

(No Model.)

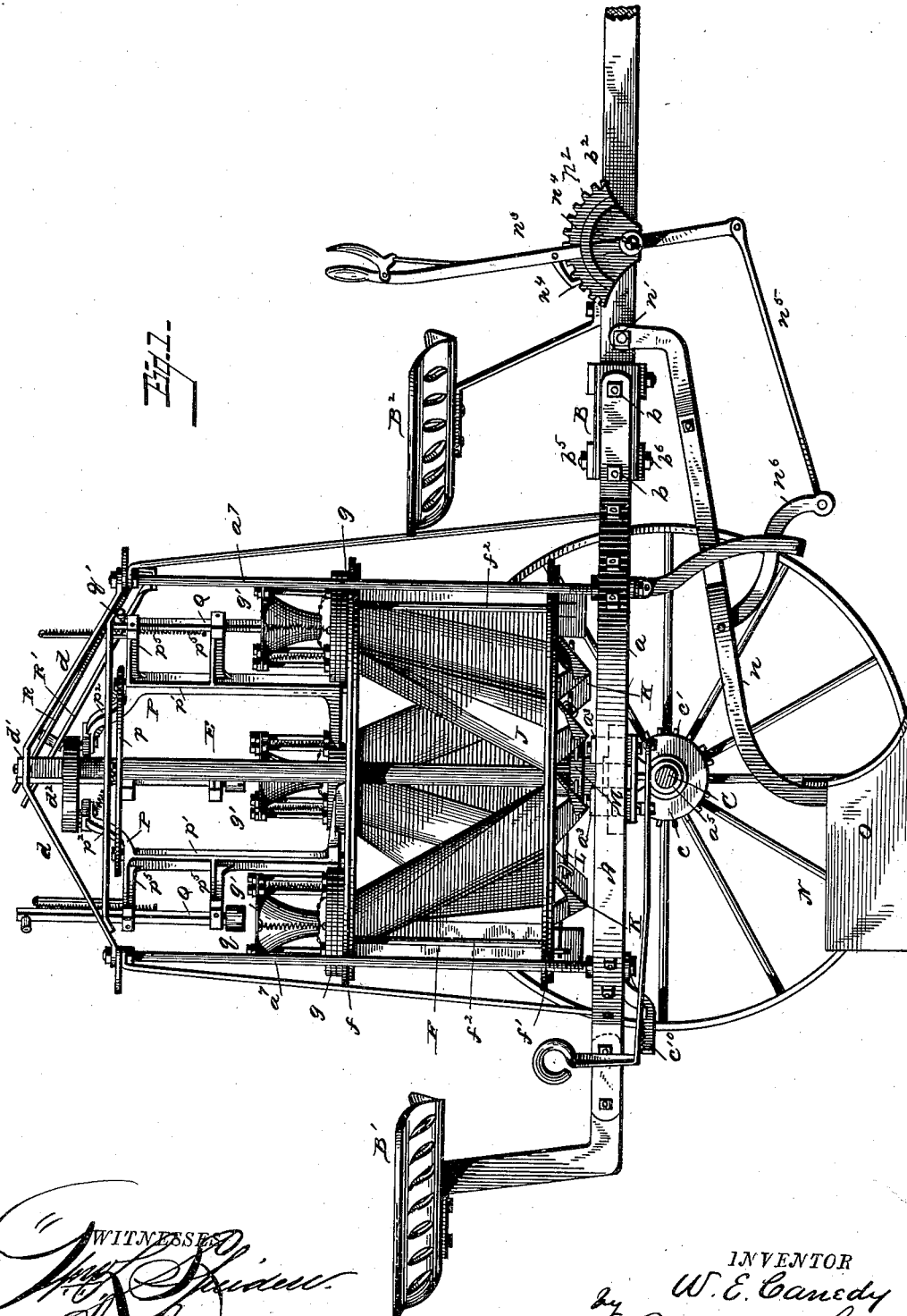
4 Sheets—Sheet 1.

