(No Model.) 2 Sheets—Sheet 1.

C. D. MANWARING & C. C. & F. G. NAGLEY.

TRANSPLANTER.

No. 491,290. Patented Feb. 7, 1893.

Fig. 1.

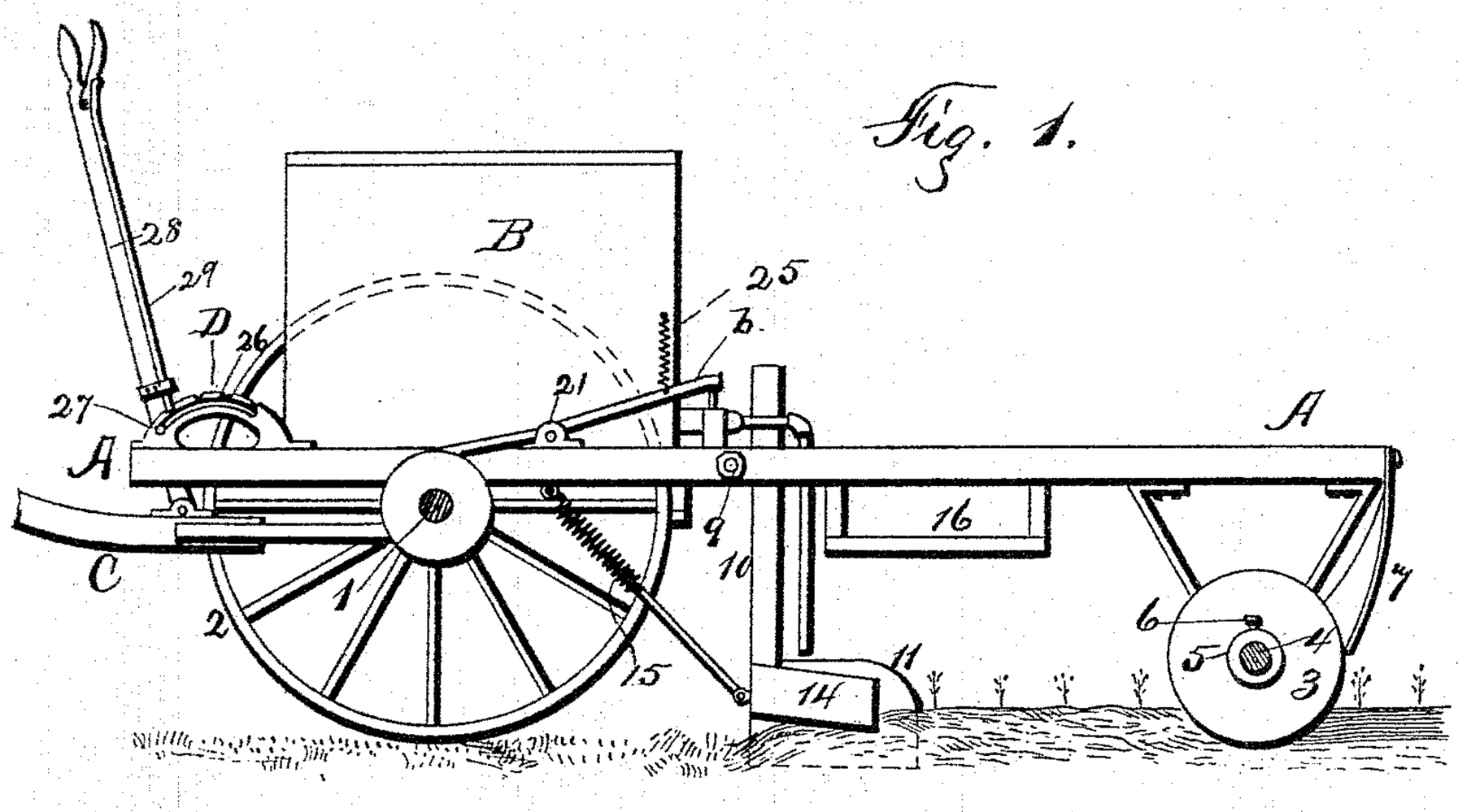
