

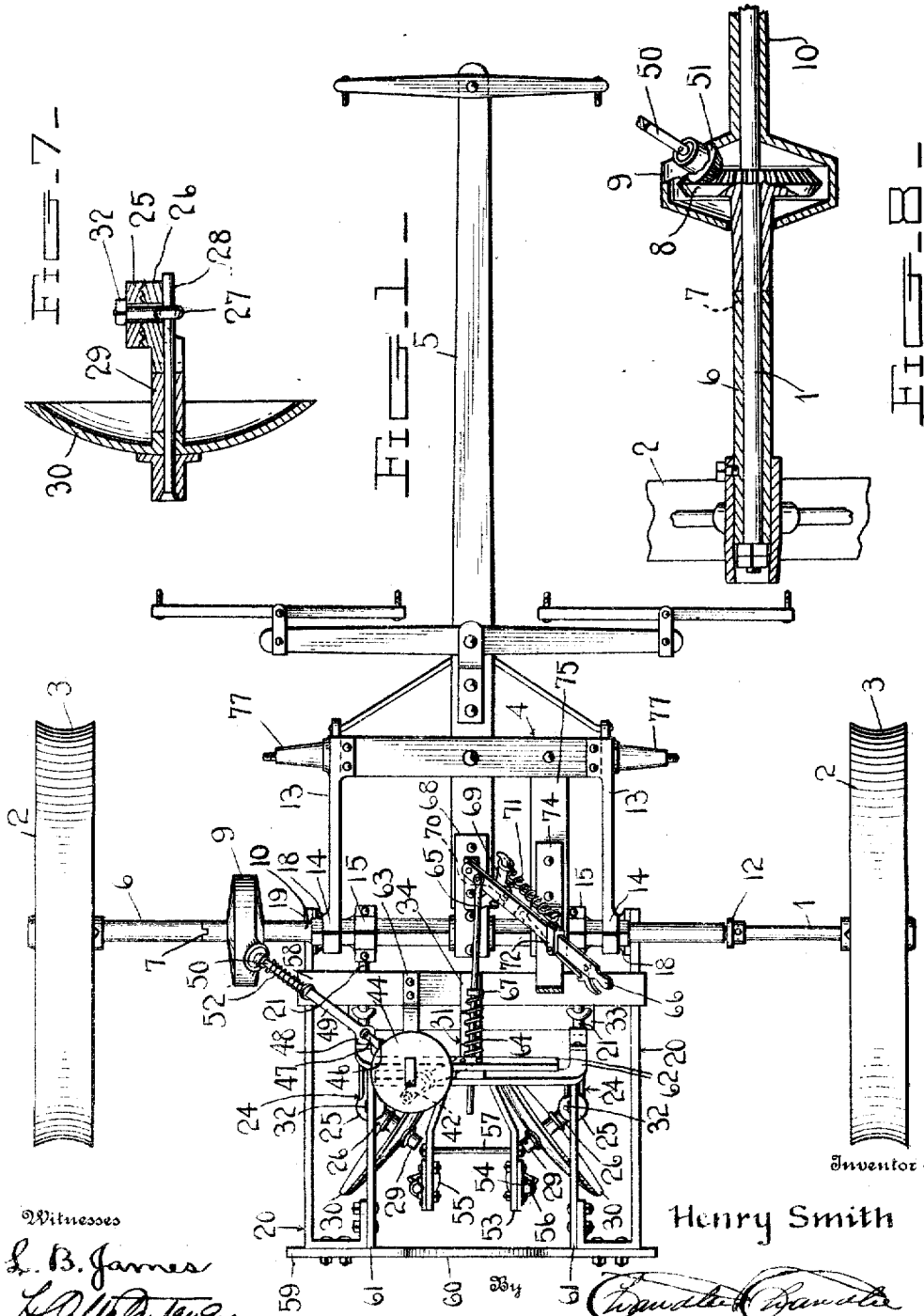
H. SMITH.
PLANTER.

APPLICATION FILED JULY 28, 1903.

935,063.

Patented Sept. 28, 1909.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.