W. E. CANEDY.

POTATO PLANTER.

No. 343,984.

Patented June 22, 1886.



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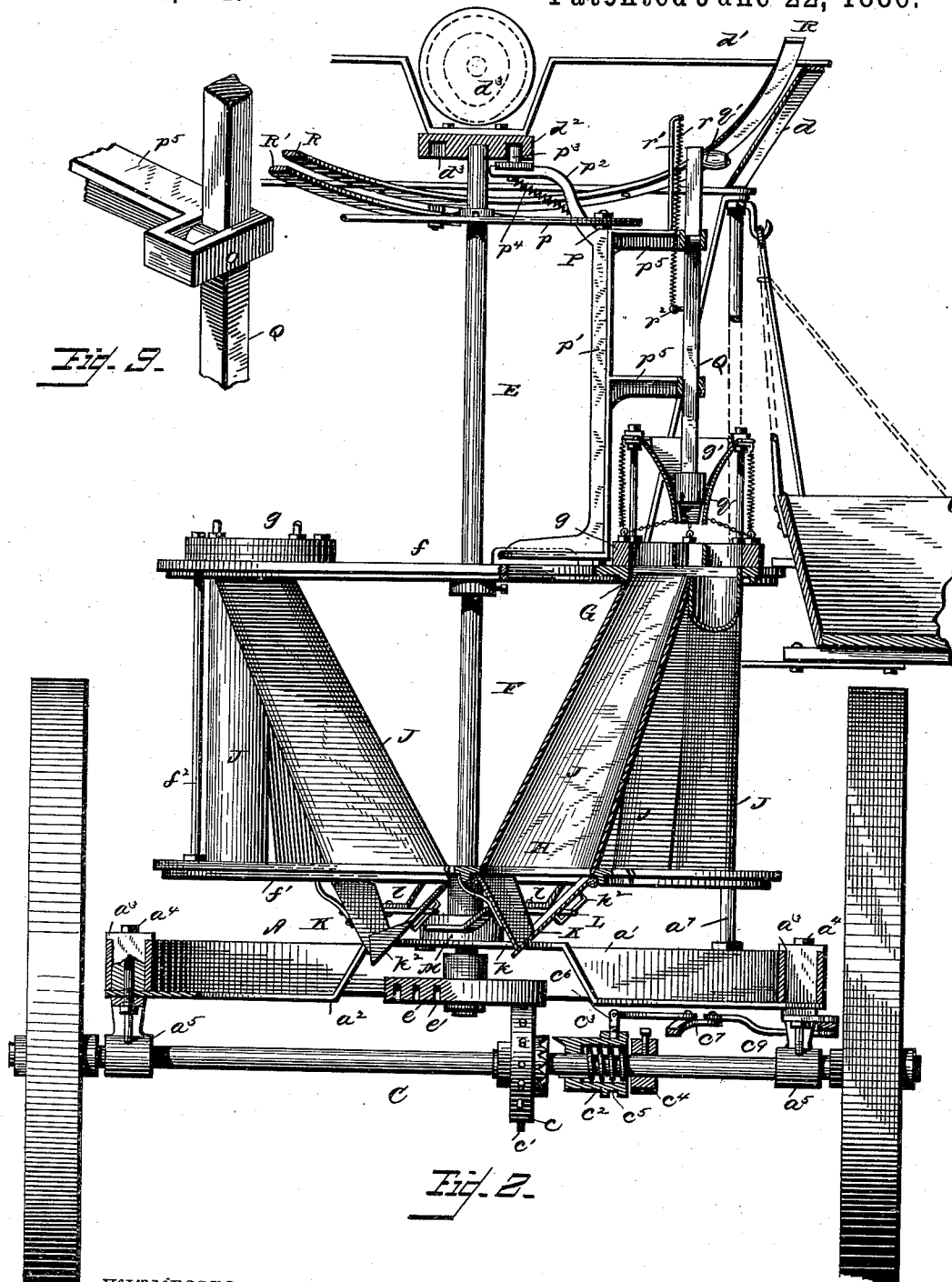
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(No Model.)

