

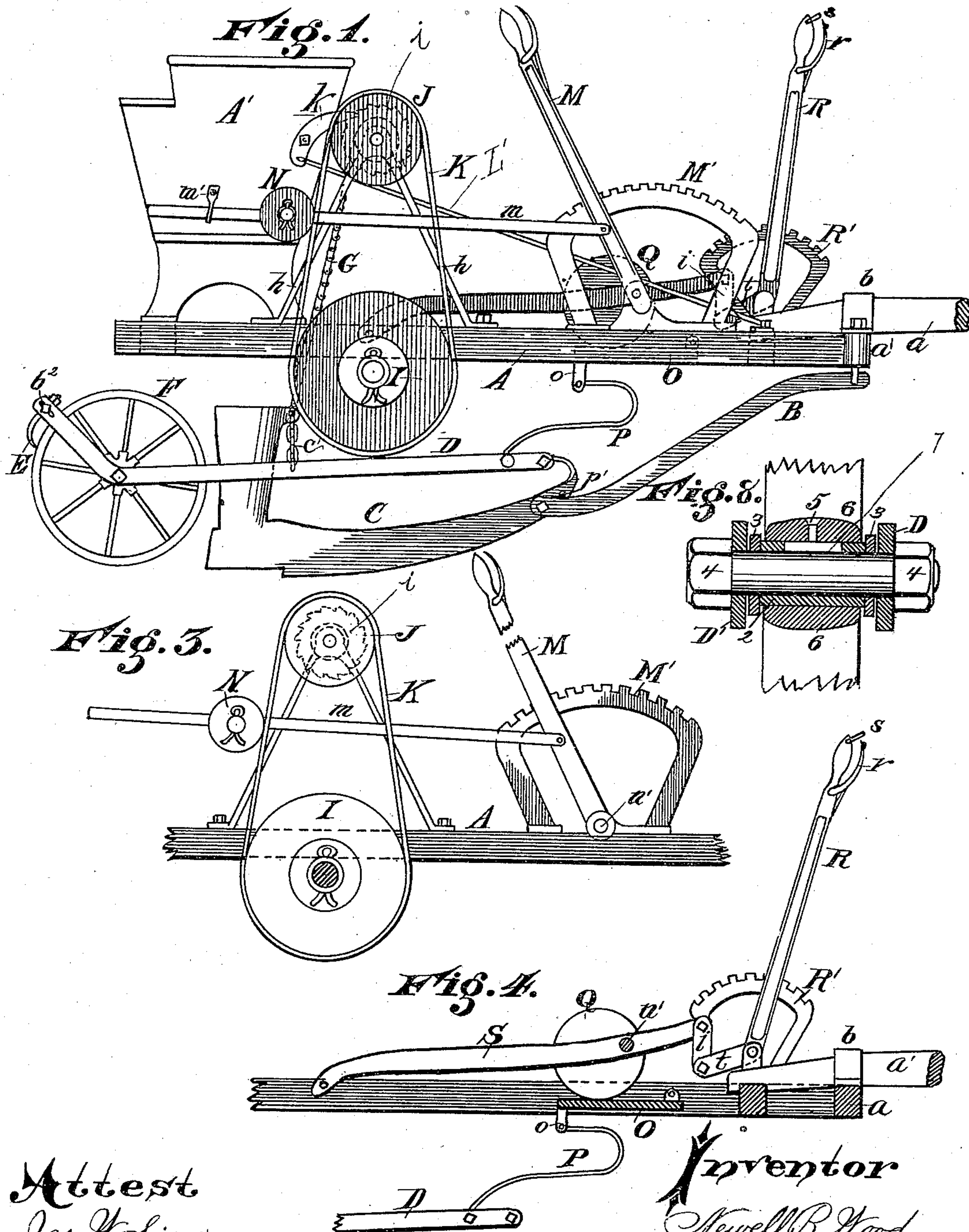
(No Model.)

