

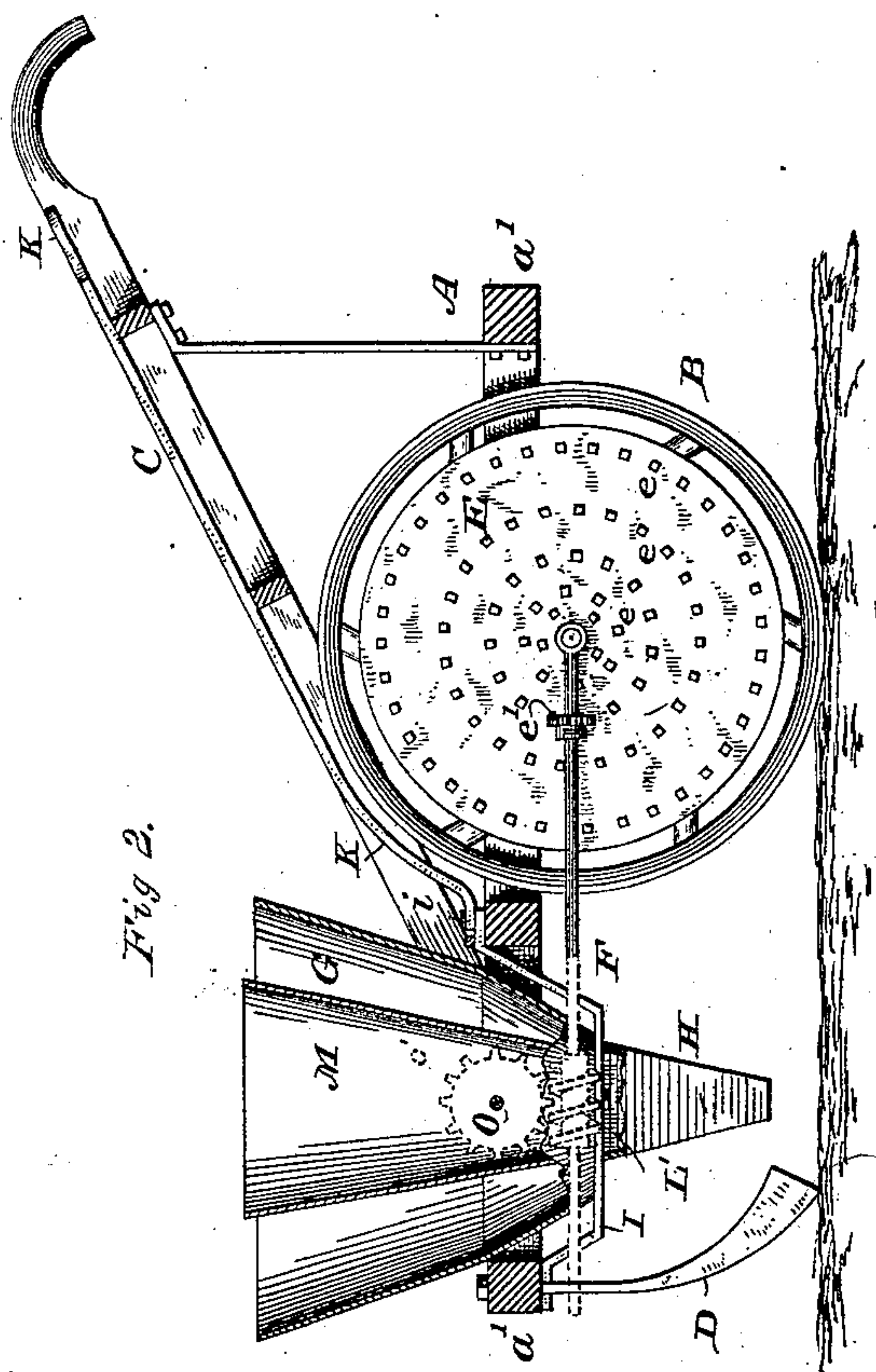