4 Sheets—Sheet 3.

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Fig. 3.

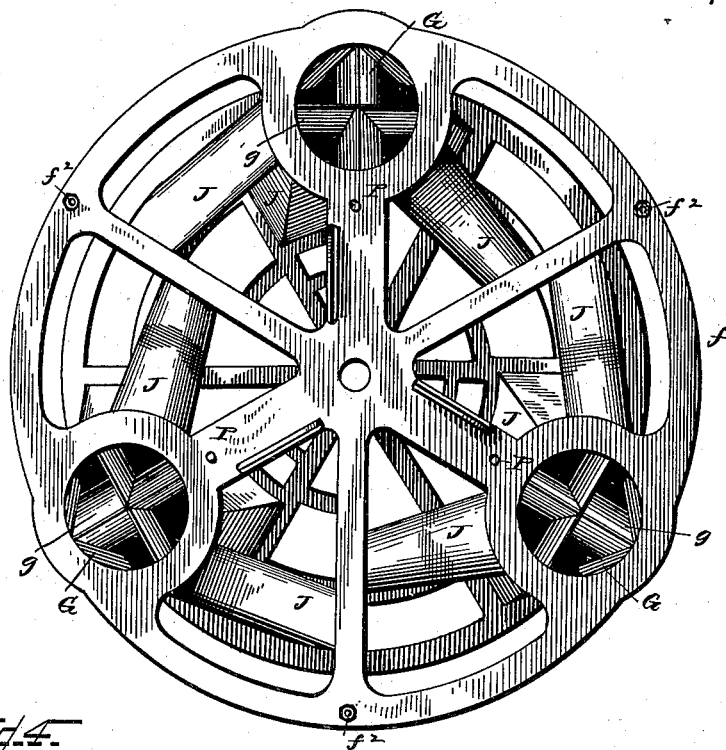
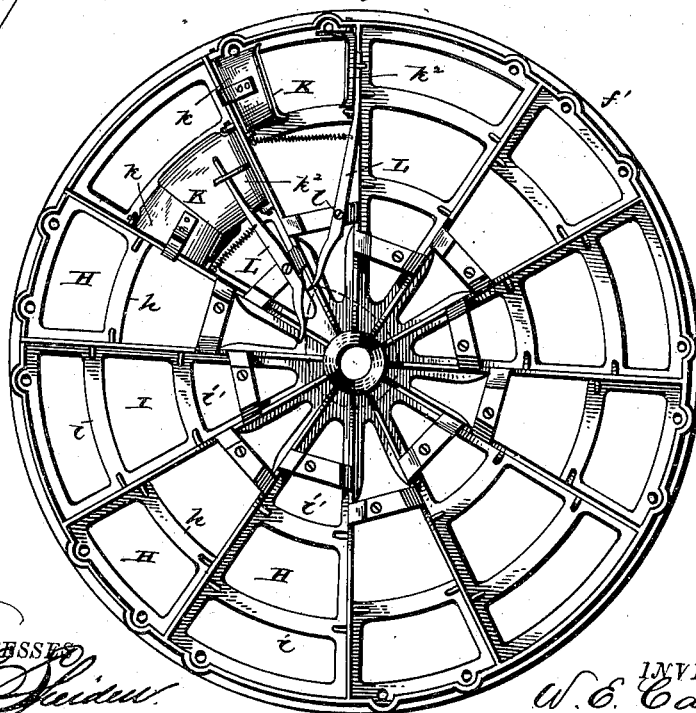


Fig. 4.