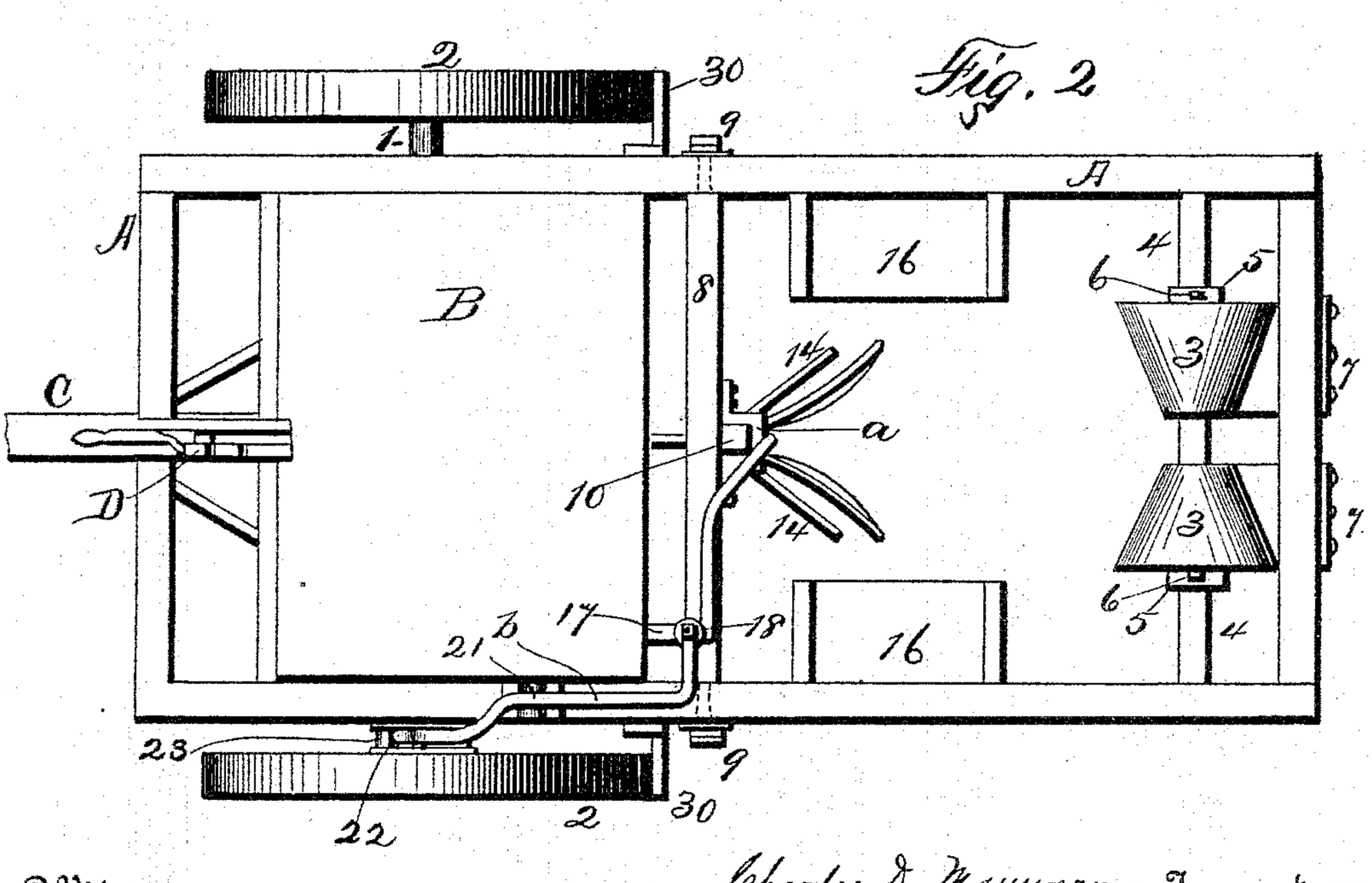


Fig. 2



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(No Model.) 2 Sheets—Sheet 2.

