W. S. BARTLE.

Fertilizer.

No. 14,708. Patented Apr. 22. 1856.

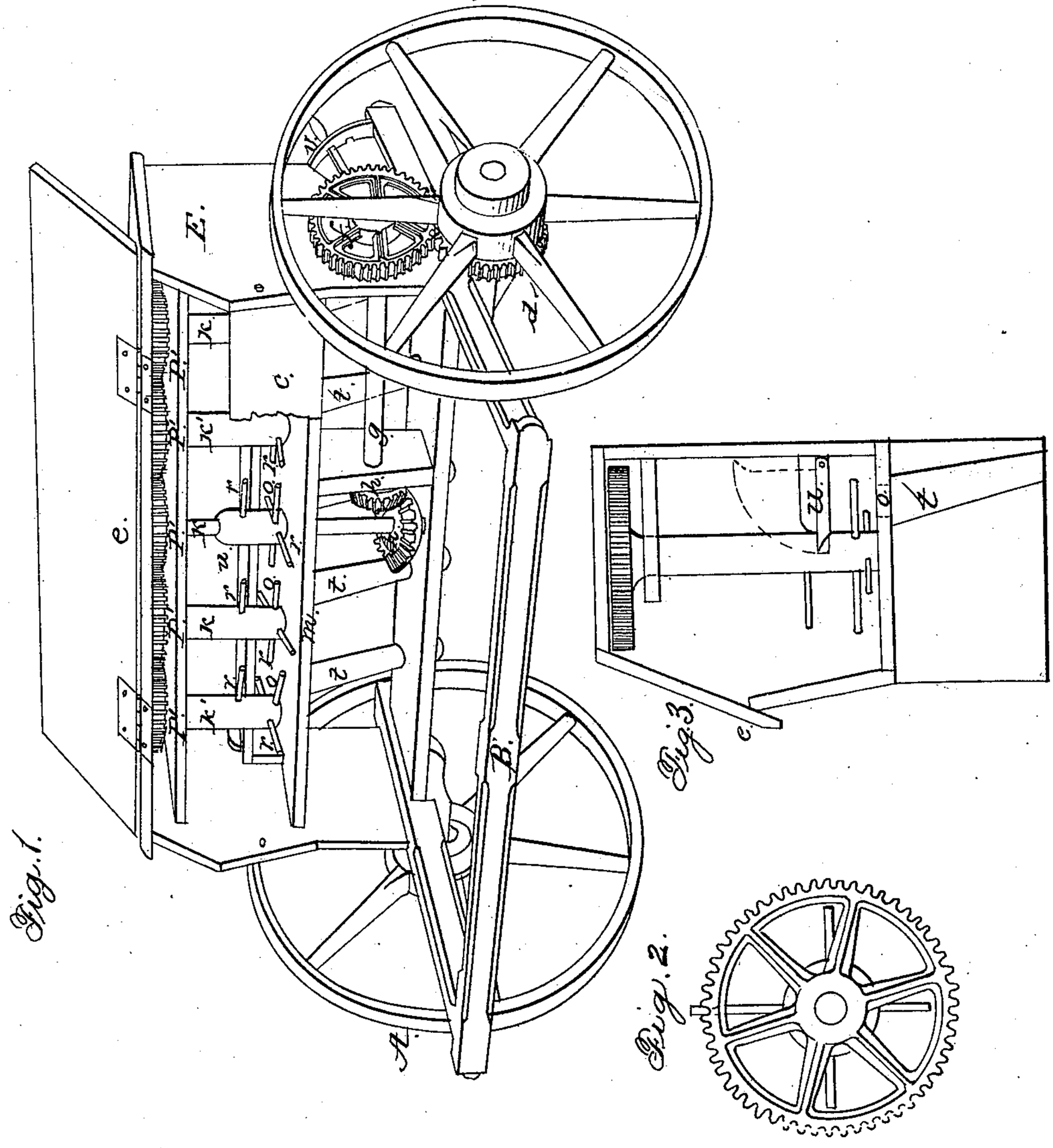

Fig. 1.

Fig. 3.

Fig. 2.

WITNESSES:
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WARREN S. BARTLE, OF NEWARK, NEW YORK.

IMPROVED MACHINE FOR SOWING FERTILIZERS.

Specification forming part of Letters Patent No. **14,708**, dated April 22, 1856.

To all whom it may concern:

Be it known that I, WARREN S. BARTLE, of Newark, in the county of Wayne and State of New York, have invented a new and useful Improvement on Machines for Sowing Guano and other Fertilizers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view; Fig. 2, a vertical view of one of the distributers and the pinion by which it is moved, and Fig. 3 a transverse section of the principal parts of the machine.