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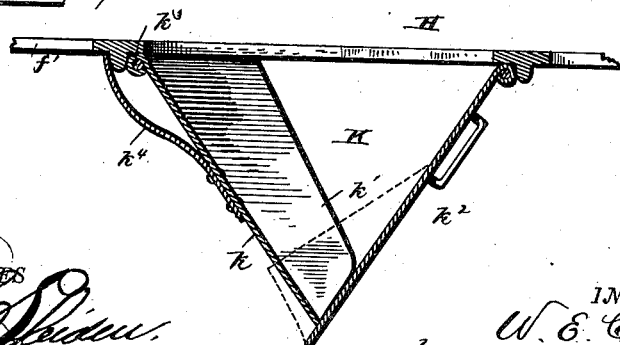
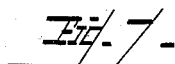
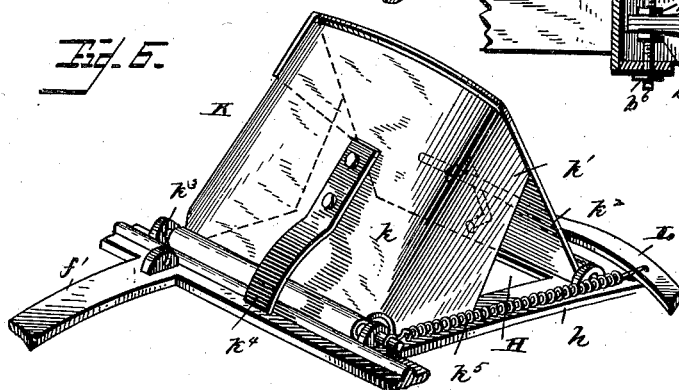
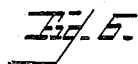
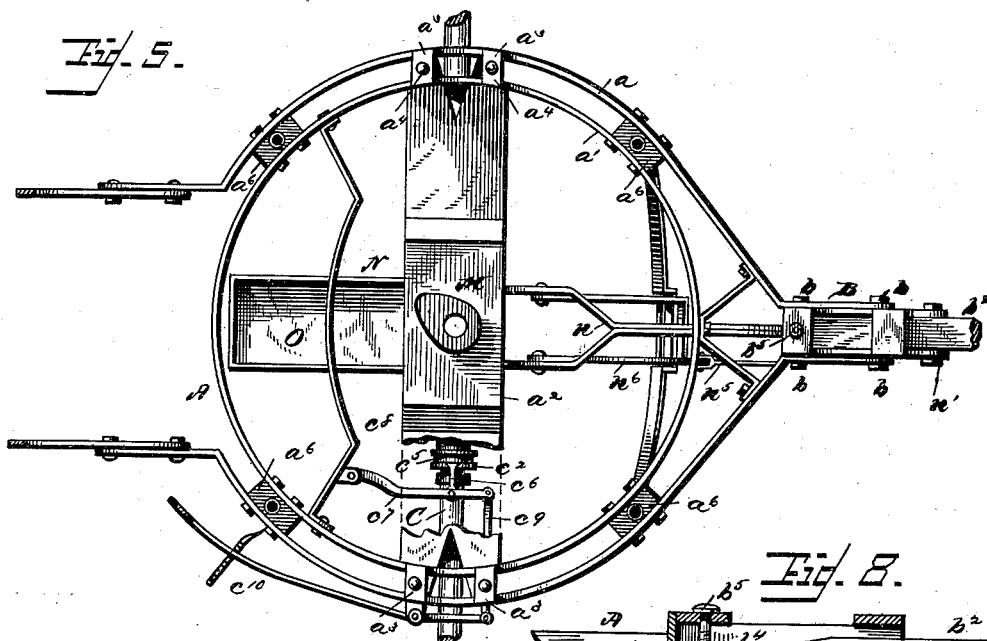
(No Model.)

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W. E. CANEDY.
POTATO PLANTER.

No. 343,984.

Patented June 22, 1886.



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UNITED STATES PATENT OFFICE.

WILLIAM E. CANEDY, OF ROCHESTER, MINNESOTA.

POTATO-PLANTER.

