

(No Model.)

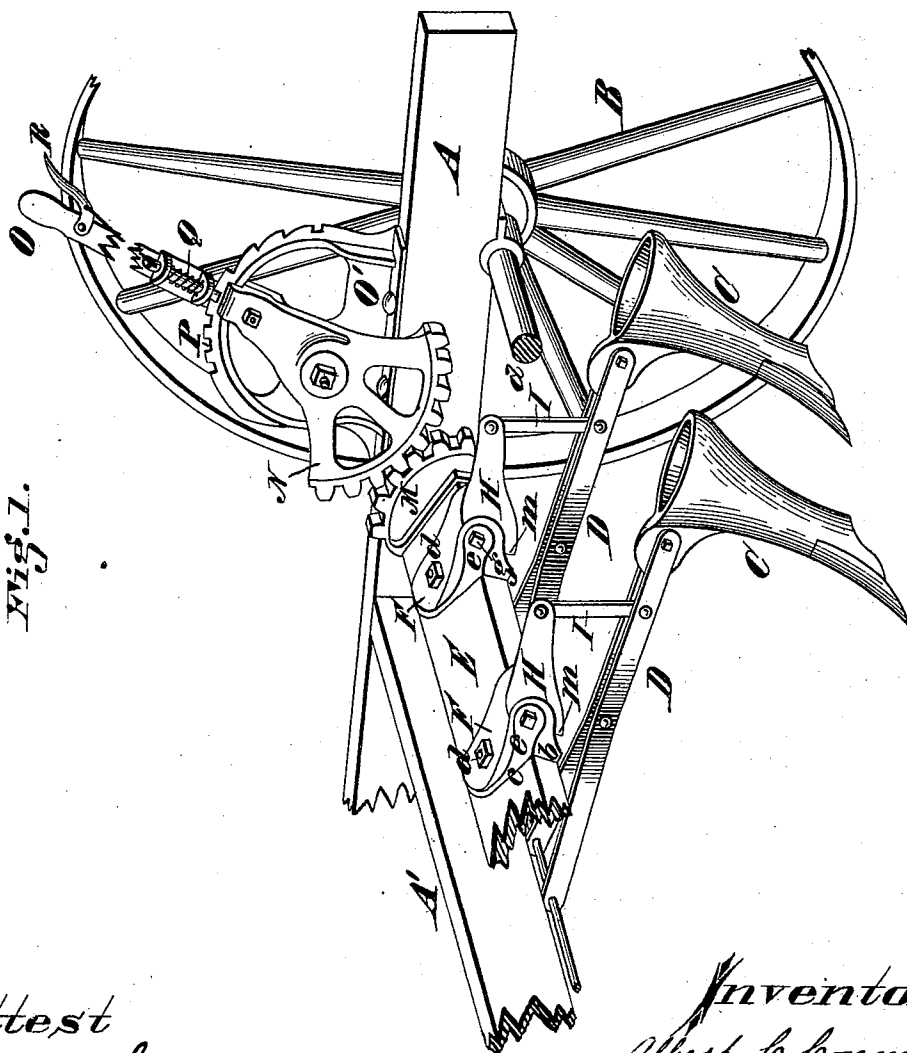
2 Sheets—Sheet 1.

A. C. CONNER.

GRAIN DRILL.

No. 282,847.

Patented Aug. 7, 1883.



Attest  
Jas. E. Jones  
A. Kluchowsky.

Inventor  
Albert C. Conner,  
by Wood & Boyd  
His Attorneys.

