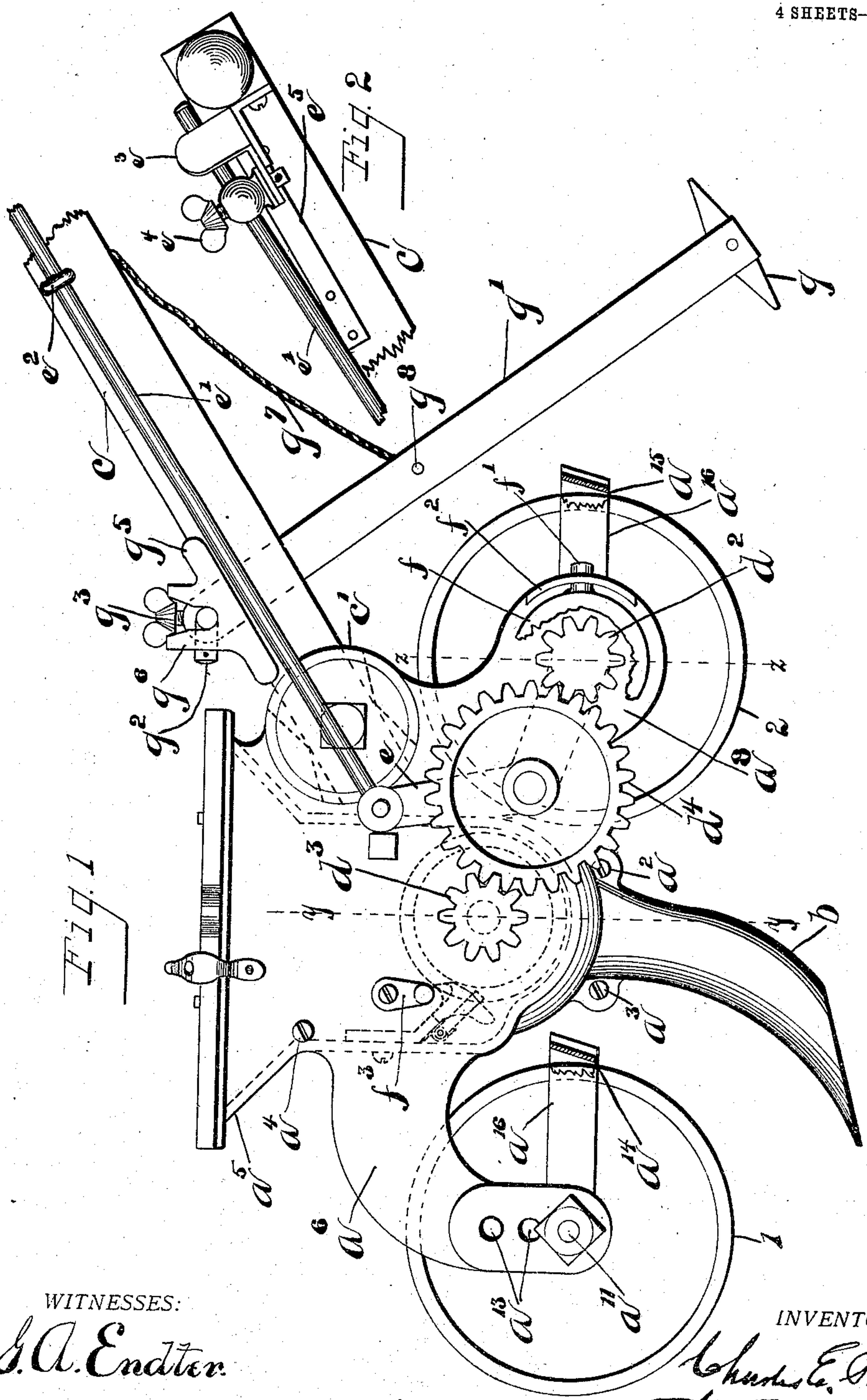


899,557.

C. E. PATRIC.
PLANTING MACHINE.
APPLICATION FILED APR. 24, 1908.

Patented Sept. 29, 1908.
4 SHEETS—SHEET 1.