Henry Smith

L. B. James
H. C. Carter

Charles Chandler

Attorneys

H. SMITH.
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3 SHEETS—SHEET 3.

FIG. 3

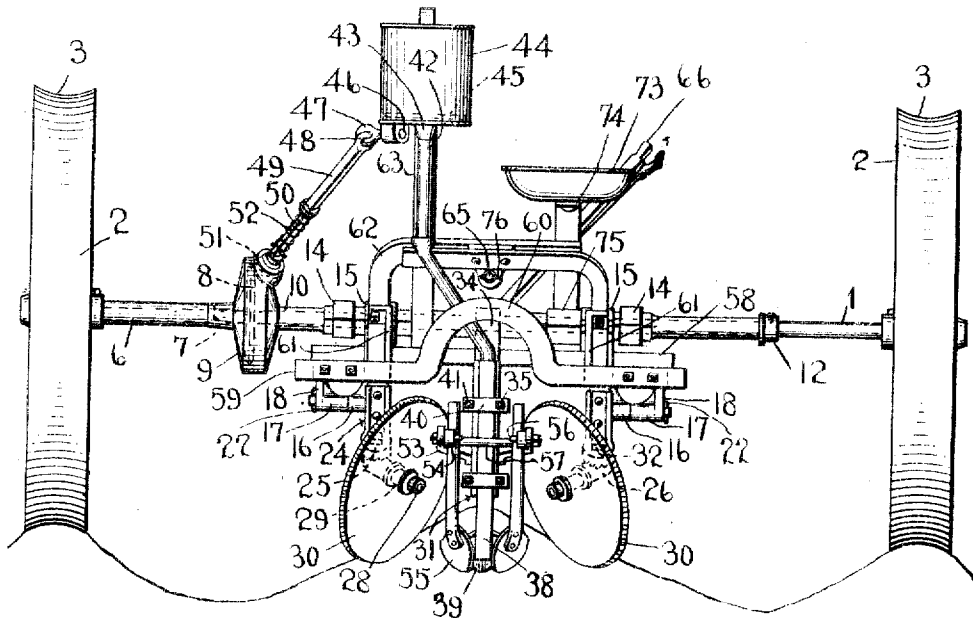


FIG. 4

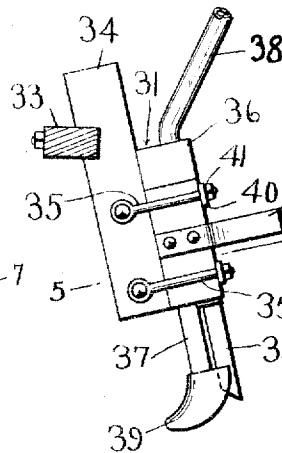
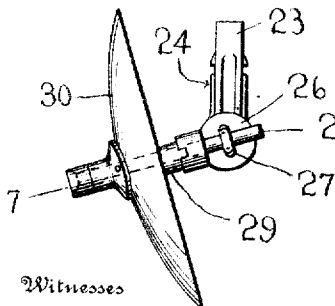


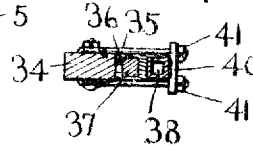
FIG. 5



Witnesses

L. B. Jarner
L. C. McCarty

FIG. 6



Inventor

Henry Smith

By

Charles C. C. C.
Attorneys

UNITED STATES PATENT OFFICE

HENRY SMITH, OF OCTAVIA, NEBRASKA.

PLANTER.

935,063.

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To all whom it may concern:

Be it known that I, HENRY SMITH, a citizen of the United States, residing at Octavia, in the county of Butler, State of Nebraska, have invented certain new and useful Improvements in Planters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same;

The present invention relates to improvements in planters, and more especially in riding planters, and its main object is the production of a comparatively simple and extremely efficient machine of that type including a seed dropping mechanism, a middle breaker located adjacent the discharge end or foot of the dropper tube, and weeding and covering devices, all of such elements being carried by or connected with a single rocking frame connected in turn with an operating lever, the movement of which latter, in one direction or the other, will therefore raise the several elements to any height or throw them into the ground to any suitable depth.

