

(No Model.)

2 Sheets—Sheet 1.

L. LAMBETH & S. BOONE.
TRANSPLANTER.

No. 540,171.

Patented May 28, 1895.

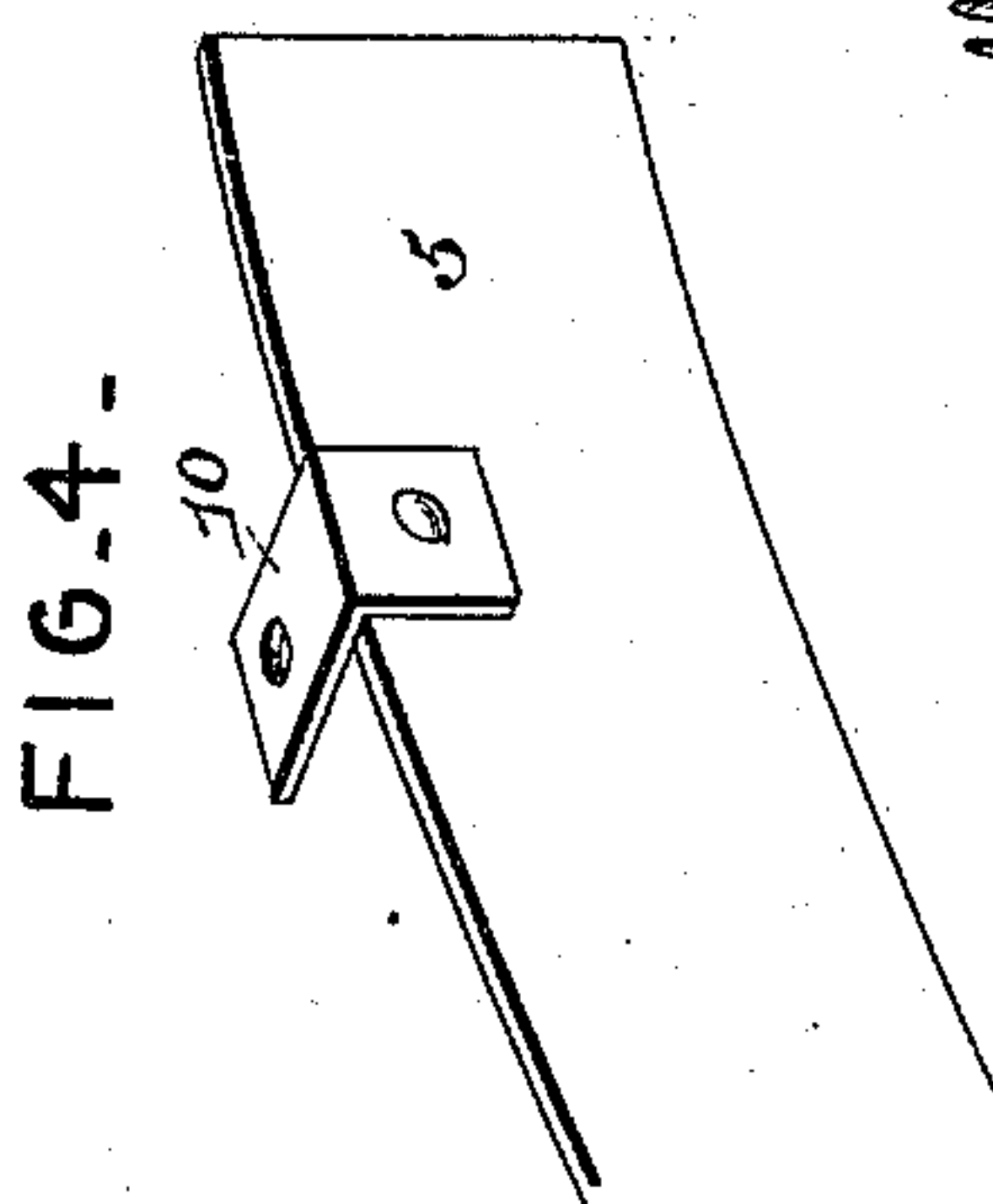
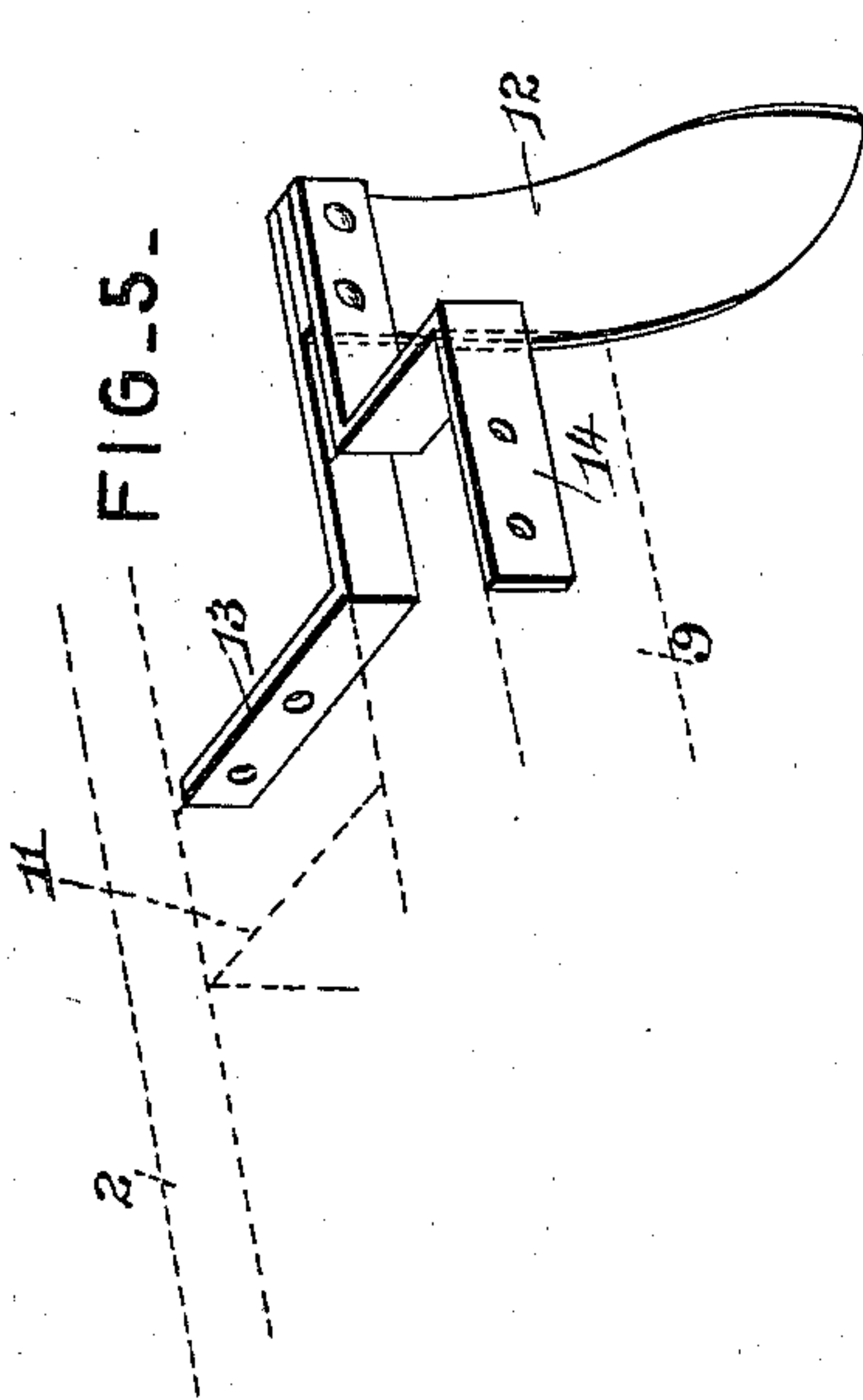
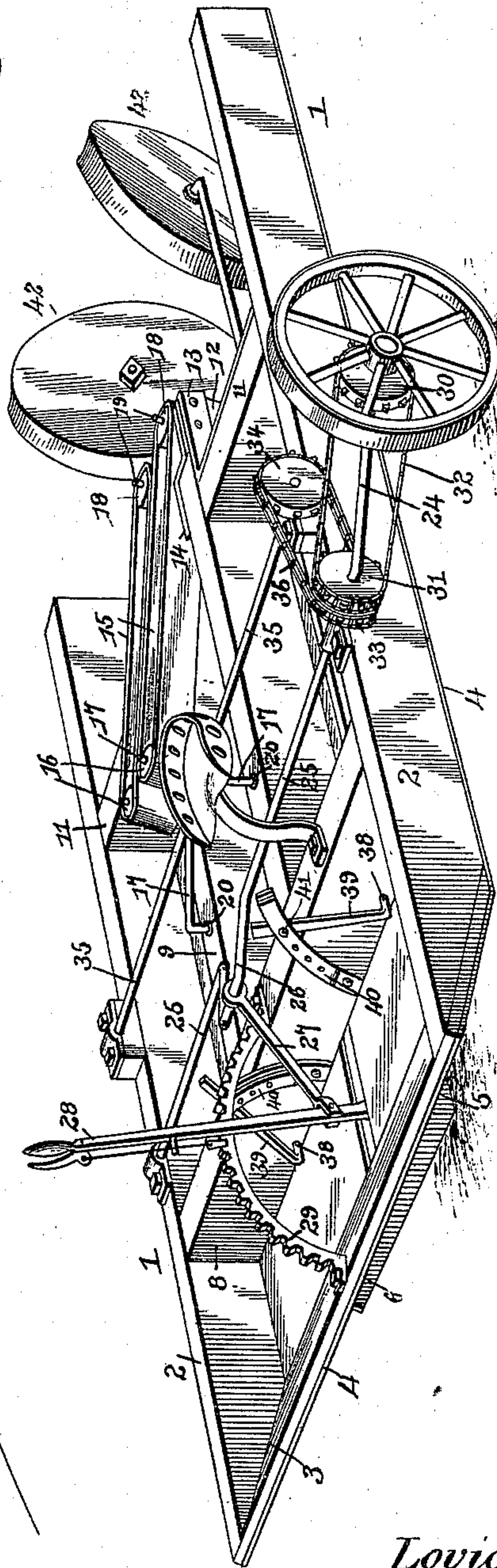


