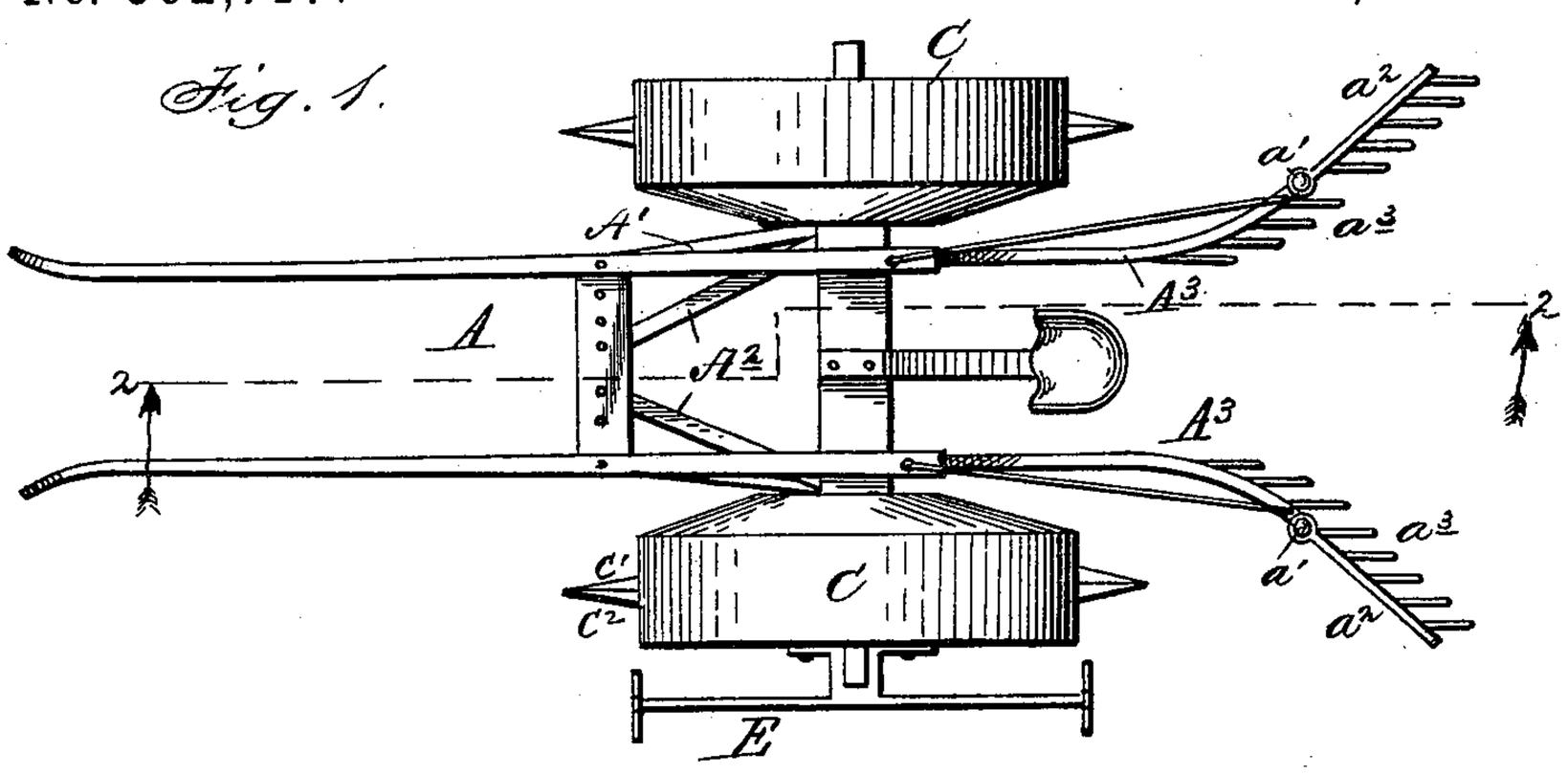
(No Model.) 2 Sheets—Sheet 1.