WITNESSES:

S. A. Endter
Charles J. Welch

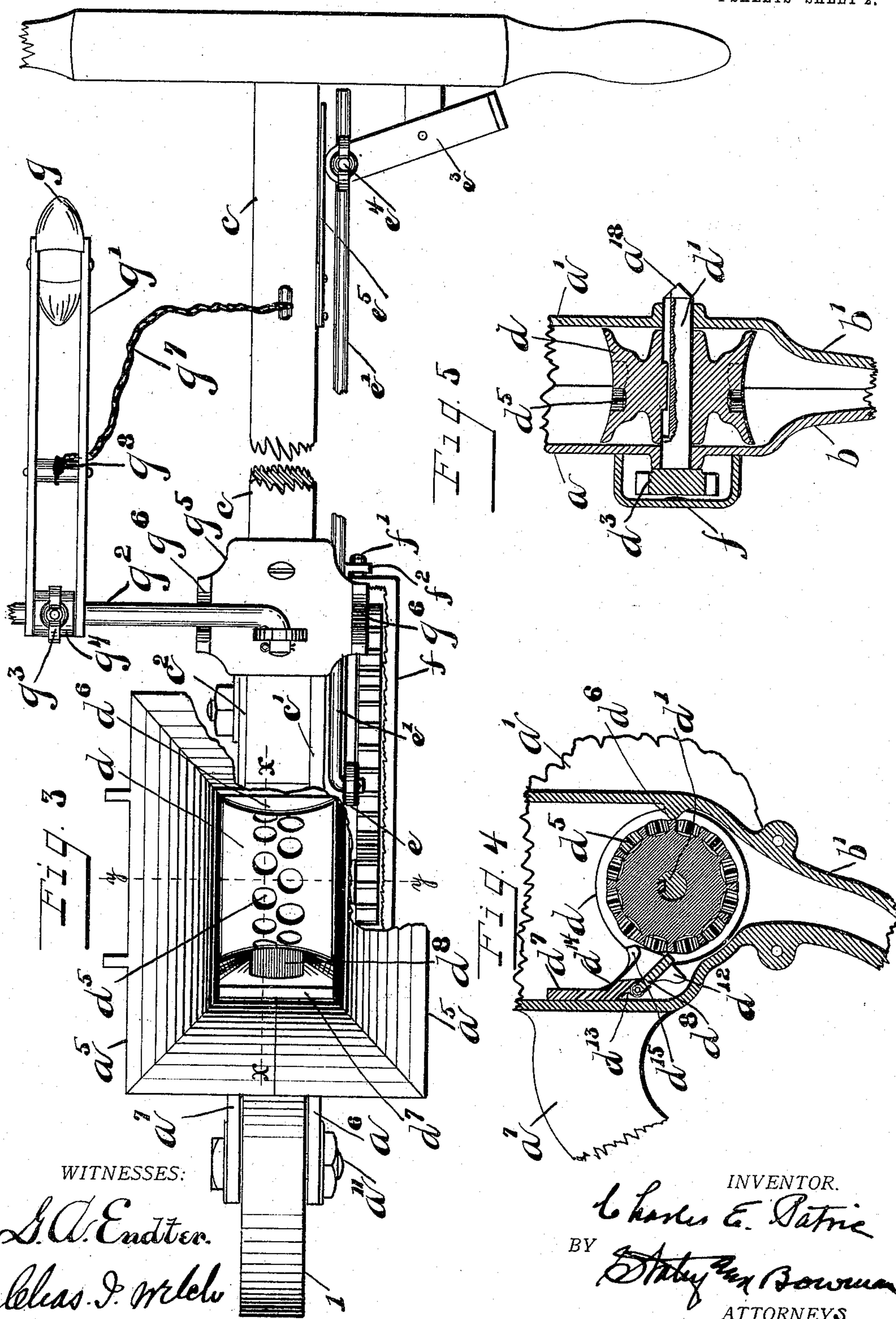
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4 SHEETS—SHEET 2.



