(No Model.) 3 Sheets—Sheet 1.

M. SMITH.

TOBACCO TRANSPLANTER.

No. 345,184. Patented July 6, 1886.

Fig. 6.

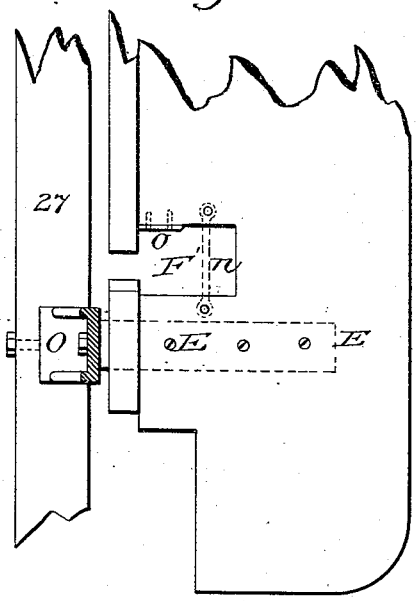
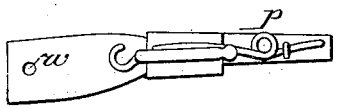


Fig. 3.



Figs. 4 & 5.

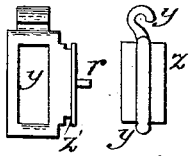


Fig. 2.

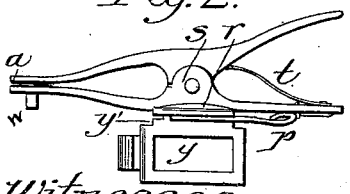
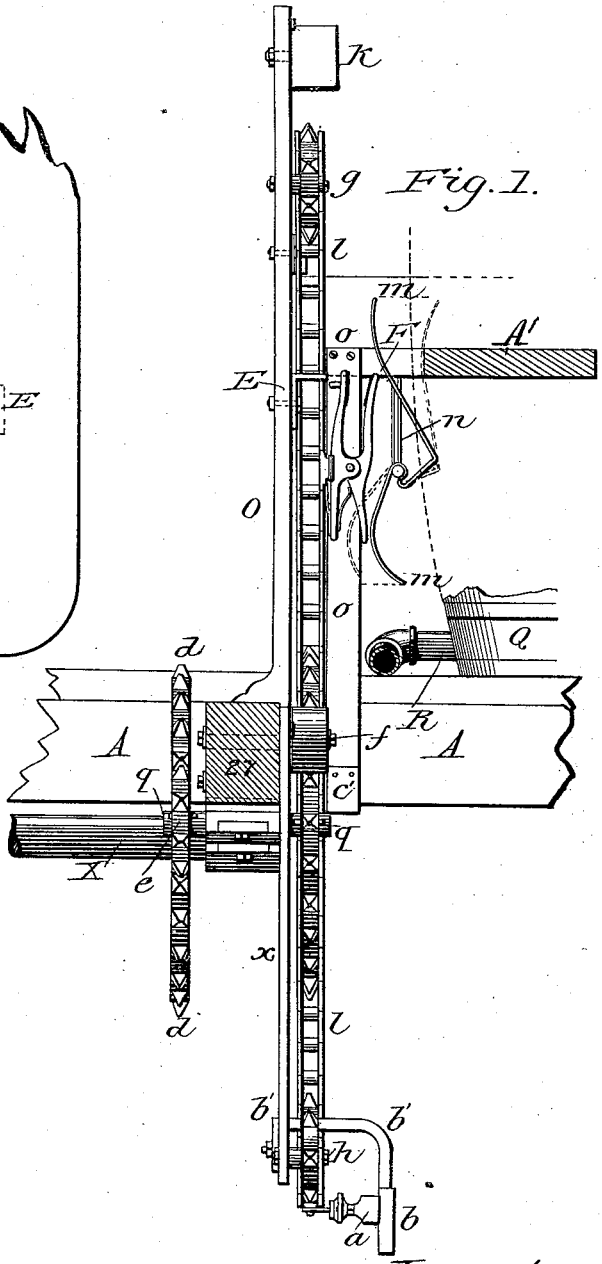


Fig. 1.



