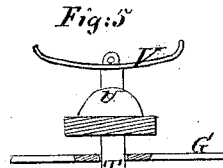
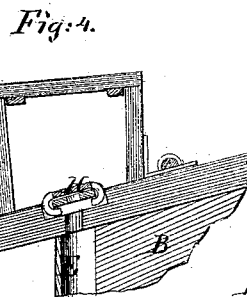
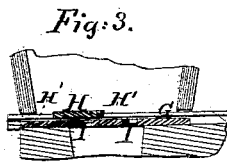
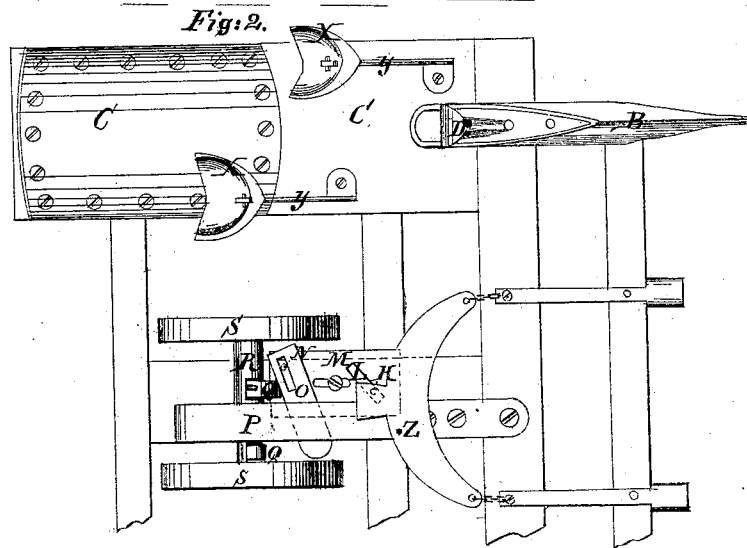
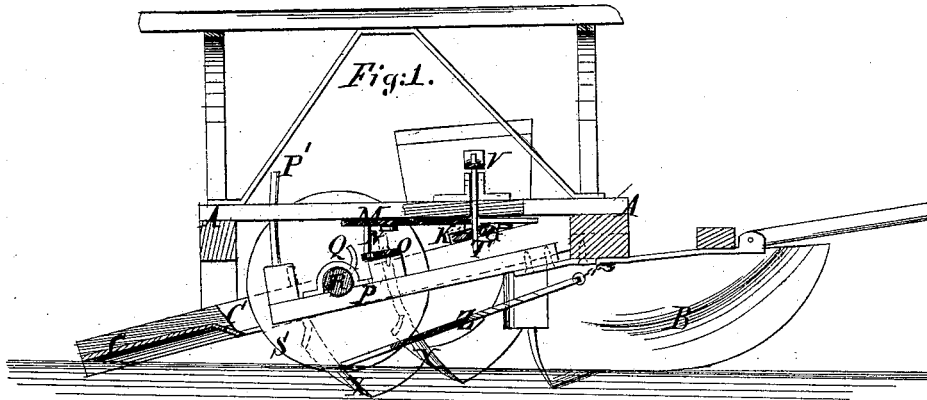


S. BACHER.  
PLANTER AND CULTIVATOR.

No. 110,187.

Patented Dec. 20, 1870.



Witnesses  
M. Holland  
G. J. Weber

Inventor  
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per. *[Signature]*  
Attorneys

# United States Patent Office.

SOLOMON BACHER, OF EDINA, MISSOURI.

Letters Patent No. 110,187, dated December 20, 1870.

## IMPROVEMENT IN PLANTERS AND CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, SOLOMON BACHER, of Edina, in the county of Knox and State of Missouri, have invented a new and improved Planter and Cultivator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

My invention relates to seed-planters, and my object is to introduce to the public certain improvements thereon, which will first be described in connection with all that is necessary to a full understanding thereof, and then clearly pointed out in the claim.

Figure 1 is a longitudinal sectional elevation of my improved machine.

Figure 2 is a plan of a part of the bottom of the same.

Figure 3 is a section through one of the dropping-boxes and the slide in the transverse direction of the machine.

Figure 4 is a section through one of the dropping-boxes and the slide in the direction perpendicular to that of fig. 3; and

Figure 5 is a detail view of certain parts used for working the drop-slide by the feet of the operator, when required.

Similar letters of reference indicate corresponding parts.

A represents the frame of the machine mounted at the front on a pair of runners, B, and at the rear on a pair of scraper-coverers, C, which are supported at the front end on the runners and at the rear drag along the ground, the said rear ends dragging along in the wake of the droppers, and being concaved so as to work the ground over the seed dropped in the furrow for covering it.

The said ends are shod with sheet-metal to stand wear.

The furrows or drills for the reception of the grain are made by the little plows D attached to the runners under the bottom at the rear, and the grain is conducted to them through the passages E, formed at the ends by the bent sheets F of tin or other metal attached to the ends of the runners.

G is the dropping-slide, which is made with a large opening each side of a thick plate, H, in front of which the grain is pushed to one of the holes, I, through the bottom of the hopper, as the slide moves either way.

When the slide stops, the plate H covers one hole, and the other is covered by the part of the slide across one or the other of the holes through it.

This slide has a pin, K, at the center projecting downward through the inclined slot L, in a plate, M, capable of sliding back and forth on the bottom of the frame of the machine.

This plate M is connected by a pin, N, with a slotted vibrating bar, O, pivoted at its center on the beam P of the frame.

This bar O is to be struck alternately by the arms Q projecting from the shaft R of a pair of wheels attached to the machine for the purpose of turning the striking-arms Q, to work the dropping-slide by alternately vibrating the said bar O back and forth, to move the sliding plate M, and through it the drop-slide G.

These wheels are mounted on a bar, P, which is connected at the front of the machine, so that the rear end may rise and fall, as may be required, by the variation in the surface.

P' is a curved rod attached to the rear end of the bar P, and rising up through a hole in the frame for guiding the bar P.

The dropper-slide may be moved by the vibrating lever T, connected to it, as shown in fig. 5, pivoted at U and provided with the foot-bar V, on which the foot of the driver may be placed while he sits astride the seat W above, to work the lever T alternately back and forth.

X represents cultivator-plows attached to the under sides of the drag-scrappers C, one on each side of the wake of the drill-opener plows D, to be used for covering the drills when the ground is too hard to be sufficiently moved by the scrapers to cover them.

These cultivators have braces, Y, rising from the forward ends up to the frame, which are arranged with sharp edges presented toward the ground, to cut through clods, swards, and the like, to assist in cultivator in opening the furrows, and, if the ground be too hard for the cultivators, these braces will serve as runners to carry the cultivators over it.

These cultivators may be taken off when not required for use.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

The combination, with the covering teeth *xx* of a seed-planter, of the downwardly-projecting cutters Y Y, arranged directly in front thereof, as and for the purpose specified.

SOLOMON BACHER.

Witnesses:

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