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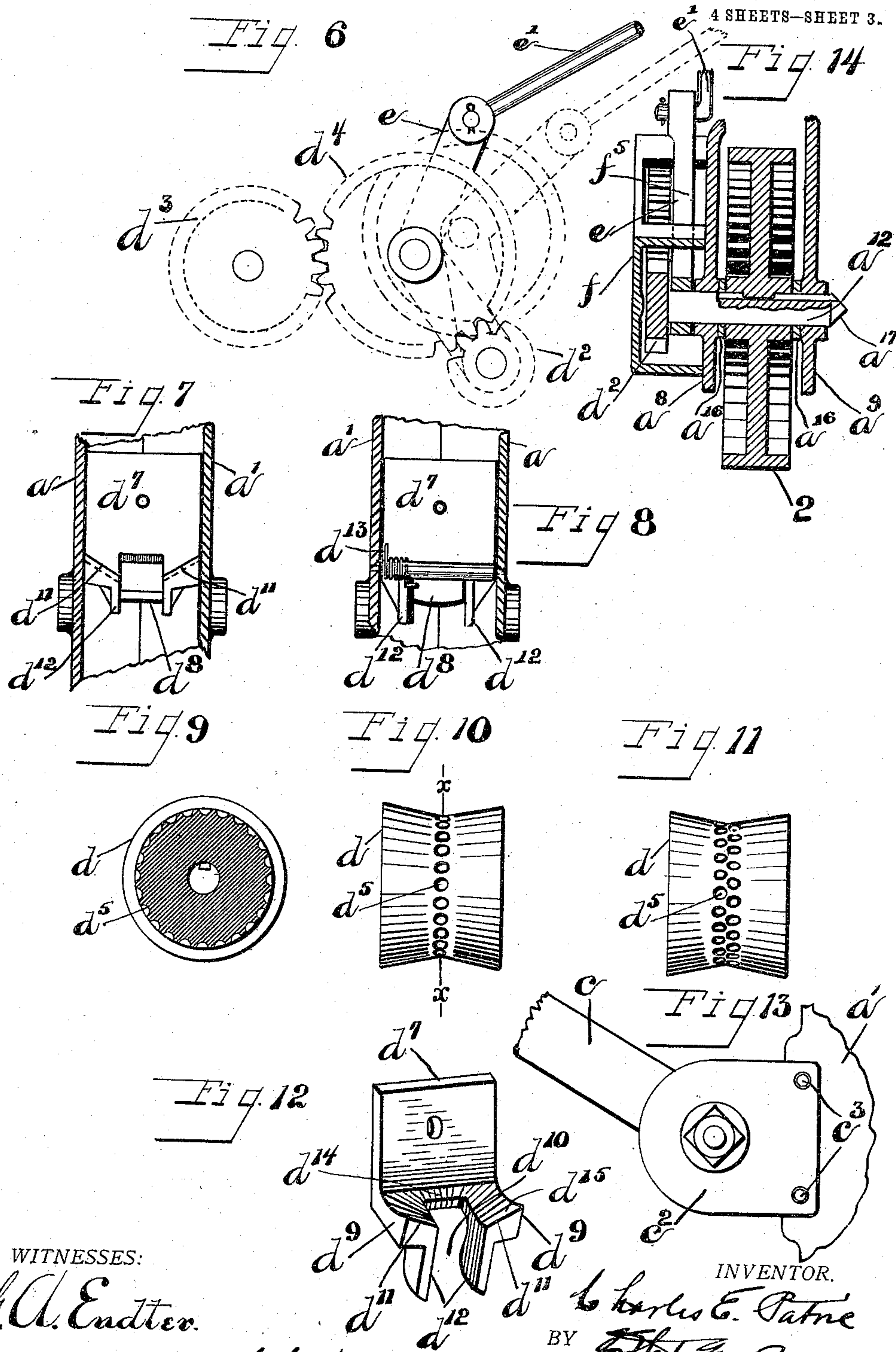
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4 SHEETS—SHEET 3.