2 Sheets—Sheet 1.

N. B. WOOD.
GRAIN DRILL.

No. 311,051.

Patented Jan. 20, 1885.



Attest
Jos H Sims
J. S. Roebuck Jr

Inventor
Newell B. Wood.
by Wood & Boyd
his Attorneys &c

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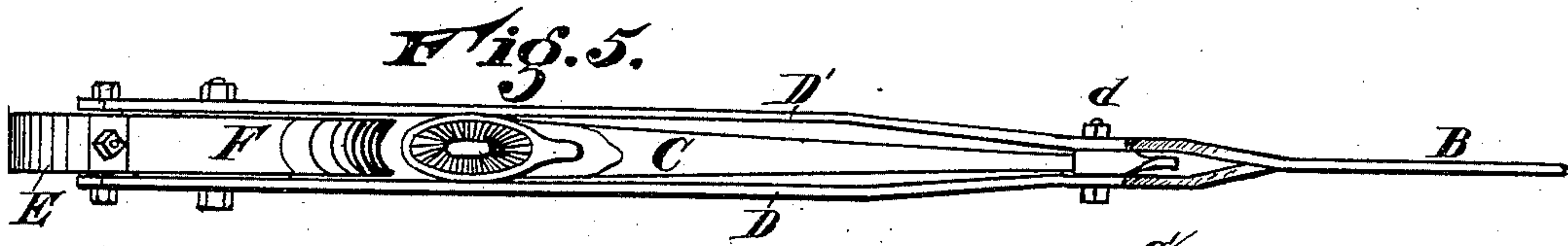