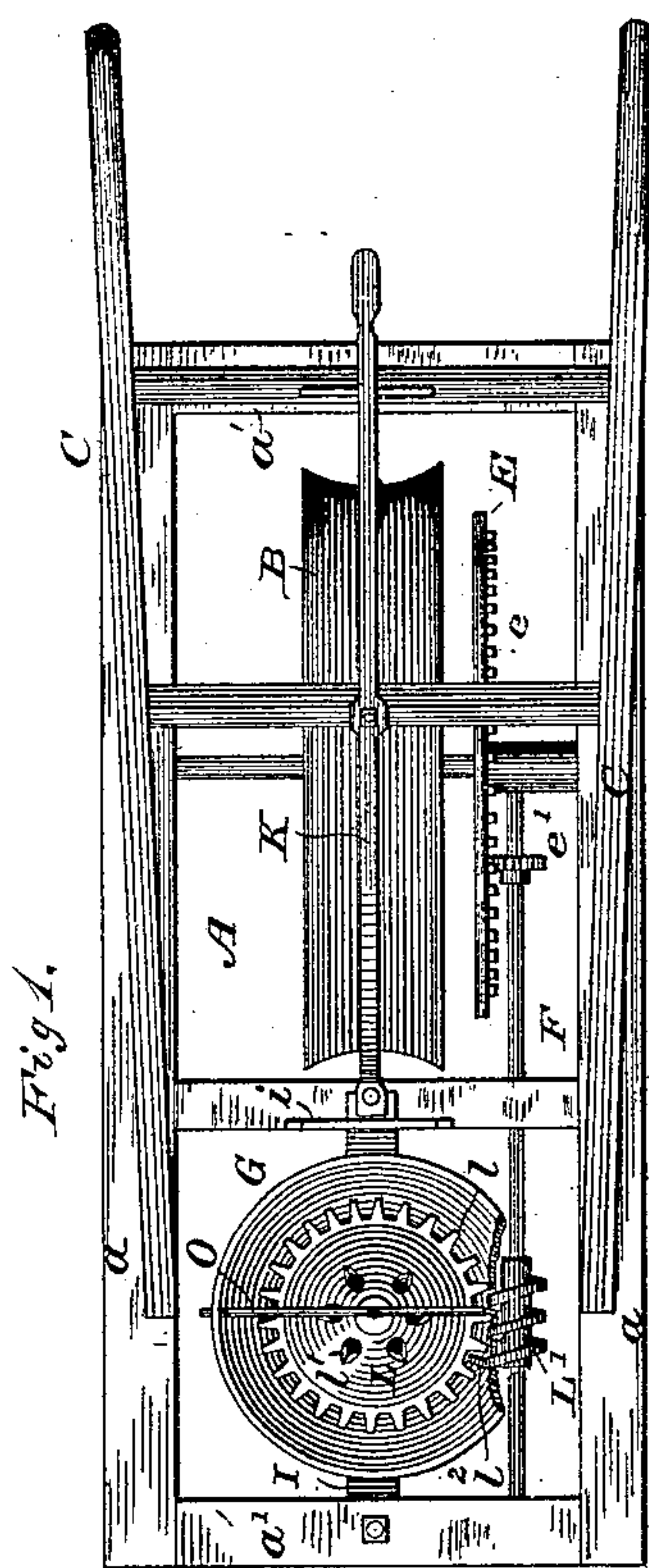