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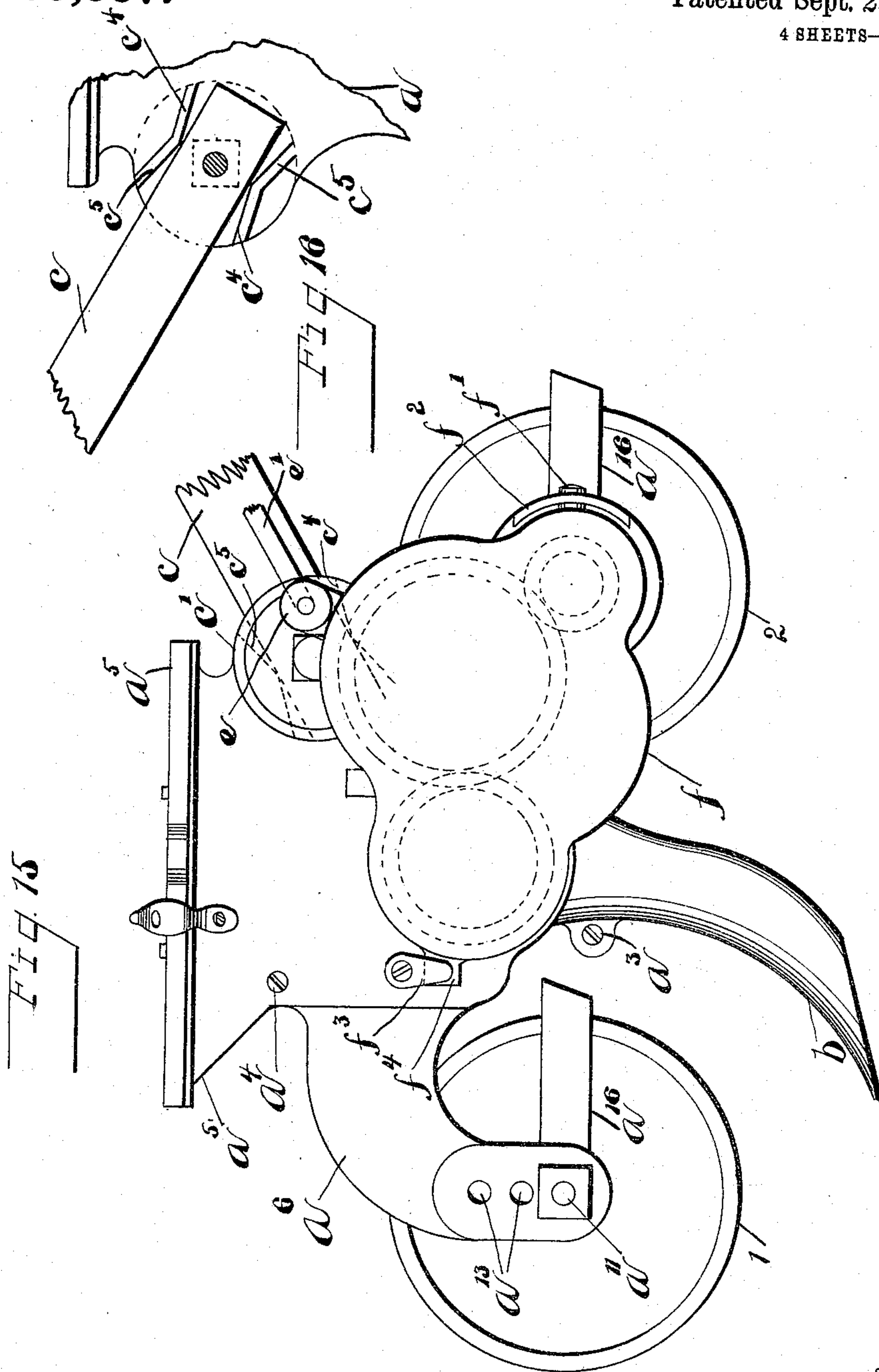
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

CHARLES E. PATRIC, OF SPRINGFIELD, OHIO.

PLANTING-MACHINE.

No. 899,557.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed April 24, 1908. Serial No. 428,991.

To all whom it may concern:

Be it known that I, CHARLES E. PATRIC, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Planting-Machines, of which the following is a specification.

This invention relates to improvements in seeding machines and more particularly to machines of this class which are designed to be manipulated by hand.