SPECIFICATION forming part of Letters Patent No. 343,984, dated June 22, 1886.

Application filed February 10, 1885. Serial No. 155,549. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. CANEDY, a citizen of the United States, residing at Rochester, in the county of Olmsted and State of Minnesota, have invented certain new and useful Improvements in Potato-Planters; and I do 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view of my device. Fig. 2 is a vertical cross-sectional view of the same. Figs. 3 and 4 are plan views of the circular plates. Fig. 5 is a detail plan view; and Figs. 6, 7, 8, and 9 are detail views.

This invention relates to improvements in potato-planters; and its object is to provide means whereby the potatoes may be cut up and afterward fed in about equal quantities and at equal intervals to the planting mechanism situated under the frame of the machine.

The invention consists, essentially, in the construction and arrangement of a rotating frame actuated by the motion of the axle of the machine, and adapted to convey the cut potatoes by means of tubes, forming part of itself, to the dropping and planting mechanism.

The invention further consists in certain details of construction hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, A represents the bed-frame of the machine, composed of the outer metallic ring-shaped portion, *a*, consisting of two similar side pieces, the inner metallic ring, *a'*, concentric with the former, and the transverse diametrical bar or strip *a''*, secured by its ends, which are forked, to the lower edges of the two rings by means of the blocks *a'''* and bolts *a''''*. The upper edges of the blocks are provided with flanges, which lie upon the upper edges of the rings, and the lower ends of the bolts pass through and are secured by nuts to horizontal extensions of the standards rising from the collars *a''''*, which surround the axle C and form bearings thereto.

a'''' *a''''* are metallic blocks lying between the ring portions *a* and *a'*, and securing them to-

gether by transverse bolts, as shown. The said blocks are provided with vertical openings, into which are secured, by means of proper nuts, the threaded lower ends of the vertical rods *a''*, which form the supporting part of the upper frame-work of the machine. The front ends of the similar side pieces of the ring portion *a* are bent forward and parallel, and have secured between them the metallic box B, open in front, and having portions of its top and bottom cut away, as shown. The bolts *b*, by which the said box is secured in place, engage but do not pass through its sides.

b'' is the tongue of the machine, with its rear end passing into the box B and pivoted therein at *b'''*. The upper and lower edges of the tongue converge from a point in rear of the pivot to near its end, and then become parallel, having above and below them the nuts *b''''* of the vertical bolt *b''''*, which passes through the box and tongue. By means of the said nuts and the nut *b''''* on the lower end of the bolt the tongue is set and held at different inclinations in the box. The rear ends of the sides of the part *a* bend backward and parallel, and have bolted between them, as shown, the supports of the rear seat, B', for the person who feeds the hoppers.

B' is the driver's seat, with its standard secured to the tongue in front of the box B.

C is the axle, having the wheel *c* turning loosely thereon. This wheel has around its periphery the fingers *c'*, for engagement with a wheel hereinafter described, and is made to rotate with the axle by means of the collar-clutch *c''*, splined on the latter. The clutch has a finger on its inner edge formed to engage in recesses on the edge of a circular boss on the outer face of the wheel *c*.

c'' is a coiled spring surrounding the axle in the hollow interior of the clutch and bearing against the adjustable collar *c''*, which is secured in proper position on the axle by a set-screw. The action of the spring causes the clutch to engage the wheel *c*.

The manner of releasing the wheel is as follows: The clutch has a flange on its outer end provided with a circumferential groove, *c''*, in which enters a vertical finger of the link *c''*. The said link is pivoted by its outer end to the rod *c''*, the rear end of which is pivoted on a shoulder rising from a brace-rod, *c''*, extend-

ing across the rear portion of the ring a' . The front end of the rod c' is pivoted to the inner end of the lever c^2 , which pivots on a projection from the standard of the collar a^5 , or from the extension of the same. The said lever extends rearward within easy reach from the seat B' , and has its lower edge formed to engage the teeth of a detent-bar, c^{10} , so that the lever may be set inward on the detent-bar and release the wheel c from the clutch c^2 . By a motion of the foot the workman can release the lever from the detent-bar, and the coiled spring c^3 will cause the clutch to engage the wheel.