T. J. SULLIVAN.

PLANTER.

No. 592,717. Patented Oct. 26, 1897.

Fig. 1.



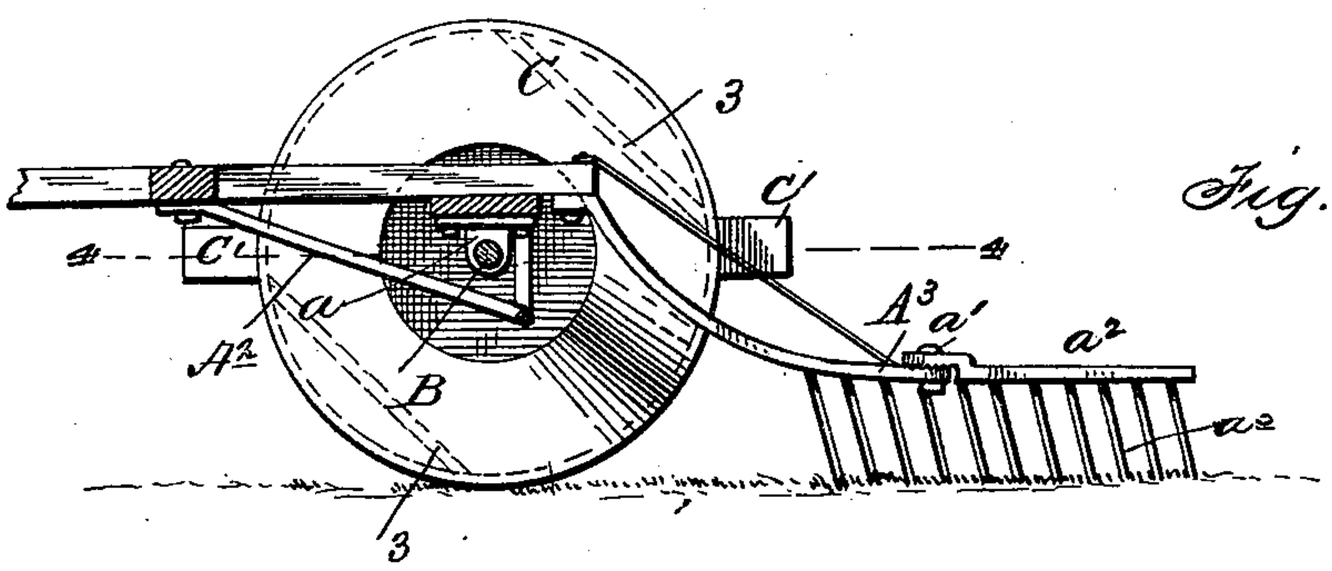


Fig. 2.