An object of my invention is to provide a light, cheap and simply constructed machine for planting purposes which is capable of being readily propelled and manipulated by a single operator.

A further object is to improve in the seed-feeding devices and in the mechanism for throwing them into and out of operation.

A further object is to simplify and cheapen the construction of the frame parts and also to combine with the frame as an integral part thereof certain of the operating devices.

My invention consists in the constructions and combinations of parts hereinafter described and set forth in the claims.

In the accompanying drawing, Figure 1 is a side elevation of my improved machine, the upper part of the operator's handle and its connected parts and the gear casing being broken away. Fig. 2 is a view of the upper part of the operator's handle in detail. Fig. 3 is a top plan view of the machine. Fig. 4 is a longitudinal sectional view on the line $x x$ of Fig. 3 through the hopper and seed-feeding devices therein. Fig. 5 is a vertical transverse section through the same on the line $y y$ of Figs. 1 and 3. Fig. 6 is a detail of the driving gears for the feed shaft, showing the same in engagement in full lines and in disengaged position in dotted lines. Fig. 7 is a front view of the check-plate and valve for the seed located in the hopper, the hopper being shown in section. Fig. 8 is a rear view of the same. Fig. 9 is a section through the feed wheel. Fig. 10 is a front elevation of same. Fig. 11 is a similar view of a slightly different form of wheel. Fig. 12 is a perspective view of the check-plate. Fig. 13 is a detail of a portion of the handle and its adjustable clamping device. Fig. 14 is a sectional view on the line $z z$ in Fig. 1. Fig. 15 is a side elevation of the device showing the gear casing in full lines. Fig. 16 is a detail hereinafter referred to.

Like parts are indicated by similar characters of reference in the several views.

The machine which I have devised is adapted to be propelled by the operator and is mounted upon two carrying wheels, 1 and 2. The casing or frame proper, is constructed in two parts, a and a^1 , connected together by suitable fastening devices at a^2 , a^3 and a^4 and the upper portion of each frame member is enlarged to form a hopper, as shown at a^5 .

To the lower part of each casing member is integrally formed one-half of the furrow opening device, indicated at b and b^1 ; this furrow opening device being in the nature of a hoe. The casing members have also each a forwardly projecting portion, a^6 a^7 , and a rearwardly projecting portion, a^8 a^9 , to which the respective carrying wheels, 1 and 2, are secured, the front wheel, 1, being loosely mounted upon its shaft a^{11} , while the rear wheel is splined to its shaft or axle, a^{12} , to cause it to rotate therewith, as shown in Fig. 14. It will be seen that the frame or casing proper, the hopper, furrow opening device and bearing supports are all cast in two integral halves, which may be quickly and easily assembled.

For the purpose of regulating the depth of planting I have provided means for adjusting the bearings for the front wheel so that this wheel will act in the nature of a gage. The forward projections, a^6 a^7 , are provided with a series of openings, a^{13} , in any one of which the shaft, a^{11} , for the wheel may be secured. By moving this shaft up or down it will be seen that the hoe will be caused to make a furrow of greater or less depth as desired.

To prevent dirt and mud from accumulating on the peripheries of the carrying wheels, I provide a scraper, a^{14} and a^{15} , for each wheel, each of these scrapers being secured to arms, a^{16} , which are secured between the frame projections, a^6 , a^7 and a^9 , in any suitable manner.

As before stated, the machine is propelled by hand and for this purpose there is provided a handle, c , which projects rearwardly in position to be grasped by the operator. The lower end of this handle is clamped between a projecting boss, c^1 , on the frame part, a , and also a plate, c^2 , which fits loosely over pins, c^3 , on the frame part a^1 , so as to be held from longitudinal and vertical movement but at the same time be capable of lateral adjustment. The boss projects beyond the

handle at the top and bottom and formed on the boss both above and below the handle are ribs, c^4 c^5 , (see Fig. 16) projecting in opposite directions and at an angle to the handle when in its normal position. The handle is clamped snugly but not rigidly between the boss and plate so that the parts are capable of movement with reference to each other within the limits of the ribs, which act as stops. By this construction, when the machine passes over a depression in the ground, the rear driving wheel will be permitted to follow the depression and thus obviate the danger of interruption in its driving operation as would be the case if the handle was rigid with the machine and was grasped firmly by the operator. By having the plate, c^2 , adjustable laterally, as described, any wear on the wooden handle can be compensated for and the plate caused to fit snugly against the handle, this construction obviating the danger of breakage in the case where the plate was cast integrally with the main casing or frame, since no springing action would be permitted by the cast-plate without danger of breaking it.