The invention also contemplates the provision of yielding connecting devices between the rocking frame and the lever, to permit the several elements above-mentioned to ride over any obstructions in their path, and it further contemplates the provision of connecting devices between the weeding disks and their supports so arranged as to permit said disks to be set at any desired angle to each other and to the middle breaker, and to be retained in adjusted position. The invention still further resides in the particular driving connections between the axle of the machine and the dropper mechanism.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts or features, are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a plan view of the complete machine. Fig. 2 is a side elevation with the adjacent supporting wheel and cutting disk removed, and the axle shown in section. Fig. 3 is a rear elevation. Fig. 4 is a detail view, showing the casting which carries the middle breaker and the seed tube. Fig. 5 is a transverse

section taken on the line 5-5 of Fig. 4. Fig. 6 is a detail view illustrating the connection between one of the disks, and its support. Fig. 7 is a sectional view taken on the line 7-7 of Fig. 6. Fig. 8 is a view partly in section through the center of the axle 1. Fig. 9 is a detail view showing the loose connection between certain hangers and sleeves in this invention.

Referring more particularly to the drawings, 1 designates the axle, 2 the supporting or ground wheels, whose rims are concaved, as indicated by the numeral 3, 4 the relatively stationary front frame of the machine, and 5 the tongue bolted thereto adjacent its rear end.

The left-hand end of the axle 1, (with respect to Figs. 1 and 3) extends loosely through a sleeve 6 which is rigidly secured to the hub of the adjacent wheel 2 and is connected by a tongue and groove joint 7 with the hub of a beveled pinion 8 fitted loosely upon the axle and disposed within a housing 9 fastened in any preferred manner to the adjacent tubular end portion of a second sleeve 10, the central portion of which is squared, as illustrated in the figures above mentioned. The other end portion of the sleeve 10 is likewise tubular, and its extremity contacts with a collar 12 fast upon the right-hand end portion of the axle. The frame 4 is approximately U-shaped, and the legs 13 thereof terminate at their free rear ends in eyes 14 which embrace the squared central portion of said sleeve 10.

The above-mentioned portion of the sleeve 10 also has connected therewith a pair of depending hangers 15, the upper and lower members of which are bolted together, as shown in Fig. 2, the squared portions of said sleeve being clamped between said members. These hangers are located adjacent the inner faces of the eyes 14 and terminate at their free lower ends in out-turned bearing sleeves 16 which extend in opposite directions, the openings in these bearing sleeves registering with those in a pair of similar in-turned sleeves 17 formed upon the lower ends of a pair of depending hangers 18 secured to the forward ends of the legs 19 of the rear frame 20, which is likewise U-shaped.

Through the openings in the pairs of sleeves 16 and 17 project the laterally-bent ends of a pair of crank arms 21, said ends being held against displacement by means of

split pins or similar devices 22. The major portions of these arms extend rearwardly and have fitted upon their free ends sleeves 23 formed upon castings 24 provided with flattened rear ends 25, the lower face of each of said ends having a radial series of teeth formed thereon. These ends, therefore, form clutch members which are arranged for engagement with a similar series of teeth formed upon the upper face of a slotted casting 26, mounted upon an eye-bolt 27 through whose eye extends the stem of a second bolt 28, the head of which is held in a recess formed in a cutting disk 30 which is spaced from the end 25 by means of a sleeve 29. The formation of the two sets of teeth thus permits the disks to be set at any desired angle to each other and to the seed tube 31 which is located between the disks, as hereinafter described. To effect the retention of the disks in adjusted position, the threaded stems of the bolts 27 are arranged to pass through openings formed in the ends 25 of the castings 24, the projecting ends of the bolts being engaged with nuts 32 which are adapted to be tightened against the said end 25, so as to clamp the latter to the castings 26.

The crank arms 21 are secured intermediate their ends to the ends of a transverse beam 33 to the central portion of which a vertical beam 34 is fastened, the upper end of the last mentioned beam being inclined slightly toward the front end of the machine. The lower portion of said beam 34 has removably secured to its rear face by means of upper and lower pairs of pivoted bolts 35, a casting 36 provided with front and rear vertical slots in which are fitted respectively, a standard or rod 37, and the lower section 38 of the seed tube 31, said standard having fastened to its lower end a sub-soil plow 39, or middle breaker, as it is more often termed, said plow comprising a pair of wings converging at their front ends, the free end of said section 38 extending between the rear portions of the wings.

The threaded free ends of the bolts 35 above referred to pass through openings formed in the ends of a pair of transversely-disposed parallel straps 40 secured to the rear face of the casting 36, the projecting ends of said bolts being engaged with lock nuts 41, as shown in Figs. 3 and 4.