FIG. 1.



Witnesses

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By their Attorneys.

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(No Model.)

2 Sheets—Sheet 2.

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FIG. 6.

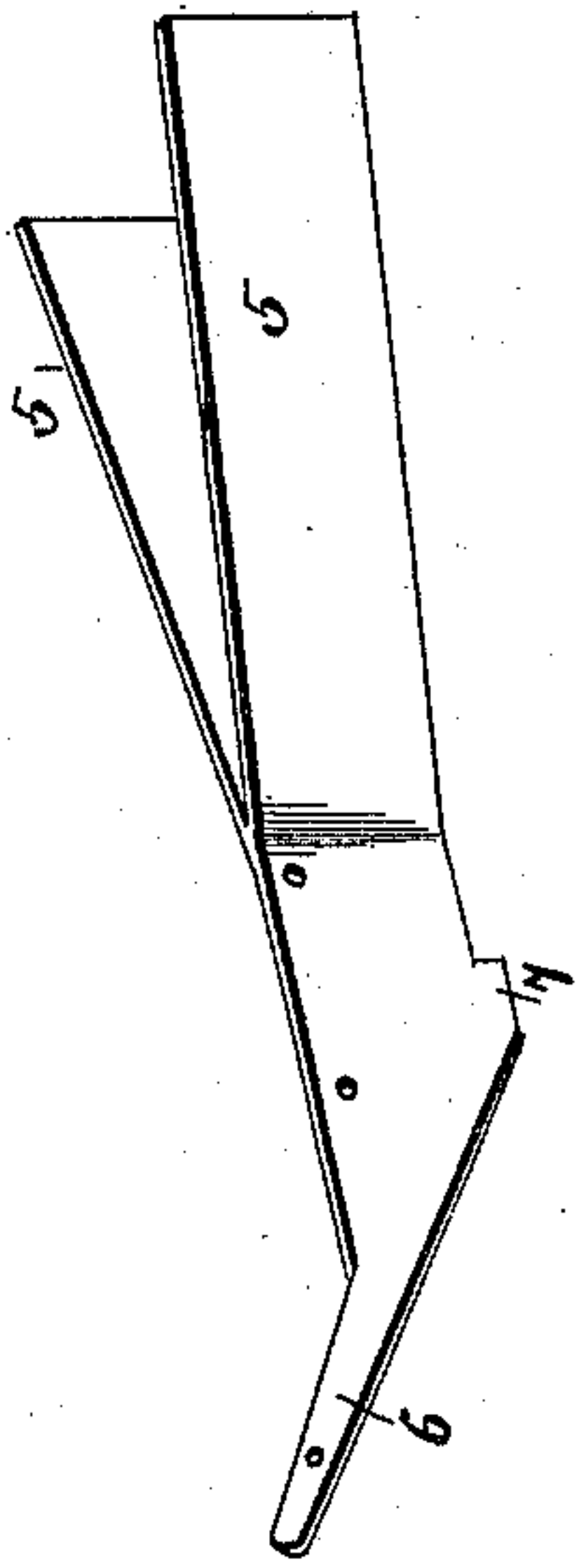


FIG. 2.

