

(No Model.)

3 Sheets—Sheet 1.

L. C. EVANS.  
POTATO PLANTER.

No. 545,787.

Patented Sept. 3, 1895.

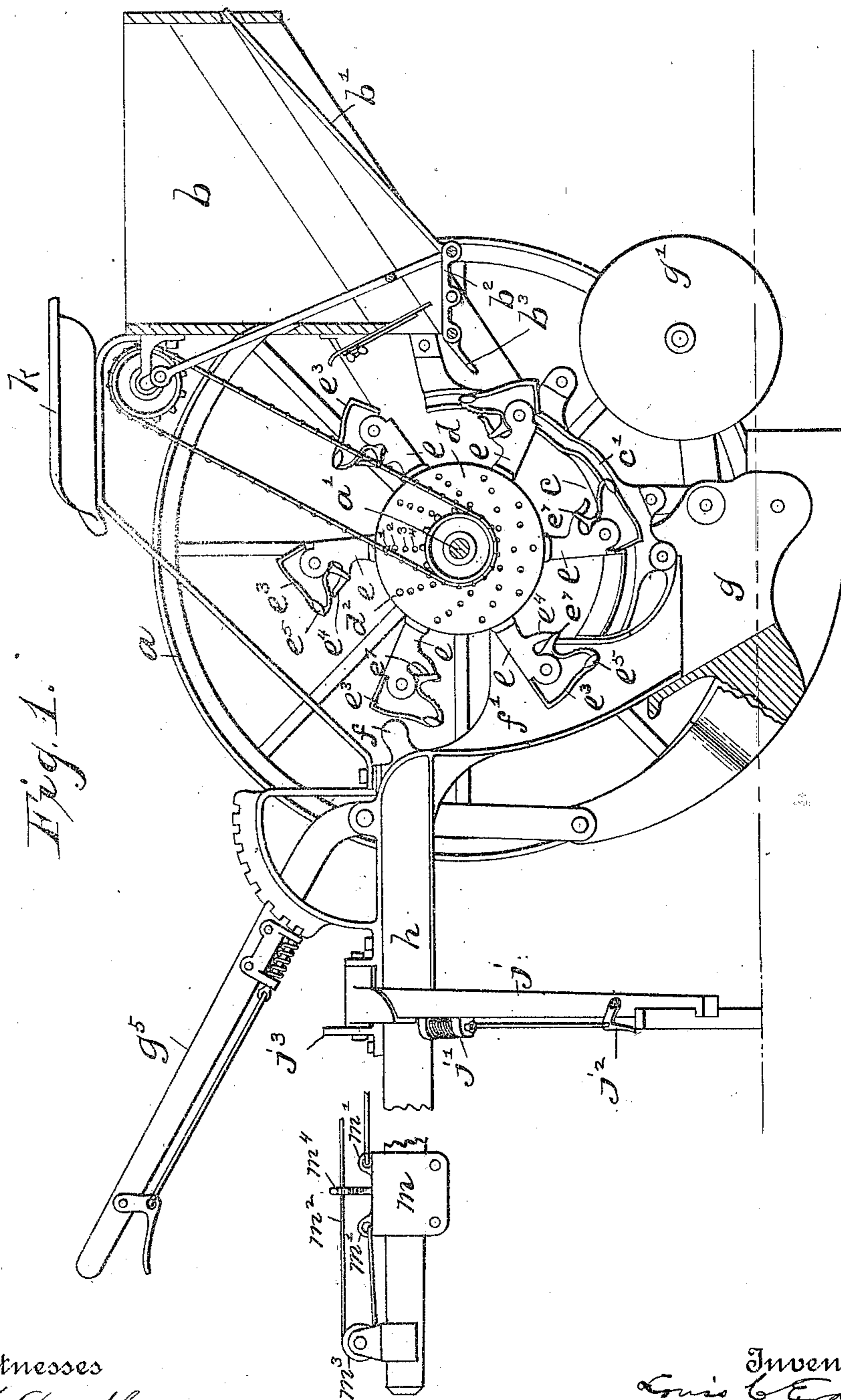


Fig. 1.