D is the upper frame-work of the machine, composed of the vertical supporting-rods a^7 , proper brace-rods connecting the same with the bed-frame, truss-bars d with brace-rods connecting the upper ends of the front and rear rods, a^7 , and central transverse bar, d' , connecting the two truss-bars, as shown. The central part of the bar d' is bent downward, and has fixed to its lower surface the horizontal block d^2 , upon the under face of which is the eccentric-cam groove d^3 , for a purpose hereinafter explained.

E is the central vertical shaft of the rotating frame, having its upper bearing in the block d^2 and its lower bearing in the transverse strip or bar a^2 , below which it extends, and has fixed to its lower end by a set-screw or otherwise the wheel e , provided on its lower surface with the concentric sets of openings e' , formed to engage with the fingers c' of the wheel c , so as to give different speeds. The bar a^2 is bent upward at its central portion to give sufficient room above the axle for the wheel e .

F is the rotating frame, composed of the circular top f and the circular bottom f' , the two being united by the three vertical equidistant rods f^2 , secured to each through proper openings by means of threaded ends and nuts. The top f is made of open-work, for the sake of lightness, and has through it near its periphery three large circular equidistant openings, G , having secured above them proper cutting devices, g , to which the potatoes are fed by the hoppers g' , fixed above them.

The bottom f' of the frame F is composed of a rim, a center piece having an opening for the shaft E , and a number of radial arms, preferably twelve. Regarding the twelve radial arms as six pairs, the distance between the arms of each pair is equal in all, and the distances between the pairs, while somewhat greater than that between the arms of a pair, is also equal.

H is an opening between the rim, the radial arms of any pair, and a rib or bar, h , concentric with the rim. The openings H are six in number. Similar openings, I , are made between the pairs by the ribs or bars i and i' , concentric with the rim. These openings are also six in number, and are made nearly equal to the openings H , by forming them nearer to the center of the bottom f' , the outer rib, i , be-

ing bent slightly nearer the rim than the rim h .

J are twelve tubes, four of which run from below an opening, G , to the nearest openings H and I in the bottom f' , the lower ends of the tubes being made rectangular and fitted into said openings. The upper ends of the four tubes are flattened against each other and fitted into the opening G , so that each will receive a potato from one quadrant of said opening.

K are dropping-boxes fastened below the openings H and I , and each composed of a rectangular front plate, k , having two side plates, k' , at right angles thereto, and a lid, k^2 , hinged to the opposite edge of the opening to that on which the body of the box is attached. The body of the box is secured to one of the radial arms by a rod, k^3 , fixed to its upper edge and passing through eyes made in the arm, and is held in place by a brace-strip, k^4 , which is riveted to its outside and to the arm. The lid is hinged to an opposite radial arm by a rod fixed to its upper edge, and having bearings in eyes formed on said arm, as shown.

k^5 is a coil-spring fixed by one end to the extended end of the rod k^3 , and by the other to the lever that opens the lid. By the action of this spring the lid is held closed on the body. The meeting-edges of the body or of the lid may be flanged, if desired, to make them fit closer together.

L are levers pivoted at l upon strips of metal secured to two adjacent radial arms. The outer ends of the levers are inserted into loops on the backs of the lids k^2 , and their inner ends are bent slightly in an opposite direction to that of the movement of the frame F .

M is a cam fixed to the upper surface of the bar a^2 , and having the vertical shaft E passing through and turning within it. The cam is of proper shape to operate the levers L , by means of their inner ends, which impinge on it in such manner as to open their respective dropping-boxes when the same are over the delivering box or trough of the planting device, thus discharging the contents of the tubes J into said trough.