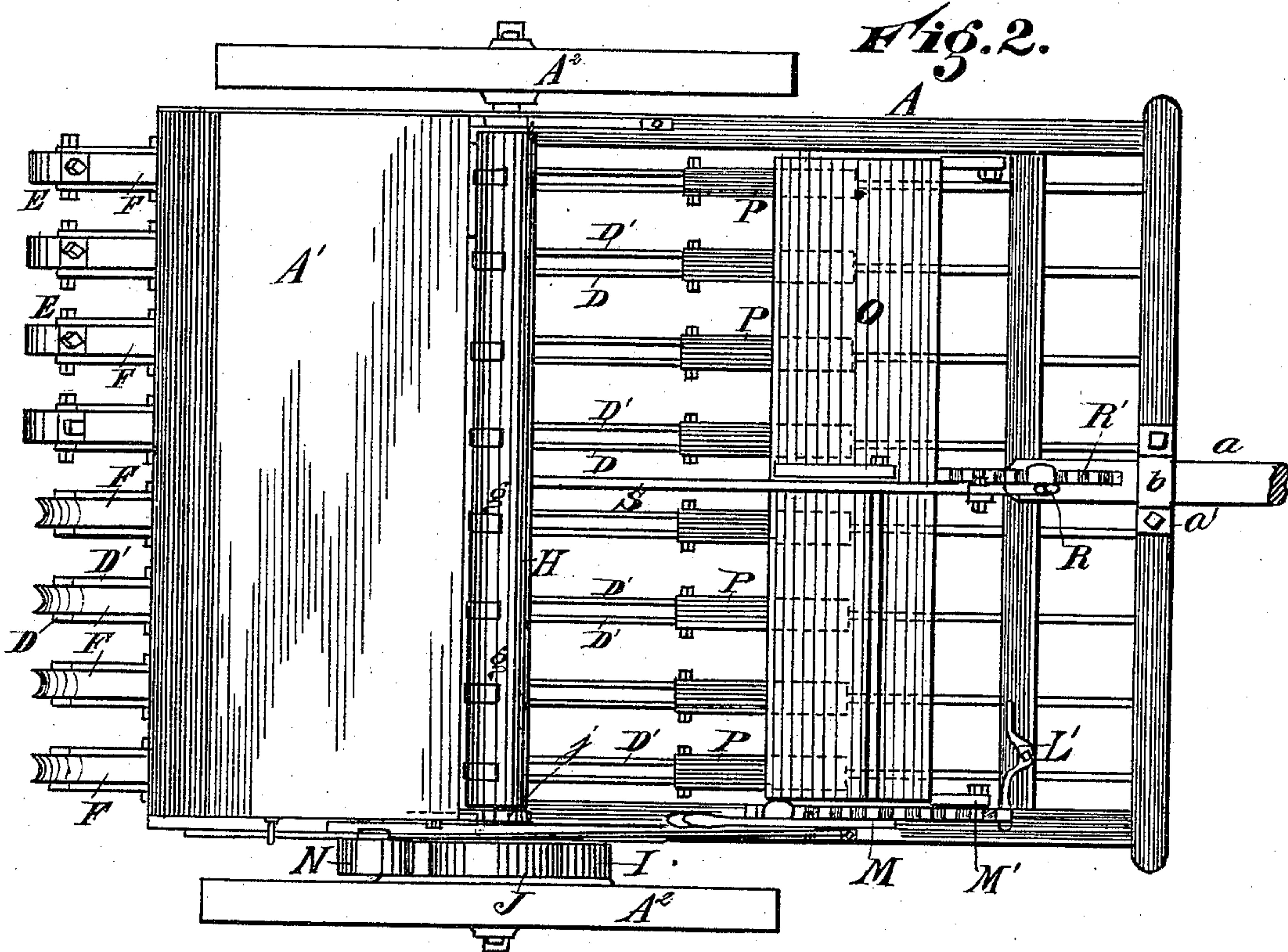
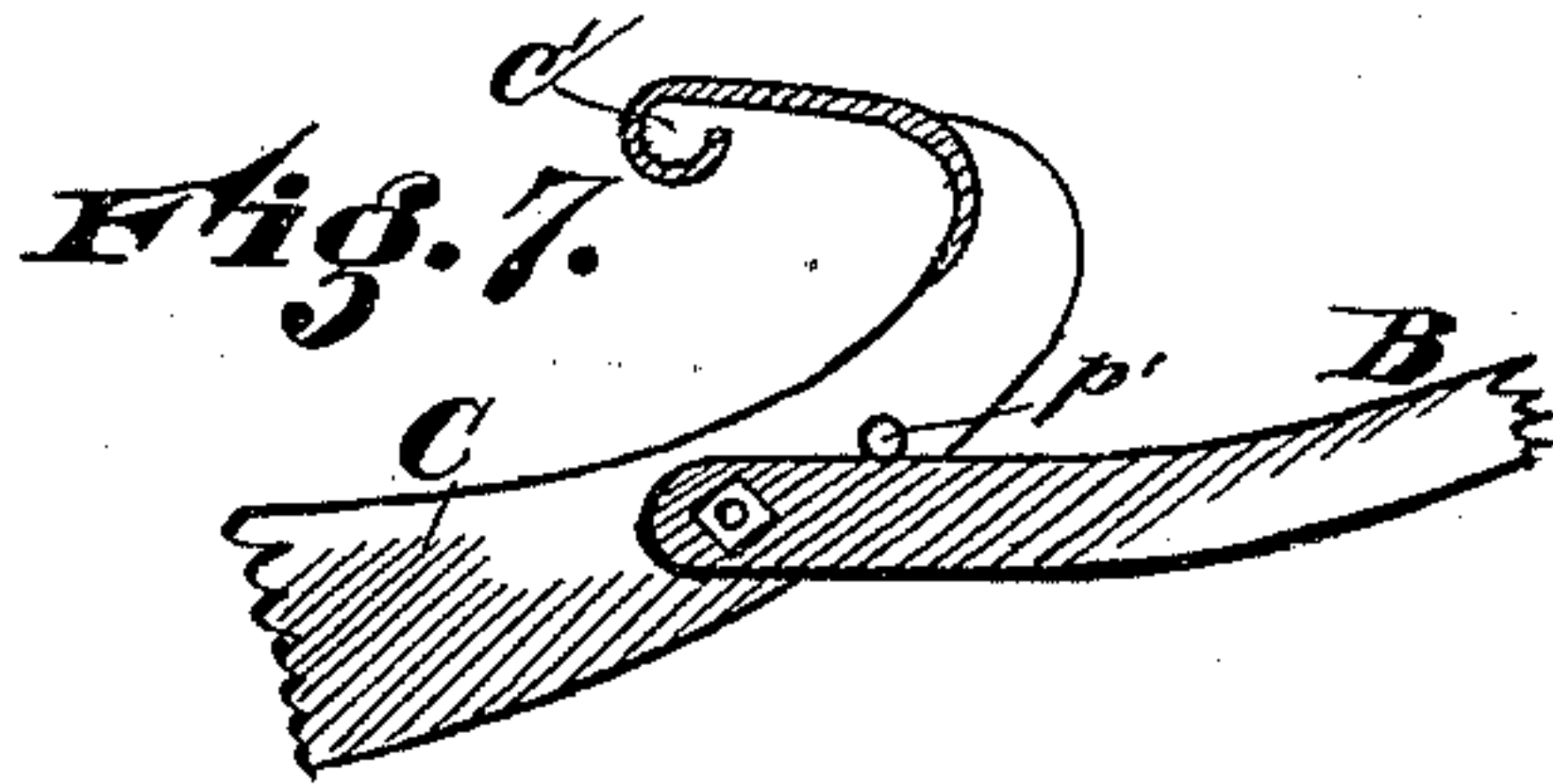
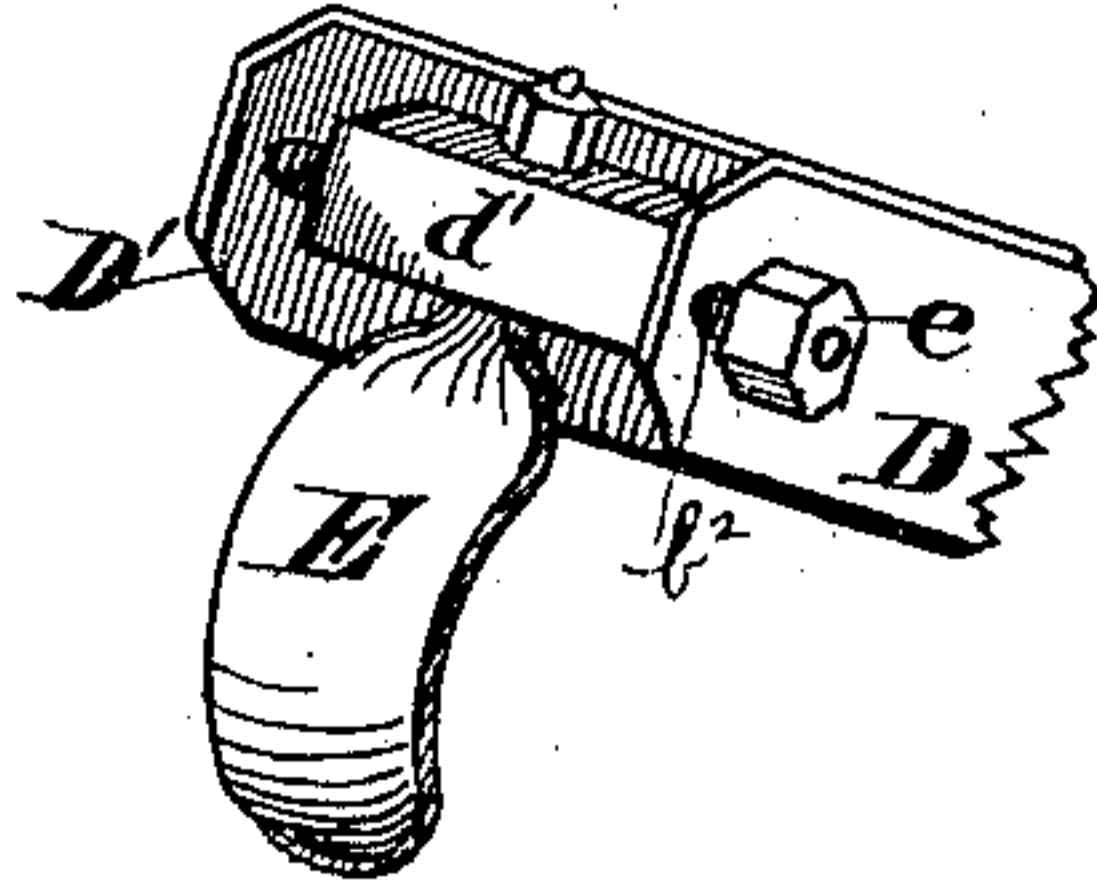