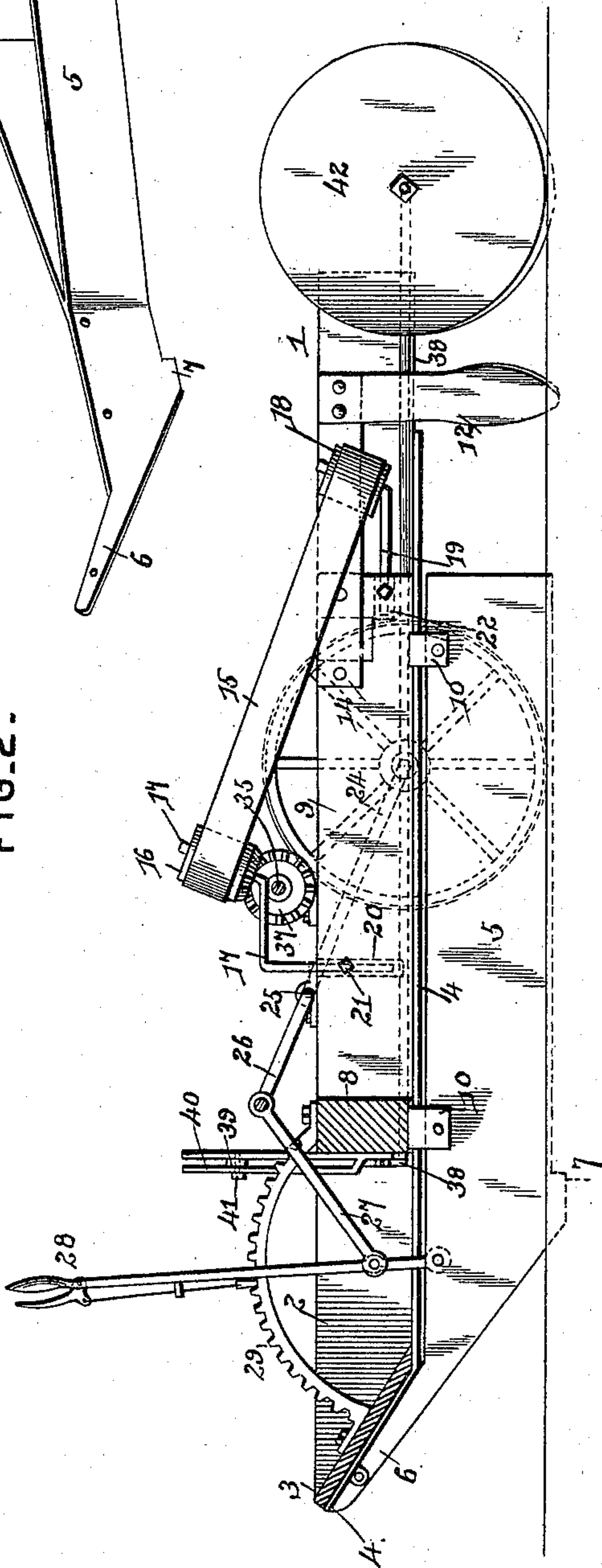
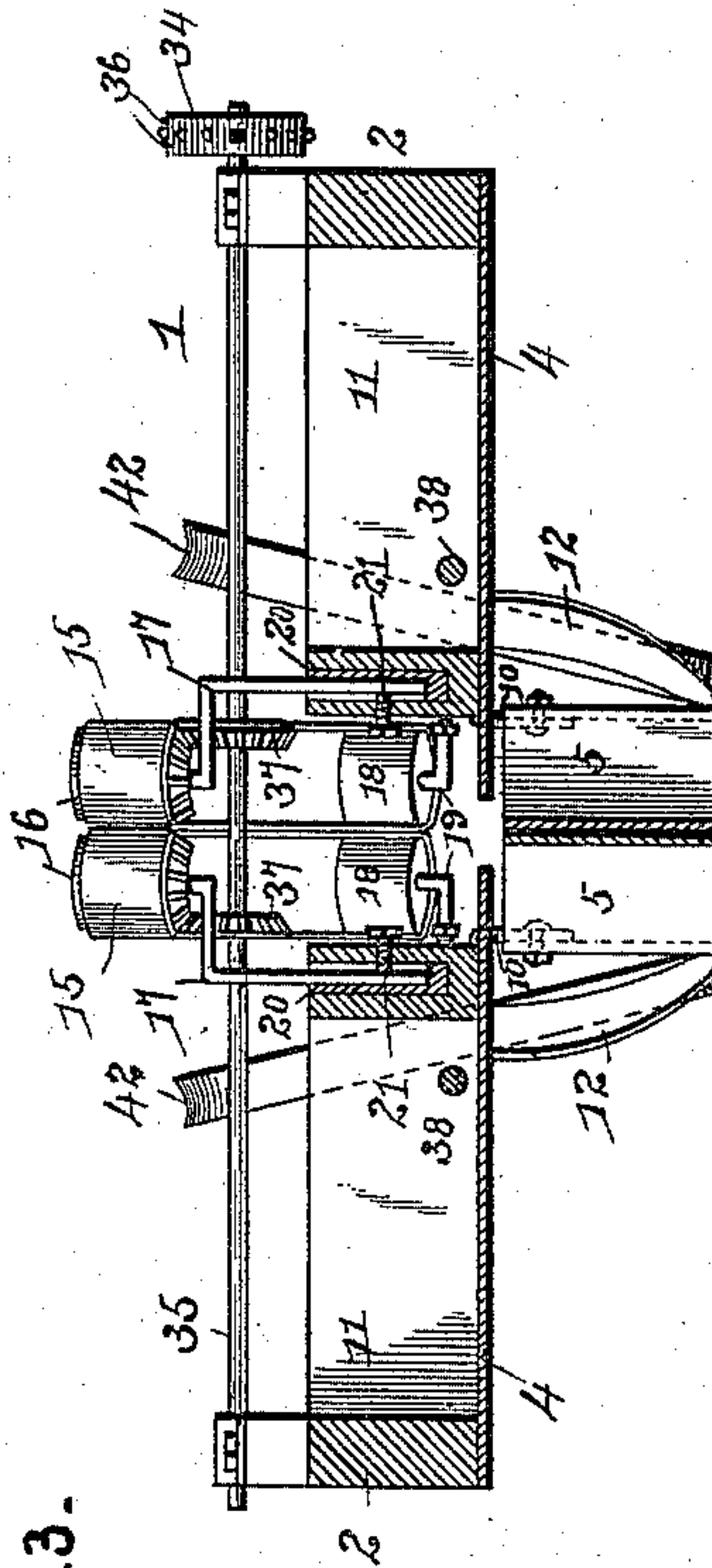


FIG. 3.



Witnesses

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By their Attorneys.

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UNITED STATES PATENT OFFICE.

LOVICK LAMBETH AND SALATHIEL BOONE, OF CARLISLE, INDIANA.

TRANSPLANTER.

SPECIFICATION forming part of Letters Patent No. 540,171, dated May 28, 1895.

