

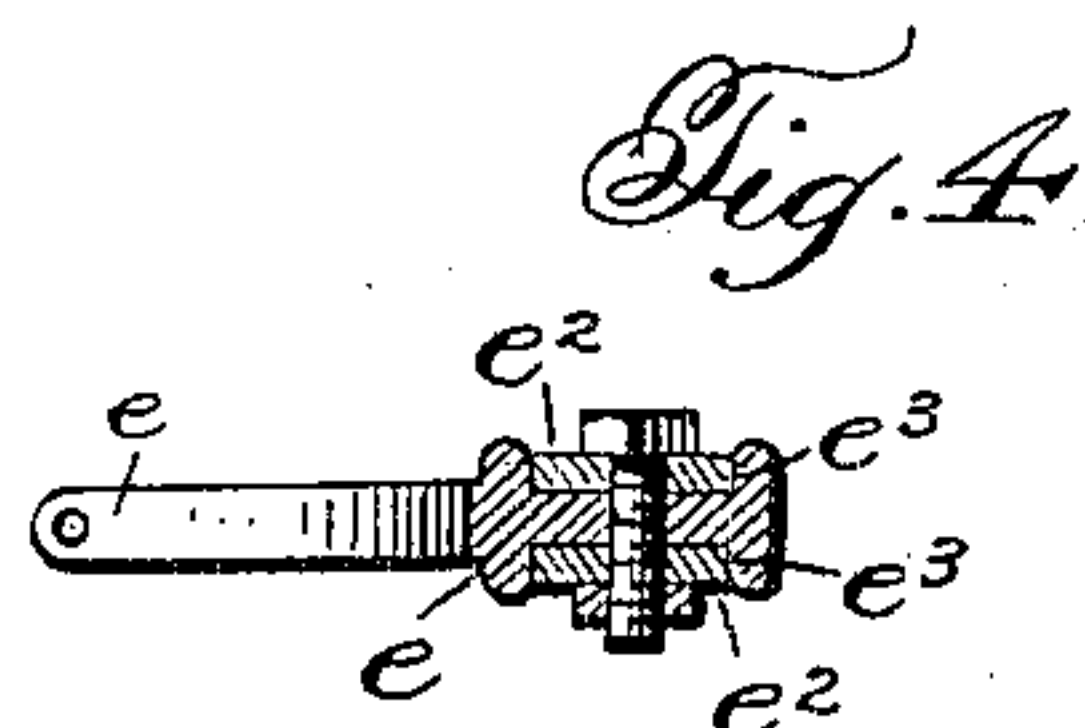
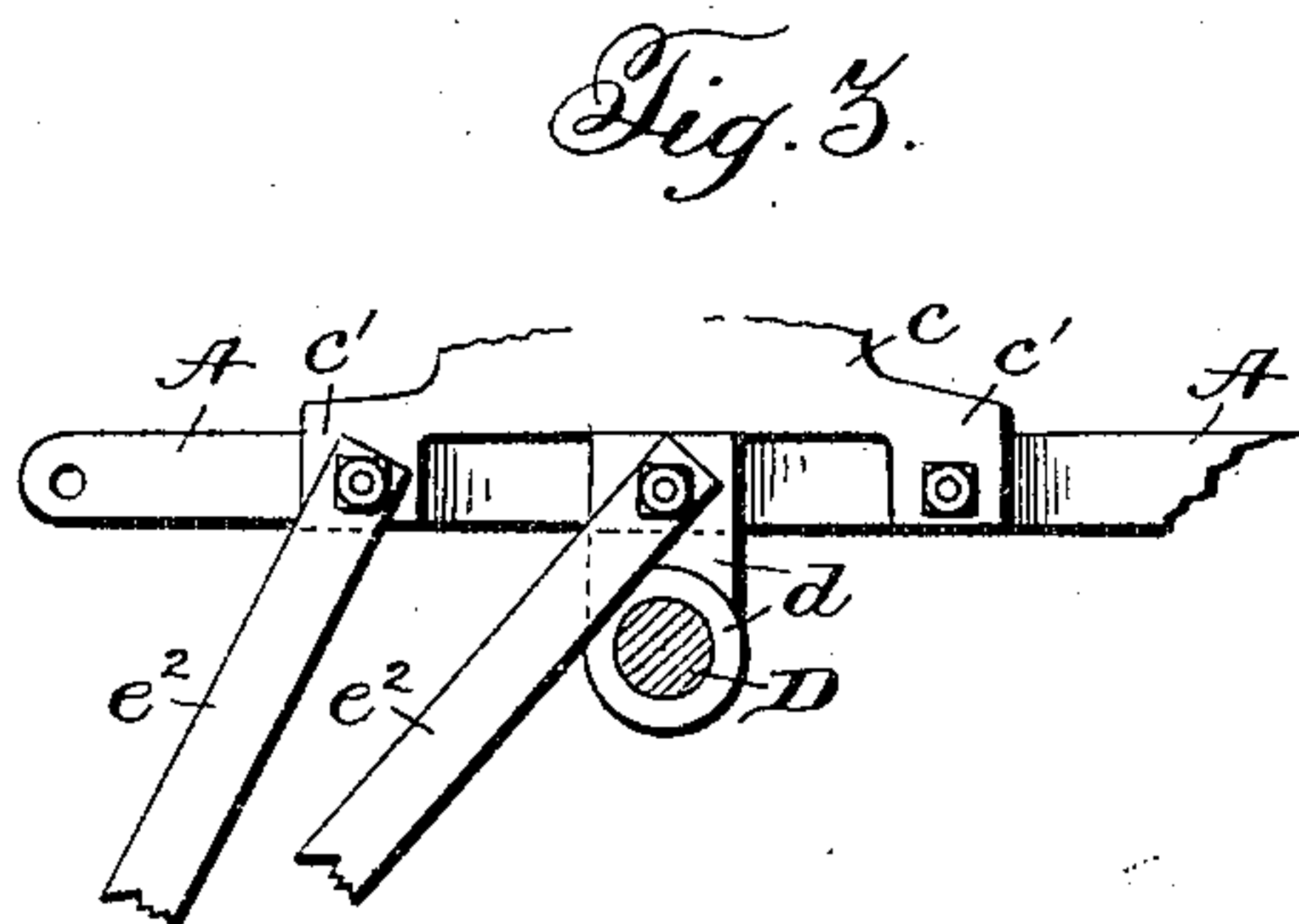