Witnesses  
J. M. Gridley  
Geo Bohrenkemper

Inventor  
Louis C. Evans  
By his Attorney  
Charles A. Montgomery

(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

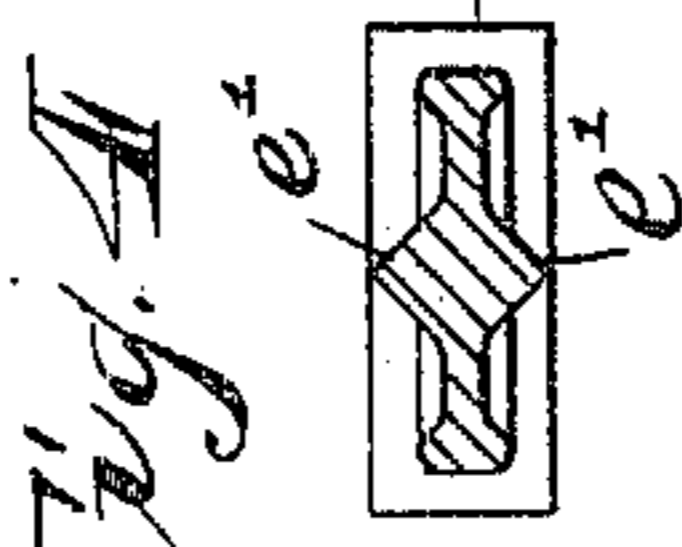
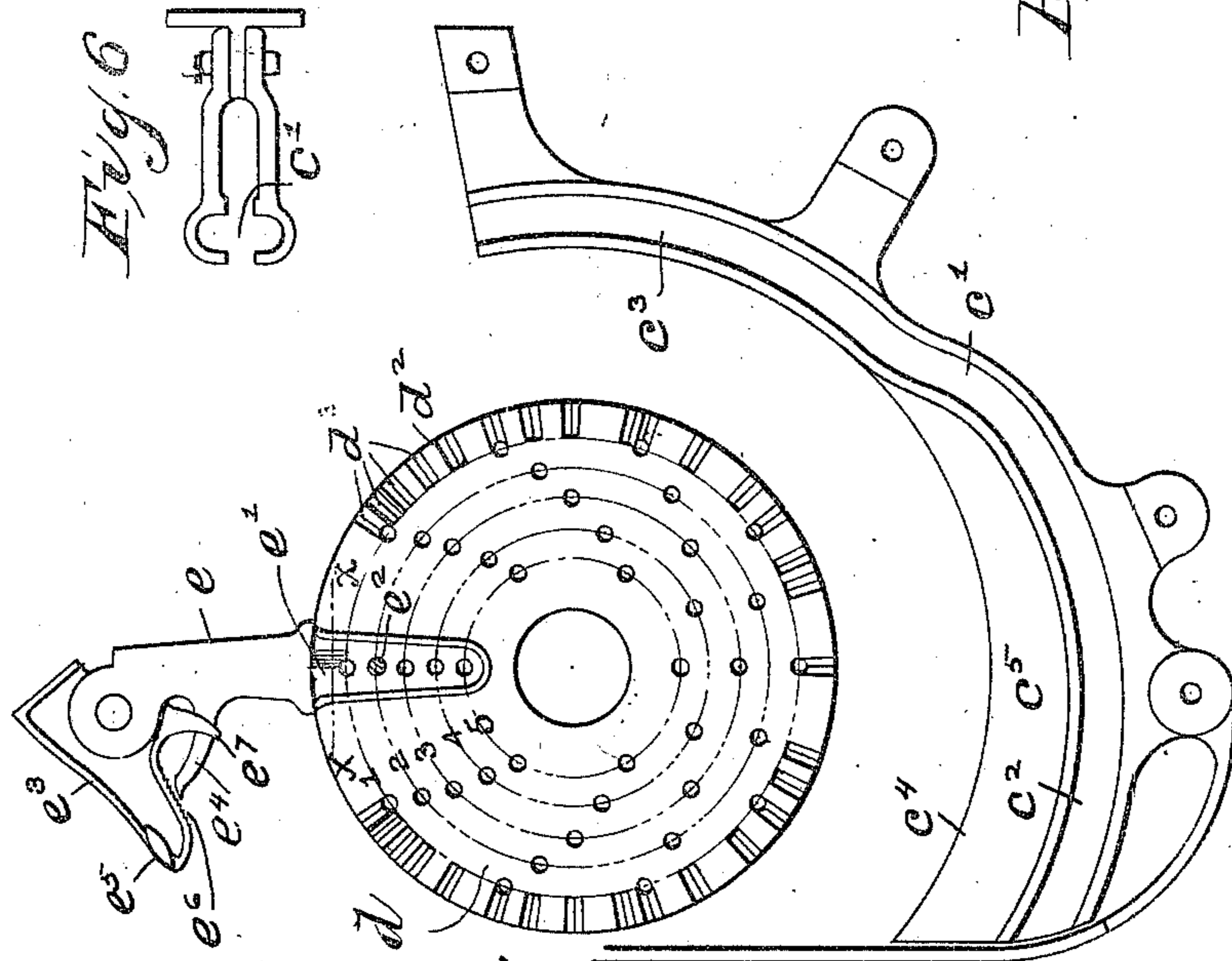
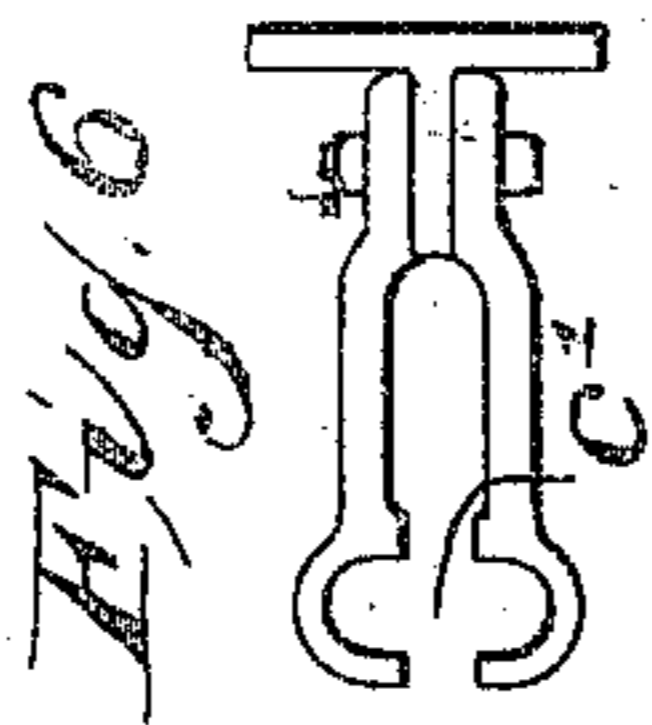
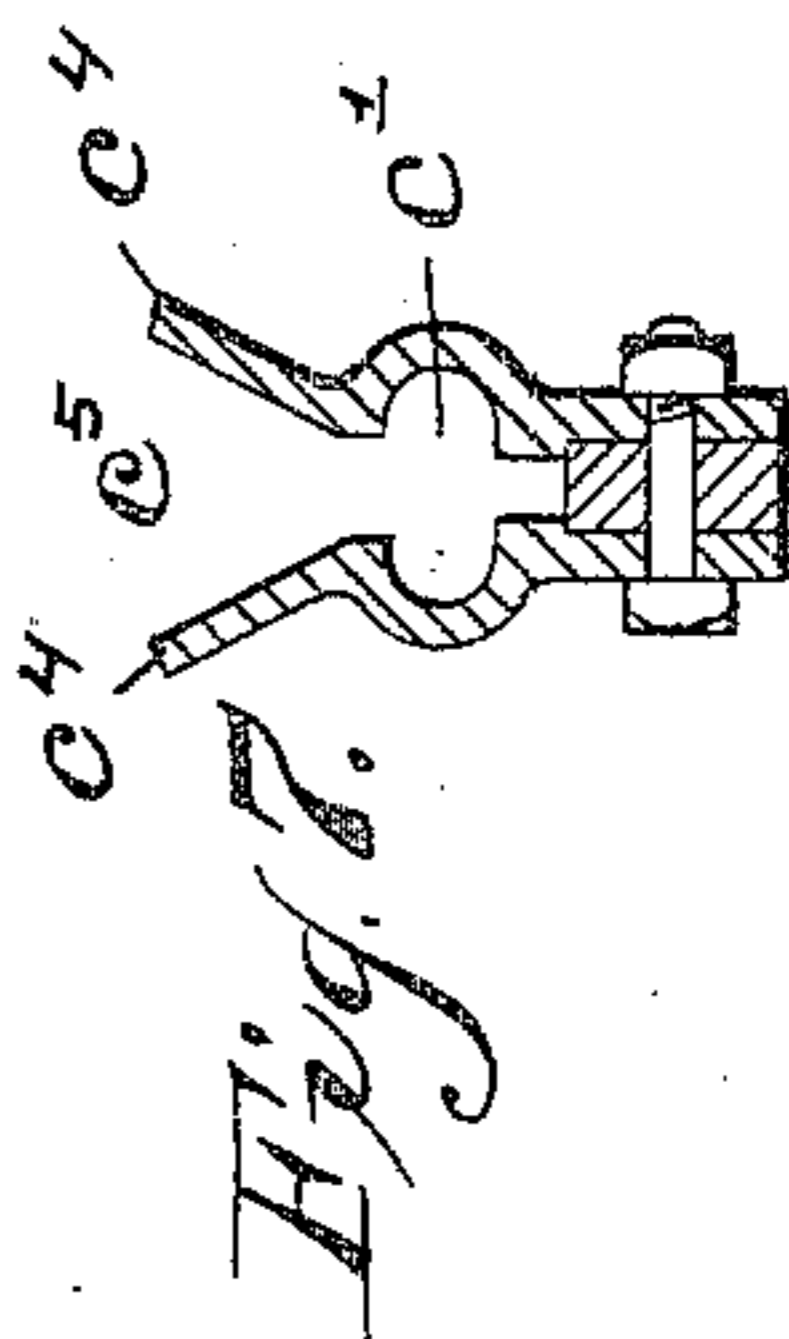
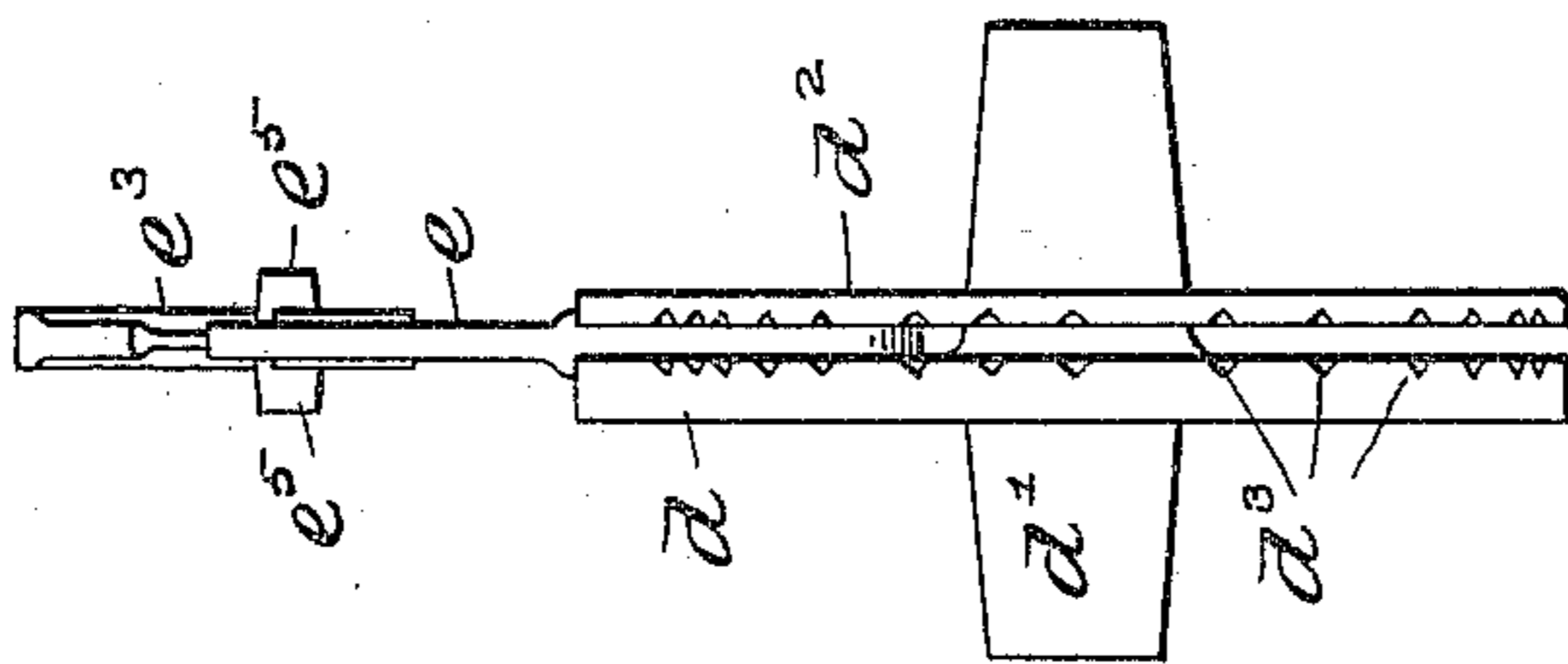