The upper portion of the section 38 of the seed tube projects some distance above the casting 36 and is inclined slightly toward the rear of the machine, so as to dispose its flared upper end or mouth in position to receive the lower end of the upper section 42 of the seed tube, the mouth of the latter section fitting in the lower end of a discharge spout 43 secured to the bottom of the seed box 44, the seed being supplied to the spout during the rotation of the dropper plate 45.

This plate is driven by a shaft 46 having a gear connection of the usual type (not shown) with said plate, said shaft having its outer end provided with an eye 47 attached to an eye 48 formed upon the upper end of the hollow upper section 49 of a shaft, whose lower section 50 fits in said upper section, and has secured to its lower end a beveled pinion 51, which meshes with the pinion 8 located within the housing 9. The two sections of the shaft are normally held extended by means of an expansible coil-spring 52 which embraces the section 50, as shown in Fig. 3. The rotation of the first-mentioned pinion which is connected through the sleeve 6 with the adjacent supporting wheel 2 will therefore effect a discharge of seed from the box 44 at predetermined intervals through the seed tube into the furrow opened by the middle breaker 39.

The casting 36 which carries the rod or standard 37 and the lower section 38 of the seed tube has attached to its side faces a pair of rearwardly extending straps 53 which diverge toward their free ends; each of said straps being provided adjacent such point with a bracket 54 adjustably attached thereto by means of suitable bolts. Each bracket is in turn provided with a shovel 55 whose stem portion is connected thereto by a clip or similar device 56, the shovels being adapted to cover the furrows in which the seeds have been deposited. The straps 53 are held against movement toward or from each other by means of a bolt 57, disposed transversely of and connected at opposite ends to said strap.

The legs 19 of the rear frame 20 are connected adjacent their forward ends by a transverse beam 58, and at their rear ends by a similarly disposed beam 59 which forms the rear member or bight portion of said frame, the last-mentioned beam being formed with a centrally located upstanding arch 60. The extreme rear ends of said legs 19 are bent laterally to permit of their connection to the beam 59, and these bent portions are in turn bent parallel with the body portions of the legs, as shown in Fig. 1, the last-mentioned bends being bolted to a pair of upwardly and forwardly inclined braces 61, whose free ends are in turn, bolted to the legs of an inverted U-shaped brace 62. The free ends of the legs of the brace 62 are bolted to the castings 24, and the bight portion of said brace is fastened to the central portion of the rod 63 which supports the seed box 44 and has its foot bolted to the beam 58. It will thus be seen that the rear frame 20 carries the seed box and the seed tube, as well as the middle breaker, the weed-cutting disks, and the furrow covering shovels. This frame is yieldingly pressed toward the ground by means of an expansible coil-spring 64, which embraces the rear portion

of a rod 65 pivoted at its forward end to an operating lever 66, the free end of said rod extending through registering openings formed in the two members of which the brace 62 consists; said spring bearing at its rear end against said brace, and at its forward end against a collar 67 rigidly secured to the rod 65.

The lever 66 which is set at an angle to the plane of the front frame 4, has its lower end pivoted to a plate 68 bolted to the rear end of the tongue 5; said plate having fastened thereto the foot of a segmental rack 69 with which a dog 70 carried by the lever is arranged for normal engagement under the influence of a coil spring 71 whose lower end is connected to the hooked free end of the rack, while its upper end is connected to a hook formed on a U-shaped strap 72 pivoted to said lever, as shown in Figs. 1 and 2.

By reason of the construction above described, it will be apparent that when the operating lever is swung toward the front end of the machine, the frame 20 will have imparted thereto upward swinging or rocking movement, as a result of which the various ground-treating implements above mentioned, as well as the discharge end of the seed tube, will be raised above the ground. When, however, the operating lever is moved in the opposite direction, the rocking or swinging frame will be moved correspondingly, so as to force the ground-treating implements the requisite depth into the ground.

The operating lever is so disposed as to be within easy reach of the occupant of the seat 73, which latter is secured to the rear end of a brace 74 whose foot is bolted to a short connecting beam 75 secured to the front member of the frame 4 and to the axle. In order to prevent disengagement of the link or rod 65 with the brace 62, during the forward movement of the operating lever, and to insure the rocking movement of the rear frame, said rod is provided with a cross pin 76 arranged to bear against the rear face of the brace 62, said pin fitting interchangeably in any one of a series of openings formed through the rod.