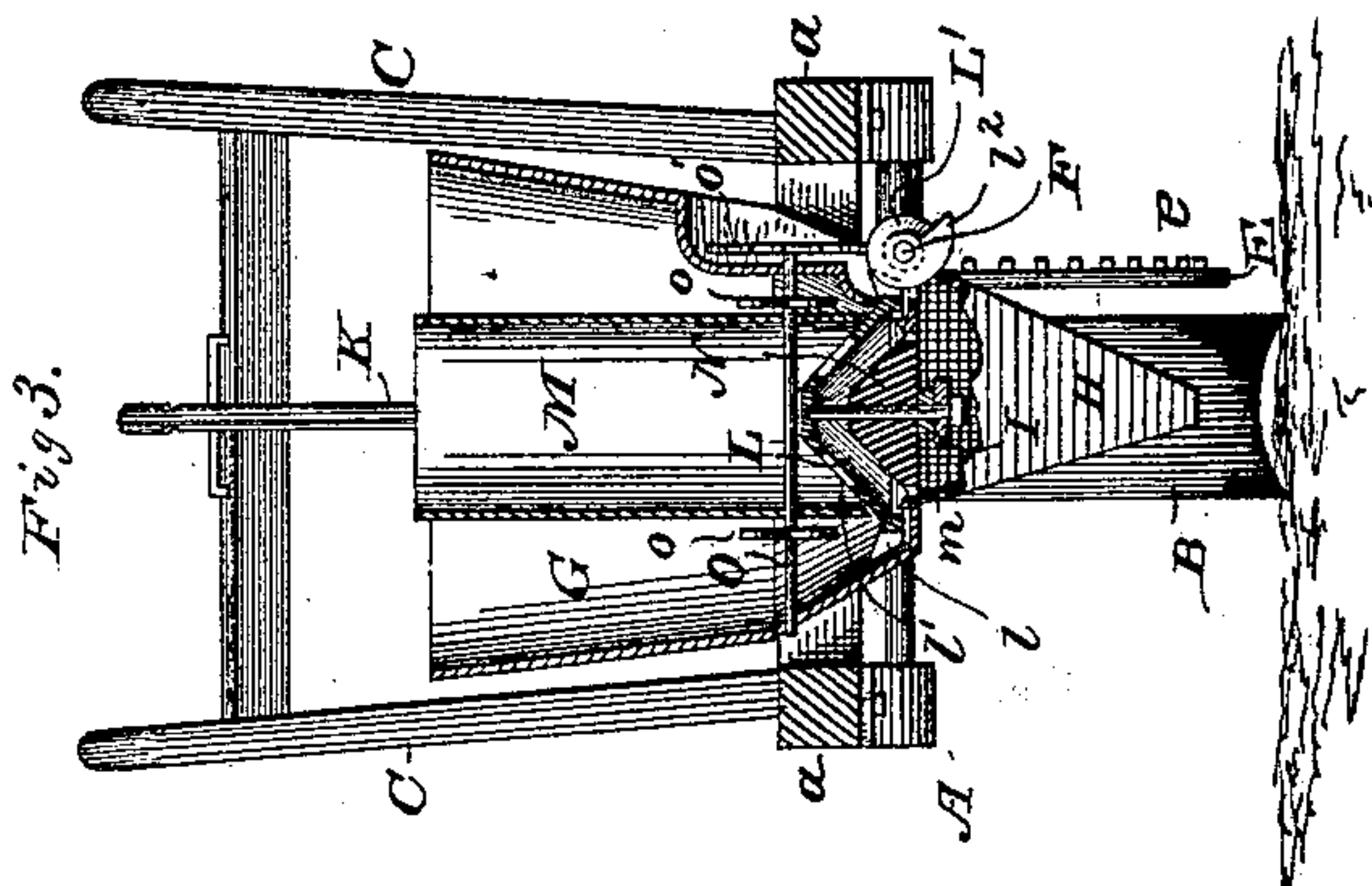