N is the ground-opener or plow, situated below the main frame, and n is a bar having its rear end secured to the plow and its front end pivoted on the tongue at n' , to the rear of the quadrant-rack n^2 , secured to the side of the tongue. By means of the said bar and rack, and the lever-handle n^3 , pawl n^4 , and connecting-bars n^5 and n^6 , the plow may be set to cut deeper or shallower in the ground.

O is the delivering-trough, secured in the bifurcation of the plow-point in position to have the dropping-boxes rotate immediately over it.

In place of a delivering-trough, constructed to deliver the potatoes into the furrow behind the plow-point, the latter may have rearward extensions which will direct the potatoes laterally into the furrow as they fall directly into the same; the rear ends of said extensions be-

ing constructed to cover the furrow. It is evident, as the dropping-boxes are the same distance apart, and as the tubes J receive nearly the same amount of feed from the cutters, that the plantings will be made successively at equal intervals and in nearly equal amounts. The top and bottom of the rotating frame F are fixed to the shaft E by means of collars on their lower surfaces and set-screws entering the same.

P P are rods rising vertically from the top of the frame F to the inner side of the openings G. The said rods are secured in openings in the top by nuts, and their upper ends are similarly secured to the ring p, through the central boss of which the shaft E passes, and to which it is fixed by a set-screw.

p' p' are standards, through longitudinal openings in which the rods P pass.

p² are arms, which extend inward and upward from the upper ends of the standards, and have turning on vertical pins rising from their inner ends the friction-rollers p³, which enter the cam-groove d² of the block d², the standards to be actuated thereby.

p⁴ p⁴ are springs connecting the inner ends of the arms p² with the ring p, and arranged to return the standards into proper position when the same have been turned to one side by the action of the cam-groove d².

p⁵ p⁵ are horizontal arms extending outward from the standards, and having lateral extensions at their ends provided with slots, through which the presser rods or plungers Q pass. The said slots may be provided with friction-rollers to allow the plungers to move easily.

q are cylindrical heads on the lower ends of the plungers, arranged to enter the hoppers g' and drive the potatoes therefrom through the cutters g.

q' are horizontal friction-rollers turning on pins standing out from the upper ends of the plungers and rolling on the inclined cam-bars R R', which are secured to the top of the upper frame-work of the machine. The upper cam-bar, R, is semicircular, and inclines downward and forward from one side of the machine to a point in the central longitudinal line of the same, where it reaches its lowest point. It thence inclines upward and backward to the other side of the machine, and ends at a point opposite and equal in height to its beginning. The lower cam-bar, R', is a quadrant of a circle, and runs a proper distance below and parallel to the upper cam-bar from opposite the center of the same to opposite its end.

r r are coiled springs, each of which extends from the top of a vertical rod, r', rising from the upper horizontal arm, p⁵, of a standard, p', to a staple, r², on the standard below said arm. By the action of the cam-bar R and the rollers q', which engage its under surface, the plungers are forced down in the hoppers from the beginning of said cam-bar to its middle front portion, thus driving the pota-

atoes through the cutters and the tubes J. The action of the cam-bar R' and the springs r then raises the plungers out of the hoppers, the cam-bar R preventing the said springs from extending too suddenly. The springs keep the plungers raised when passing from the end of the cam-bar R to its beginning and in proper position to engage it. The cam-groove d², arms p², and rollers p³ are so arranged in relation to each other as to turn the standards, and consequently the plungers, to one side when the hoppers are opposite the seat B', thus allowing the workman room to feed; but before the rollers q' are in position to engage the cam-bar R the springs p⁴ turn the standards and plungers back into their normal position.

The operation of the machine is as follows: The machine is drawn through the field to be planted as is usual, the plow opening a furrow for the cut potatoes and covering them in the furrow. The shaft or axle C secured to the wheels rotates therewith, and when the clutch on the axle is thrown into gear, the frame carrying the hoppers is caused to rotate. When the clutch is out of gear, the delivery of cut potatoes through the spouts and dropper-boxes ceases; but when the rotating frame is in operation the hoppers are brought in succession past the operator's seat, the plungers being at that time lifted and turned to one side. As the frame continues its rotation, the plungers are brought down into the hoppers, the several parts of a potato which has been placed in the hopper are carried down their respective spouts to the dropper-boxes, and these boxes are successively opened as they pass the plow.