Witnesses.
John D. Murray.
Alberta Murray.

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Attorney.

(No Model.) 3 Sheets—Sheet 2.

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TOBACCO TRANSPLANTER.

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Fig. 8.

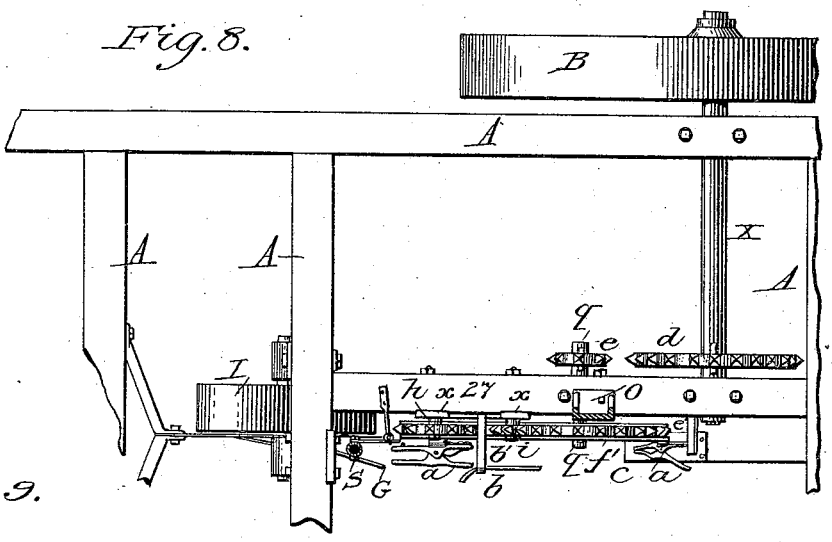

Fig. 9.

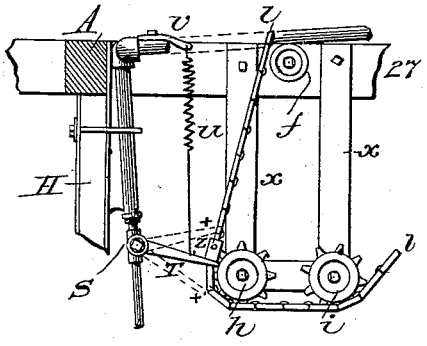

Fig. 7.

Witnesses.
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Attorney.

(No Model.) 3 Sheets—Sheet 3.