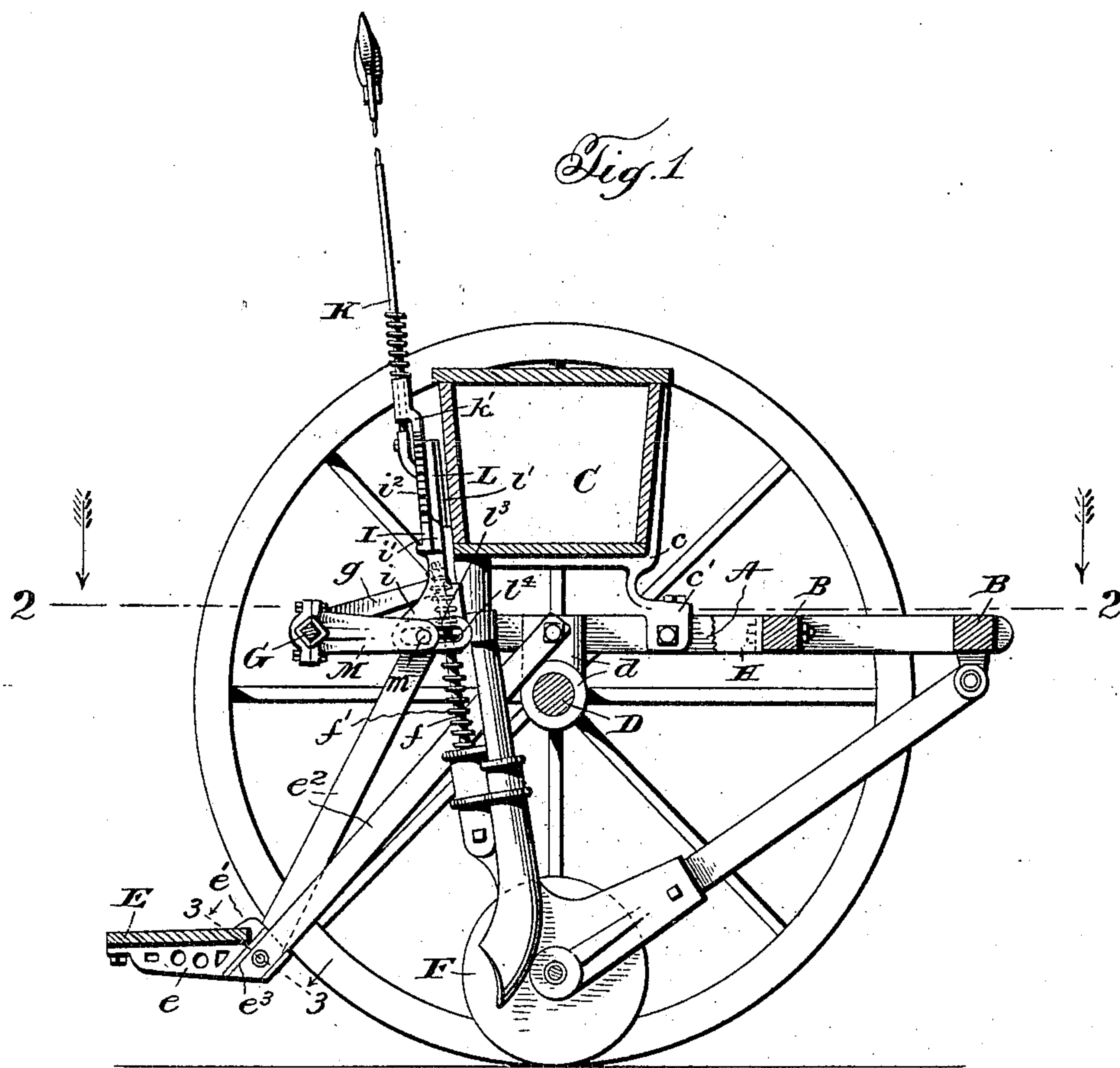
No. 837,393.

