

No. 705,929.

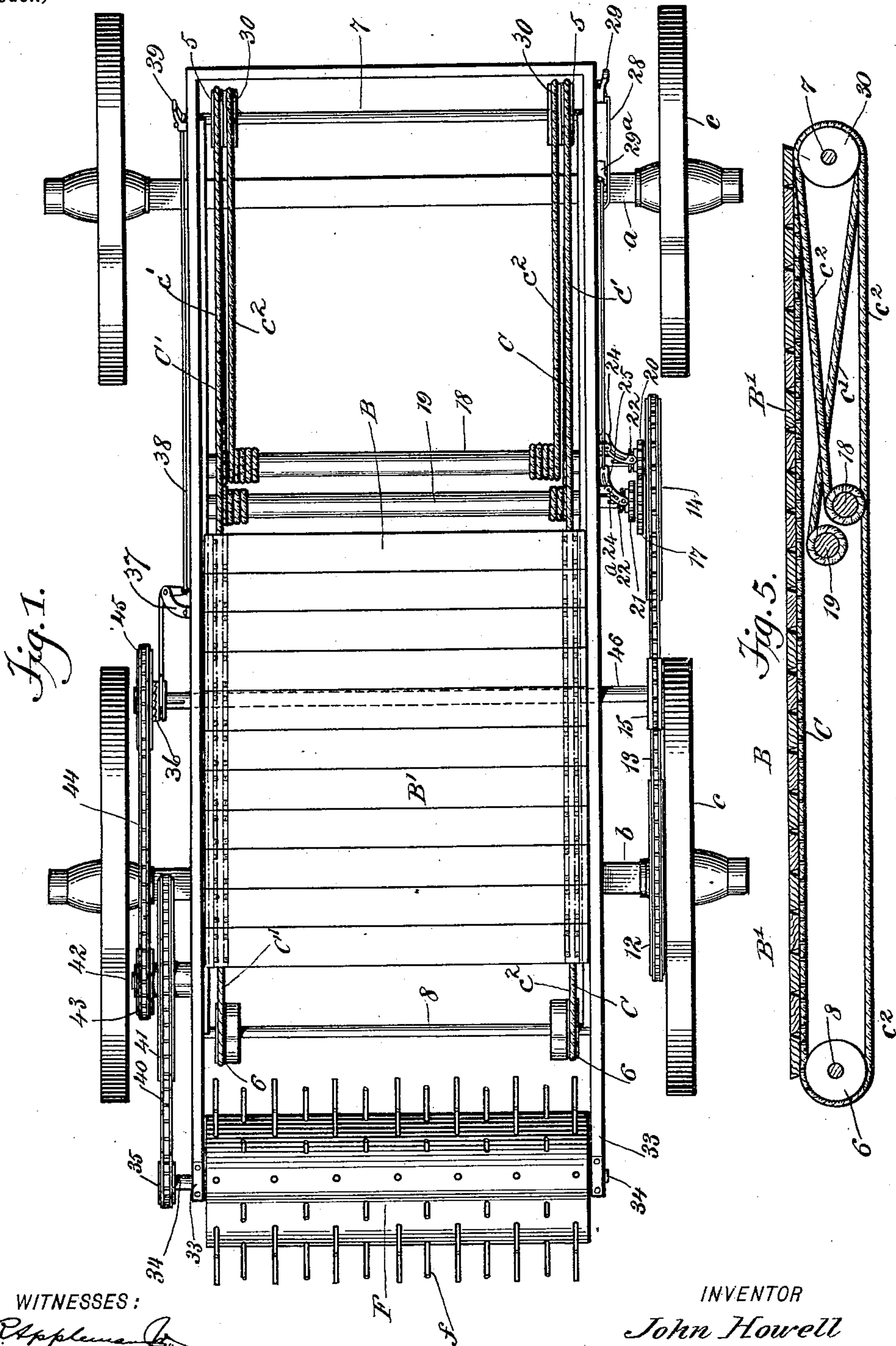
Patented July 29, 1902.