The operation of the machine, as a whole, is thought to be apparent from the foregoing, an extended description of such operation being omitted for this reason.

If desired, the planting mechanism, as a whole, may be removed from the frame of the machine, and the latter used solely as a cultivator, in which case, the ground wheels 2 are likewise removed, and the ends of the bight portion of the frame 4 are formed with spindles 77 as shown in Fig. 1. These spindles are designed to carry ground supporting wheels whose diameter is less than that of the wheels 2. Inasmuch, however,

as the machine is designed primarily for use as a planter, illustration of the last mentioned ground wheels is omitted.

What is claimed is:

1. In a machine of the class described, the combination of a frame; a transversely disposed beam secured thereto; a vertical beam secured to the transverse beam; a member secured to the vertical beam and provided with a pair of vertical slots, one slot being formed directly in front of the other; a rod fitted in the front slot and projecting below the member at its lower end; a plow secured to said projecting end and comprising a pair of converging wings; a seed box; and a seed tube connected with said box and having its lower portion projecting through the rear slot in the member, the free end of said portion extending between the wings of the plow.

2. In a machine of the class described, the combination of a frame; a beam connected with the frame; a casting secured to said beam; a rod and a seed tube carried by said casting and located one directly in advance of the other; a plow comprising a pair of converging wings secured to the lower end of said rod; a seed box to which the upper end of said tube is connected; the lower end of said seed tube extending between the wings of the plow; a pair of rearwardly-extending straps secured to said casting; and shovels secured to the free ends of said straps.

3. In a machine of the class described, the combination of a frame; a beam connected with the frame; a casting secured to the beam and provided with front and rear vertical slots; a rod fitted in the front slot and projecting below the casting at its lower end; a plow comprising a pair of converging wings secured to said projecting end; a seed box; a seed tube connected with said box and having its lower portion fitting in the rear slot in the casting; the free lower end of said tube extending between the wings of the plow; a pair of rearwardly-extending straps secured to the opposite sides of said casting; and shovels secured to the free ends of said straps.

4. In a machine of the class described, the combination of a frame; a beam connected therewith; a casting secured to said beam; a rod and a seed tube carried by said casting and located one directly in advance of the other; a plow comprising a pair of converging wings secured to the lower end of said rod; a seed box to which the upper end of said tube is connected, the lower end of said seed tube extending between the wings of the plow; a pair of rotatable disks carried by said frame and disposed upon opposite sides of said casting; and means for rocking said frame, to move the several elements toward or from the ground.

5. In a machine of the class described, the combination of a frame; a beam connected therewith; a casting secured to the beam and provided with front and rear vertical slots; a rod fitted in the front slot and projecting below the casting at its lower end; a plow comprising a pair of converging wings secured to said projecting end; a seed box mounted upon the frame; a seed tube connected with said box and having its lower portion fitting in the rear slot in the casting, the free lower end of said seed tube extending between the wings of the plow; a pair of rotatable disks carried by said frame and disposed upon opposite sides of said casting; and means for rocking said frame, to move the several elements toward or from the ground.

6. In a machine of the class described, the combination of a frame; a beam connected therewith; a casting secured to said beam; a rod and a seed tube carried by said casting and located one directly in advance of the other; a plow secured to the lower end of said rod; a seed box mounted upon the frame and having the upper end of the seed tube connected thereto; a pair of rotatable disks carried by said frame and disposed upon opposite sides of said casting; a pair of rearwardly-extending straps secured to the opposite sides of said casting; furrow covering

devices secured to the free ends of said straps; and means for rocking said frame, to move the several elements toward or from the ground.

7. In a machine of the class described, the combination with a frame; a rod and a seed tube connected with the frame and located one directly in advance of the other; a plow comprising a pair of converging wings secured to the lower end of said rod; a seed box mounted upon the frame and having the upper end of said tube connected thereto, the lower end of said tube extending between the wings of the plow; a pair of rotatable disks carried by said frame and disposed upon opposite sides of said plow and tube; and connecting devices between each disk and the frame, said devices each including a pair of toothed clutch members, one of which is rotatable with respect to the other and is connected to the adjacent disk, and means for retaining said clutch members in engagement with each other in adjusted position to vary the angle of said disks to each other.

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

HENRY SMITH.

Witnesses:

J. E. GRAVES,
M. S. KELLER.