PATENTED DEC. 4, 1906.

W. FETZER.
GRAIN DRILL.

APPLICATION FILED FEB. 5, 1906.

2 SHEETS—SHEET 1.



Witnesses:
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2 SHEETS—SHEET 2.

Fig. 2.

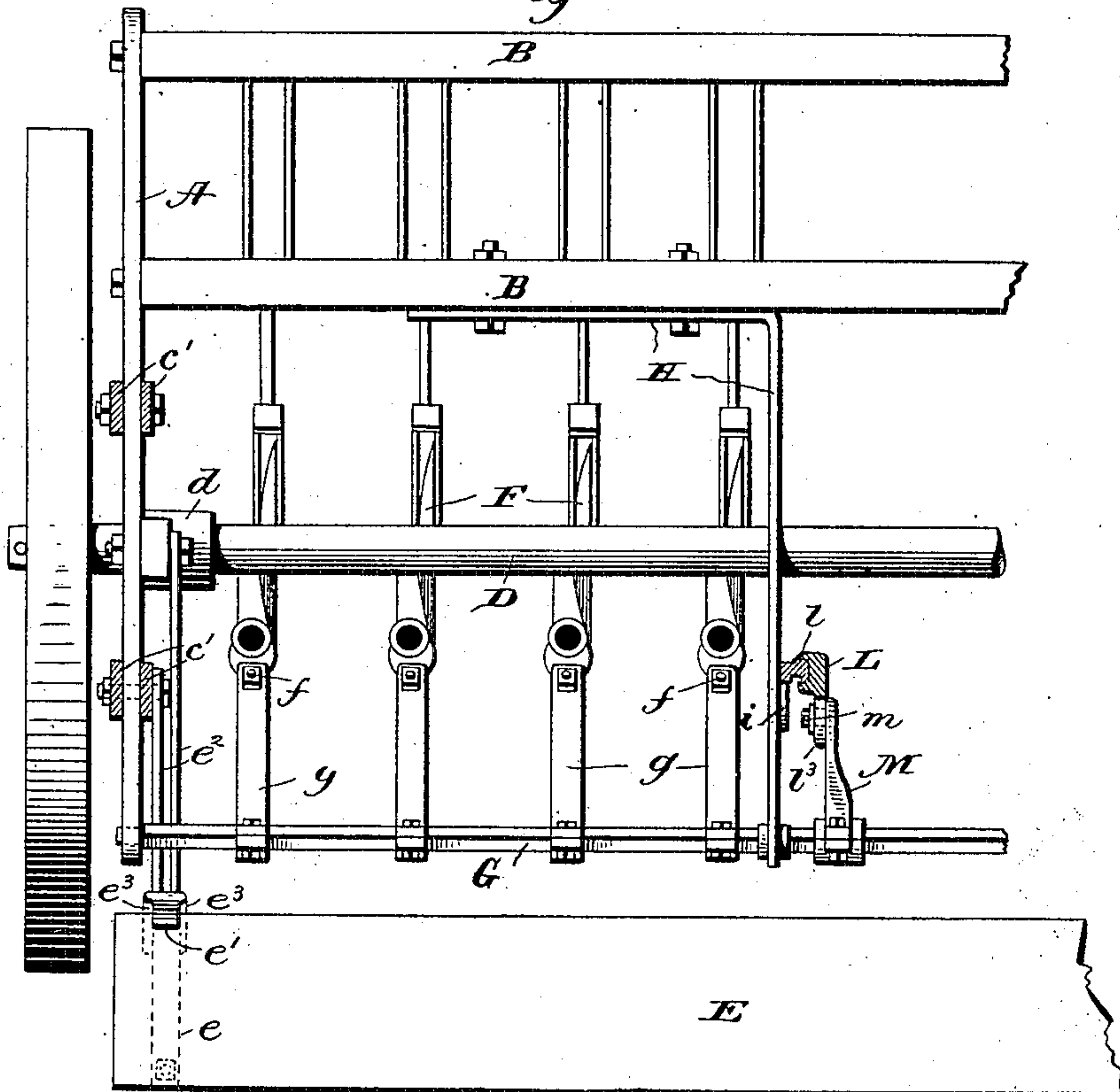


Fig. 5.