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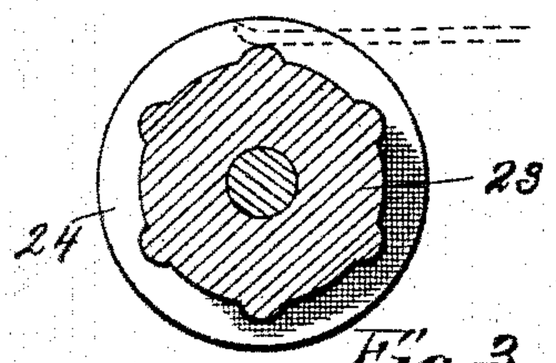

Fig. 3.

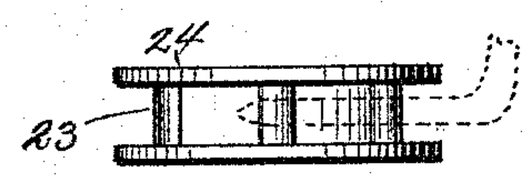

Fig. 4.

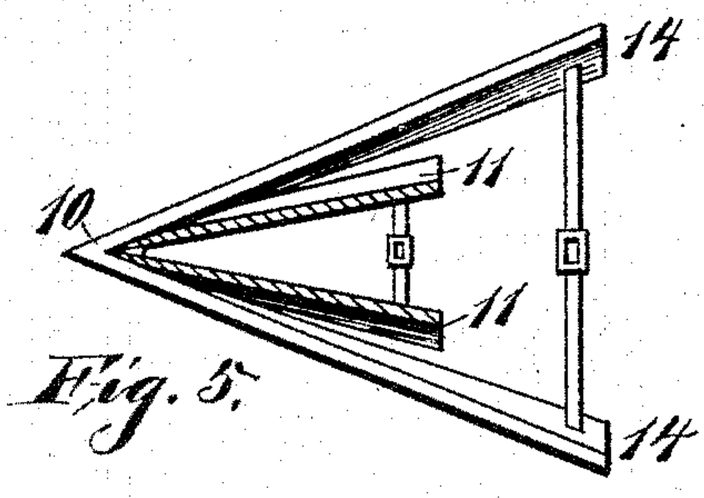

Fig. 5.

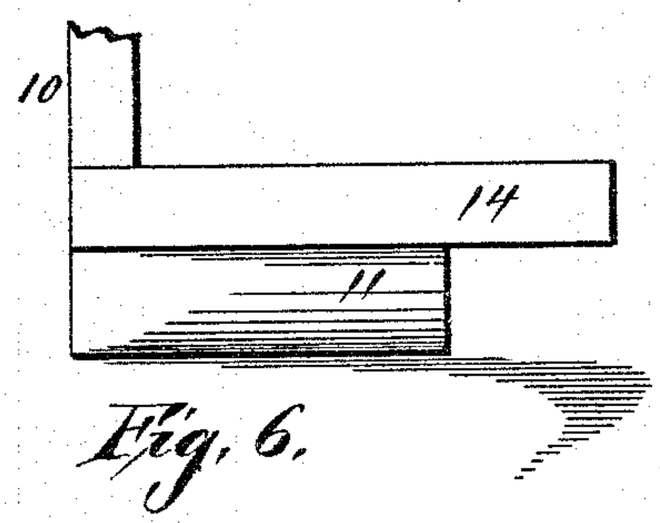

Fig. 6.