Application filed March 28, 1894. Serial No. 505,478. (No model.)

To all whom it may concern:

Be it known that we, LOVICK LAMBETH and SALATHIEL BOONE, citizens of the United States, residing at Carlisle, in the county of Sullivan and State of Indiana, have invented a new and useful Transplanter, of which the following is a specification.

Our invention relates to a plant-setting or transplanting machine, and it has for its object to provide a simple, inexpensive, and efficient device for opening a furrow, setting plants at intervals, covering or hilling, and rolling the earth upon opposite sides of the line of plants to settle the same firmly around the roots; and furthermore, to provide simple means of adjustment to vary the depth of the furrow, the position and pressure of the settling or packing rolls, &c.

Further objects and advantages of our invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a machine embodying our invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a transverse vertical section in front of the adjusting devices for the rolls. Fig. 4 is a detail view of one of the angle-irons for attaching the shoe to the framework. Fig. 5 is a detail view of one of the shovels and attaching-bracket. Fig. 6 is a similar view of the shoe detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a frame-work having the parallel side-beams 2 which are beveled underneath at their front ends and are connected by the transverse inclined guard 3, which, in common with the main portion of the under side of the frame-work is provided with a protecting plate or shield 4 adapted to slide freely over the surface of the ground when the frame is sufficiently lowered.

Secured to the frame under its longitudinal center and having its sides or cheeks spread or deflected toward their rear ends is a furrow-opening shoe 5, the front end of which is upturned, as shown at 6 to agree with the inclination of the front guard 3, and is reduced to an edge to cut freely into the soil as

the machine is advanced. This nose 6 of the shoe terminates in a depending projection 7, which extends below the plane of the lower edge of the shoe and is located at the front end of the spread or deflected portion of the latter, to prevent the shoe from "riding" and loosen the soil below the plane of the bottom of the furrow opened by the shoe.

The side-beams of the frame are connected, in rear of the guard 3 by a transverse bar 8, and extending forward from the latter are parallel spaced bars 9, the space between which is directly above the spread or deflected portion of the shoe and to the rear ends of which are attached angle-irons 10 by which the rear ends of the said cheeks of the shoe are held in place. The rear ends of the parallel spaced bars 9 are held in place by short bracing pieces 11 which fit between the outer sides of the bars 9 and the inner sides of the side-beams 2.

The covering or hilling shovels 12 are arranged upon opposite sides of the longitudinal center of the machine in rear of the shoe and spaced therefrom a sufficient distance to allow the operation of planting or setting to be accomplished before the covering or hilling shovels throw the earth against the plants, as more fully explained hereinafter. These shovels are secured in place by means of angle brackets 13 secured to the rear ends of the spaced bars 9, the inner arms 14 of these brackets being secured to the inner surfaces of the bars 9, and the outer arms of the same being secured to the rear sides of the spacing or bracing blocks 11. The portion of the protecting plate or shield beneath the furrow-opening shoe is cut away to provide space for the operation of the planting devices which we will now proceed to describe.

We employ a force-feed mechanism consisting of twin parallel conveyers or endless belts, carried by rolls and driven so that the inner contacting sides of the conveyers or belts travel in unison, in the same direction and at the same rate of speed. Furthermore, the conveyers or belts are arranged side by side, whereby when a plant is placed therebetween in an upright position it is carried in such position to the point of delivery.

The conveyers or belts are shown at 15, and they operate longitudinally between the

spaced bars 9, with their front ends elevated slightly above the plane of the framework and their rear ends depressed to a point adjacent to the plane of the projecting plate or shield upon the under side of the framework. The conveyers or belts are carried at their front ends by the pulleys 16 mounted upon supports 17 arranged upon said bars 9 and extending inward over the intervening space, and at their rear ends by the pulleys 18 which are mounted upon supports 19 secured to and projecting rearward from the rear ends of the bars 9.