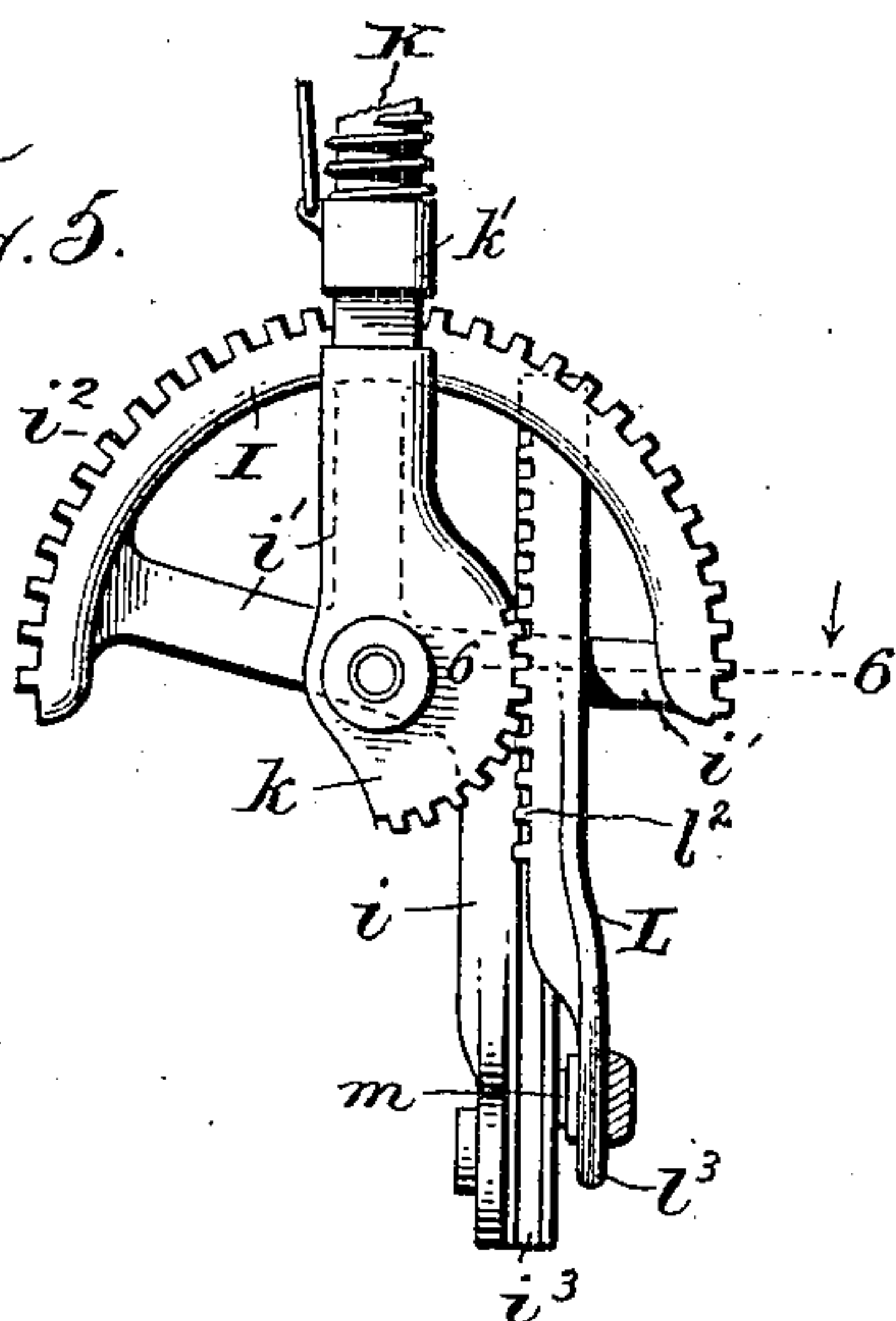
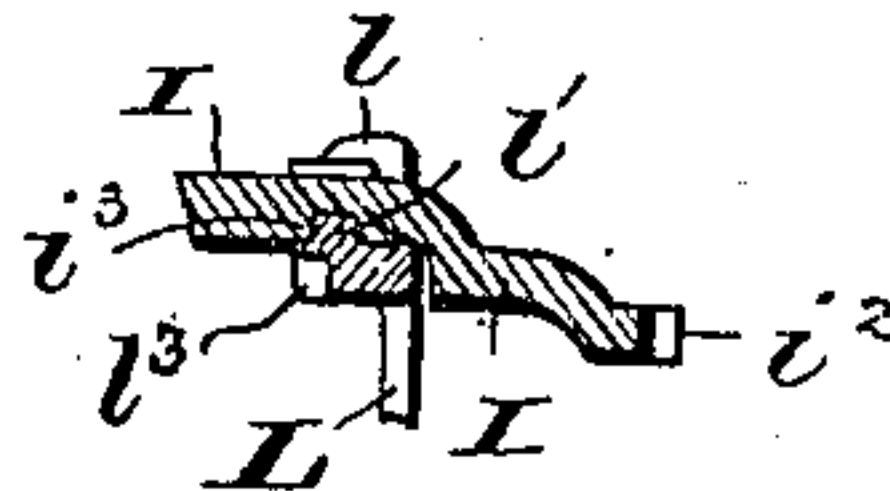


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM FETZER, OF MIDDLETOWN, OHIO.

GRAIN-DRILL.

No. 837,393.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed February 5, 1906. Serial No. 299,661.

To all whom it may concern:

Be it known that I, WILLIAM FETZER, a citizen of the United States, residing at Middletown, in the county of Butler and State of Ohio, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in grain-drills, and more particularly to the mechanism utilized for lifting or depressing drills, furrow-openers, or hoes for such grain-drills.

The invention comprehends a foot-board secured to the machine and extending transversely of the drills and means for lifting and depressing the drills, including a lever movable transversely of the machine and arranged to swing wholly in a plane at one side of the foot-board and within easy reach of an operator standing thereon, and in this respect has reference to the subject-matter disclosed in my application which resulted in the grant of Patent No. 752,618, dated February 16, 1904, and wherein the same is shown as a modified form.

In the drawings, wherein like letters of reference refer to similar parts in the several views and wherein a preferable embodiment of my invention is shown, Figure 1 is a vertical longitudinal section through my improved grain-drill. Fig. 2 is a horizontal section on line 2 2 of Fig. 1. Fig. 3 is a detail view showing the manner of securing the foot-board hangers to the frame. Fig. 4 is a cross-section on line 3 3 of Fig. 1. Fig. 5 is a detail view in elevation of the operating-lever for controlling the height of the drills, and Fig. 6 is a cross-section on line 6 6 of Fig. 5.

