

(No Model.)

3 Sheets—Sheet 1.

D. W. HARTIS & J. L. REA.
COMBINED DISK HARROW AND SEEDER.

No. 358,353.

Patented Feb. 22, 1887.

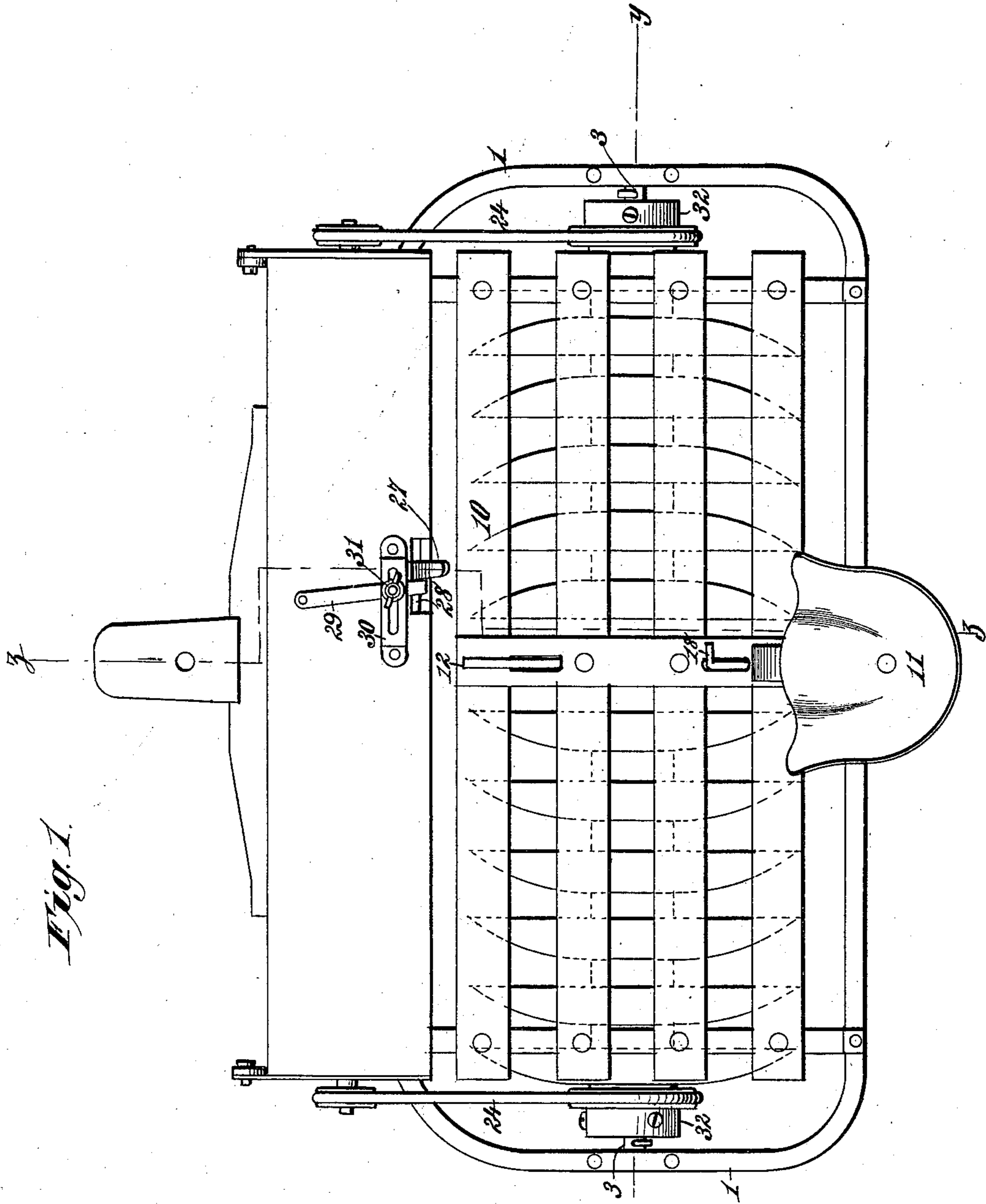


Fig. 1.