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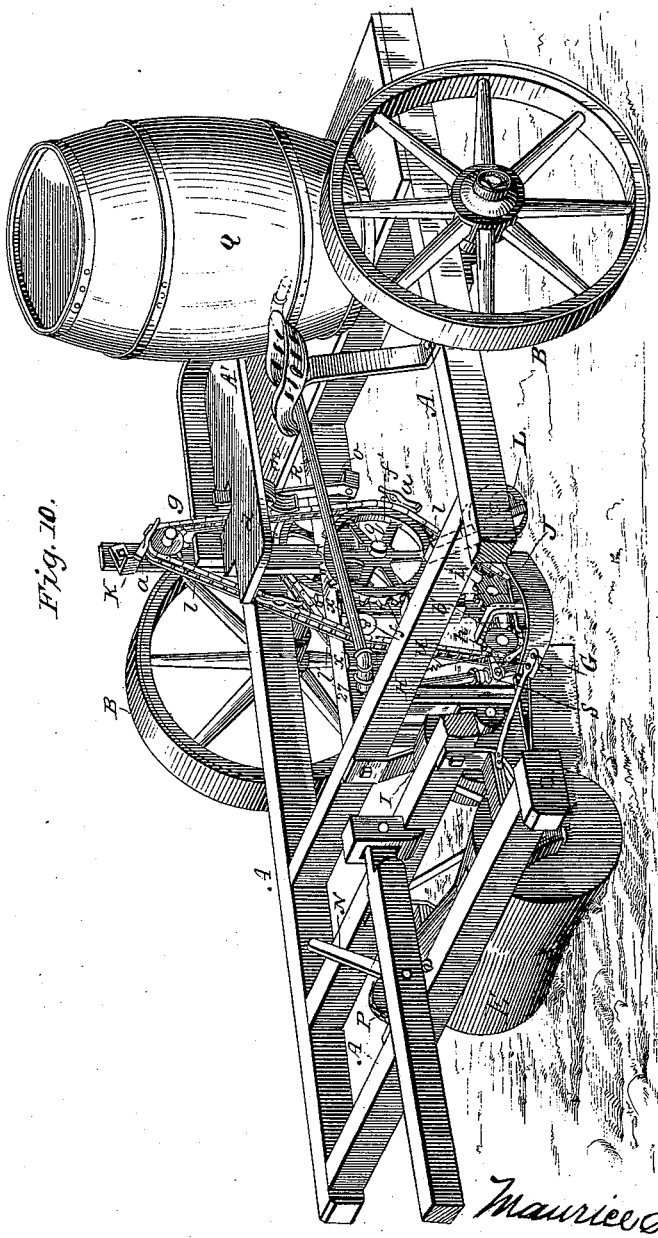

Fig. 10.

WITNESSES
Fred G. Dieterich
Thos. A. Hodgson.

Maurice Smith,
INVENTOR,
By Chas M Scanlan,
Attorney

UNITED STATES PATENT OFFICE.

MAURICE SMITH, OF JANESVILLE, WISCONSIN, ASSIGNOR OF ONE-HALF TO A. HYATT SMITH, OF SAME PLACE.

TOBACCO-TRANSPLANTER.

SPECIFICATION forming part of Letters Patent No. 345,184, dated July 6, 1886.

Application filed January 18, 1886. Serial No. 188,885. (No model.)

To all whom it may concern:

Be it known that I, MAURICE SMITH, a citizen of the United States, residing at the city of Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvement in Machines for Transplanting Plants; 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 the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for dropping and transplanting plants, and particularly to the "tobacco-transplanter" of Maurice and A. Hyatt Smith, Patent No. 335,724, dated February 9, 1886, by mechanism for dropping the plants and holding them in position until they are set. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation view of the dropping apparatus, showing the main frame A and cross-beam 27 of the transplanter, the sprocket-wheel *d*, fixed on the rotating axle X of the drive-wheel B, which is fixed thereon for the purpose of rotating the sprocket-wheel *d*, the upright standard O, attached to the cross-beam 27, which bears the table and sprocket-wheel *g*, the trip-bar *b*, to open the clamp *a*, the bar *b'*, which is attached to the frame *x*, and bears the trip-bar *b*, and the sprocket-wheels *f'*, *g*, *h*, and *i*, which carry the chain *l*, to which the clamp *a*, for holding the plant, is attached; also the water-tank Q and water-feed pipe R, for watering the place for the plants.

Fig. 2 is a top view of the clamp, showing its attachment to the link *y* by the pivot-joint *r*, the shoulders *y'*, to push the lever T (shown in Fig. 9) of the water-feed-pipe valve, the spring *p*, to hold the clamp in position, the spring *t*, to close the clamp, the pivot *s*, upon which it opens, the pivot *r*, on which the clamp revolves, and the pin *w*, that strikes the trip-bar K to reverse the clamp.

Fig. 3 is a side view of the clamp, showing the attachment of the spring and pin *w*.

Figs. 4 and 5 are front and side views of a link detached from the chain and clamp, showing the pivot *r*, for the clamp, and the flat plate *z*, to hold the clamp steady, and the pin *w*.