Referring now more particularly to the drawings, the frame of my improved drill comprises the side pieces A A and the transverse connecting members B.

C designates the hopper for the grain, which extends transversely of the machine and has secured to the ends thereof castings c, provided with downwardly-extending lugs or arms c', which are adapted to be secured by suitable clamping-bolts to the side pieces A A of the frame.

D designates the axle of the machine, which is supported in suitable bearings d, secured to the side pieces A A of the frame by suitable clamping-bolts.

E designates a foot-board, which when in

place occupies a position adjacent the ground just in rear of and parallel with the hopper C. The foot-board E is supported upon brackets e, each of which consists of a body portion arranged to underlie the foot-board, and an overhanging lip e', which is adapted to abut against and overlie the edge of the foot-board. The brackets e are each secured to the frame of the machine by two sets of hangers e², the lower ends of which are secured in pockets e³, formed in the brackets e on opposite sides and adjacent the rear end thereof, and the upper ends of which are secured to the side pieces A A of the frame by the clamping-bolts which clamp the rearmost lugs c' of the hopper-casting c thereto and the clamping-bolts which secure the bearings d of the axle to the side pieces.

F designates the furrow-openers, the bearings for which are pivotally supported in any suitable manner to the frame of the machine and which may be of any approved type. The furrow-openers are provided with the usual seed-tubes, which extend from the seed-hopper C.

G designates a rock-shaft journaled between the side pieces A A of the frame. The rock-shaft G has secured thereto a plurality of arms g, which engage rods f, secured to the bearings of the furrow-openers F so that they may be elevated, and also engage springs f', which surround said rods, so that the furrow-openers may be forced downwardly under a yielding pressure.

H designates a brace which is secured to one of the transverse connecting members B of the frame and extends rearwardly therefrom, said brace being apertured at its free end to afford a bearing for the central portion of the rock-shaft G.

I designates a casting which is secured to the rear side of the seed-hopper C and is provided with a downwardly-extending arm i, which is rigidly connected at its lower end in any suitable manner to the brace H, and with a plurality of arms i', the outer ends of which carry a segmental rack i². The free ends of the arms i' are slightly offset, so that the segmental rack i², carried thereby, will when the casting I is secured to the rear side of the hopper C be positioned a slight distance therefrom. The downwardly-extending arm i of the casting I is provided with a longitudinally-disposed groove i³ therein for a purpose to be hereinafter set forth.

K designates a lever which is pivotally se-

cured to the central portion of the casting I and which is provided at the lower end thereof with a gear-like portion *k*. The lever K is also provided with a pawl *k'*, which is adapted to cooperate with the segmental rack *i*² to hold the lever in any desired position of adjustment, and with the usual hand-grip for elevating said pawl to disengage the same from the rack.

L designates a bar which is adapted to move longitudinally over the upper surface of the downwardly-extending arm *i* of the casting I, the upper end of said bar being arranged to underlie the segmental rack *i*² and the lower end of said bar being provided with an inwardly-extending lip *l*, arranged to underlie the downwardly-extending arm *i*. The bar L is provided on its under side with a longitudinally-disposed tongue *l'*, which is adapted to engage the groove *i*³ in the downwardly-extending arm *i* to prevent lateral movement of said bar thereon, and along one edge with a tooth portion of rack *l*², which is adapted to mesh with the gear-like portion *k* of the lever K. The bar L is provided at its lower end with an offset foot *l*³, which has formed therein a horizontally-disposed slot *l*⁴.

M designates an arm which is rigidly secured in any suitable manner to the rock-shaft G and is provided at its free end with a laterally-disposed stud *m*, which projects into the horizontal slot *l*⁴, formed in the foot *l*³ of the bar L.

From the above-described construction it will be apparent that when the lever K is actuated the bar L will be raised or lowered, which, owing to its connection with the arm M, will rock the shaft G, and thereby effect the raising or lowering of the furrow-openers.

From the above-described construction it will be apparent that inasmuch as the lever for manipulating the furrow-openers is movable transversely of the machine and is positioned at one side of the foot-board it is always accessible to the operator standing thereon and at the same time does not in any way interfere with his movements.