Witnesses,
Robert Everett.

J. A. Rutherford.

Inventors,
Dallas W. Hartis,
John L. Rea.

By James L. Norris,
Atty.

(No Model.)

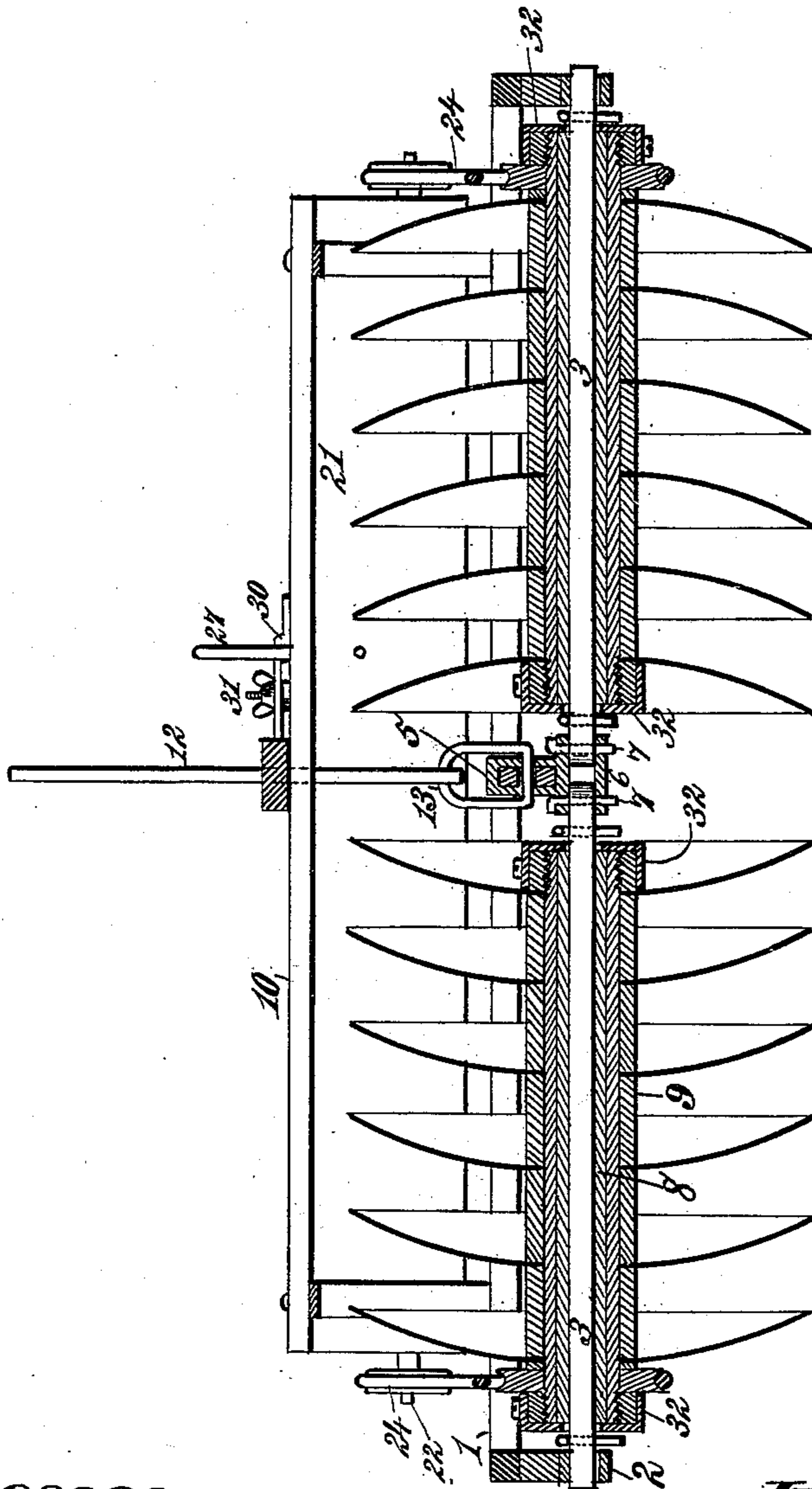
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Fig. 2.