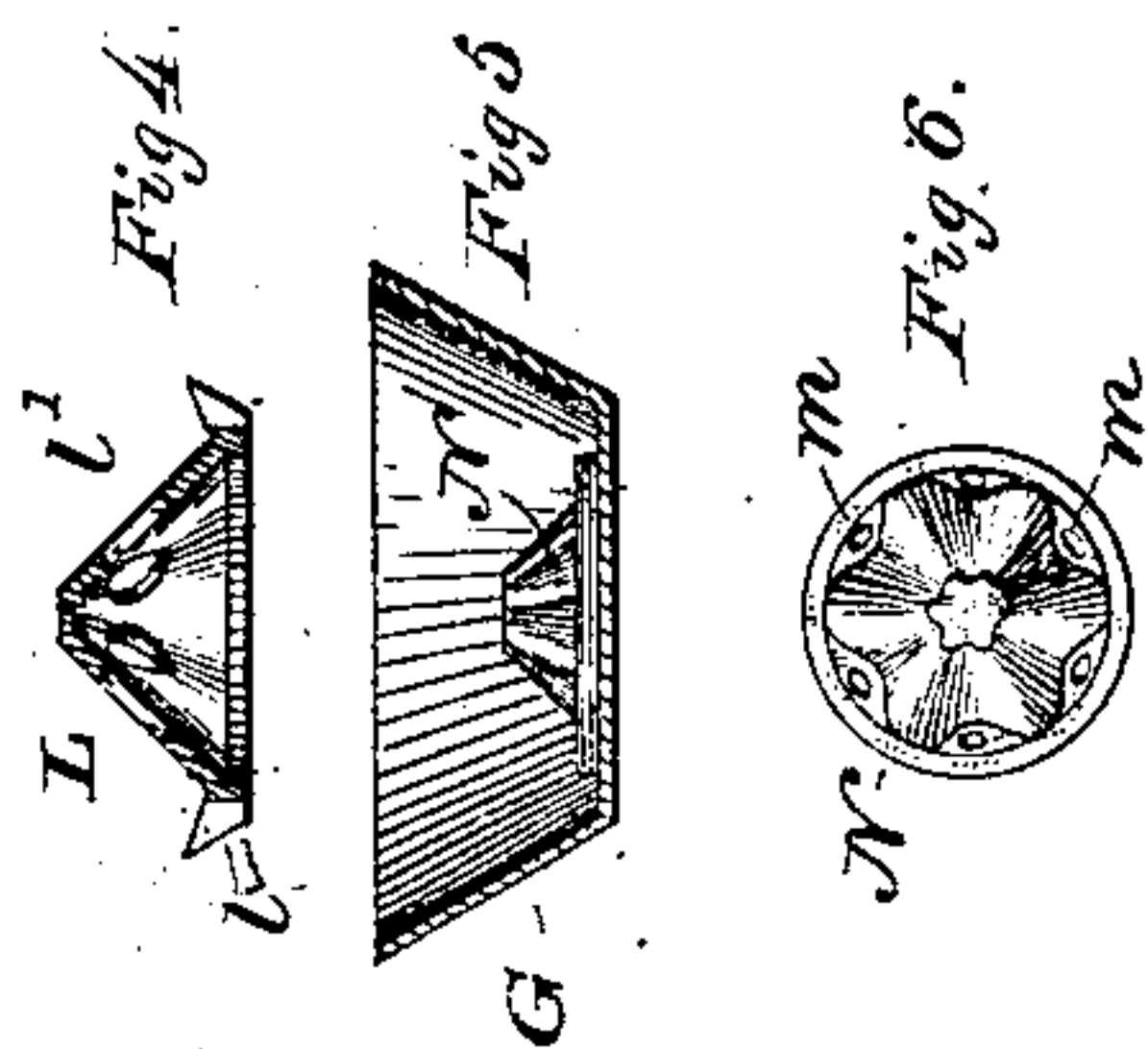
(No Model.)