A A′, Fig. 1, are the wheels which carry the frame B, on which the apparatus for sowing rests.

E, Fig. 1, is the hopper or supply-box, resting on the frame B, the front side, *c*, being partly left off for the purpose of showing the machinery within more distinctly.

e, Figs. 1 and 3, is the cover of the box, shown in Fig. 1 as open and in Fig. 3 as closed.

d, Fig. 1, is a cog-wheel made fast to the hub of the carrying-wheel A′, which acts on the spur-wheel *f*, attached to the shaft *g*, by which the bevel-gearing *h h* and the shaft *k* are moved.

To the shaft *k* the central pinion, *p*, is attached, which, when the machine is drawn, communicates motion to the other pinions, *p′ p′ p′ p′*. The power is communicated to the central pinion, *p*, instead of one next the carrying-wheel, for the purpose of relieving the strain or tension on the cogs of the pinion, such strain or tension being one-half, or thereabout, less when communicated in this way than when communicated by the cogs of one of the side pinions. I do not confine myself to communicating the power through the medium of the central pinion in all cases, for there may be an even number of pinions in the set, in which case there would strictly be no central one. The communication may be made through any one of the pinions other than the outside ones, and in consequence the stress on the cogs of it be relieved; but the nearer the center of the set the communication is made the greater the relief.

To the shafts *k k′ k′ k′ k′*, Figs. 1 and 3, to which the pinions are attached and by which, with the exception of the central one, *k*, they are moved, arms or radials *r r r r* are fixed, made of one-fourth-inch brass or galvanized wire placed in planes horizontal and at right angles to the axes of the shafts at different heights above the bottom of the hopper or supply-box *m* and the orifices *o o o*, Figs. 1 and 3, through which the material sown is made to pass. The shafts *k k′ k′ k′ k′* and the affixed radials, in combination, constitute the distributers by which the requisite portions of the materials sown are separated from the mass. One of the radials, as shown in Fig. 2, for the purpose of sweeping across the whole breadth of the supply-box and of moving the whole of the contents thereof, is made longer than the others. These radials may be straight or curved slightly in a direction opposite or toward that in which they move. The straight form, however, is deemed the best. They perform a twofold office—that of dividing or comminuting the material sown, particularly guano, which, by reason of its great absorbent qualities, is always more or less moist and adhesive, and in consequence is with difficulty distributed, and that of moving the substance sown over and into the orifices *o o o o*, Figs. 1 and 3, through which it falls into the distributing-tubes *t t t t*, Figs. 1 and 3.

For the purpose of preventing the direct and too rapid flow or descent into the distributing-tubes of finely-pulverized substances sown—such as dry ashes, lime, plaster, charcoal, bone-dust, poudrette, and the like—a shelf or fender (shown at *u*, Figs. 1 and 3) is employed. Breadthwise this shelf is such as to cover the space between the back side of the supply-box and a line as far forward as the axes of the shafts of the distributers, as shown at *u*, Fig. 3. The breadth may, however, be varied and be somewhat greater or less. The height of the shelf above the bottom of the supply-box should be two inches, or thereabout. When any of the finely-pulverized substances above enumerated are being sown the shelf or fender is let down to a horizontal position, which, when in such position, retards and partially intercepts the flow or descent of the same to such an extent that but a small quantity passes into the tubes besides that which is moved into them by the distributers. When guano or other compacted

and adhering substances are being sown the shelf is thrown back into a vertical position, so as to allow the particles produced by the division and comminution effected by the radials to pass freely into the tubes. One of the radials on each of the shafts is made to sweep over the upper side of the shelf, as shown in Figs. 1 and 3, for the purpose of moving such portions of the material being sown as may be resting there. More than one radial sweeping thus above the shelf may in certain cases be found preferable to a single one.

At *v*, Fig. 1, is a lever, by which to throw the cog-wheel *d* and the spur-wheel *f* out of gear.

The machine is drawn by a pole attached to the frame B in any of the usual modes.

The quantity sown may be regulated by slides partly covering the orifices *o o o*, or by changing the relative size of the cog-wheel *d* and spur-wheel *f*.

The apparatus, instead of being transported on and operated by a carriage specially adapted to it, may be placed upon any of the seed-sowers in use and be carried and operated by them, and the fertilizers sown by the one and the seed sown by the others distributed into a set of tubes common to both.

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

The distributers composed of the radials *r r r*, in combination with the shafts *k k' k'*, and fender *u*, constructed and arranged substantially as described.

WARREN S. BARTLE.

Witnesses:

STEPHEN CUHER,

A. SALISBURY.