Fig. 6.



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UNITED STATES PATENT OFFICE.

NEWELL B. WOOD, OF WASHINGTON, FAYETTE COUNTY, OHIO.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 311,051, dated January 20, 1885.

Application filed September 1, 1884. (No model.)

To all whom it may concern:

Be it known that I, NEWELL B. WOOD, a citizen of the United States, and a resident of Washington, in the county of Fayette and State of Ohio, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification.

My invention relates to that class of grain-drills that employ shoes for cutting the furrows and a wheel to assist in covering the seed.

The object of my invention is, first, to provide an independent drag-bar hinged to the covering-shoe at its front and supporting the covering-wheel at its rear end; second, to allow a free dropping motion of its shoe in passing over hollows in the ground, but preventing the shoe from rising while at work.

Another object of my invention is to provide spring-pressure to hold both the shoe and covering-wheel down to their work by a single spring conveying pressure to both drag-bars.

Another object of my invention is to provide means for automatically raising the shoes out of the ground by the power of the team drawing the drill.

Another object of my invention is to provide suitable means for pressing the shoes into the ground, and also means for locking them in position.

Another object of my invention is to provide adjustable scrapers for cleaning the covering-wheels while at work.

Another object of my invention relates to the mode of journaling the covering-wheels upon their axles, all of which will be fully set forth in the description of the accompanying drawings.

Figure 1 is a side elevation of my improved drill. Fig. 2 is a top plan view of the same. Fig. 3 is a detail elevation of the lifting mechanism. Fig. 4 is a similar view of the pressure mechanism. Fig. 5 is a top plan view of one of the drag-bars, shoe, and covering-wheel. Fig. 6 is a detail view of one of the adjustable wheel-scrapers. Fig. 7 is an enlarged detail view of the front shoe or runner. Fig. 8 is a sectional elevation of the covering-wheel journalled on its axis.

A represents the frame of the grain-drill, A' the seed-box mechanism mounted thereon. The frame is supported on the ground-wheels A".

a represents the tongue.

B represents a drag-bar hinged to rod a' of the frame at its front end. The rear end is forked, between the prongs of which are hinged the runner-shoes C. The forward ends of the shoe C are bent over flatwise and curved over backward into the form of an eye, c', for hinging it to the drag-bars D D' by means of bolts d. The bars D D' are parallel to each other, and a sufficient distance apart to allow the shank C' of the shoe or furrow-opener to move freely up and down therein.

c represents links which connect the drag-bar D to the eye of the shank C'. They limit the upward movement of the furrow-opener relative to bars D D', but allow a free downward movement of the shoe C to drop into hollows or furrows. The rear ends of bars D D' are inclined upward, and between them is placed an adjustable scraper, E. It is secured to the drag-bar by means of a cross-head, d', to which the shank of the scraper E is attached. The cross-heads are provided with studs or journal-pins, which pass through slots b², pierced through the drag-bars D D'. Upon the end of these studs are chased screw-threads to receive nuts e, which when turned up clamp the bars D D' against the cross-head and hold the scraper E in any desired fixed position relative to the covering-wheels F. These covering-wheels are made with a concave rim, the better to cover the seed or close the furrow.