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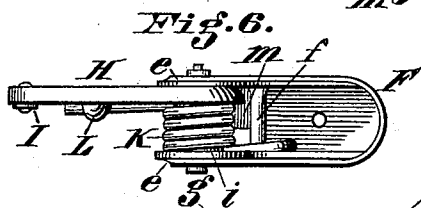
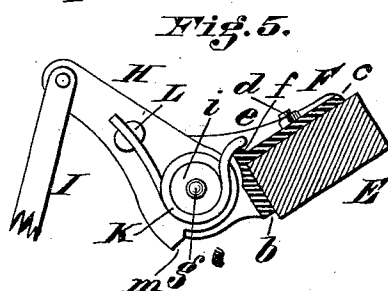
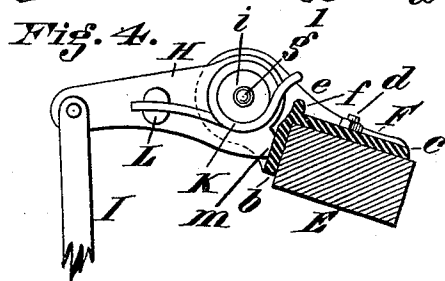
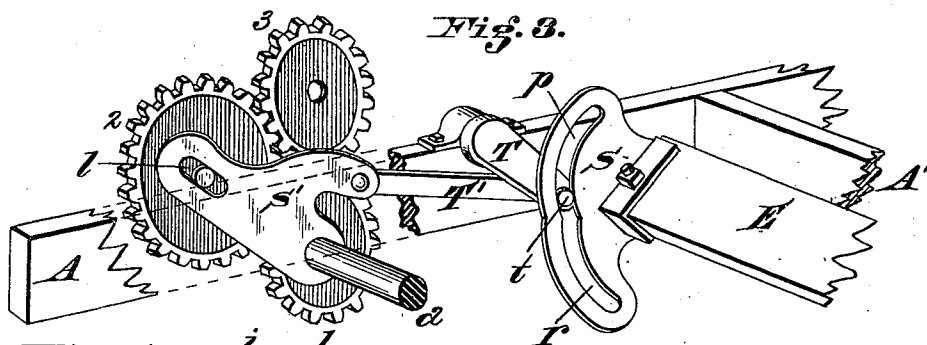
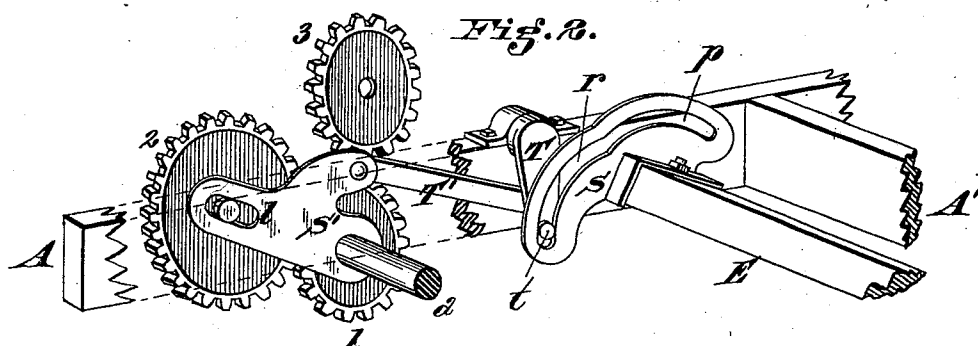
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# UNITED STATES PATENT OFFICE.

ALBERT C. CONNER, OF RICHMOND, INDIANA, ASSIGNOR TO THE HOOSIER DRILL COMPANY, OF SAME PLACE.

## GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 282,847, dated August 7, 1883.

Application filed May 9, 1883. (No model.)

*To all whom it may concern :*

Be it known that I, ALBERT C. CONNER, a citizen of the United States, and a resident of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

My invention relates to improvements in grain-drills.

One of the objects of my invention is to provide a rock-shaft in front of the main axle, to which the drag-bars are attached by an auxiliary arm and a spring-connection on said arm in such a manner that the hoes on the drag-bars are controlled by the position of the rock-bar.

Another object of my invention is to provide an improved spring anchor connection for connecting the drag-bars to the lifting-bar.

Another object of my invention is to provide suitable means for throwing the machine into and out of gear by an attachment connecting the intermediate gear with the rock-bar placed on the frame in front of the supporting-wheels.

Other objects of my invention will be fully set forth in the description of the accompanying drawings, in which—

Figure 1 is a broken perspective view of a grain-drill embodying my invention. Fig. 2 is a detail broken perspective view of the seed-dropper, driving-gear, the rock-bar, and operating devices, showing the rock-bar in the position for elevating the drag-bars and hoes. Fig. 3 is a similar view of the same parts, showing the rock-bar in position for the operation of drag-bars and hoes. Fig. 4 is a detail transverse section of the rock-bar and its operating crank-arm, flexible spring, and link, showing the parts in position for the drag-bars and hoes above the ground. Fig. 5 is a similar view of the same parts, but showing them in position pressing the drag-bars and hoes into the ground. Fig. 6 is a plan view of the devices shown in Fig. 5, omitting the rock-bar.

A A' represent rails of the main frame; B, the supporting-wheels; *a*, the axle; C, the hoes; D, the drag-bars, which are hinged to the front rail of the main frame; or they may be hinged to shifting-bars, if desired.

E represents a rock-bar journaled to the side rails of frame A, in front of the axle *a*.

F represents a hinge-plate rigidly secured to rock-shaft E by flange *b c* and bolt *d*.

*e e* represent ears cast on and with plate F.

H represents a swinging auxiliary arm hinged to the ears of plate F by bolt *g*.

I represents a link pivoted at one end to drag-bar D, and at the other end to arm H.

K represents a spring coiled around sleeve *i* on arm H, one end of which spring is secured in a notched lug, L, fixed in arm H, and the other end of coil-spring K projects forward on ledge *f* on plate F, so that the lifting of arm H upward compresses the spring, as shown in Fig. 5.

*m* represents a stop cast on arm H, which strikes against flange *b* on bar E, to limit the downward movement of arm H when bar E is rocked forward.

M represents a segmental gear secured to rock-bar E, and meshing with segment N, attached to lock-lever O, which is journaled to a plate, O'.

P represents notches in the face of segment-plate O'.

Q is a lock-bolt, which engages with notches P.

R is a spring-arm for withdrawing bolt Q. By these devices the rock-bar E is readily moved and locked in any desired position, and thus controls the set of the hoes.

S represents a slotted bracket rigidly secured to bar E at the end opposite the lever O.

*p* represents a slot pierced in bracket S concentric with the axis of bar E.