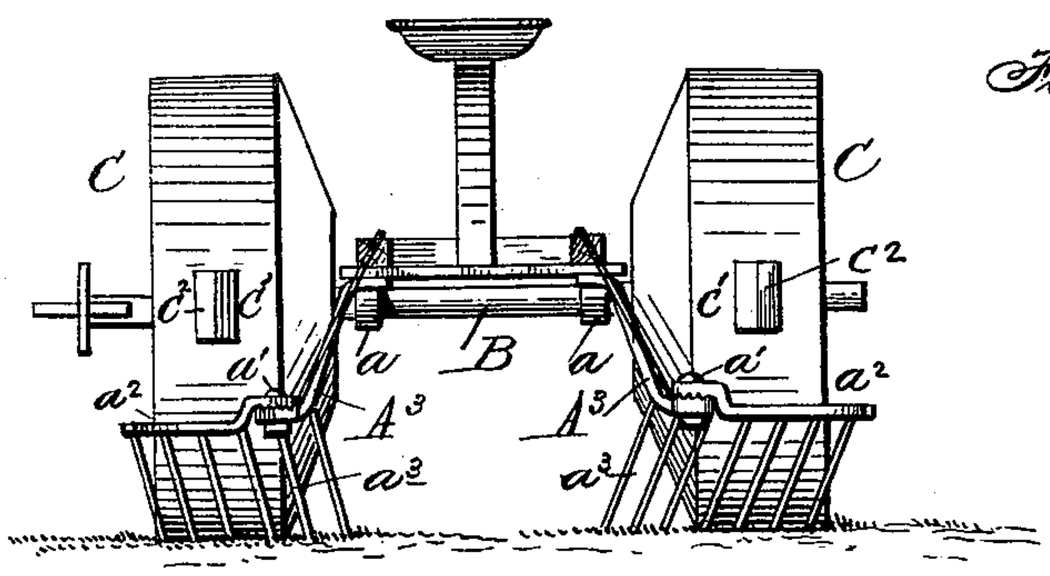


Fig. 3.

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Fig. 4.

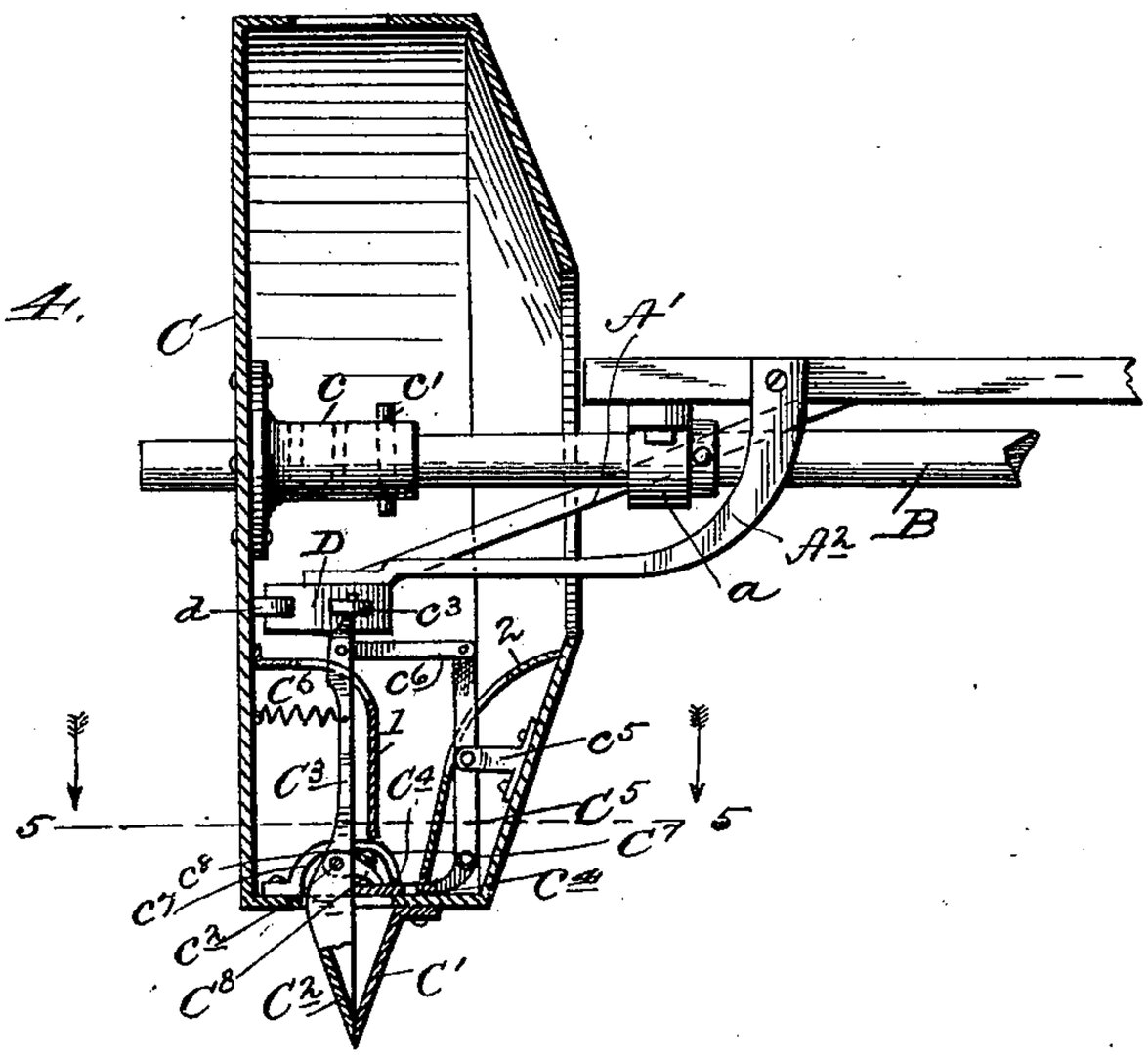
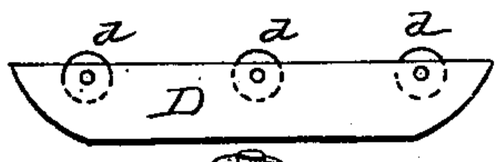