J. HOWELL.
MANURE DISTRIBUTER.

(Application filed Mar. 5, 1902.)

(No Model.)

2 Sheets—Sheet I.



WITNESSES:

H. Appleman
H. J. Berchard

INVENTOR

John Howell

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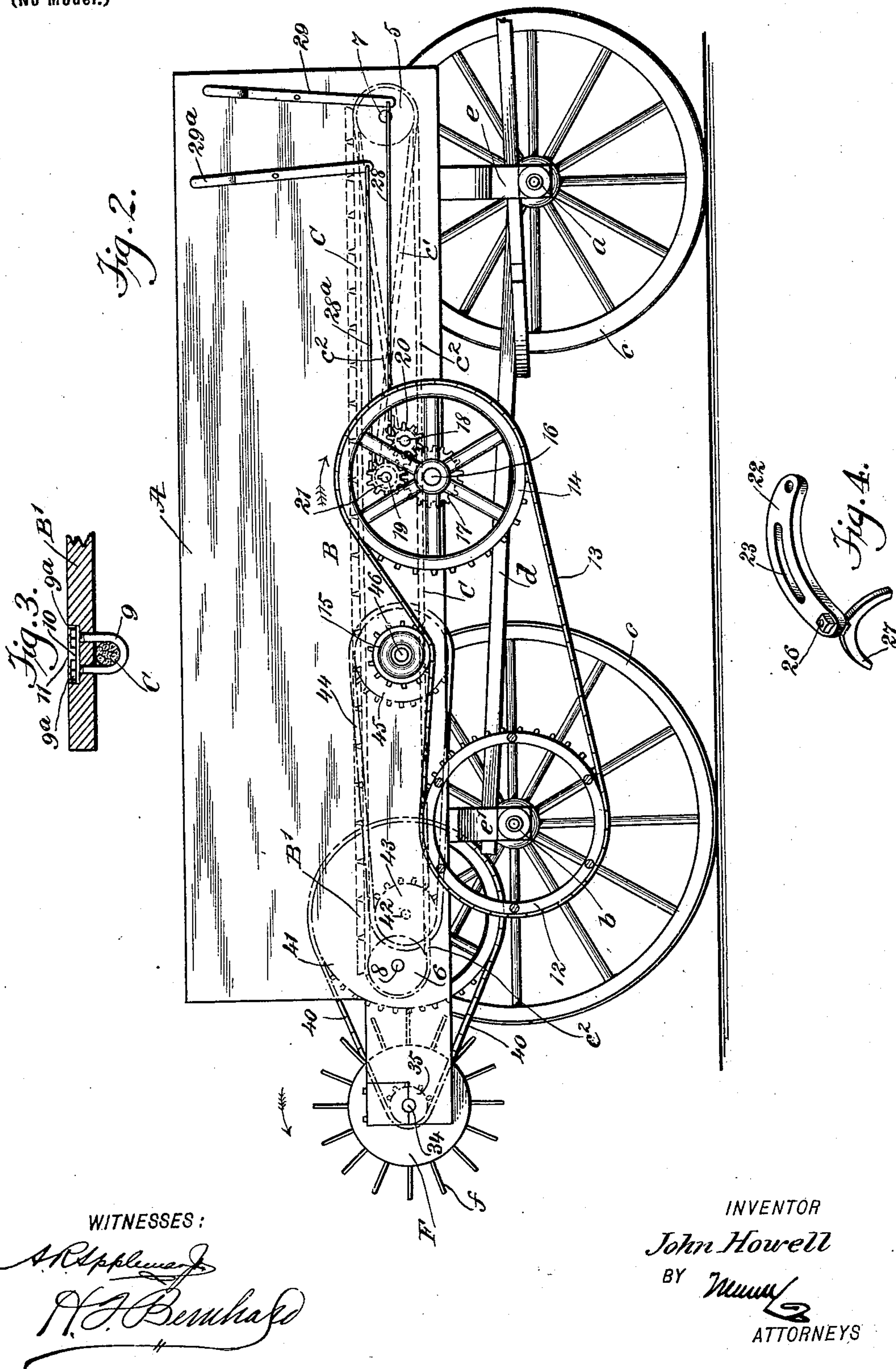
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UNITED STATES PATENT OFFICE.

