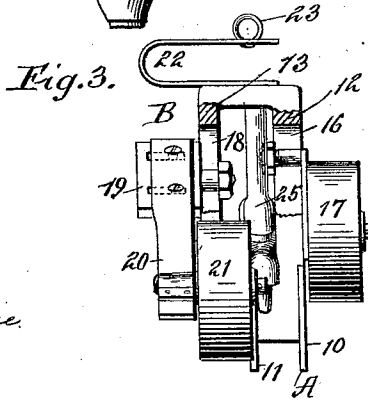
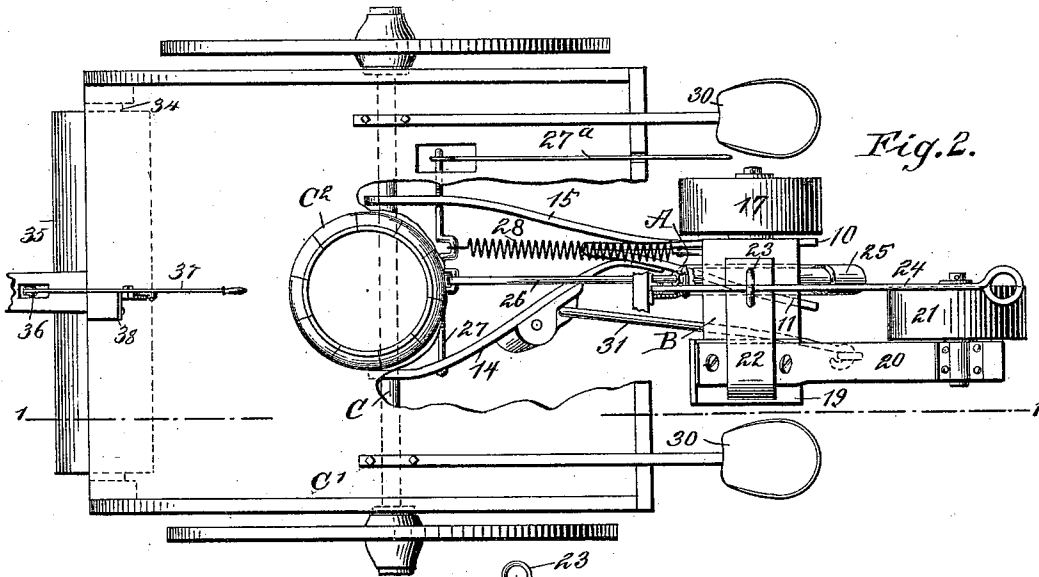
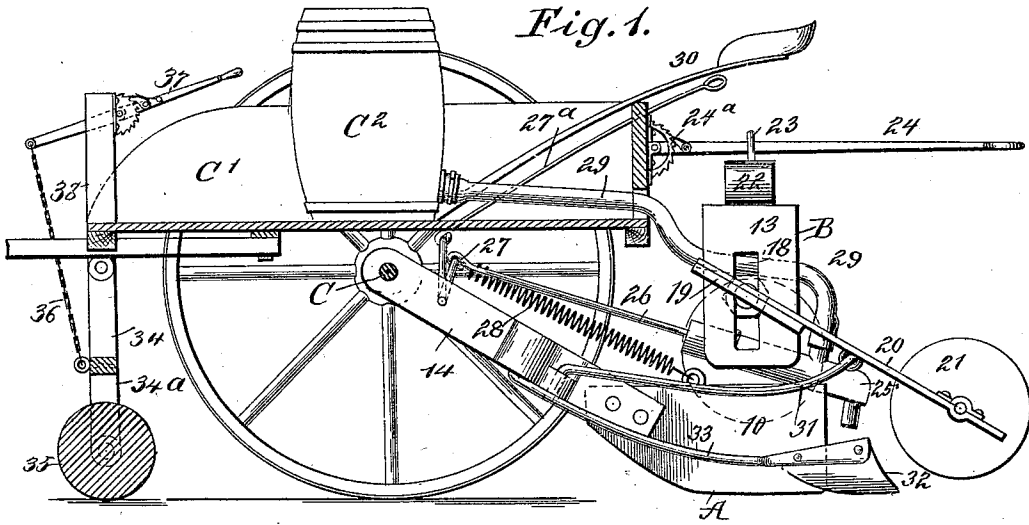


(No Model.)