Fig. 5.

Fig. 7.



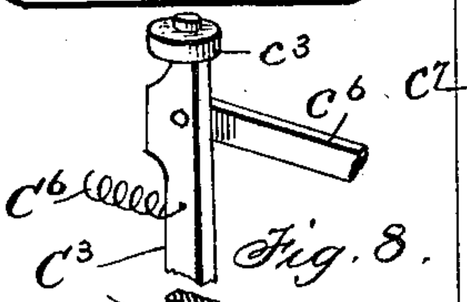
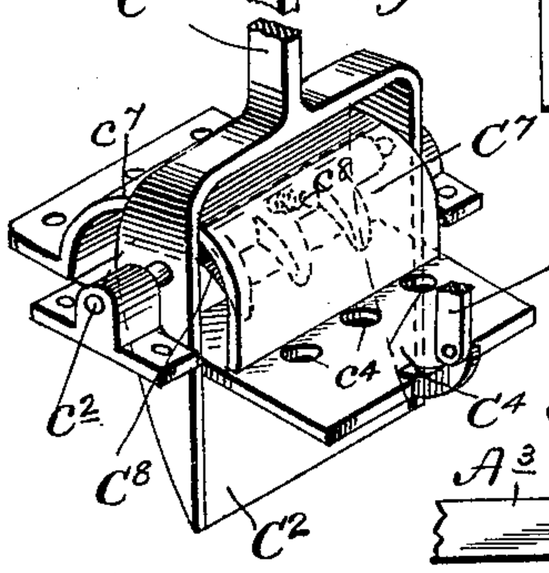


Fig. 8.