JOHN HOWELL, OF SCHALLER, IOWA.

MANURE-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 705,929, dated July 29, 1902.

Application filed March 5, 1902. Serial No. 96,761. (No model.)

To all whom it may concern:

Be it known that I, JOHN HOWELL, a citizen of the United States, and a resident of Schaller, in the county of Sac and State of Iowa, have invented a new and Improved Manure-Distributor, of which the following is a full, clear, and exact description.

My invention relates to improvements in fertilizer or manure distributors, and among other things I have in view are the following objects, to wit: to provide a simple and compact construction which may be applied with ease to the running-gear of an ordinary farm-vehicle and which is cheap of manufacture, so as to bring the cost thereof within the reach of farmers generally; to provide means for breaking up clods and distributing the matter in a fine spread-out condition; to provide means for positively moving the slatted bottom in either direction by the power of the moving vehicle, and to provide means for throwing the working parts out of gear in transporting the apparatus from one place to another.

With these ends in view the invention consists in the novel combination of devices and in the construction and arrangement of parts for service, as will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a manure-distributor embodying my invention, certain slats at the front and rear ends of the movable bottom being omitted in order to more clearly show the underlying construction. Fig. 2 is a side elevation of the complete machine, illustrating by dotted lines the movable slatted bottom and the cables by which the slatted bottom may be moved back and forth. Fig. 3 is a detail sectional view, on an enlarged scale, through one of the slats on the bottom and showing the means for attaching said slat to one of the cables. Fig. 4 is a detail perspective view of one of the shifter-levers, and Fig. 5 is a longitudinal sectional view through the slatted bottom and the means for adjusting the same.

In carrying my invention into practice I employ a construction which may be easily

mounted upon or operatively applied to the running-gear of an ordinary farm-wagon. To enable others to understand my invention, I have shown this running-gear in Figs. 1 and 2 as consisting of the front axle *a*, the rear axle *b*, the ground-wheels *c*, the reach *d*, and the bolsters *e e'*. It will be understood, however, that I do not limit myself to any particular construction of this running-gear, and therefore the distributing appliance may be used in connection with any of the usual or well-known styles of farm-vehicles.

A designates the box or receptacle which is intended to be placed upon the bolsters *e e'*. This box consists of closed sides and a closed front end, but is without a bottom, except a slatted movable bottom. (Indicated in dotted lines in Fig. 2 and in full lines by Figs. 1 and 5.) The slatted bottom is indicated in its entirety by the letter B, and it consists of a number of parallel slats B', arranged transversely within the box A and having beveled edges, as indicated by dotted lines in Fig. 2 and by full lines in Fig. 5, so as to allow said slats to fold compactly together in passing around the drum at the rear end of the box, as will be presently described. The series of transverse slats are disposed in the same horizontal plane and are attached near their end portions to the carrying-cables C C', the same being disposed longitudinally within the box A and near the sides thereof. These cables C C' extend around pulleys 5 6, the former being mounted on an idler-shaft 7 and the latter on a similar shaft 8. The two shafts are journaled in appropriate bearings near the front and rear portions of the box A.

To securely attach the transverse slats B' to the carrying-cables C C', I provide the U-shaped or yoke-shaped bolts 9, the latter embracing the cables and having the legs thereof extended through the slat, as shown by Fig. 3. The legs of each yoke-shaped bolt pass through perforations in a suitable metallic plate 10, that is disposed within a recess 11, the latter being provided in the upper face of the slat B', whereby the nuts 9^a of the yoke-shaped bolt may be countersunk within the exposed face of the slat B'. The plate serves to reinforce the slat and to prevent the nuts from sinking into the wood of the slat, thus providing a simple, strong, and

secure means for attaching the slats to the carrying-cables.

