackets 5 are fastened to the rear cross-bar of the drill-frame, and they have rearward-extending pins 6, that engage the slots of cross-bars 7. Rods 8 connect one with each front corner of a wheel-frame, and they extend forward and connect with the front cross-bar of the drill-frame. The connections of the rods with the wheel-frames and the drill-frame are loose enough to permit swinging motion, and brackets 9 may be used to provide for the front connections.

The furrow-openers each comprises a frame 11, hinged to the front bar 2 and extended rearward therefrom, a disk 12 swung obliquely in the frame, and a runner 13 extended along the rear side of the disk. A tubular shank 10 is fastened in the frame in the rear of the disk and between the disk and the runner, and the runner is fastened at its forward end to the frame and at its rear end to the shank. Every pair of furrow-openers is coupled together by means of a bar 14, which connects pivotally with pins extending rearward from the upper ends of the shanks, and a spring 15 is connected with the center of each of the bars and exerts downward pressure thereon.

The mechanism used to lift and control the drill-frame consists of a seat-bar 18, connected at its forward end with the forward ends of the wheel-frame or the rear side of the drill-frame and extended upward and backward. Straps 20 and 21 are fastened to the seat-bar at different points, and they extend convergently downward and join together at their lower ends. A triangular frame 23 pivots at 22 in the support formed by bars 20 and 21. Its upper bar is slotted to receive a lever and provided with a stop projection 25, and its front end has a link that connects with a rearward extension of the front frame. (See bar 17 in Fig. 1.) A foot-lever 35 is connected with rock-frame 23, and it has a foot-bar 36 on its rearward end. A rack-bar 26, concentric with pivot 22, is fastened to supports 20 and the seat-bar, and a lock-lever 27 is pivoted at 22 and extends through the slotted upper bar of rock-frame 23. The lock-lever has a grip-lever 28 pivoted on its upper end. It is connected with the lock-bolt that engages the rack-bar by means of rod 30, and a ring 29 on the lock-lever provides means for holding the lock-bolt out of engagement with the rack. Another grip-lever 31 is pivoted on the lock-lever, some distance below the upper end thereof. It has a connecting-rod 33, and a ring 32 on the lock-lever provides means for holding the connecting-rod raised. A pawl 34 is pivoted on the lock-lever in position to engage the stop projection 25 on the rock-frame, and the rod 33 connects the pawl with grip-lever 31. The rear end of the seat-bar is supported through downward-extending bars 37, between which the foot-lever 35 extends. A catch 38, adapted to engage the foot-lever and hold it depressed, is pivoted on one of the bars 37, and such catch has an extension 39, that enables the foot-lever to be released by action of the foot of the driver.

Arched bars 40 are connected one with each side of the rear cross-bar of each wheel-frame. Link-bars 41 are suspended from the centers of the arches, and a cross-bar 42 extends from one pair of links to the other and is connected therewith. The bars carrying the seat are

connected with the cross-bar 42, and so the weight of the driver is carried by the wheel-frames through the arches, the links, and the cross-bar.

The tongue of the drill is shown at 16, the seat at 19, and the wheels at 43.

In operation the wheel-frames may swing from side to side on pins 6, and so permit the wheels to track the furrow-openers in uneven ground. The rods 8 resist side swing to an extent to prevent the wheel-frames from wabbling on level ground, and the walls of the slots in cross-bars 7 prevent excessive side side motion under all circumstances.

The disks are the primary furrow-openers, as they make the preliminary cuts, and the runners act as secondary or assistant furrow-formers and also protect the seed as it is deposited in the ground through the shanks. The disk forms one side of the furrow and does the greater part of the soil-cutting, while the runner forms the other side of the furrow and protects the seed, and so all the advantages of a runner furrow-opener are combined with the superior soil cutting and removing peculiarities of a disk.

The springs through which pressure is applied to the rear ends of the furrow-openers are connected each with a pair of shanks through an equalizing-bar, thus diminishing the number of springs and providing greater flexibility in the furrow-openers. If the conditions require any particular furrow-opener to be raised to an unusual extent, as in encountering an unyielding obstacle, the fellow furrow-opener may become depressed to an extent sufficient to accommodate a part at least of the elevation. The springs are connected with the rear cross-bar of the front frame, and they are preferably U-shaped; but their essential peculiarity is that they connect one with two runners through an equalizing-bar instead of one with each runner.