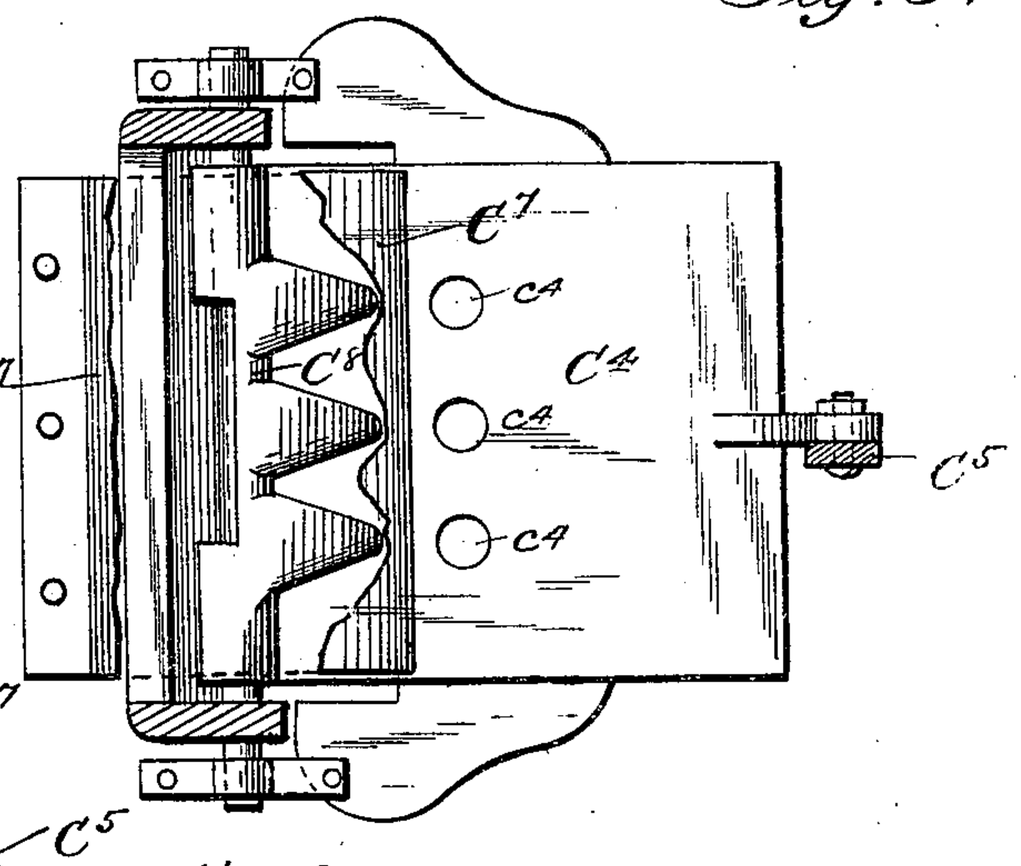
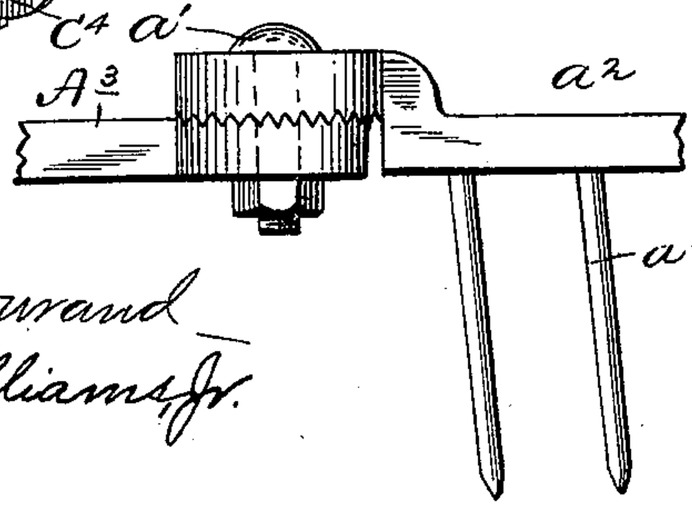


Fig. 6.



Witnesses
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Attorney

UNITED STATES PATENT OFFICE.

TIMOTHY JOY SULLIVAN, OF ROCKPORT, KENTUCKY.

PLANTER.

SPECIFICATION forming part of Letters Patent No. 592,717, dated October 26, 1897.

Application filed May 15, 1897. Serial No. 636,616. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY JOY SULLIVAN, a citizen of the United States, residing at Rockport, in the county of Ohio and State of Kentucky, 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.