Fig. 6 is a top view of the table A', for the plants, attached to the standard O, showing the opening F' in the bottom for the passage of the clamp and chain, the bar *n*, for the trip-bar *m* to hinge on, and the outline of the support *e'*, attached to the standard O.

Fig. 7 is a side elevation view of the dropping apparatus on the transplanter with the left drive-wheel, seat for the person who arranges the plants, scraper J, and roller I, and showing the frame A, cross-beam 27, drive-wheel B, sprocket-wheel *d*, which is connected with the sprocket-wheel *e*, (shown in Fig. 8,) fixed on the rotating shaft *q*, on the other end of which is fixed the sprocket-wheel *f'*, which drives the chain *l*, the concave roller E, the open end F of the plow, the standard H of the transplanter, for attachment of the roller I, and other parts, as shown in the drawings, the water-tank Q, pipe R, valve S, lever T of valve-clamp *a*, trip-bar *b*, bar *b'*, to hold the trip-bar *b*, trip-bars *c*, *c'*, K, and *m*, sprocket-wheels *f*, *g*, *h*, and *i*, guide *o* from trip-bar *c'* to table A', the spring *u*, to raise the lever T to close the valve S, the hook *v*, to hold the spring *u*, and the frame *x*, for the sprocket-wheels *h* and *i*.

Fig. 8 is a top view of the same parts of the machine shown in Fig. 7.

Fig. 9 is a side view of the frame *x*, for the sprocket-wheels *h* and *i*, with the clamp *a* removed from the link, and showing the shoulder *y'*, that pulls the lever T down, the main frame A, cross-beam 27, standard H, spring *u*, to raise the lever T, water-feed pipe R, valve S, and lever T.

Fig. 10 is a perspective view of the entire machine ready for work, (except a small piece of the frame A removed,) showing the drive-

wheels B B, frame A, cross-beam 27, for the attachment of the dropping apparatus, the roller E, to smooth the course for the plow which makes a furrow for the insertion of the plants, the roller I, which compresses the soil on the right side of the plow, so as to leave a firm bank, the scraper J, which fills the furrow about the plant, the roller L, which presses and smooths the soil around the plant, the standard H, to which the roller I and plow are attached, the sprocket-wheels *f'*, *g*, *h*, and *i*, to carry the chain *l*, which bears the clamps *a*, the trip-bars *m* and K, to adjust the clamps, the chain *l'*, which connects the sprocket-wheels *d* and *e*, (shown in Fig. 8,) table A', for the plants, seat for the person who arranges the plants on the table, tank Q, pipe R, reaching from the tank to the plow, the lever T, that opens and closes the valve S, and guide-wheel *f*, for the chain *l*.

The plants are placed on the table in position by a person who sits facing it. There is one or more clamps, *a*, on the chain *l*, which moves backward at the same rate of speed that the machine moves forward between the sprocket-wheels *h i*. When the clamp *a* reaches the trip-bar *m*, it presses the lower end of the bar out, which causes the upper end to push the plant into position, as shown in Fig. 1. Then the arm of the clamp is pressed inward by the trip-bar *m*, opening its jaws until they are on both sides of the plant, when the arm escapes the trip-bar and closes on the plant and carries it up over the sprocket-wheel *g*, where the pin *w* of the clamp strikes the trip-bar K and turns the clamp half-way around. In this position it moves downward until the shoulder *y'* strikes the lever T of the valve S and pushes it downward and opens the valve and deposits water for the plant, when the lever escapes and is raised to its place by the spring *u*. The clamp then moves on to the turn at the sprocket-wheel *h*, where it deposits the plant in the opening of the plow in the furrow made by it. As the velocity of the clamp backward and the machine forward are equal, as aforesaid, the plant is held in the spot where the water was deposited until it is set by the mechanism above described. The arm of the clamp pressing against the trip-bar *b* opens the clamp and leaves the plant and moves on until its arms strike under the trip-bar *c'*, which causes it to make a half-revolution, and it then moves on to the trip-bar *m*, ready to repeat the process just described.