Fig. 2.

Fig. 5

Witnesses  
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(No Model.)

3 Sheets—Sheet 3.

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Patented Sept. 3, 1895.

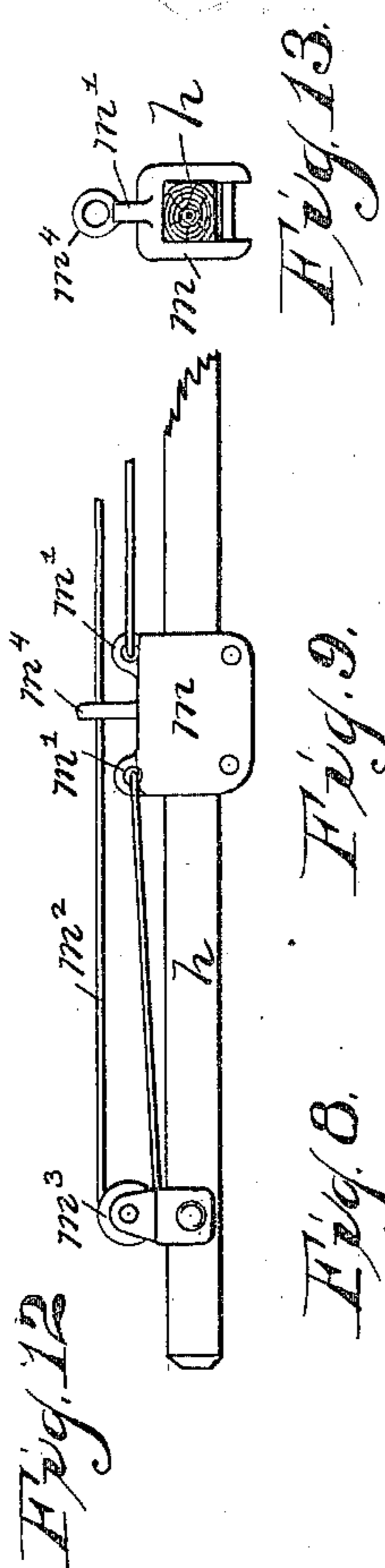


Fig. 12

Witnesses  
J. M. Gridley  
Geo. Bohnenkempfer

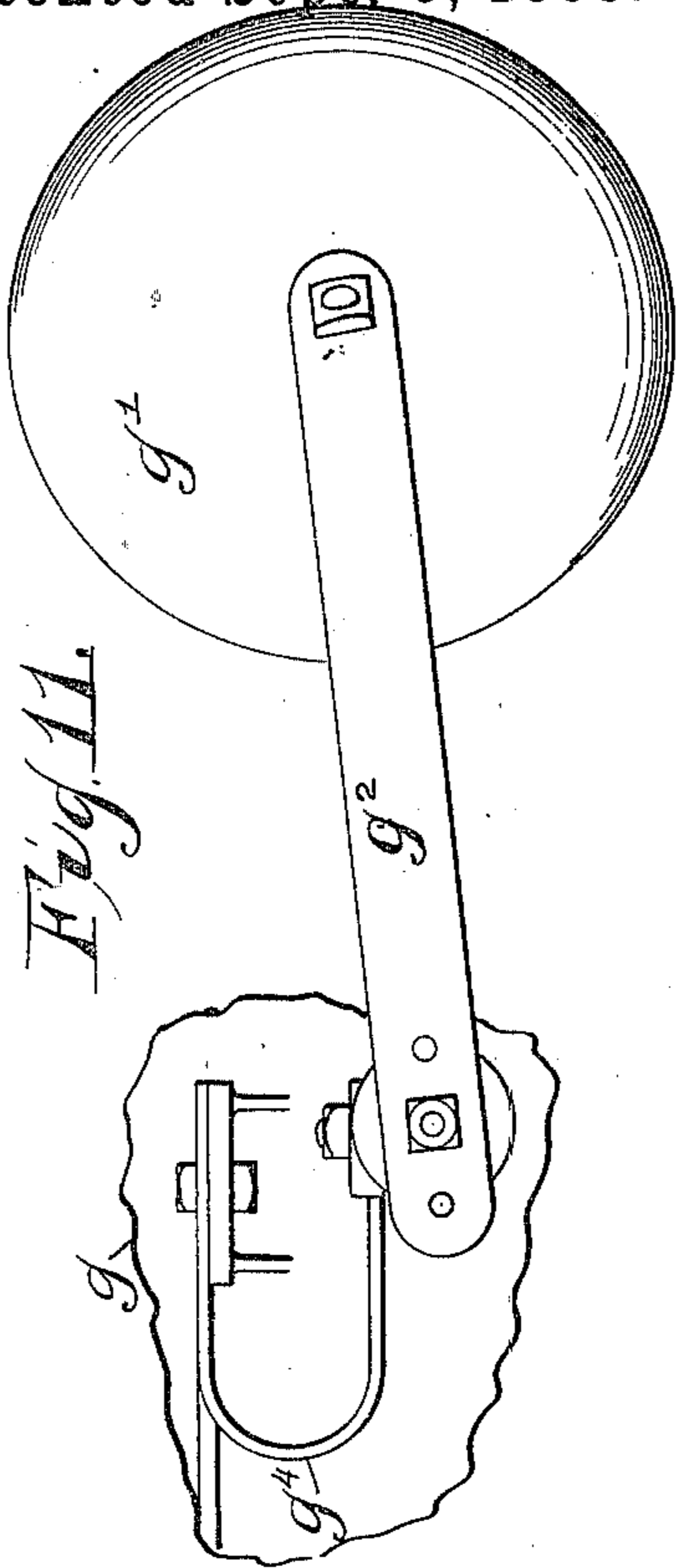
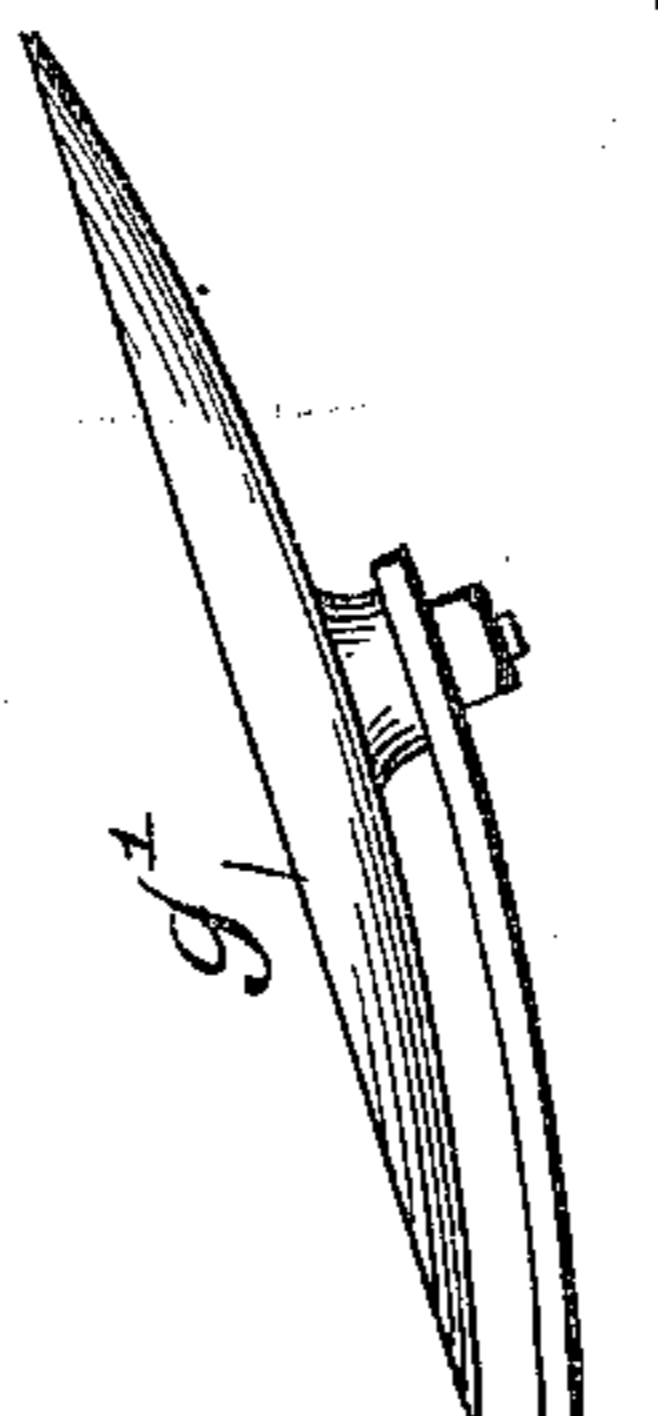
Fig. 13