The rock-frame 23 is adapted to rise and fall with the extension of the drill-frame with which link 24 connects, and when the grip-levers are held by the rings the lock-lever will rest extended forward and the rock-frame will swing free, subject only to action of foot-lever 35. Under ordinary circumstances the foot-lever may be used to raise and control the drill-frame, particularly with a light drill; but the hand-lever may be readily employed at any time to assist in raising the furrow-openers clear of the ground. Occasionally it is desirable to lock the drill-frame to plant at a certain depth, and in that case the pawl 34 is permitted to engage the stop projection 25 and the bolt of the lock-lever is made to engage a recess of the rack. This holds the frames stiff in both directions; but if it is desired to hold the furrow-openers from cutting below a certain depth, while leaving them free to rise, the pawl may be detached from the stop projection and the hand-lever be locked, as hereinbefore explained. In that case the rock-frame would rise freely to an extent sufficient to meet all variations in ground, but the back wall of its slot would strike the locked lever and limit downward motion. When the foot-lever alone is used, the catch 38 is made to engage bar 35 and hold the drill-frame raised, and the catch may be released by foot-pressure applied to extension 39.

The cross-bar 42 swings between the arches 40 and is thus maintained in place, and the pivots of the links are high enough to establish stable equilibrium in the cross-bar and the weight imposed thereon. The wheel-frames may rock in either direction independent of the seat-bar, and the weight will be equally distributed between the two.

The rods 8 do not resist side motion of the wheel-frames on account of rigidity in their connections, as these are entirely flexible or loose, but they pull the weight of the frames and their load, and the natural tendency is to draw their points of connection with the wheel-frame directly behind their respective points of connection with the drill-frame.

What I claim is—

1. In a press-drill having wheel-frames and a drill-frame, swinging links connecting the front ends of the wheel-frames with the front end of the drill-frame, lengthwise slots in the front bars of the wheel-frames, and pins extending horizontally from the drill-frame through the slots, substantially as set forth.

2. In a grain-drill, the combination of a frame having a seed-tube in its rear end, a disk journaled obliquely in the frame to the front and one side of the tube, and a runner connected at its front end to the frame and extended rearward on the opposite side of the tube, substantially as set forth.

3. In a grain-drill, the combination of a pair of frames hinged at their front ends and having seed-tubes in their rear ends, disks journaled obliquely in the frames in front of and alongside the seed-tubes, a bar pivotally connected with the seed-tubes, and a spring exerting pressure downward on the bar, substantially as set forth.

4. In a grain-drill the combination of a pair of frames hinged at their front ends and having seed-tubes in their rear ends, disks journaled obliquely in front of and alongside the tubes, runners in the frame on the opposite sides of the tubes, a bar pivotally connecting the tubes and a spring exerting downward pressure on the bar, substantially as set forth.

5. In a grain-drill, the combination of a seat-bar, a rock-frame swung on a pivot supported from the seat-bar, and adapted to connect with the front frame of the drill, a stop projection on the rock-frame, a lock-lever journaled on the pivot of the rock-frame, a rack carried by the seat-bar and disposed concentric with the pivot of the lever, and a pawl on the lock-lever adapted to engage the stop projection of the rock-frame, substantially as set forth.

6. In a grain-drill, the combination of a

seat-bar, a rock-frame swung on a pivot supported from the seat-bar and adapted to connect with the front frame of the drill, a stop projection on the rock-frame, a lock-lever journaled on the pivot of the rock-frame, a rack carried by the seat-bar and disposed concentric with the pivot of the lever, a pawl on the lock-lever adapted to engage the stop projection of the rock-frame and a foot-lever connected with the rock-frame, substantially as set forth.

7. In a grain-drill, the combination of a seat-bar, a rock-frame swung on a pivot supported from the seat-bar, and adapted to connect with the front frame of the drill, a stop projection on the rock-frame, a lock-lever journaled on the pivot of the rock-frame, a rack carried by the seat-bar and disposed concentric with the pivot of the lever, a pawl on the lock-lever adapted to engage the stop projection of the rock-frame, a foot-lever connected with the rock-frame and a catch to hold the foot-lever depressed, substantially as set forth.

8. In a grain-drill, the combination of arches rising from the rear bars of the wheel-frames, links swung from the arches, a cross-bar below the summits of the arches connecting the swinging ends of the links and a seat-bar supported from the cross-bar, substantially as set forth.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

HENDRICK B. CEASE.

Witnesses:
B. A. CEASE,
F. A. CEASE.