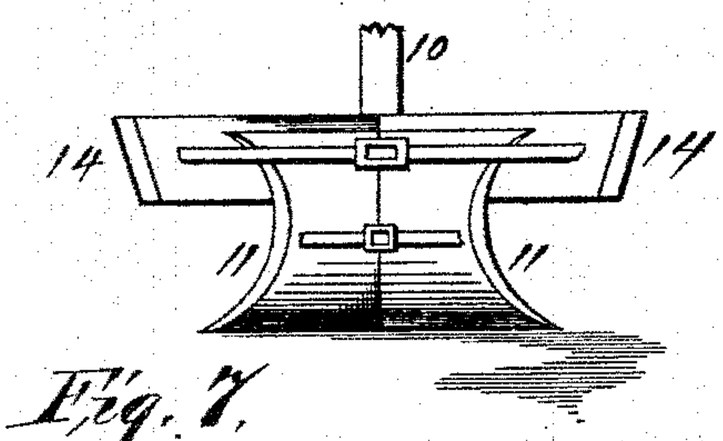

Fig. 7.

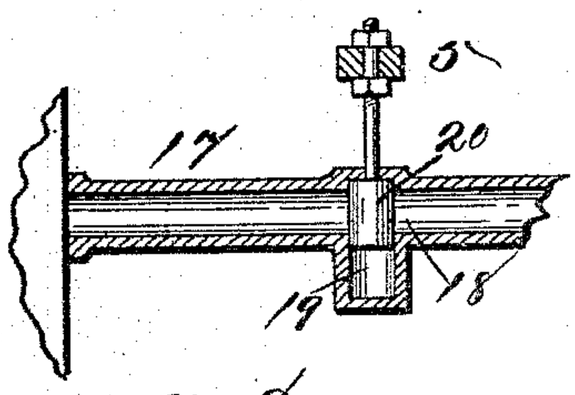

Fig. 8.

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By Smith & Denison their ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES D. MANWARING, CHARLES C. NAGLEY, AND FRANK G. NAGLEY,
OF MEMPHIS, NEW YORK.

TRANSPLANTER.

SPECIFICATION forming part of Letters Patent No. 491,290, dated February 7, 1893.

Application filed May 31, 1890. Serial No. 353,707. (No model.)

To all whom it may concern:

Be it known that we, CHARLES D. MANWARING, CHARLES C. NAGLEY, and FRANK G. NAGLEY, of Memphis, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Transplanters, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to transplanters; and it consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed.

It is constructed as follows, reference being had to the accompanying drawings, in which

Figure 1, is a side elevation of the machine, complete. Fig. 2, is a top plan thereof. Fig. 3, is a vertical transverse section of the gear which operates the water valve, showing the lever which is connected to the valve, in dotted lines. Fig. 4, is a top plan thereof. Fig. 5, is a top plan of the furrowing plow, showing the means for adjusting the wings and moldboards laterally. Fig. 6, is a side elevation of the same. Fig. 7, is a rear elevation thereof, showing the concavity of the mold-boards, throwing their bottom edges outwardly to make an under cut, and causing their top edges to over-hang, or project outwardly beyond the plane of the central horizontal line of each mold-board. Fig. 8, is a vertical sectional detail of part of the water pipe and the shut-off valve therein.