Fig. 9

Fig. 8

Fig. 10

Fig. 11



Inventor  
Louis C. Evans  
By his Attorney  
Paul M. Smith

# UNITED STATES PATENT OFFICE.

LOUIS C. EVANS, OF SPRINGFIELD, OHIO.

## POTATO-PLANTER.

SPECIFICATION forming part of Letters Patent No. 545,787, dated September 3, 1895.

Application filed June 15, 1895. Serial No. 552,889. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS C. EVANS, 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 Potato-Planters, of which the following is a specification.

My invention relates to improvements in potato-planters, and it particularly relates to that class of potato-planters described and shown in my pending application, Serial No. 540,723, filed March 6, 1895.

My invention consists in the various constructions and combinations of parts herein-  
after described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a planter embodying my invention. Fig. 2 is a side elevation of a picker-arm plate, showing the means employed for securing the picker-arms thereto and for varying the quantities of seed sown. Fig. 3 is an edge view of the same. Fig. 4 is a detail view, in section, taken on the line  $x-x$  in Fig. 2. Figs. 5, 6, and 7 are detail views of the concave and cam groove for operating the picker-arms. Figs. 8 and 9 are detail views of an adjustable marker. Figs. 10 and 11 are detail views of an improved covering device, and Figs. 12 and 13 are detail views of the devices employed for counterbalancing the machine in operation.

Like parts are represented by similar letters and numerals of reference in the several views.

In the drawings,  $a$  represents a supporting and driving wheel, of which there are two, one upon each end of a main shaft  $a'$ , as in my prior application referred to.

$b$  is a hopper having the vibrating and oscillating plates  $b'$   $b^2$ , which are connected to movable conduits  $b^3$ , extending on opposite sides of a concave  $c$ , as in the prior application.

Mounted on the main shaft  $a'$  and secured fixedly thereto is a picker-arm plate  $d$ , to which are secured the picker-arms  $e$ . This plate  $d$  is provided with a hub  $d'$ , which is secured to the main shaft, and with an auxiliary movable plate  $d^2$ , which is adapted to be removed over the hub  $d'$ , the picker-arms being secured between the plates  $d$   $d^2$  in the manner hereinafter more fully specified. In

my prior application I disclose means for changing the speed of the picker-arms and their supporting plate or spider in order to vary the quantity of seed sown. In my present device I dispense with these variable speed devices and provide means for varying the position and number of the picker-arms to obtain the same result, and in carrying out this part of my invention I have devised a simple and effective construction, by means of which the number and position of the picker-arms may be readily and accurately changed to suit any desired condition under which the machine is to be operated.