The brackets or supports 17 are cranked and are swiveled in bearings 20 provided therefor, and have set screws 21 to hold the same in adjustable positions, whereby the relative positions of the front pulleys, and hence the relative positions of the front ends of the conveyers or belts may be changed to suit plants of different sizes, to take up lost motion, &c. The front brackets or supports 19 are similarly cranked and mounted in bearings 22 provided therefor, and in the construction shown in the drawings the movement of the lower or rear pulleys toward each other is accomplished by depressing the inner or adjacent ends of the brackets or supports; the separation of the same being accomplished by the reverse movement.

Ground-wheels 23 are mounted upon the terminals of the arms 24 of the cranked axle 25, said axle being provided with an intermediate loop 26 which is connected by a link 27 to a hand-lever 28 which operates in connection with a segmental rack 29, to hold the axle at the desired adjustment. The ground-wheels may be adjusted to run in contact with the ground to give motion to the feed-mechanism through the intermediate gearing, hereinafter described, or may be depressed sufficiently to elevate and support the front end of the machine. Said gearing may be of any desired construction, but it preferably comprises a chain-wheel 30 carried by the hub of the ground wheel at one side of the machine, a similar chain-wheel 31 arranged upon the main portion of the cranked axle, a chain 32 connecting said wheels, a twin chain-wheel 33 mounted upon the cranked axle adjacent to and preferably formed as a part of the wheel 31, said twin chain wheel being shown at 33, a chain wheel 34 fixed to a transverse spindle 35 mounted in bearings on the main framework in advance of the cranked axle, a chain 36 connecting the chain-wheels 33 and 34, and bevel-gears 37 meshing with similar gears at the lower ends of the front conveyer rolls.

Mounted in suitable bearings in the framework are the longitudinally disposed rods 38, provided at their front ends with arms 39 fitting between parallel segmental perforated straps 40, the terminals of said arms being perforated to register with the perforations in the straps for the reception of locking-pins 41. These rods support the grooved or concaved packing or pressing rolls 42, which are

preferably arranged at an inclination, when in operation, as shown in the drawings, whereby after the roots of the plants are covered by means of the shovels these rolls press the earth toward and snugly around the same. The angle of the inclination and the separation of the lower sides of the rolls may be regulated by means of the arms 39 and the segmental perforated straps and locking-pins.

The operation of the above-described mechanism will be readily understood from the foregoing when it is explained that the plants are fed by hand between the upper rolls of the conveyer, and are carried by the latter to their proper positions as the machine moves forward. When the roots of the plants reach the furrow which has been opened in advance by the shoe, they are released and earth is thrown toward and around the same by the covering shovels, after which the rolls settle and pack the earth.

The various means for the adjustment of the different parts of the machine enable the same to be adapted for different kinds and sizes of plants, the depth at which they should be planted, &c.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described our invention, we claim—

1. In a device of the class described, the combination with a framework, a furrow-opening shoe, and covering shovels arranged in rear thereof, of a force-feed mechanism having parallel conveyers arranged side by side with their adjacent sides in parallel juxtaposed vertical planes, and means for operating the conveyers whereby the adjacent sides thereof move in unison, substantially as specified.

2. In a device of the class described, the combination with a framework, a furrow-opening shoe, and covering shovels, of a force-feed device having parallel juxtaposed conveyers or belts, pulleys with their sides arranged in adjacent vertical planes supporting said conveyers or belts, means for adjusting the pulleys to vary the interval between adjacent sides of the conveyers or belts, and operating connections, substantially as specified.

3. In a device of the class described, the combination with a framework, a furrow-opening shoe, and covering shovels, of a force-feed device having parallel conveyers or belts, pulleys carrying said conveyers or belts, swiveled brackets supporting the pulleys, and capable of adjustment to vary the interval between the contiguous sides of the conveyers or belts, and means for operating the latter, substantially as specified.

4. In a device of the class described, the combination with a framework, a furrow-opening shoe, covering shovels, a force-feed mechanism, and means for operating the

same, of packing or pressing rolls arranged in rear of the said shovels, revoluble rods supporting said rolls and provided at their front ends with arms, and means for locking said
5 arms at different inclinations to vary the inclination of the rolls and the distance between their lower sides, substantially as specified.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures in the presence of two witnesses.

LOVICK LAMBETH.
SALATHIEL BOONE.

Witnesses:

WM. C. HOOVER,
ALONZO BENSINGER.