Located within the casing or hopper formed by the frame portions is a feeding or distributing wheel, d . This wheel is splined to a feed or operating shaft, d^1 , which derives its motion from the carrying wheel, 2, through the medium of a pinion d^2 , integrally connected to the shaft, a^{12} , of said wheel, pinion d^3 integrally secured to the feed shaft, and intermediate gear, d^4 , journaled on a gear lever or bent arm, e . The feeding or distributing wheel is formed with a concave outer surface or periphery and with one row or series of pockets, d^5 , for the seed, located in the center of the concave portion of the wheel. For certain kinds of seed or when large quantities are desired to be sown two rows or series of pockets may be provided, as shown in Fig. 11. The ends of the distributing wheel fits snugly against the sides of the casing and on the rear side of the wheel there is extended from the casing a convex projection, d^6 , conforming to the concave shape of the periphery of the wheel so as to close the space between the casing and wheel at this point.

The space between the casing and the wheel on the opposite or forward side is closed by a check-plate, d^7 , of peculiar construction, and a gate d^8 . The plate is secured to the end of the casing by a screw or other fastening device and has on each side thereof a downwardly and rearwardly projecting portion, d^9 , which fits snugly against the periphery of the distributing wheel, the ends of these projecting portions being beveled so as to conform to the shape of the concave wheel. These projecting portions, d^9 , form in effect an opening, d^{10} , in the plate and each of the projecting portions is inclined toward said opening, as indicated at d^{11} , and

that portion of the plate between the opening and the plate proper is also inclined toward the opening, as indicated at d^{14} . The projecting portions, d^9 , are also formed concave so as to incline downwardly away from the feed-wheel as indicated at d^{15} . Each of the projecting portions has a downwardly projecting wall, d^{12} , between which walls the gate or valve is adapted to lie; this gate or valve being pivoted to the sides of the casing beneath the plate, d^7 , and spring-pressed between the walls by a spring, d^{13} ; the end of said gate being of convex form to fit snugly the concave surface of the distributing wheel. The result of this construction is that there is formed a throat or channel opposite the pockets of the distributing wheel having a flaring mouth, which throat or channel is normally closed by a yielding gate or valve. This permits all of the seed in the hopper to be fed into the pockets of the distributing wheel, yet at the same time only such seeds as are in the pockets will pass through the channel. In the event that a seed which is larger than the pocket containing it is being fed, or in the event that two or more seeds become wedged in a pocket, the yielding gate or valve will give sufficiently to permit its passage without breaking or injuring the seed; the walls, d^{12} , between which the gate is located effectively preventing any of the seeds from dropping below or behind the gate and interfering with its operation. Also, by reason of the fact that the portions, d^9 , are inclined downwardly away from the feed wheel all danger of the wheel wedging and breaking the seeds at this point is obviated.

Means are provided for throwing the seed-feeding devices out of operation by disengaging the intermediate gear, d^4 , from the pinion d^3 . This intermediate gear, as before stated, is journaled on the gear-lever or bent arm, e , which is pivoted at its rear end to the shaft or axle of the rear driving wheel and has pivotally connected at its forward end an operating rod, e^1 , which extends up to within convenient reach of the operator. This rod is extended through a guide, e^2 , on the handle and is connected at its rear end to a pivoted lever e^3 on the handle by a thumb-screw, e^4 . This lever is held in either position of its movement by a flat spring, e^5 , attached to the side of the handle and operating against the end of the lever in a way which will be well understood.