In each of the plates  $d$  and  $d^2$  I provide a number of concentric rows of holes, as shown at 1, 2, 3, 4, and 5, and in each of the picker-arms I provide a series of holes corresponding in number to the concentric rows of holes in the plates. I further provide on each of the arms a projection or projections  $e'$ , and in one or both of the plates  $d$   $d^2$ , preferably at the outer edge thereof, I provide a series of corresponding depressions  $d^3$ , each of which stands radially opposite one of the openings in the concentric rows 1, 2, 3, 4, and 5. Each of the concentric rows of openings has a certain definite number of holes therein, which are so arranged that at one point, which may be termed the "starting-point," the corresponding openings in each of the concentric rows are in a radial line, as shown at the top in Fig. 2. For this set of openings there is a single depression  $d^3$ , and the picker-arm  $e$  which occupies this position need never be changed, but is the basis or starting-point for all the other changes desired. In the construction illustrated I have shown five concentric rows of openings having, respectively; six, seven, eight, nine, and ten openings. The arms are adapted to be secured between the respective plates  $d$  and  $d^2$  and the said plates secured together by means of bolts or pins  $e^2$ , which extend through the openings in said plates and in said arms, respectively. In placing any desired number of arms in the wheel the bolts or pins are inserted through the openings in that concentric row which corresponds to the number of arms to be used. For instance, if nine arms are to be placed in the wheel the bolts are all inserted through the openings in the second concentric row,

which contains nine openings, said bolts passing through the corresponding or second opening in the arms. It will be found that if an arm is placed with the second opening therein opposite one of the openings in the second row the projection  $d'$  will enter the proper depression  $d^3$  and it will be impossible to place more or less than the proper number of arms between the plates and impossible to secure them in a false position. In practice the intervening distances between the dropping of the seed by the different number of arms on the wheel will be marked on the plates, so that the number of arms required for planting at certain distances apart will be ascertained at a glance; but the arrangement of the fastening-points in the concentric rows with a corresponding point in each arm for each row, together with the interengaging devices on the plates and arms, respectively, makes it possible to change the arms readily and impossible to make a mistake, either in the location or number of the arms, if the corresponding point in the arms is brought opposite the openings in its proper concentric row.

I have shown, as before stated, a series of rows containing six, seven, eight, nine, and ten openings; but as each alternate opening may be left vacant in those having an even number it will be seen that any combination from one to ten arms may be secured and properly spaced about the supporting plate or wheel.

Each of the arms  $e$  is provided with the usual vibrating head  $e^3$ , which operates in connection with the impaling-fork  $e^4$ , the impaling and discharging of the potato being positively effected by means of the cam-groove  $c'$  in the concave  $c$ , which engages with the projections  $e^5$  on the vibrating head  $e^3$ , as set forth in my prior application. In order, however, to prevent the potato from slipping forward and thus escaping the impaling-fork, I construct that portion of the head which is opposite the impaling-fork with a series of serrations or teeth, as shown at  $e^6$ , which prevents any slipping of the potato as the same is forced in contact with the impaling-fork.

In my present construction the cam-groove  $c'$ , instead of being gradually drawn in from the point of beginning to the point of closing, is formed practically concentric for the greater portion of its length, the closing of the head against the impaling-fork being accomplished within a small fraction of a revolution of the arm, about half-way between the respective ends of the concave, as shown in Fig. 5, the concentric portions  $c^2$  and  $c^3$  being arranged at the respective ends of the concave, so that the oscillating heads remain in the same relative position during the travel through these portions of said concave. The angularly-arranged flanges  $c^4$  extend only to the point where the concentric portion  $c^3$  of the cam-groove begins, thus forming a pocket  $c^5$  over the concentric portion  $c^2$ , through which the picker-arms  $e$  pass with the oscil-

lating heads in an open or extended position, thus insuring the catching of a potato within the oscillating head before the same is closed on the impaling-fork.

As the picker-arms are rotated the oscillating heads are brought in contact with a fixed stop  $f$ , which causes the heads to vibrate in an opposite direction, so that the projecting finger  $e^7$  thereon forces the potatoes from the impaling fork  $e^4$ , permitting them to fall through the chamber  $f'$  and shoe  $g$  in the usual way. The covering of the potatoes is effected by means of angularly-arranged concave disks  $g'$ , which are supported at each side of and to the rear of the shoe  $g$  by arms  $g^2$ , adjustably connected at  $g^3$  to U-shaped supporting-springs  $g^4$ , secured to the side of the shoe  $g$ , as shown in Figs. 10 and 11, the construction being such that the angularly-arranged concave disks may be adjusted as desired either up or down and to or from the furrow in the usual manner. The shoe  $g$  is raised and lowered in substantially the manner described in my former application referred to, through the agency of a hand-lever  $g^5$ , which is pivotally connected to that portion of the frame which extends forward on the tongue  $h$ .