I will now proceed to describe the gear appliance by which the power is supplied for moving the slatted bottom to and fro within the box and for the operation of the distributing drum or cylinder. I prefer to employ a sprocket-wheel 12, which is secured in any suitable way to the spokes of one of the rear wheels c , and with this sprocket-wheel engages an endless sprocket-chain 13, the latter also engaging with a sprocket-wheel 14 and a smaller sprocket-wheel 15. (See Figs. 1 and 2.) The sprocket-wheel 14 is attached to a transverse shaft 16, journaled in suitable bearings on the under side of the box A, and this shaft is equipped with a spur gear-wheel 17, the latter being made fast to the shaft, so as to rotate at all times therewith.

18 19 designate parallel windlasses, which are disposed quite close together and below the slatted movable bottom B. Said windlasses are journaled in any suitable way in the side portions of the box A, and both of said windlasses are disposed above the shaft 16. The windlass 18 has a spur-gear 20 splined or keyed thereto, said gear being thus movable on the windlass-shaft and adapted to be thrown into and out of mesh with the spur-gear 17 on the shaft 16. A similar spur-gear 21 is splined or keyed to the shaft of the other windlass 19, and it is also adapted to be adjusted into and out of mesh with said gear 17, whereby the two windlasses 18 19 may be individually connected with the shaft 16 for the purpose of operating one or the other of said windlasses.

Any suitable means may be adopted for the adjustment of the gears 20 21; but, as shown by Figs. 1 and 4, I have provided slidable levers 22 22^a, each being of the curved or arc shape shown more clearly by Fig. 4 and having the curved slot 23. Each lever is arranged for its slot to receive a fulcrum pin or stud 24 on a fixed bracket 25, attached to the side of the box A, and to one end of this curved lever is pivoted, as at 26, a fork 27, the latter being adapted to fit in a groove which is provided in the hub of the shiftable gear. The levers 22 22^a are operated by the rods 28 28^a, that lead to the levers 29 29^a, the same being disposed on the box A within convenient reach of the driver.

To adjust the slatted bottom in the box, I arrange the cables C C' so that the respective end portions are coiled in proper directions on the two windlasses 18 19, so as to allow one end of the cables to be uncoiled from one windlass when the other ends of the cables are wound on the other windlass. The portions c' of the cables which extend from the front end of the slatted bottom are carried toward the shaft 7, over and around the pulleys 5 on said shaft, and thence said portions c' of the cables are carried rearwardly and coiled in one direction around the windlass 19. The portions c^2 of the cables that extend from the

rear end of the slatted bottom are carried over and around pulleys 6 on the shaft 8, thence said portions c^2 are carried horizontally beneath the slatted bottom and from the rear to the front of the box A, thence the portions c^2 are carried beneath and up around the pulleys 30, which are also provided on the shaft 7, and thence the portions c^2 of the cables are coiled on the windlass 18 in the same direction that the portions c' of the cables are coiled on the other windlass 19. From this description it will be understood that the gear 20 on the windlass 18 may be thrown into mesh with the gear 17 of the shaft 16, whereby the windlass 18 may be rotated by power derived from one of the hind wheels, and the cables C C' may be coiled on said windlass 18 for the purpose of drawing said cables C C' and the slatted bottom in a rearward direction. The slatted bottom is thus adapted for movement in a manner to feed or supply the manure to the distributing-cylinder, which latter will be presently described. By throwing the gear 20 out of mesh with the gear 17 and by adjusting the proper lever to throw the other gear 21 into mesh with said gear 17 the windlass 19 may be rotated by power derived from one of the rear wheels. The rotation of this windlass 19 winds the cables C C' thereon, and the slatted bottom and said cables C C' are drawn in a forward direction, thereby restoring the slatted bottom to its initial normal position ready to receive another load.