*r* represents a slot connecting with slot *p*, but eccentric thereto.

T represents a crank journaled to the rail A; *t*, a crank-pin working in slots *p r*.

T' represents a link pivoted at one end to crank T, and at the other to fork-lever S', which is journaled on the shaft *a*.

1, Figs. 2 and 3, represents the driving-gear keyed to shaft *a*.

2 represents a transmitting-gear keyed to a shaft which journals in slot *l* in the outer end of arm S'.

3 represents the gear keyed to the shaft of the revolving seeders.

The arrangement of parts shown in Figs. 2

and 3 is for the purpose of throwing the machine out of gear as the hoes are raised by the crank-bar E, and to throw it into gear when the hoes are lowered to the ground. This is accomplished by means of slot *r*, crank T, link T', crank-arm S', and intermediate gear, 2, which is moved to and from gear 3 as bar E is rocked up and down. Stop *p* is concentric with the plane of revolution of bar E, so that a limited movement of bar E with the hoes in the ground will not move the crank T and gear 2; but as soon as bar E is moved enough to lift the hoes out of the ground, gear 2 is thrown out of mesh with gear 3 and the seeding-wheels are stopped.

The mode of operation is as follows: The spring K is adjusted so that when hoes C are in the ground the spring exerts sufficient pressure to hold them down to their work. If it is desired to force the hoes deeper in the ground, the operator moves lever O forward and locks it in position. The hoes are thus limited in their upward movement, except when a sufficient pressure is applied to overcome the resistance of the spring, which would readily yield in case either one of the hoes should strike a resistance in the ground—such as a root or stone—when it would rise and pass over a small obstruction, each hoe and its drag-bar, spring, and arm being independent of the other in such cases; but they are controlled in unison at all times by a movement of the rock-bar E. When it is desired to raise the hoes out of the ground, the operator releases the lock on lever O and pulls it backward, which moves rock-bar E forward, when the shoulders M on arms H strike against the flange *f* on bar E, which causes the arms H, link Q, and drag-bars D to move and hoes C to be raised out of the ground by the movement of bar E, and at the same time the gear 2 is thrown out of mesh with gear 3, and the seeding is stopped. By this means of combining the rock-bar E and arm H and links I with the drag-bars D and hoes C the depth which hoes C will enter the ground is efficiently regulated. The bar E and lever O are located a sufficient distance in front of axle A to allow the operator to sit on the frame and control the operation of the hoes.

The gears 1 2 3 are shown as located inside of the frame; but it is obvious that they could be located on the outside of the frame by the addition of an outside crank fixed on the same journal as crank T, to which the forward end of link T' would be pivoted.

I claim—

1. In a grain-drill, the combination of the rock-bar E with the hinge-plate F, arms H, link I, and drag-bars D, for regulating the hoes C, substantially as herein set forth.

2. The combination of the rock-bar E, the auxiliary arms H, the springs K, arranged on the arms, the drag-bars D, connected with said arms, the plate S at one end of the rock-bar, having the concentric and eccentric slots *p* and *r*, the crank T, having a pin working in the slotted plate, the gear-wheels for driving the seeding devices, connecting devices between the said crank and one of the movable gear-wheels, and a lever for moving the rocking bar to simultaneously lift the drag-bars and throw the gear-wheels out of mesh, substantially as described.

3. The combination of the rock-bar E, the auxiliary arms H, the springs K, arranged on said arms, the drag-bars D, connected with the arms, the slotted plate S, secured to one end of the rock-bar, the crank T, having a pin working in the slotted plate, the lever-arm S', journaled on a shaft, *a*, and carrying a power-transmitting gear-wheel, 2, a link, T', connecting the lever-arm with the crank, and a lock-lever, O, for moving and holding the rock-bar, substantially as described.

4. The combination of the rock-bar E, the auxiliary arms H, connected therewith, and having sleeves *i*, the spring K, coiled on said sleeve, and having its ends acting, respectively, on the rock-bar and the arm, the drag-bars D, connected with the auxiliary arms, and a lever for rocking the bar for holding the hoes in the ground by a yielding pressure and simultaneously lifting them from the ground, substantially as described.

5. In a grain-drill having the rock-bar E, the hinge-plate F and lever-arm H, in combination with the coiled spring K, for connecting said parts together, substantially as herein set forth.

6. The combination of the rock-bar E, the plate F, secured thereto, and having a stop-flange, *b*, the auxiliary arm H, hinged at one end to said plate, and having a stop, *m*, the drag-bar D, connected with the auxiliary arm, and the spring K, arranged on a sleeve of the arm and adapted to be compressed by the rising movement of the said arm, substantially as described.

7. In combination with the drag-bars of a grain-drill, the rock-bar E, having the auxiliary arms H hinged thereto, and connected to the drag-bar by means of a link, with a spring-connection of the arm to the rock-bar, for controlling the operation of the hoes by the rock-bar, substantially as herein set forth.

In testimony whereof I have hereunto set my hand.

ALBERT C. CONNER.

Witnesses:

A. O. MITCHELL,  
HARRY LYND.