Immediately forward of the lifting-lever  $g^5$  is an adjustable marker  $j$ , which is pivoted by suitable connecting devices to the tongue so as to swing laterally across the same. This marker  $j$  is provided with a spring-bolt  $j^1$ , having the usual actuating hand-clip  $j^2$ , and there is provided near the pivotal center a cam-shaped projection  $j^3$ , having a single notch  $j^4$ , with which said spring-bolt is adapted to engage. The sides of this cam-shaped projection  $j^3$  are drawn inwardly as they recede from the notch  $j^4$ —that is to say, they are formed on a curve with a radius shorter than that on which the marker swings—so that as said marker is raised from either side the sides of said cam-shaped projection will engage with the spring-bolt and move the same so as to compress the spring until the notch  $j^4$  is reached, when it will engage therein, thus holding the marker in an upright position until it is released by the operator actuating the spring-bolt in the usual manner. This construction is especially desirable in changing direction at the ends of rows. The operator lifts the shoe out of the ground by the lever  $g^5$ , and by his foot raises the marker to the central position. When the machine is turned in the opposite direction, he releases the marker and allows it to fall to its position on either side of the machine, and then lowers the shoe to the proper position for planting.

It is essential in machines of this character that the weight be properly distributed, so that the machine will be properly balanced in operation. I have discovered in practice that the proper distribution of the weight in moving the machine from place to place is not the same as required in operation; also, the difference in weight of the potatoes in the

hopper *b* at different times, or the change in the weight of the operator who is located in the seat *k*, makes a difference. To compensate for these differences I provide on the tongue *h* an adjustable weight with means for moving it to any desired position in the length of the tongue. This preferably consists of a U-shaped piece *m* of metal, having suitable ears or lugs *m'*, to which are connected the respective ends of a rope *m<sup>2</sup>*, which passes through a pulley *m<sup>3</sup>* near the outer end of the tongue, the weight *m* being further provided with an upwardly-projecting guide *m<sup>4</sup>*, through which the rope *m<sup>2</sup>* passes. The rope is extended to any convenient point in proximity to the operator in position on the seat *k*, so that by pulling on either one of the strands thereof the weight *m* may be shifted to any desired point on the tongue so as to exactly counterbalance the machine to suit the varying conditions under which it is being operated.

Having thus described my invention, I claim—

1. The combination with the picker arms, of a supporting plate having a number of concentric rows of openings therein, a series of openings in said picker arms corresponding in number to the concentric rows, and inter-meshing devices on the respective parts arranged radially opposite the corresponding openings in said respective parts, substantially as specified.

2. In a potato planter, a supporting plate having a number of concentric rows of openings therein, picker arms, each having a series of openings, one for each concentric row in said plate, projections on said picker arms and depressions in said plate, one of said depressions being arranged radially opposite each of the openings in each of said concentric rows, and fastening devices adapted to extend through the corresponding openings in the arms and plate, substantially as specified.

3. In a potato planter, a series of picker arms, two oppositely-arranged plates, each having a number of concentric rows of openings, one of the openings in each row being arranged in a series in a radial line, and a series of openings in each of said picker arms corresponding to said radial series, inter-meshing parts between said picker arms and the respective plates, and a fastening device adapted to extend through said plates and through one of the openings in said picker arms, substantially as specified.

4. In a potato planter, the combination with the picker arms having moving heads, as described, of a concave having a cam-shaped groove with which said picker arms engage,

said groove being arranged at each end of said concave in a substantially concentric curve, an abrupt cam way between the concentric portions of said groove, and a pocket formed with inclined sides arranged over one of said concentric portions and extending to said abrupt cam way, substantially as specified.

5. In a potato planter, a series of picker arms each having an oscillating head, of an impaling fork, means for moving said head toward said fork, said head being provided with a series of serrations or teeth opposite said fork, substantially as specified.

6. The combination with the picker arm having an impaling fork, of an oscillating head having a projecting portion adjacent to said impaling fork, and teeth or serrations in said projecting portion, substantially as specified.

7. The combination with a concave having a cam groove therein, and a pocket having inclined sides above said cam groove, of a picker arm having an oscillating head with projections to engage in said cam groove, and an impaling fork arranged opposite said projections, said head being provided with teeth or serrations, substantially as specified.

8. The combination with the adjustable shoe as described, and means for securing said shoe in different positions of adjustment, a spring supported by said shoe and moving therewith, and a backwardly-extending arm adjustably supported on said spring so as to occupy different relative positions with said shoe, and an angularly-arranged disk journaled on said arm whereby said disk is supported wholly on said spring and moves with said shoe, substantially as specified.

9. The combination with a planter and its tongue, of a sliding weight arranged on said tongue, a connection from each end of said weight extending in opposite directions and over suitable supporting devices so as to be operated in either direction from the frame of said planter, substantially as specified.

10. The combination with a tongue, of a sliding weight arranged thereon, a flexible connection extending from each end of said weight and passing over a pulley arranged at or near the outer end of said tongue, thence backwardly through a guide on said weight and to a point adjacent to the operator on said planter, substantially as specified.

In testimony whereof I have hereunto set my hand this 10th day of June, A. D. 1895.

LOUIS C. EVANS.

Witnesses:

OLIVER H. MILLER,  
CHAS. I. WELCH.