While I have described the segmental rack and the lever carried thereby as being secured to the seed-hopper, it is obvious that they might be supported in any suitable manner from the frame proper of the machine between the foot-board and said hopper. It will also be obvious that any desired form of furrow-openers may be used and any means may be employed for connecting the reciprocating rack-bar therewith to effect the raising and lowering thereof.

What I claim, and desire to secure by Letters Patent, is—

1. In a grain-drill, the combination with a foot-board extending transversely across the machine, of furrow-openers, and means for raising and lowering the furrow-openers in-

cluding a transversely-movable lever arranged to swing wholly in a plane at one side of the foot-board and accessible to an operator standing thereon.

2. In a grain-drill, a frame, a hopper extending transversely thereof, furrow-openers, a foot-board carried by said frame and arranged in rear of said hopper and parallel thereto, and means for elevating and depressing said furrow-openers including a transversely-moving lever arranged between said foot-board and hopper and arranged to swing wholly in a plane at one side of the foot-board.

3. In a grain-drill, a frame, furrow-openers, means for raising and lowering said furrow-openers comprising a pivoted lever arranged to swing transversely of the furrow-openers, a gear carried by said lever, a rack-bar meshing with said gear, and a connection between said rack-bar and said furrow-openers.

4. In a grain-drill, a frame, furrow-openers, means for raising and lowering said furrow-openers comprising a pivoted lever arranged to swing transversely of the furrow-openers, a gear carried thereby, a rack-bar meshing with said gear, a connection between said rack-bar and furrow-openers, and means for holding said lever in various positions of adjustment.

5. In a grain-drill, a frame, a rock-shaft journaled therein, furrow-openers, a pivoted lever arranged to swing transversely of the furrow-openers, a gear carried thereby, a rack-bar meshing with said gear, a connection between said rack-bar and said rock-shaft, and a connection between said rock-shaft and the furrow-openers.

6. In a grain-drill, a frame, furrow-openers, a rock-shaft journaled in said frame, a connection between said rock-shaft and the furrow-openers, a pivoted lever arranged to swing transversely of the furrow-openers, a gear carried thereby, a vertically-movable rack-bar meshing with said gear, and an arm connecting said rack-bar and rock-shaft.

7. In a grain-drill, a hopper, furrow-openers, a transversely-movable lever supported in rear of said hopper, a gear carried thereby, a vertically-movable rack-bar meshing with said gear, and a connection between said rack-bar and the furrow-openers.

8. In a grain-drill, a hopper, furrow-openers, a segmental rack mounted in rear of said hopper, a lever arranged to swing transversely of the furrow-openers and in a plane parallel to said hopper pivotally secured to said rack and having a pawl adapted to engage therewith, a gear carried by said lever, a bar slidably secured to said segmental rack and provided with a rack adapted to engage with said gear, and a connection between said bar and the furrow-openers.

9. In a grain-drill, a hopper, furrow-open-

ers, a segmental rack mounted in rear of said hopper, and provided with a downwardly-extending arm, a lever arranged to swing transversely of the furrow-openers pivotally secured to said segmental rack and having a pawl adapted to engage therewith, a gear carried by said lever, a bar slidably secured to the downwardly-extending arm of the segmental rack and provided with a rack adapted to engage with said gear, and a connection between said bar and the furrow-openers.

10. In a grain-drill, a hopper, furrow-openers, a rock-shaft for moving the furrow-openers, a segmental rack mounted in rear of said hopper, a lever pivotally secured to said rack and having a pawl adapted to engage therewith, a gear carried by said lever, a bar slidably secured to said segmental rack and provided with a rack adapted to engage with said gear, and an arm connecting one end of said bar with said rock-shaft.

11. In a grain-drill, furrow-openers, a rock-shaft for moving the furrow-openers, a vertically-movable rack-bar having a horizontally-disposed slot formed therein, an arm secured to said rock-shaft and provided with a laterally-extending portion projecting into the slot formed in said rack-bar, and a gear for actuating said rack-bar.