What I claim as my invention, and desire to secure in this application by Letters Patent, is—

1. In machines for transplanting plants, a clamp, Fig. 2, opening on a pivot, *s*, with a pin, *w*, to strike the trip-bar K, and its combination with the link *y* by means of a pivot-joint, *r*, and held in position parallel to the link of the chain by the spring *p* until acted upon by the trip-bars, substantially as described, and for the uses and purposes herein set forth.

2. The combination of the trip-bar *m*, moving on a pivot, *r*, in the center, and shaped, substantially as described in Fig. 1, to push the plants into position and open the clamps to receive the plants, substantially as described, and for the uses and purposes herein set forth.

3. The combination of the table A', for the plants, with an opening in the bottom for the passage of the chain and clamps, with the trip-bar *m* and bar *n*, substantially as described, and for the uses and purposes herein set forth.

4. The combination of the chain *l*, clamp, and trip-bar K, to reverse the clamp, substantially as described, and for the uses and purposes herein set forth.

5. The combination of the clamp with the chain *l* by a pivot-joint and spring, and with the trip-bar *c'*, to reverse the clamp, substantially as described, and for the uses and purposes herein set forth.

6. The combination of the two sprocket-wheels attached to a frame close to the ground with the sprocket-chain thereon to carry the clamps parallel to the ground, substantially as described, and for the uses and purposes herein set forth.

7. The combination of the lever T with the valve on the water-feed pipe, spring *u*, and shoulder of the clamp, substantially as described, and for the uses and purposes herein set forth.

8. The combination of one or more clamps on a sprocket-chain with trip-bars *m* and *b*, to open the clamps to receive the plants and leave them when set, substantially as herein described and set forth.

9. The combination of clamps on a sprocket drive-chain with trip-bars K and *c'*, to reverse and change back the clamps to come with mouth toward the plant and leave it when set, substantially as described.

10. The combination of clamps with a sprocket drive-chain on sprocket-wheels with trip-bars to open and receive the plant, turn the clamps facing backward and deposit the plant, and then turn the clamps forward, ready to repeat the same process, substantially as set forth.

11. The combination of a drive-chain attached by pivot-hinges to clamps driven on sprocket-wheels by motion obtained from the drive-wheel of the machine moving in a defined course with the trip-bars to take each plant from the table and deposit it in the furrow at the heel of the plow and hold it until set, substantially as described.

12. The combination of the valve S on the water-feed pipe with the lever T, spring *u*, and shoulder *y'* of the clamp on the sprocket drive-chain, to regulate the deposit of water to irrigate for the plants, substantially as described.

13. The combination of a sprocket-wheel fixed on the rotating shaft of the drive-wheel with the sprocket-wheel on the rotating shaft of the sprocket-wheel f', to drive the chain l at the same rate of speed from the sprocket-wheel h to the sprocket-wheel i that the machine moves forward to hold the plant in one place until it is set, substantially as described.

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

MAURICE SMITH.

Witnesses:
S. H. GISH,
J. G. WICKHEM.

Corrections in Letters Patent No. 345,184.

It is hereby certified that in Letters Patent No. 345,184, granted July 6, 1886, upon the application of Maurice Smith, of Janesville, Wisconsin, for an improvement in "Tobacco-Transplanters," errors appear in the printed specification requiring correction, as follows: In line 6, page 1, the word "Improvement" should read *Improvements;* in line 67, same page, the word *removed* should be inserted after "roller I"; in line 78, same page, a comma should be substituted for the hyphen between the words "valve" and "clamp"; and in line 70, page 2, the reference letter "*r*" should read *n;* and that the Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 13th day of July, A. D. 1886.

[SEAL.]

D. L. HAWKINS,
Acting Secretary of the Interior.

Countersigned:

M. V. MONTGOMERY,
Commissioner of Patents.