Witnesses,
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

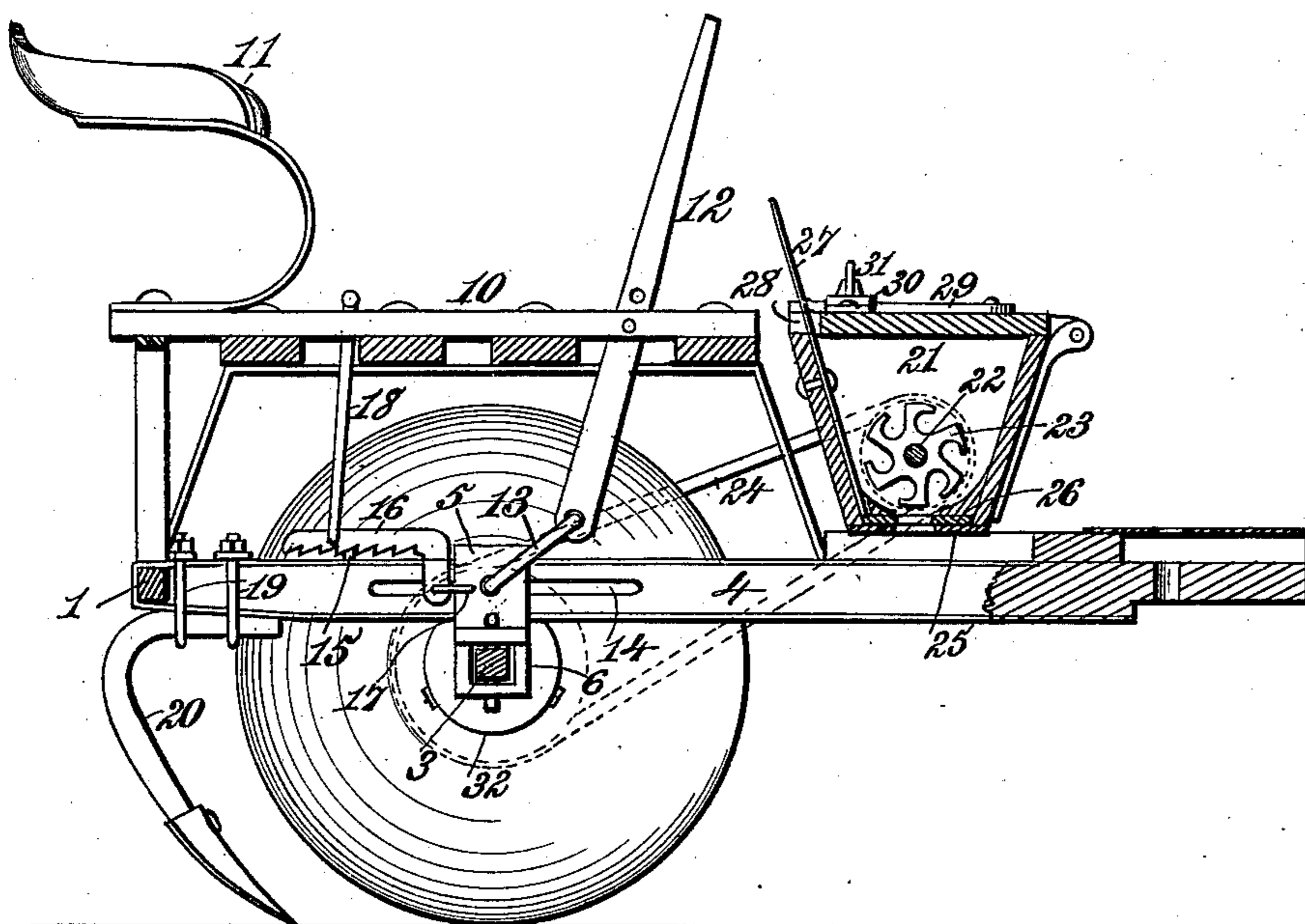