My said invention consists in an improved construction and arrangement of parts of planters of the character wherein the seed is carried in the wheels of the machine, which have dropping mechanism connected therewith, as will hereinafter be more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters and figures of reference indicate similar parts, Figure 1 is a top or plan view of a planter embodying my said invention; Fig. 2, a section looking in the direction indicated by the arrows from the dotted line 2 2 in Fig. 1, showing the inner face of the wheel in elevation. Fig. 3 is a rear elevation; Fig. 4, a transverse section through one wheel on the dotted line 3 3 in Fig. 2, showing the dropping mechanism on one side only; Fig. 5, a section looking in the direction indicated by the arrows from the dotted line 5 5 in Fig. 4. Fig. 6 is a detail view showing the joint in the rake; Fig. 7, a detail top plan of the trip-bar for operating the mechanism, and Fig. 8 is a detail perspective of the main parts of said dropping mechanism.

In said drawings the portions marked A represent the frame for attaching the team; B, the axle; C, the wheels; D, the trip-bar, and E a marker.

The frame A is of any approved construction for the purpose, being composed of cross-bars and side pieces carrying thills, or a pole, or whatever attaching means is desired. On the under side of the rear cross-piece are secured the boxes *a*, of suitable form, by which said frame is mounted on the axle, which axle revolves in said boxes. Arms A′ and A², suitably braced, are carried by the front cross-piece and extend into the interior of the wheels and in turn carry a trip-bar D for operating the dropping mechanism, as will be presently described. Said arms are connected to said cross-piece, so as to be adjusted thereon to allow for different adjustments of the wheels when desired, as shown. Covering-rakes A³ are also attached to the rear end of this frame and extend back over the planted rows to cover the seed deeper, if desired, and also to rake off any clods or stones. They are preferably jointed at the bolt *a*′, and the rear sections *a*² may be adjusted to different positions to rake off more or less, as desired. The teeth *a*³ incline rearwardly, as shown, to better adapt the rakes to their work.

The axle B is mounted to rotate in the boxes *a* and is provided with a series of perforations in each end (indicated by dotted lines in Fig. 4) by which the wheels may be secured in different positions.

The wheels C are each composed of an outer plate of sufficient strength and rigidity to furnish the needed support and have a hub *c* bolted thereto or formed thereon, as preferred, which is perforated, and a pin *c*′, extending through said perforation, and one of the perforations in the axle secures the wheel in the position desired. When it is desired to adjust the wheels nearer to or farther from each other, it is readily accomplished by withdrawing said pins and moving said wheels out or in to the desired position and then reinserting the said pins in the appropriate perforations in the axle. By this means the distance between the rows may be regulated, as preferred. The face of each wheel is also of a plate of suitable dimensions to secure the needed rigidity. Its inner side is closed to a point a sufficient distance from the rim to hold the seed securely by a plate which preferably flares or inclines toward the center of the machine to afford more room for the operating parts, and also to better adapt it to catch any seed which may be carried to the top as it falls back. The droppers are composed of two parts or bills C′ and C² of sufficient width to form a hill of the desired size and are arranged with their width in line with the sides of the wheels. Apertures are formed in the rim of the wheels at suitable points to accommodate them. There may be as many as needed to drop the seed at the desired intervals. In the drawings two are shown, one exactly opposite the other. This is a suitable