12. In a grain-drill, a hopper, furrow-openers, a segmental rack mounted in rear of said hopper and provided with a downwardly-extending arm having a longitudinally-disposed groove formed in one side thereof, a lever pivotally secured to said rack and having a pawl adapted to engage therewith, a gear carried by said lever, a rack-bar meshing with said gear and provided with a longitudinally-disposed tongue adapted to engage the groove formed in the downwardly-extending arm of the segmental rack and with a portion adapted to underlie the opposite side of said arm, and a connection between said rack-bar and said furrow-openers.

13. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the furrow-openers, a foot-board supported in rear of said hopper, a vertically-movable rack-bar arranged between said hopper and foot-board, a connection between said rack-bar and said furrow-openers, and means for reciprocating said rack-bar.

14. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the furrow-openers, a foot-board supported in rear of said hopper, a vertically-movable rack-bar arranged between said hopper and foot-board, a connection between said rack-bar and said furrow-openers, means for reciprocating said rack-bar, and means for locking said rack-bar in various positions of adjustment.

15. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and ex-

tending transversely of the furrow-openers, a foot-board supported in rear of said hopper, a vertically-movable rack-bar arranged between said hopper and foot-board, a transversely-movable lever arranged between said hopper and foot-board, a gear carried by said lever and meshing with said rack-bar, and a connection between said rack-bar and furrow-openers.

16. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the drills, a foot-board supported in rear of said hopper and separated therefrom, a vertically-movable rack-bar arranged between said hopper and foot-board, a transversely-movable lever pivotally-supported upon said hopper and provided with a toothed portion adapted to mesh with said rack-bar, and a connection between said rack-bar and said furrow-openers.

17. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the drills, a foot-board supported in rear of said hopper and separated therefrom, a vertically-movable rack-bar arranged between said hopper and foot-board, a segmental rack secured to said hopper, a transversely-movable lever pivoted to said segmental rack and provided with a locking-pawl adapted to engage therewith, and with a toothed portion adapted to mesh with said rack-bar, and a connection between said rack-bar and the furrow-openers.

18. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the drills, a rock-shaft for moving the furrow-openers, a foot-board supported in rear of said hopper and separated therefrom, a vertically-movable rack-bar arranged between the hopper and the foot-board, a transversely-movable lever arranged between the hopper and the foot-board and provided with a toothed portion adapted to mesh with said rack-bar, and a connection between said rack-bar and said rock-shaft.

19. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the drills, a rock-shaft for moving the furrow-openers, a foot-board supported in rear of said hopper and supported therefrom, a vertically-movable rack-bar arranged between the hopper and foot-board, a transversely-movable lever pivotally supported upon said hopper and provided with a toothed portion adapted to mesh with said rack-bar, and an arm connecting the lower end of the rack-bar and the rock-shaft.

20. In a grain-drill, a frame, furrow-openers, a hopper supported on the frame and extending transversely of the drills, a rock-shaft for moving the furrow-openers, a foot-board supported in rear of said hopper and supported therefrom, a vertically-movable

rack-bar arranged between the hopper and foot-board, a transversely-movable lever pivotally supported upon said hopper and provided with a toothed portion adapted to mesh with said rack-bar, and an arm connecting the lower end of the rack-bar and the rock-shaft, and means for locking said rack-bar in various positions of adjustment.

21. In combination with a grain-drill, a foot-board therefor, means for supporting said foot-board from the frame of the machine comprising brackets having portions adapted to underlie the foot-board and portions adapted to abut the rear edge thereof, and hangers suspending said brackets from the frame of the machine.

22. In combination with a grain-drill, a foot-board therefor, means for supporting said foot-board from the frame of the machine comprising brackets arranged to underlie said foot-board and provided with lugs arranged to abut against and overlie the rear edge thereof, and hangers suspending said brackets from the frame of the machine.

23. In combination with a grain-drill, a

foot-board therefor, means for supporting said foot-board from the frame of the machine comprising brackets arranged to underlie said foot-board and provided with pockets in the sides thereof, and hangers depending from the frame of the machine and having their lower ends secured in the pockets formed in said brackets.

24. In combination with a grain-drill, a foot-board therefor, means for supporting said foot-board from the frame of the machine comprising brackets arranged to underlie said foot-board and provided with pockets formed in opposite sides and adjacent the rear ends thereof, and hangers depending from the frame of the machine and having their ends secured in the pockets formed in said brackets.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM FETZER.

Witnesses:

F. W. CLISE,
G. A. SULLIVAN.