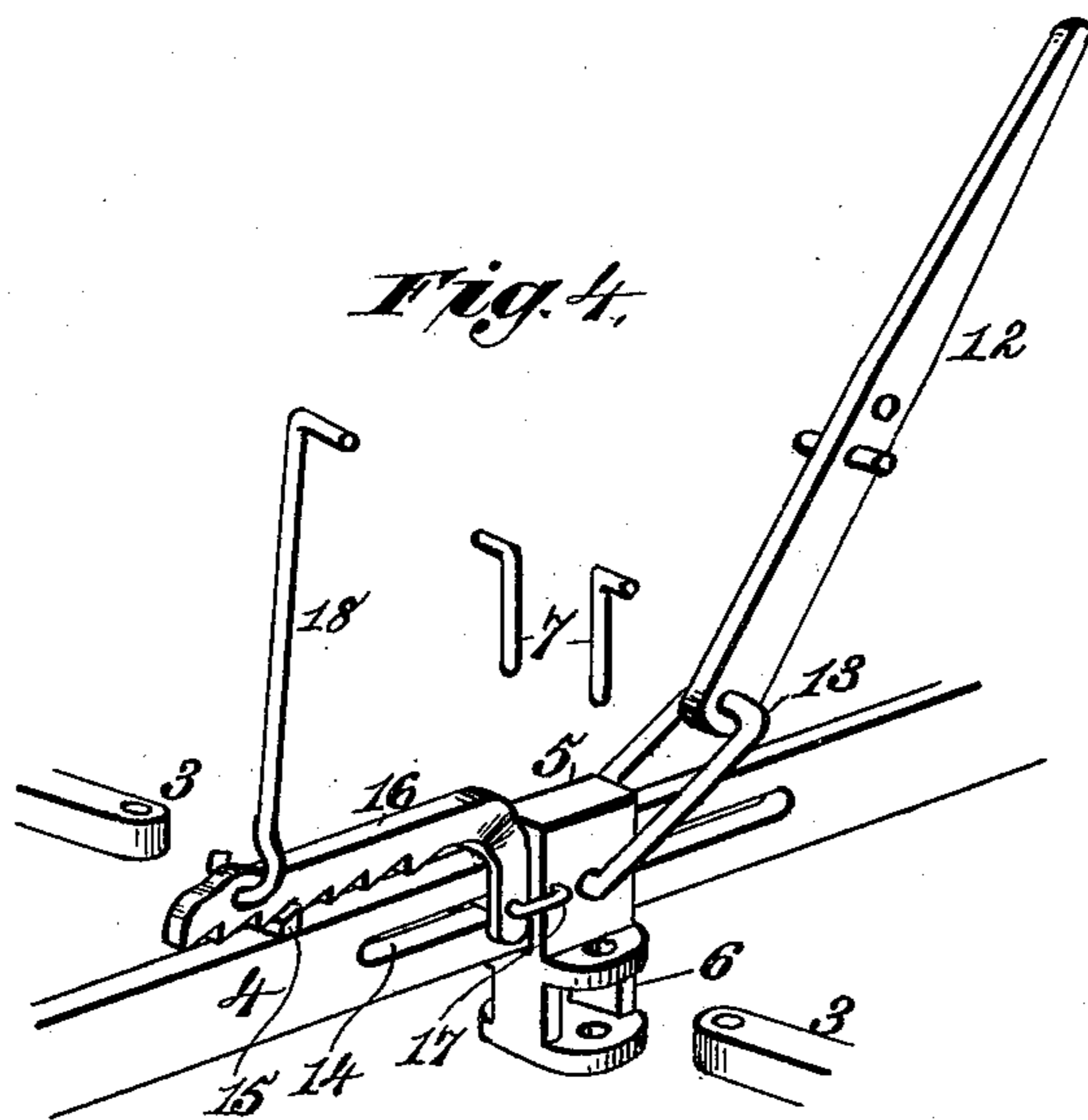


Fig. 4.



Witnesses.
Robert Corbett.