arrangement for corn-planters, but for other seed a different one may be preferred. The part C′ of each of said droppers is bolted or riveted to one edge of the apertures provided therefor, and the other part C^2 is mounted on a pivot c^2, being rounded on its outer side longitudinally, where it extends through the rim, so as to be in close contact with the edge of the apertures in all its positions. The top of said part C^2 is formed into an arm C^3, which extends into near the hub and has an antifriction-roller c^3 on its inner end, which contacts with the trip, as will be presently described. A sliding part C^4, containing seed-cups c^4, is mounted to slide in over each of the apertures covered by the droppers, the seed-cups being normally outside. The outer end of said plate is connected by a pivot to a lever C^5, which is pivoted midway its length on a suitably-located bracket c^5, and the opposite end of said lever is connected by a link c^6 to the inner end of the arm C^3. A spring C^6 operates to hold said parts in their normal position and return them thereto when the said arm C^3 has been released from the trip after operation. Just at the inner edge of each aperture, in line with the part C′ of the droppers, a brush or cut-off C^7 is located, its lower edge coming nearly in contact with the plate C^4 and serving to brush back any seed thereon except that contained in the cups c^4. Thus only the exact number of seeds desired are dropped into each hill. Said brush is of any suitable material and is mounted on a horizontal arm c^7, which extends over the pivoted rod c^2 and is riveted or bolted to the rim. On said pivot-rod c^2 is mounted a finger-bar C^8, provided with fingers which project toward the seed-cups and curve downwardly, one being located in line with each cup. The points normally rest on the top of the plate C^4, being held down by a spring c^8. Thus as said plate C^4 is forced under the brush C^7 the points of these fingers drop into the cups c^4 and force out any seed that might become stuck therein. A suitable casing 1 surrounds the arm C^3, and another, 2, surrounds the lever C^5, thus protecting the joints and working parts from being clogged or interfered with by the seed. A straight diaphragm 3 is preferably set across the face of the wheel just behind each of the plates C^4 to accelerate the fall of the seed thereto and prevent it from lodging behind it, as when the supply of seed is nearly exhausted.

The trip D is in the nature of a cam, being a bar with tapered ends. It is carried on the inner ends of the arms A′ and A^2 in a position just below the hub and next to the outside plate of the wheel, with its cam-face inward. On its rear side it is provided with antifriction-rollers *d*, which prevent friction between it and the outer plate of the wheel if when operating the dropping mechanism it is forced back against said plate. Said trip is located so as to contact with the roller c^3 at the time when the dropper-bill is in a vertical position in the ground, and it is of a length to hold said dropper open until it is up out of the ground, thus allowing the soil to fall back into the opening loosely and cover the seed.

The operation of my said invention is as follows: The several parts being in position and adjusted as desired the seed is deposited through the open sides of the wheels, and the machine is then ready for work. The wheels being mounted upon the axle rigidly and adjusted so the droppers of each are in line with those of the other perfect alinement is always secured. If desired, a marker E may be mounted on the outside of the wheel next to the work, its ends in line with the droppers, and the operator can then readily see that the hills are kept in line in the several rows. As the wheels rotate to bring the droppers or bills into a vertical position in the ground the trips D contact with the rollers c^3 and through the arms C^3 open the dropper, at the same time operating the seed-plate C^4 and dropping mechanism to deposit the desired number of seed in the ground. The soil falls back into the opening as the dropper comes up, covering the seed, and the rakes A^3 and a^2 finish the covering operation and finish off the row, as before described.

By reason of the width of the dropper and the arrangement of the seed-cups separated one from another and each of a size intended to accommodate a single seed the seed are deposited in the ground separated one from another, which obviates the necessity of "thinning out" to make the hills of the character most desired, which is of great advantage, as will be readily understood.

It will be understood, of course, that in many details of construction the machine shown may be modified without departing from my invention and that by increasing or decreasing the distance between the seed-cups the plants of each hill may be secured the exact distance apart desired, that by increasing or decreasing the number of droppers and the size of the wheels the space between the hills may be regulated as desired, and that by adjusting the wheels on the axle the space between the rows may be made as desired. It will also be understood that by having different sets of droppers projecting different distances adapted to be interchanged the same machine may be adapted to drop the seed at different depths, if desired.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a planter, the combination, of the frame, the axle, the wheels formed with one closed side a closed periphery and the other side closed from the periphery into within a short distance of the axle by a plate which tapers from said periphery toward the center of the machine thus forming the seed-chamber within said wheel, droppers mounted in the rim of said wheel, mechanism for operat-

ing said droppers and carrying the seed from said chambers thereto, and mechanism for closing them when the operation is completed, substantially as set forth.