J. E. GOODWIN.

SEED PLANTER.

No. 282,715.

Patented Aug. 7, 1883.



WITNESSES

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JOHN E. GOODWIN, OF MEMPHIS, TENNESSEE.

SEED-PLANTER.

SPECIFICATION forming part of Letters Patent No. 282,715, dated August 7, 1883.

Application filed April 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. GOODWIN, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Seed-Planting Machines, of which the following is a specification.

The object of my invention is to adapt a seed-planter to use either by itself for planting alone or in connection with mechanism for concurrently grinding or comminuting fertilizing material, which mechanism also, when applied to the machine, may be used in connection therewith, irrespective of the action of the planting mechanism.

In the drawings, Figure 1 is a plan of a machine embodying my invention with the fertilizing-hopper removed and the seed-hopper partly broken away. Fig. 2 is a vertical section longitudinally of the machine; Fig. 3, a transverse section in elevation; and Figs. 4, 5, and 6 are details of the mechanism.

A is the frame of the machine, composed of two longitudinal sills, *a*, and transverse sills *a'*, borne upon the wheel B, and having a handle-frame, C, and a share or cutter, D, at the front end, directly in advance of the wheel. The carrying-wheel in the present instance is fixed to its axle, and to the latter is fixed a disk, E, which has upon its face concentric racks *e*, with equidistant teeth, but increasing in number as they approach the periphery, so that they may give a greater number of revolutions to the pinion *e'*, sliding upon the shaft F, suitably supported and running horizontally from the wheel to the front of the machine. Instead, however, of attaching the disk to the shaft and the shaft to the wheel, the latter may turn freely upon its axle, and the disk be fixed to its spokes or to its rim, the effect in either case being the same. At the front of the main frame, in advance of the wheel and just behind the share, is mounted a seed-hopper, G, and beneath this hopper, reaching nearly to the foot of the share, so as to travel close to the surface of the ground behind the latter, is a spout or funnel, H. The hopper is not supported upon the frame—that is, not rigidly—but rests upon a bracket-piece, I, pivoted to the front cross-piece, and sliding in a keeper, *i*, upon the adjacent rear sill. At the rear end of this bracket is pivoted one end

of a lever, K, having its axis of movement upon the cross-piece of the handle-frame and its hand-hold near to the hand-holds of said frame, where it travels upon a rack, so that it may be moved to one side or the other to throw the hopper and the parts which it supports either to the right or to the left. Mounted within the hopper is a conical shell-wheel, L, having worm-teeth *l* around its periphery and openings *l'* through its conical body. A worm, L', on the shaft F engages with this wheel, so that as said shaft is revolved by the carrying-wheel it will turn the conical wheel, hereinafter called the "feed-wheel." At the front end of the worm is an enlargement or knocker, *l''*, of sufficient size to enter the full space between each tooth of the wheel, while the threads of the worm itself are adapted only to engage with the crests of such teeth. Immediately beneath this knocker the bottom of the hopper is cut away to enter the spout or funnel, so that whatever is disengaged from the interdental spaces by the revolution of the knocker may be shot down into the funnel and delivered to the furrow in the ground. Except at this point, the hopper closes beneath the spur-teeth of the feed-wheel, so that nothing can escape between them. Therefore, as the wheel revolves the seed will fill in between said teeth, and will be carried around until it reaches the cut-away portion, when the knocker will clear them from each successive interdental space turn by turn and send them down the funnel to be delivered in the furrow.

Thus far the machine is adapted only for planting seeds. When it is desired to use it for distributing fertilizers, or to combine fertilizing and seeding, a second hopper, M, will be mounted inside the first, so as to shut over the feed-wheel immediately within its worm-teeth and cut off the perforations through the body of said wheel from the interdental spaces. Preferably, also, as will appear from the following description, this hopper will be used in seed-planting to prevent the seed contained in the outer hopper from entering or clogging said perforations. The inner or concave face of the feed-wheel is formed with grinding ribs or teeth, and opposite to it, or beneath it, mounted upon a supporting-bracket and rising within it, parallel with its walls, is a stationary conical grinder, N, having at regular in-

tervals along its periphery small openings *m*, delivering into the funnel beneath. When this inner hopper is in place and filled with fertilizers, the latter will enter through the
 5 perforations in the feed-wheel to the grinding-space beneath and be pulverized between said wheel and the fixed cone, passing in a comminuted form from said grinding-space into the funnel, and thence to the ground, either
 10 continuously or in jets, in advance of the seed, or in jets immediately after the seed, as desired by the operator, who can readily manipulate the machine to determine this. Should the inner hopper be empty, grain or seed filled
 15 into the outer hopper will of course be planted without any accompanying fertilizer, and should, on the contrary, the outer hopper be empty, the fertilizer will be delivered without seed.