G represents a chain secured at one end to an ear on shank C' of the shoe C, and the other end secured to lifting-roll H, as shown at g, Fig. 2.

h h represent brackets secured to frame A, upon which roller H is journaled. The several drag-bars, shoes, and covering-wheels are each the counterpart of the other, and any desired number is employed in the drill.

In order to lift all of the furrow-openers and covering devices simultaneously by the power of the team, I have provided the following instrumentalities:

I represents a driving-pulley keyed to the wheel-shaft or screwed to the hub of one of the driving-wheels A".

J represents a pulley rigidly connected to and revolving with the lifting-roller H; K, a driving-belt passing over pulleys I and J; i,

a ratchet-wheel connected to pulley J; *k*, a pawl pivoted to the seed-box; L, a connecting-rod hinged to pawl *k* and to foot-lever L', for lifting pawl *k* out of engagement with the teeth of ratchet-wheel *i*.

M represents a lock-lever pivoted to the frame A; M', a segmental rack, also secured to the frame; *m*, a connecting-rod, with its front end pivoted to lever M and its rear end supported in a bracket, *m'*, on the seed-box; N, a tightener-pulley secured to rod *m*. As lever M is moved forward it draws rod *m* and brings pulley N up against the belt K, pulley I being always in motion when the driving-wheel A' is revolving the belt K, and when tightened sets its pulley J in motion, which drives roller H and winds chains G around the roller H, and thus lifts shank C', shoes C, and by means of links *c* shank C' also raises the drag-bars D D', together with the covering-wheel F.

Means may be applied for automatically releasing the winding mechanism when the drag-bars are raised to the desired height. The same result may be accomplished by means of a sprocket-wheel on the axle or hub and one on the revolving lifting-roller, connected by an endless chain and operated by a clutch-gear instead of the idler-pulley.

In order to hold the shoes C and wheels F down to their work and allow them to yield in passing over rigid substances, I have provided the following instrumentalities:

O represents a board or bar pivoted between the rails of frame A; *o*, studs attached to the rear edge of bar O.

P represents U-shaped springs, one end of which is connected to stud *o* and the other to drag-bars D D' in rear of the point where they are pivoted to shoes C.

p' represents lugs on runner C, which rest on drag-bars B.

Q represents a cam or eccentric rigidly connected to lever M by means of a shaft, *n'*. They are so connected that when lever M is moved forward the cam is carried away from contact with pressure-bar O, and as lever M is pulled backward by the operator cam or eccentric Q is brought down on the rocker-bar O, and pressure is applied through spring P to drag-bars D D', which holds them down to their work and applies pressure to the runner C by means of lugs *p'*, and the drag-bar B, holding the runners down to their work.

R represents a pressure-lever which is pivoted to frame A.

R' represents a segmental rack, *r* a lock-rod secured to lever R, the lower end of which engages with the notches of segment R'.

s represents a link for slipping over *r* and holding it out of engagement with rack R', so that lever R would move freely when desired to work the seed-covering devices.

t represents an arm projecting beyond the pivot of lever R; S, a connecting-rod pivoted to link *i*, which connects arm *t* of lever R to rod S. The rear end of rod S is pivoted to the

frame-rail A. Bar S is pierced with a hole, which serves as a bearing for shaft *n'*, which passes through the same, so as to allow the cam Q to be moved up and down by means of the lever R as it is moved back and forward by the operator. By this means any desired amount of additional pressure to drag-bars D D' and shoes C can be applied by lever R. When lever R' is locked in position, the shoe C and covering-wheel F are prevented from rising, except what movement is allowed by the yielding of springs P. Lever M may also be locked to hold the same parts down. I am thus enabled to provide efficient means for operating the drill under the various conditions required for such implements.

In order to prevent dirt from working into the axis of the covering-wheels, I journal them in the following manner:

1 represents the axis upon which the wheels revolve.