As before stated, the pinions d^2 and d^3 are integrally secured to their respective shafts. The opposite ends of the shafts are provided with pointed ends, as indicated at a^{17} and a^{18} , so as to permit their ready insertion through the hubs of the feeding wheel and rear driving wheel, respectively, in assembling the machine. In order to secure these pinions and their shafts in their assembled positions, and also to provide a cover for the

train of gearing, I have surrounded them by a shield or casing, *f*, which lies close to the respective pinions so as to prevent their displacement. This shield is secured at the rear to the rearwardly projecting portion, *a*⁸, of the main casing or frame by a pin, *f*¹, on the casing, *f*, being projected loosely through a lateral rib or flange, *f*², on said projection, as shown in Fig. 1. At its forward end it is secured by a latch, *f*³, on the main casing, engaging with an ear or lug, *f*⁴, on the shield. An opening, *f*⁵, in said casing, permits the passage of the gear supporting arm, *e*, as shown in Fig. 14. By reason of this construction it will be seen that the pinions and the shafts to which they are connected can be readily removed by simply removing the shield and pulling them out. This is especially important in the case of the pinion and shaft of the feed-wheel, since it is the intention to furnish with each machine two or more pinions of different sizes to provide for a change of speed, the adjustable thumb-screw *e*⁴ permitting the operating rod and consequently the gear lever and gear to be adjusted to the different sizes of pinions.

g represents a marker for the furrows. The arms, *g*¹, of this marker are adjustably secured to the pivoted arm, *g*², by the thumb-screw, *g*³, in the collar, *g*⁴, which is located between the pivoted ends of said arms. The arm, *g*², is pivotally attached to a plate, *g*⁵, secured to the handle, and is adapted to rest in either one of the forked projections, *g*⁶, of the plate when in its working position. A rope or chain, *g*⁷, attached to the arms, *g*¹, at *g*⁸, and extending in convenient reach of the operator, forms the means for throwing the marker to either side of the machine.

By having the feed wheel splined to its shaft and constructing the shaft and its driving pinion so that they may be readily removed, it will be seen that it is a simple and easy matter to change the feed wheel at any time for one with different sized pockets or with more than one series of pockets to adapt the machine for planting seeds of different sizes and character.

Having described my invention, I claim:—

1. In a seed planting device, a hopper or casing, a revolving seed feeding wheel, a series of pockets about the periphery thereof, an opening between said hopper and wheel, and a pivoted downwardly yieldable gate normally closing said opening, substantially as specified.

2. In a seed planting device, a hopper, a revolving seed feeding wheel therein, said wheel having a concave periphery and a series of pockets located about the same, an opening between said hopper and wheel adjacent to which said pockets pass, and a downwardly yieldable gate normally closing said opening, substantially as specified.

3. In a seed planter, a hopper, a revolving seed feeding wheel located therein, an opening between said hopper and wheel, inclined faces on said hopper leading to said opening, and a downwardly yielding gate normally closing said opening, substantially as specified.

4. In a seed planting device, a hopper, a feed wheel located in the bottom of said hopper, said feed wheel having a concave periphery with a series of pockets located about the same, an opening between said hopper and wheel, inclined faces on either side of said opening leading thereto, said faces being also extended to said feed wheel and conformed to the shape thereof, and a downwardly yieldable gate normally closing said opening, substantially as specified.

5. In a seed planting device, a hopper, a feed wheel located in the bottom of said hopper, a passage-way between said wheel and hopper, a downwardly yieldable gate normally closing said passage, and stationary walls at the sides of the path of movement of said gate, substantially as and for the purpose specified.

6. In a seed planting device, a hopper, a feed wheel located in the bottom of said hopper, a passage-way between said wheel and hopper, a yieldable gate in said passage-way, a hopper extension located across the mouth of said passage-way having an opening therein, said extension projecting from the hopper to the said feed wheel and in close proximity thereto and being inclined downwardly away from said wheel, substantially as specified.

7. In a seed planting device, a hopper, a feed wheel located in the bottom of said hopper, a passage-way between said hopper and wheel, said wheel being formed with a concave periphery having a series of pockets around the periphery thereof, a hopper extension projecting across the mouth of the passage-way having an opening therein opposite the said pockets, said extension being conformed to the concave surface of said wheel and also being inclined downwardly away from said wheel, and a yieldable gate below said plate normally closing said passage-way, substantially as specified.