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UNITED STATES PATENT OFFICE.

DALLAS W. HARTIS AND JOHN L. REA, OF CHARLOTTE, NORTH CAROLINA.

COMBINED DISK-HARROW AND SEEDER.

SPECIFICATION forming part of Letters Patent No. 358,353, dated February 22, 1887.

Application filed February 1, 1886. Serial No. 190,493. (No model.)

To all whom it may concern:

Be it known that we, DALLAS W. HARTIS and JOHN L. REA, citizens of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented new and useful Improvements in Combined Disk-Harrows and Seeders, of which the following is a specification.

This invention relates to combined seeding apparatus and rotary or disk harrows or cultivators.

The object of our invention is to provide simple and novel mechanism for adjusting the disk-gangs into or out of line, and another object is to provide novel means for locking the disk-gangs in their adjustments relative to the line of draft.

The objects of our invention we accomplish in the manner and by the construction and arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, illustrating our invention, in which—

Figure 1 is a plan view of a combined seeding mechanism and disk-harrow embodying our invention; Fig. 2, a longitudinal sectional view taken on the line *y y* of Fig. 1, showing the disk-gangs adjusted in line; Fig. 3, a transverse sectional view taken on the line *z z* of Fig. 1; Fig. 4, a detail view of the devices for angularly adjusting the disk-gangs.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, referring to the accompanying drawings, where the numeral 1 indicates a rectilinear main frame, which may be composed of a continuous bar of iron having at each end a pendent bracket, 2, in which the outer ends of the square axles 3 are respectively mounted in a loose manner. The connections for the draft-pole are at the front side of the main frame, and may be of any suitable construction, while centrally between the ends of the main frame is rigidly attached a beam, 4, carrying a slide, 5, having a pendent boxing, 6, in which the adjacent ends of the axles 3 are pivoted by vertical pins 7. The square axles are formed or provided with skeins 8, having circular peripheries on which the disks can freely revolve, these disks being concavo-convex and separated by thimbles 9,

the construction being such that the disks can be conveniently detached and replaced for presenting their concave sides inward or outward, in order to throw the soil inward or outward, as will be obvious.

A skeleton frame, 10, surmounts and is supported by the main frame, and carries the driver's seat 11, and to this secondary frame is pivoted a vertically-arranged lever, 12, having its lower end loosely connected to one end of a bail or yoke, 13, the other end of which passes loosely through the slide 5, and through a longitudinal slot, 14, in the center beam, 4, so that by swinging the lever the slide is adjusted along the beam, and the disk-gangs are thereby moved either into line or adjusted angularly with reference to the line of draft.

To the rear portion of the center beam is attached a lug, 15, with which engages a ratchet-bar, 16, having a bifurcated front end, which embraces the center beam and is pivotally connected with the slide, as by a loop, 17, so that the ratchet-bar can rise and fall. This ratchet-bar is connected with the lower end of a rod, 18, extending upward within convenient reach of the driver, so that the bar can be manipulated to engage and disengage the lug as required. When the disk-gangs are adjusted into line, it is necessary to lock them in that position, and this is effected by simply dropping the ratchet-bar so that it engages the lug on the center beam.

If the disk-gangs are to be adjusted angularly to intermediate points, they are locked by the ratchet-bar and lug, and to permit the disk-gangs to swing back to the limit of their angular adjustment the ratchet-bar is raised, when the advance of the machine by the draft-power will move the adjacent ends of the disk-gangs to the limit of their angular position relative to the line of draft.

The center beam can be connected with the main frame or draft-connections in any suitable manner; but at the rear end I prefer to connect the beam to the main frame by clips 19, which will also subserve the purpose of receiving and holding the shank of a plow, 20, for breaking up the soil intermediate the adjacent ends of the disk-gangs. In many machines of this character there is a space of soil between the adjacent ends of the disk-gangs

which is not disturbed as the machine traverses the field. In stubble land not previously plowed, and in laying out cotton and corn beds, the plow 20 will in the first-mentioned instance break up the said undisturbed soil, while in previously-plowed ground which is being harrowed the plow will lay out a furrow to receive cotton or corn.