2. In a planter, the combination, of the frame, the axle, the wheels rigidly mounted on said axle and formed hollow to contain the seed with an opening around the axle on one side to admit the seed, droppers mounted at intervals on the rims of said wheels consisting of two parts one of which is pivoted, an arm extending inwardly from said pivoted part, a trip supported from the frame and located to contact said arm and operate said pivoted part, a frame provided with seed-carrying cups mounted to slide from said seed-chamber to the droppers, a lever connected at one end to said frame and at its other end connected by a link to the arm of said pivoted part of the dropper, whereby they are operated simultaneously, and a spring for returning the parts to their normal position, substantially as set forth.

3. In a planter, the combination, of the frame, the axle, the wheels rigidly mounted on the axle and formed to contain the seed, the droppers mounted at intervals on the rims of said wheels consisting of a stationary and a pivoted part, the pivoted part being provided with an arm which projects inward to contact with a trip D supported from the frame, the casing 1 surrounding said parts, the sliding plate having the seed-cups, the lever and link connecting the same to said arm, the casing 2 surrounding them, the brush C^7 mounted at the entrance to the dropper, the cross-bar C^8 pivoted within said droppers and provided with a finger for each of the seed-cups and arranged to drop into and force the seed from said cups when they enter said droppers, substantially as set forth.

4. In a planter, the combination, of the frame, the axle, the wheels formed with closed outer sides and with their inner sides open near the center, said inner sides being formed tapered from the rim inwardly, droppers mounted over apertures in the rims of each wheel one side of each of which is pivoted and provided with an inwardly-extending arm, a sliding plate carrying seed-cups connected by a pivoted lever and link to said arm, a trip for operating said arm, and means for returning it to its normal position, substantially as set forth.

5. In a planter, the combination, of the frame provided with boxes, the axle journaled in said boxes, the wheels provided with the seed-chambers mounted rigidly on said axle, the droppers one part of each of which is pivoted, the part carrying the seed-cups connected with said pivoted part, whereby it is operated to carry the seed from the seed-chamber to the dropper as said part is operated, the trip for operating the same, carried on arms secured to the frame and projecting within the wheel, said trip having antifriction-rollers on its back to contact with the back of the wheel, and means for returning the parts to their normal position, substantially as set forth.

6. In a planter, the combination, of the frame, the axle the wheels formed as seed-chambers, the seed-carrying plates with the cups, finger-bars C^8 having a finger adapted to enter each of said cups as the plate is operated, the droppers, and the operating mechanism, substantially as set forth.

7. In a planter, the combination, of the frame provided with boxes, the axle journaled therein, the wheels rigidly mounted on said axle and formed to contain the seed-chambers, the droppers, the mechanism for operating said droppers, and the covering-rakes connected to said frame and provided with adjustable jointed ends, substantially as set forth.

8. In a planter, the combination, of the frame, the axle, the wheels mounted on said axle, the droppers mounted at intervals around the peripheries of said wheels, the operating mechanism, the plates containing the seed-cups, said cups being formed therein separated one from another and each adapted to carry a single seed, the brush at the entrance to said droppers, and the fingers therein adapted to drop into said cups as they enter and force the seed therefrom, said fingers being mounted on a rocking bar and arranged separated thereon to correspond with the arrangement of the cups, substantially as set forth.

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

TIMOTHY JOY SULLIVAN.

Witnesses:
J. SMITH,
TIM. J. SULLIVAN, Jr.

Correction in Letters Patent No. 592,717.

Affidavit having been filed showing that the name of the patentee in Letters Patent No. 592,717, granted October 26, 1897, for an improvement in "Planters," should have been written and printed *Timothy Jay Sullivan* instead of "Timothy Joy Sullivan," it is hereby certified that the proper correction has been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 14th day of December, A. D., 1897.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

A. P. GREELEY,
Acting Commissioner of Patents.