The box A is provided with the rearwardly-extended arms 33, in which is journaled the shaft 34 of the distributing drum or cylinder F, the latter being provided with a plurality of teeth or spikes f . A sprocket-pinion 35 is secured on one end of the drum-shaft 34, and with said pinion 35 engages an endless sprocket-chain 40, that is driven from a large sprocket-wheel 41, secured on a stub-shaft 42, the latter being mounted on one side of the box A. This stub-shaft 42 is furthermore provided with a sprocket-pinion 43, with which engages another sprocket-chain 44, that is driven by a sprocket-wheel 45 on a transverse counter-shaft 46. Said sprocket-wheel 45 is loose on the shaft 46, and it is adapted to be made fast thereto by a clutch 36, controlled by a lever 37, having a rod 38, connected to a hand-lever 39. (See Fig. 1.) Said counter-shaft 46 extends across the box A and is journaled in suitable bearings thereon, and to the other end of said counter-shaft is secured the sprocket-pinion 15, the latter having engagement with the chain 13, that is driven from the primary sprocket-wheel 12 on one of the hind wheels. From this description it will be apparent that the distributing drum or cylinder F may be positively driven through the train of sprocket-gearing by motion derived from one of the hind wheels; but by adjusting the clutch 36 this cylinder may be disengaged from its propelling mechanism, thereby allowing the distributing devices to

remain at rest in transporting the apparatus to and from a field.

The slatted bottom may be moved backward gradually, so as to feed the material thereon to the distributing-drum. This drum is positively driven by the sprocket-gearing in a direction to cause its teeth to sweep through the mass of material resting on the bottom, and said drum is adapted to break up the clods of material and to distribute or scatter the same in a comparatively fine condition over the soil.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A manure-distributor comprising a receptacle, suitable idler-pulleys near the front and rear portions of said receptacle, independent windlasses disposed between the idler-pulleys, cables fitted to said pulleys and having their opposite end portions coiled on the respective windlasses, a flexible bottom attached to and carried by said cables, a driving-shaft, and means for independently driving either of said windlasses from said shaft.

2. A manure-distributor comprising a suitable receptacle having supporting-pulleys near its front and rear portions, cables carrying a series of slats forming a flexible bottom, a driven shaft having a gear, separate windlasses disposed below the slatted bottom; the front portions of the cables passing in a forward direction from the bottom and coiled on one windlass, and the rear portions of said cables coiled on the other windlass and passing from the rear portion of the bottom, and thence around the front and rear pulleys, shiftable gears keyed on the windlasses, and means for individually adjusting said movable gears into and out of mesh with the driving-gear.

3. In a manure-distributor, the combination with suitable cables, and a flexible bottom having slats attached to said cables, of separate windlasses on which the opposite end portions of the cables are coiled, suitable

brackets adjacent to said windlasses, shiftable gears keyed to the windlasses and provided with grooved hubs, adjusting-arms slidably fitted on said brackets and having depending shipper-forks loosely fitted in said hubs of the gears, rods connected to said arms and to a suitable operating-lever, and a shaft having a driving-gear with which the shiftable gears are adapted to independently mesh.

4. In a manure-distributor, a flexible bottom comprising suitable cables, transverse slats laid on said cables and provided with recesses in their upper faces, metallic plates fitted in said recesses, and U-shaped bolts embracing the cables and having their legs passed through the slats and plates and adapted to receive nuts which are countersunk in the recesses of the slats, substantially as specified.

5. A manure-distributor comprising a suitable receptacle, a windlass-driving shaft provided with a suitable gear, separate windlasses, each having a shiftable gear adapted to mesh with said gear of the shaft, cables having their end portions coiled on the respective windlasses and carrying suitable slats, a toothed distributing-cylinder disposed in rear of the flexible bottom, a cylinder-driving shaft extending across the receptacle and provided with a sprocket-gear, a driving-chain propelled by the movement of the distributor, and having operative connection with the cylinder-driving shaft and with the windlass-driving shaft, and a train of gearing between the cylinder-driving shaft and the cylinder, said gear-train including an intermediate shaft, and suitable means for throwing the train out of service.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HOWELL.

Witnesses:

A. W. BICKEL,
J. T. EDSON.