A. WILLNER.
TRANSPLANTING MACHINE.

No. 520,838.

Patented June 5, 1894.



WITNESSES:

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AUGUST WILLNER, OF GERMANTOWN, OHIO.

TRANSPLANTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 520,838, dated June 5, 1894.

Application filed October 2, 1893. Serial No. 486,987. (No model.)

To all whom it may concern:

Be it known that I, AUGUST WILLNER, of Germantown, in the county of Montgomery and State of Ohio, have invented a new and

Improved Transplanting-Machine, of which the following is a full, clear, and exact description.

The invention is an improvement in transplanting machines which are provided with furrow-openers and liquid-discharging tanks, also with means for closing and smoothing the furrow.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the transplanter, and a vertical section through the truck, the section being taken practically on the line 1-1 of Fig. 2. Fig. 2 is a plan view of the truck and the machine, a portion of the bottom of the truck being broken away; and Fig. 3 is essentially a rear elevation of the standard of the machine, a portion of the standard being in section, and likewise a rear elevation of the parts carried by the standard.

The furrow opener A, consists of two plates 10 and 11, beveled at their forward under edges and connected at their forward edges, their rear edges being separated a predetermined distance through the medium of one vertical member of a practically U-standard B, which member is introduced between the plates and secured to them in any approved manner, as shown in Fig. 3. The right-hand member 12 of the standard is the one that is connected with the furrow opener, while the left-hand member, which is shorter than the right-hand one, is at some distance to the left of the furrow opener.

The forward end of the furrow opener is connected with two handles 14 and 15, as shown in Fig. 2, the handles being shaped somewhat as a plow handle; and the forward ends of these handles are loosely mounted upon the axle C of a truck C', or other form of vehicle, preferably two-wheeled, said truck

being adapted to carry one or more barrels C², or other receptacles adapted to be filled with water. A vertical slot 16, is made in the upper portion of the right-hand member 12 of the standard, as shown in Fig. 3, and the axle of the wheel 17, is adjustably located in the said slot 16, the wheel being adapted by its adjustment to regulate the depth that the furrow opener shall enter the ground. The left-hand member 13 of the standard is provided with a similar slot 18, in which the trunnion of a plate 19, is adjustably secured, said plate being located at the left-hand side of the standard, and it is adapted to have attached to it an arm 20. In the lower end of this arm a wheel 21, is mounted which is adapted to travel close to the plant and smooth or press the earth upon its roots. A spring 22, preferably shaped as an inverted U, is pivotally connected with the upper end of the standard B. The spring upon the upper face of its upper member is provided with an eye 23, or its equivalent, and a lever 24, is passed through this eye, which lever is preferably fulcrumed upon the back of the truck, being provided with a pawl, or equivalent device, for engagement with a rack 24^a, as shown in Fig. 1. Thus it will be observed that by raising or lowering the lever the furrow opener may be made to approach or enter the ground to a greater or less extent, or may be entirely lifted from the ground. Furthermore, in the event the furrow opener should meet with an obstruction it may ride over the same owing to the spring 22, interposed between it and the lever, but when the obstruction is passed the spring will force the furrow opener to its working position.