A—, is the main frame, mounted, in front, upon the axle —1—, and wheels —2—, and at the rear upon the pair of frusto-conical packing rollers —3—, secured with their small ends inward or toward each other upon the axle —4— and adjustable thereon by means of the sleeve —5— connected to or integral with each roller, and a set screw —6—, or equivalent devices. Spring scrapers are secured at one end to the frame and their lower ends bear against and operate to scrape the faces of the rollers. A cross beam —8— is journaled at —9— in or upon the side rails of the main frame, upon end gudgeons, and is free to roll, rock or rotate thereon. Upon the center thereof an angular bracket is secured, in which the beam —10—, of the plow, fits. This plow is secured to the lower end of the beam, and consists of the concaved mold-boards —11— in each of which the lower edge —12— projects outwardly for at least part of the length of said edge, beyond the central horizontal line of the mold-board, and the top edge of each over-hangs, or projects outwardly beyond said line, as shown in Fig. 7; and the front edges of the mold-boards are connected, creating a vertical point or cutting edge; and in Fig. 5 we show them adjustably connected by means of the rods connected to each and the set screw upon the rods for locking them at any desired point, whereby the mold-boards can be adjusted laterally to vary the width of the furrow. Wings —14— are connected at their front ends to the beam, or to the mold-boards, flare outwardly beyond the top edges of said mold-boards, and are adjustable laterally as to said rear ends, as shown in Fig. 5, and they operate to scrape the stones and lumps of earth off to one side, away from the mold-boards, so that they cannot roll into the furrow, made by the plow. The plow beam is adjustable vertically, by any ordinary means. A spring —15— is secured at one end to a frame timber and at the other to the front of the plow, so that when the plow strikes an obstacle which it cannot push aside, the plow will be swung rearward and upward by the strain, until it passes over the obstacle, when the spring will retract the plow to its normal position. Seats —16— are suspended from the frame upon which the men or boys sit while dropping the plants.

B—, is the water tank carried by the main frame, substantially over the front axle, to which an eduction pipe —17— is connected, provided with shut-off valve, shown as having a vertical plunger or stem —20— within a valve chamber —19— and a suitable stuffing box, through which the stem passes. The eduction pipe extends down to the flow, at such a point as to discharge the water into the furrow at substantially each spot where a plant is to be dropped. This valve is operated by a lever pivoted at —21— on the main frame, and having one end connected to the valve stem, and the free end curved or rounded, and in engagement with the face of the gear —22—, consisting of a cylindrical body,

provided with side flanges —24— projecting beyond said body and in line with the ends thereof, and teeth —23— between said flanges, spaced a fixed distance apart according to the distance between the plants. This gear is loose upon the axle, and secured to or otherwise adapted to be rotated by the rotation of the hub, and as it rotates the end of said lever comes into successive engagement with said teeth, and as it passes over a tooth, that end of the lever is raised, which depresses the other end, and the plunger in the valve opens the valve to discharge a modicum of water, said valve being again closed as soon as the end of the lever has passed over the tooth.

By varying the number of the teeth or the spaces between them, we can vary the distance between the discharges and adapt the mechanism for use in connection with the dropping of plants at greater or less distances apart.

C—, is the pole connected to the axle.

D—, is a toothed quadrant secured upon the frame and provided with a curved slot —26— concentric with the pivot of the hand lever —28— upon the pole, and which is provided with a stud —27— fitting in said slot, and a pawl —29— engaging with the quadrant, so that when the lever is drawn back, the front end of the frame is lowered toward the pole, and the axle being the fulcrum, this raises the rear end of the frame, raising the plow and rollers clear from the ground; and by throwing said lever forward we raise the front end of the frame, and depress the rear, bringing the plow and rollers again into engagement with the earth.

It will be seen that the under-cutting edges of the mold-boards operate to break up the earth to a distance wider than the furrow, and that the over-hanging top edges, will prevent the earth from crowding over the top of the mold-boards and into the furrow between them.

What we claim as our invention and desire to secure by Letters Patent is:

1. In the transplanter the combination with the beam and its support in the main frame, of a V, plow provided with mold boards having outwardly projecting top and bottom edges.

2. In a transplanter the combination with the beam and its support in the main frame, of a V, plow provided with mold-boards having an outwardly projecting undercutting lip upon their lower rear edges tapering forward toward the front edge.

In witness whereof we have hereunto set our hands this 14th day of March, 1890.

CHARLES D. MANWARING.
CHARLES C. NAGLEY.
FRANK G. NAGLEY.

In presence of—
H. P. DENISON,
C. W. SMITH.