To the front part of the main frame is secured the bottom of a seed-distributing hopper, 21, containing a shaft, 22, provided with seed-distributing wheels 23, said shaft being geared to a revolving part of the disk-gangs, as by a belt, 24. The bottom of the hopper is composed of two perforated plates, 25 and 26—the lower, 25, stationary and the upper, 26, adjustable lengthwise in such manner that the size of the seed-openings can be varied by properly moving the upper plate, 26.

To adjust the latter, we provide a vertically-arranged lever, 27, pivoted in the hopper and connected with the said plate 26, so that by properly swinging the lever the plate is adjusted to the position desired. In order to stop and hold the lever in the exact position necessary to secure the desired size of seed-discharge orifices, we provide the hinged lid of the hopper with a recess or notch, 28, in which the upper end of the lever can move, and upon the lid we pivot an arm, 29, adjustable laterally through the medium of a slotted plate, 30, and a thumb nut and screw, 31. To entirely close the seed-discharge orifices the lever 27 is moved to the right, and to open the said orifices the lever is moved to the left. Consequently, if the arm 29 be properly adjusted, the lever will strike it, and be thereby stopped and held in the required position to provide the exact size of discharge-orifice desired.

The hopper is located above the main frame, with the seed-discharge orifices some distance in advance of the peripheries of the disks comprising the disk-gangs, and therefore as the machine traverses the field the seed is distributed in front of the disk-gangs, and as they advance they turn the soil and insure the efficient covering of the seed. In the same way the hopper can be used to distribute fertilizing materials, if desired. The disk-gangs are capable of various adjustments to suit the conditions required, and by the reversibility of the disks, as hereinbefore stated, the machine can be employed to cultivate young corn by throwing soil outward therefrom until the corn is sufficiently grown to render it desirable to throw the soil inward toward the corn.

The end disks of each gang are provided with attached caps 32, which extend to and turn freely around the square axle, such caps preventing longitudinal movements of the skeins, and also preventing access of dirt at such points.

We do not broadly claim the combination of a main frame, a center beam having its ends rigidly secured to said frame, a slide movable along the center beam and provided with an attached boxing, disk-gangs having their inner ends pivoted in said boxing and their outer ends supported by the main frame, and means for adjusting the slide.

Having thus described our invention, what we claim is—

1. The combination of the surrounding rectangular main frame, a stationary center beam rigidly connected at its ends with the main frame, a slide movable along the length of the center beam, the disk-gangs having the outer ends of their axles supported by the ends of the main frame and their inner ends pivotally connected with the slide, means for adjusting the slide, and the hopper mounted on said main frame in front of the disk-gangs, substantially as described.

2. The combination of the surrounding rectangular main frame, a stationary center beam rigidly connected at its ends with the main frame, a slide provided with a depending boxing and movable along the center beam, means for adjusting the slide, the disk-gangs having their outer ends supported by the ends of the main frame and their inner ends pivoted in said depending boxing, and a hopper mounted on the main frame in front of the disk-gangs, substantially as described.

3. The combination of the main frame, disk-gangs, a center beam having a lug on its upper side, a slide adjustable along the length of the beam, and a rising and falling ratchet-bar pivotally connected to and moving with the slide, substantially as described.

4. The combination of the main frame, disk-gangs, a center beam having a lug on its upper side, a slide movable along the beam and provided with a depending boxing, in which the inner ends of the disk-gangs are pivoted, a rising and falling ratchet-bar pivotally connected to and moving with the slide, and means for adjusting the slide and raising the ratchet-bar, substantially as described.

5. The combination of a main frame, disk-gangs, a center beam having a lug, a slide movable lengthwise on the beam and connected with the inner ends of the disk-gangs, a ratchet-bar pivotally connected with the slide, a lever for moving the slide and ratchet-bar, and a rod for lifting the ratchet-bar, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

D. W. HARTIS.
JOHN L. REA.

Witnesses:

ALBERT H. NORRIS,
JAMES L. NORRIS.