A pump 25, is usually supported in a suitable bearing on the upper portion of the furrow opener, or upon an offset produced in the member 12 of the standard B, as shown in Fig. 3, the nozzle end of the pump being so located that it will deliver the contents of the pump upon the ground at the back of the furrow opener. The piston rod 26, of the pump is connected with a crank shaft 27, which shaft is preferably a rock shaft, and is journaled in the handles 14 and 15 of the machine, a lever 27^a being secured to one end of the rock shaft, capable of being operated by foot or by hand power, and through

the medium of the lever the shaft 27 may be rocked; but the shaft may be made to revolve by providing a driving mechanism to be driven either from a wheel or the axle of the truck. The shaft 27, is assisted in its return movement, or its movement in direction of the pump, through the medium of a spring 28, attached to a crank arm of the shaft and to a fixed support, for example the standard B. The pump is connected with the water receptacle C² through the medium of a flexible hose 29, or its equivalent, and the nozzle end of the pump may be of faucet formation.

A seat 30, is provided at each side of the machine, supported by the truck, the seats being located beyond the rear end of the truck; therefore, the occupants of the seats may alternately place the plants in position in the ground, the plants being placed immediately back of the furrow opener. The arm 20, carrying the covering wheel 21, may have lateral movement upon the blade 19 by slotting the plate and passing pins attached to the arm through the slots of the plate, and in this manner the covering wheel may be carried to or from a line of plants, and the arm is stayed by means of a brace 31 pivotally connected with the arm and pivoted in the outer surface of the left-hand handle 14.

The loose earth turned up by the furrow opener is directed around the plants placed in the furrow through the medium of a covering shovel 32, which is curved in direction of the furrow and is held at the rear left-hand side of the furrow opener and between the rear end of the opener and the covering wheel, as shown in Fig. 1, the shovel being secured to an arm 33, suitably pivoted to a fixed support, preferably the left-hand handle 14.

In the front of the machine an arm 34, is pivotally located, which arm extends downward and is provided with a bail 34^a, within which bail a roller 35, is pivoted, the roller being adapted as a land roller, and its purpose is to crush clods of earth in advance of the transplanting apparatus. The roller extends practically beneath the truck C', from one side to the other of the same, and may be lifted from the ground, when not desired for use, through the medium of a chain 36, or its equivalent, attached to a lift lever 37, fulcrumed upon a standard 38, fixed upon preferably the upper central portion of the truck at its forward end, the said lift lever

being provided with a suitable locking device.

It will be observed that with a machine of the character described, a furrow is opened to permit a plant to be placed therein, the soil in which the plant is to be set is moistened or rendered wet, as desired, and the loose earth is carried around the roots of the plant and pressed downward by the covering or pressure wheel 21, while, as heretofore stated, the machine is free to rise and fall to accommodate itself to inequalities of the ground, or to pass an obstruction, and by so constructing the machine it may be used with equally good results upon rough ground as upon smooth, and upon a hillside as well as upon level ground.

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

1. The combination, with the pivoted furrow-opener and a vertically-slotted standard connected with the latter, of a vertically-adjustable wheel, 17, carried by the standard, and a cover, a smoothing wheel, and an arm 20, which is adjustably attached to said standard, as shown and described.

2. In a transplanter, the combination, with the furrow-opener and its arms pivoted to the axle, of a vertical standard attached to the furrow-opener and carrying a supporting wheel, 17, the smoothing wheel whose arm 20 is attached to the standard, and a rigid rod, 31, which connects the said arm with one of the arms of the furrow-opener, as shown and described,

3. The combination, with the wheeled vehicle, pivoted furrow-opener arranged to follow the same, a standard and gage wheel, 17, connected with the furrow-opener, of a device 24, attached to the vehicle frame and made adjustable vertically, and a connection between such device and the said standard, as and for the purpose specified.

4. The combination, with a wheeled vehicle, of a furrow opener having the lateral supporting wheel 17 and provided with an attached standard, and a spring connection between the standard and a support located above the standard and attached to the vehicle, substantially as and for the purpose set forth.

AUGUST WILLNER.

Witnesses:

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HARRY GROSS.