20 In order to loosen the seeds, which might otherwise be caked together before they reach the interdental spaces of the feed-wheel, a light shaft, *O*, is mounted transversely of the seed-hopper and provided with radial fingers *o*,
 25 which, as it is revolved by the worm-wheel *o'* upon its extreme end, meshing with the worm on the prime shaft, strike and penetrate into the mass and continuously stir it, so as to loosen the seeds one from another immediately before
 30 they reach said spaces. This same stirring-shaft may also be provided with fingers inside of the fertilizer-hopper, which will be suitably slotted to sit over it, and be removed whenever desired.

35 As both hoppers and their spout or funnel and other contents are mounted upon the swinging bracket, they can be readily thrown away from the worm-shaft, which is mounted in fixed bearings, thereby taking the feed-
 40 wheel and the stirring-shaft wheel out of engagement with the worm and stopping the machine whenever desired.

I claim as my invention—

45 1. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft driven thereby, the conical feed-wheel, with its worm-teeth, engaging with the worm on said shaft, the knocker on the worm-shaft clearing the
 50 interdental spaces of said wheel, and the seed-hopper delivering to the wheel and inclosed beneath its teeth, except directly underneath the knocker.

55 2. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft driven thereby, the conical feed-wheel, with its worm-teeth, engaging with said worm, the knocker on the worm-shaft clearing the interdental
 60 spaces of said teeth, the seed-hopper inclosed beneath said teeth, except at the point beneath the knocker, the fertilizer-hopper mounted within the flanks of said teeth, and the conical grinder beneath.

3. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the disk driven thereby, having concentric racks, the worm-shaft having a sliding pinion adapted to engage with any
 65 one of said racks, the feed-wheel engaging with the worm, the knocker upon said worm clearing the interdental spaces of said feed-wheel, the hopper inclosing said wheel and
 70 incasing its teeth, except beneath the knocker, and the spout or funnel beneath. 75

4. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft driven by said wheel, the feed-wheel driven by the
 80 worm, the seed-hopper inclosing said wheel and incasing its teeth beneath, except at one point, and the stirring-shaft and its pinion engaging with said worm to lighten the seeds in the seed-hopper.

5. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft which it drives, the conical feed-wheel having worm-teeth engaging with the worm on said shaft, the stirring-shaft having a pinion also engag-
 90 ing with said worm, the seed-hopper, the concentric fertilizer-hopper, the supporting-bracket, and the lever. 85

6. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft which it drives, the conical perforated feed-wheel, the conical grinder beneath said wheel, the funnel beneath the two, the seed-hopper, and the
 100 fertilizer-hopper. 95

7. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft which it drives, the conical perforated feed-wheel having worm-teeth engaging with the worm, the
 105 knocker upon the worm, the perforated grinding-cone beneath the feed-wheel, the funnel beneath the two, the seed-hopper, the concentric fertilizer-hopper, and the stirring-shaft. 100

8. The combination, substantially as hereinbefore set forth, of the supporting-frame, the carrying-wheel, the worm-shaft driven by said wheel, the knocker on the worm, the conical feed-wheel having perforations and worm-teeth, the seed-hopper incasing said teeth,
 110 except beneath the knocker, the removable fertilizer-hopper, the grinding-cone beneath the feed-wheel, the stirring-shaft, the pivoted bracket supporting said feed-wheel, cone, and
 115 hoppers, the spout or funnel, also supported by said bracket, and the lever for swinging the bracket toward and from the worm. 120

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Witnesses:

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