Having described my invention, what I claim is—

1. In a potato-planting machine, a rotating frame carrying a series of hoppers, each hopper having automatic cutting mechanism, combined with a series of spouts leading to separate dropping-boxes, as set forth.

2. The combination, in a potato-planter, of a rotating frame carrying a series of hoppers, automatic cutting mechanism for each hopper, and a separate spout leading from each space between the cutting-knives to a place of deposit, substantially as set forth.

3. In combination with the supporting-frame of a potato-planting machine, a rotating frame carrying a series of hoppers, a series of knives for each hopper, a plunger operating in each hopper, and mechanism, substantially as described, by which each plunger is raised and turned aside, (so that the hopper may receive a potato,) and then returned and made to descend during the rotation of the hopper-carrying frame, substantially as described.

4. The combination, in a potato-planter, of a rotating frame carrying a series of hoppers provided with cutting-knives, a reciprocating plunger for each hopper, and cam-surfaces

against which said plungers have a bearing, and by which they are alternately lifted and depressed, substantially as stated.

- 5 5. In a machine to cut and plant potatoes, the combination, with the main frame and axle of the machine, of a rotating frame, the vertical shaft of which has bearings in the frame of the machine and is actuated by gearing from the axle, of tubes joining openings below the
10 cutters in the top of said rotating frame, with equidistant openings in the bottom of the same, and dropping-boxes secured below the latter openings and provided with spring-closing doors arranged to be opened, when
15 over the delivery-trough of the machine, by cam-actuated levers, substantially as specified.
6. In a machine to cut and plant potatoes, the combination of the frame F, tubes J, and plow N with the dropping-boxes K, springs
20 k , levers L, and cam M, substantially as specified.
7. The combination, in a potato-planter, of a rotating frame carrying a series of hoppers provided with knives and automatic plungers,
25 separate tubes leading from the spaces between the knives to separate dropper-boxes, a gear for opening said boxes at appropriate intervals, and a clutch by which the rotating frame may be thrown into or out of operation,
30 substantially as described.
8. In a potato-cutting machine, the combination of the rotating disk e , shaft E, and suitable hoppers secured to the top of the rotating disk above the cutting devices, with the
35 standards p' , rotating with the disk e , plunger Q, arranged to enter the hoppers, cam-bars R and R', and springs r , substantially as specified.
9. In a potato-cutting machine, the combi-

nation of the rotating disk e , shaft E, block d^2 , 40 provided with the cam-groove d^3 , and suitable hoppers secured to the top of the rotating frame above the cutting devices, with the rods P, ring p , standards p' , provided with the arms p^2 , and friction-rollers p^3 , springs p^4 , plungers Q, and proper means to reciprocate ver- 45 tically the said plungers, substantially as specified.

10. In a potato-planting machine, a rotating frame carrying a series of dropping-boxes, 50 each box composed of hinged pieces and a closing-spring, an opening-lever for each box, and a trip by which the levers are successively operated, as described.

11. The combination, in a potato-planter, 55 of an upright rotating frame carrying a series of hoppers and knives, a spaced frame-work or grating beneath said upright frame, and separate spouts leading from the spaces between the knives to openings in the frame- 60 work or grating, the openings being in series respectively nearer to and farther from the center of rotation, as set forth.

12. The bottom frame, F, having radial arms, as described, the distance between the arms 65 being alternately greater and less, (so that the openings between the widely-spaced arms near the center may be about equal to the openings between the other arms farther from the center,) combined with the hoppers and 70 tubes leading to said spaces, substantially as described.

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

WILLIAM E. CANEDY.

Witnesses:

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