2 represents a sleeve which serves as a journal-box for the axis 1 to revolve in. The ends of this journal are closed by means of loose washers 3, which are kept in place by means of a screw bolt and nut, 4, which draws the washers 3 tight against the sleeve 2.

5 represents a hole pierced through the hub 6.

7 represents a slot cut in sleeve 2, through which oil is poured to lubricate the axis 1.

The hole 5 may be stopped by a cap or plug, as desired, to hold the oil in the pouring-box.

My drill is exceedingly cheap, simple, and very effective in its operations.

Having described my invention, what I claim is—

1. In a grain-drill, the shoe C, hinged to the drag-bars B, and to the wheel-supporting bars D D', in combination with pressure devices applied to the supporting-bars to act simultaneously both on the covering-wheels and shoe, substantially as described.

2. In a grain-drill, the combination of shoes hinged to drag-bars B, and the wheel-supporting bars D, hinged to the shoes, which are provided with lugs *p*, for transmitting pressure from the supporting-bars through the shoes, which are also connected to the bars D at their ends by links to allow the shoes to fall, substantially as specified.

3. The combination, with the shoes hinged to the drag-bars B, the wheel-supporting bars D, hinged to the shoes, which are provided with lugs *p*, so that pressure applied to the wheel-supporting bars will hold the covering-wheels and shoes down to their work.

4. The furrow-openers and covering devices consisting of the shoes hinged to the drag-bars and covering-wheels journaled in supporting-bars which are hinged in turn to the shoe, in combination with links *a* and a spring-pressure device applied to the supporting-bars, whereby the covering devices are held down to their work by a yielding spring applied to the supporting-bars, substantially as described.

5. The wheel-supporting bars D D, having their rear ends bent or upturned, in combination with the adjustable scraper E, journaled on centers between the bent ends of the bars D, substantially as herein specified.

6. In combination with the shoe C, hinged to drag-bars, and the supporting-bars D, hinged to the shoes, the lifting devices G I J, mounted on the driving-axle, and a main frame for simultaneously raising the shoes and covering-wheels by the draft of the team, substantially as herein specified.

7. In combination with the lever N and connecting-rod M, pivoted thereto, mounted upon the main frame, and adapted to bring the lifting devices into operation, whereby the power of the team is applied to simultaneously raise the series of covering devices, substantially as specified.

8. The springs P, attached to the hinged pressure-bar O at one end and to the wheel-supporting bars D at the other end, in combination with lever M, with connecting devices for controlling the pressure of the springs extended upon the furrow devices D C, substantially as specified.

9. In combination with the lever M and the pivoted pressure-bar O, the cam Q, adapted to control the pressure-bar when the lever is moved so as to control the tension of spring-pressure applied to the bars D for holding the devices down to their work.

10. In combination with the lever M and cam Q, the pressure-bar O, connected to the supporting-bars of the covering-wheels by yielding springs P, whereby a pressure is simultaneously applied to all of the shoes and covering-wheels in the series by the action of the lever M, substantially as herein specified.

11. In combination with the pressure-bar O, the lock-lever R, connected to lever M, carrying the cam Q and journaled upon a shaft, *m'*, and the connecting devices *S t e*, for releasing pressure by the movement of the shipping-lever R, substantially as described.

12. The combination, with the hubs of the covering-wheels F, journaled upon the screw 1, washers 3, sleeve 2, and oil-passages 5 and 7, pierced through the hub and through the sleeve, substantially as specified.

13. The supporting-bars D of the covering-wheels, hinged to the shoe C, provided with lugs *p*, and hinged to the independent drag-bars B, whereby the wheels and shoes are adapted to be raised and lowered simultaneously to the shoes C, and having an independent dragging motion, substantially as herein specified.

In testimony whereof I have hereunto set my hand.

NEWELL B. WOOD.

Witnesses:

SEYMOUR CUNNINGHAM,
JOSEPH NEIDY.