8. In a seed planting device, a hopper, a feed wheel located in the bottom of said hopper, an opening between said hopper and wheel, faces on said hopper located on either side of said opening and inclined toward said opening and extending to said wheel, a downwardly swinging yieldable gate normally closing said opening, and a wall located on either side of the path of movement of said gate, substantially as and for the purpose specified.

9. In a seed planting device, a hopper, a seed feeding wheel located in the bottom of said hopper, said wheel extending from side to side of said hopper, said wheel being also

formed with a concave periphery with seed pockets located about the same, an opening in said hopper on one side of said wheel, faces extending from the hopper casing to said wheel on either side of said opening and beveled to conform to the concave surface thereof, said surfaces being also inclined toward said opening, walls extending downwardly from said faces on either side of said opening, and a swinging yieldable gate located between said walls and normally closing said opening, said gate having a convex surface conforming to the shape of the periphery of said feed wheel, substantially as specified.

10. In a seeding machine, a casing formed in two parts, an integral hopper at the upper end of said casing, an integral shoe at the lower end of said casing, and integral rearwardly and forwardly extending projections on said casing with carrying wheels secured thereto, substantially as specified.

11. In a seed planter, a hopper, a revoluble feed wheel located in said hopper, a driving shaft for said wheel having a pinion permanently attached to one end thereof, and removable means on the outside of the hopper for securing said shaft and pinion in position, substantially as specified.

12. In a seed planter, a hopper, a revoluble feed wheel located in said hopper, a driving shaft for said wheel having a pinion permanently attached to one end thereof, the opposite end of said shaft being pointed or reduced, and removable means on the outside of said hopper for securing said shaft and pinion in position, substantially as specified.

13. In a seed planter, a hopper, a revoluble feed wheel located in said hopper, a driving shaft removably secured to said wheel having a pinion permanently secured to one end thereof, and a removable shield or casing for said pinion adapted to hold the same in position, substantially as specified.

14. In a seed planter, a hopper, a revoluble feed wheel located in said hopper, a driving shaft removably secured to said feed wheel having a pinion permanently attached thereto, a driving wheel, a shaft for said wheel having a pinion permanently attached thereto, a gear or gears between said pinions, and a removable casing for said train of gearing adapted to hold said shafts and their pinions in position, substantially as specified.

15. In a seed planter, an operating handle,

a feed shaft, means for driving said shaft comprising a gear lever and its gear, an operating rod connected to said gear lever and supported by said handle, and means on said handle for holding said rod in different positions, substantially as specified.

16. In a seed planter, an operating handle, a feed shaft, means for operating said shaft comprising a gear lever and gear, an operating rod connected to said lever, and a lever at the end of said handle adjustably connected to said rod, substantially as specified.

17. In a seed planter, an operating handle, a feed shaft, means for driving said feed shaft comprising a gear lever and its gear, a rod connected to said gear lever and supported by said handle, an operating lever on said handle connected to said rod, and a spring on said handle for holding said operating lever in different positions, substantially as specified.

18. In a seed planter, a main frame or casing, front and rear carrying wheels therefor, said rear carrying wheel constituting a driving wheel for the operating parts, an operating handle extending rearwardly from said frame or casing, and means for connecting said handle to said frame or casing to permit a limited movement of said frame or casing with reference to said handle, substantially as and for the purpose specified.

19. In a seed planter, a main frame or casing, carrying wheels therefor, an operating handle connected to said main frame or casing and extending rearwardly therefrom, said connection consisting of a boss on said frame or casing and a plate attached to said frame or casing to permit lateral movement thereof but to prevent longitudinal and vertical movement with means for clamping the end of said handle between said boss and plate, substantially as specified.

20. In a seeding machine, a casing formed in two parts, hopper parts integrally connected to the upper ends of said casing parts, and a furrow opener integrally connected to the lower end of said casing, substantially as specified.

In testimony whereof, I have hereunto set my hand this 21st day of April, 1908.

CHARLES E. PATRIC.

Witnesses:

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MARJORIE S. MORROW.