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Patented Aug. 29, 1899.

F. PONTON & P. GRENIER.

DRAIN DITCHING PLOW.

(Application filed Jan. 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.

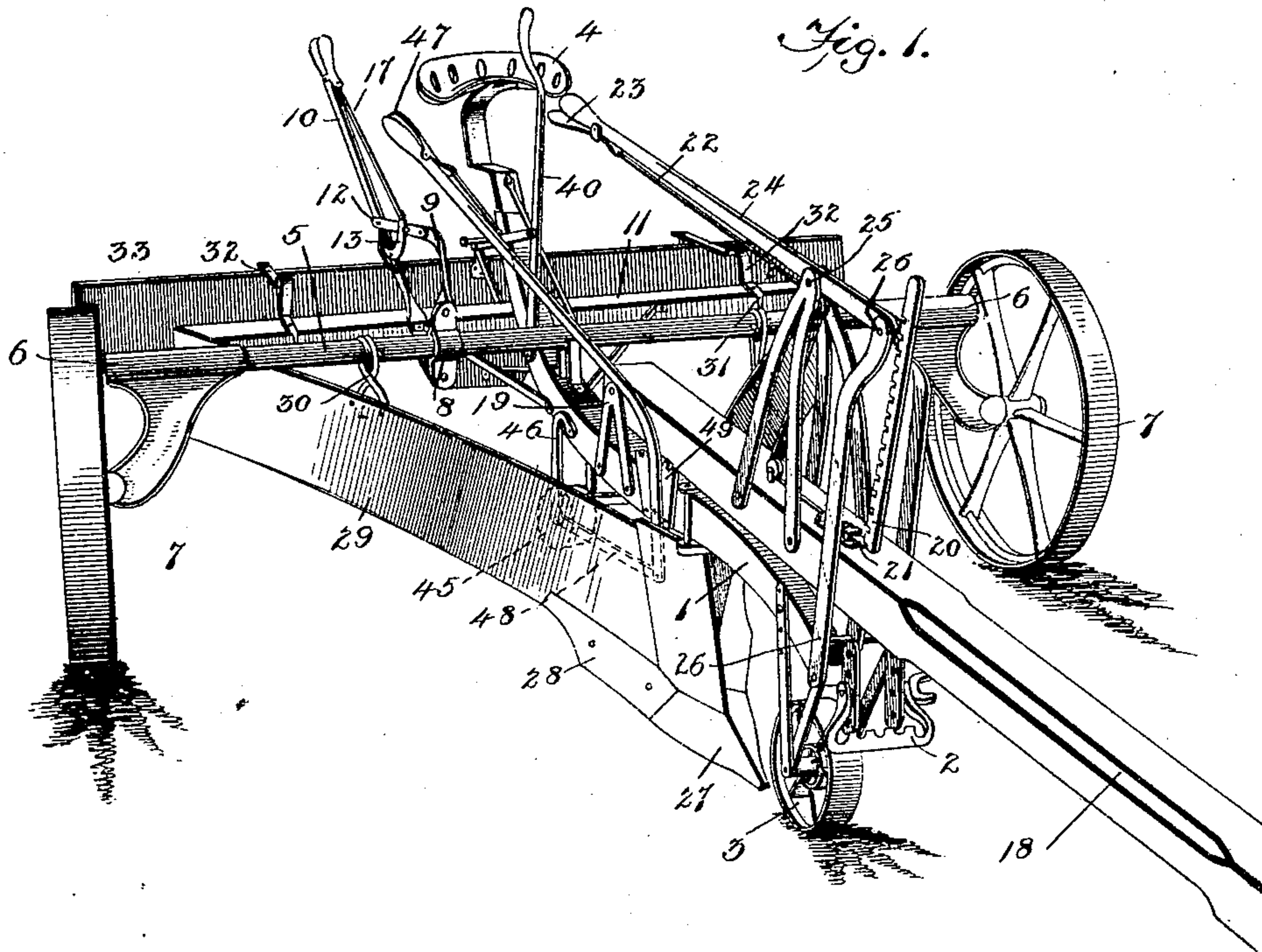


Fig. 4.

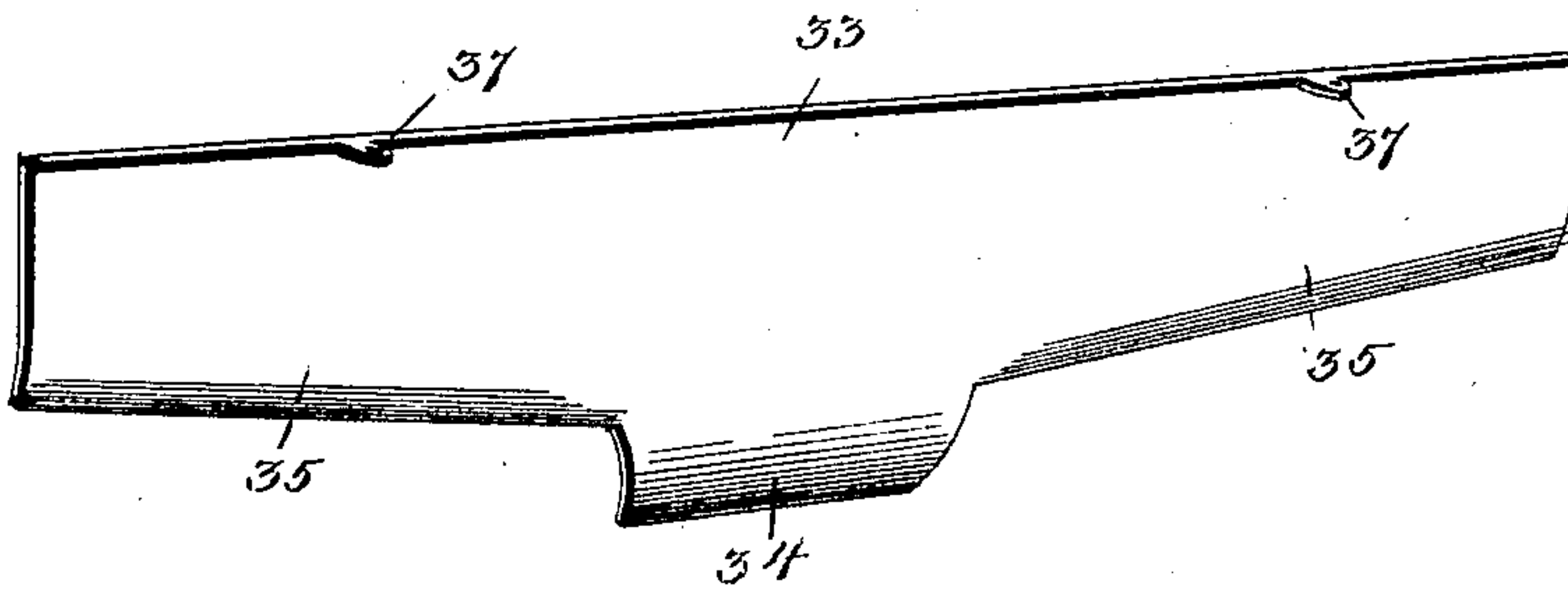


Fig. 5.



Witnesses:

T. L. Moock
Horace T. Deitz

Fortunat Ponton
and Paul Grenier, Inventor
By *Marion Marion*
Thier Attorneys

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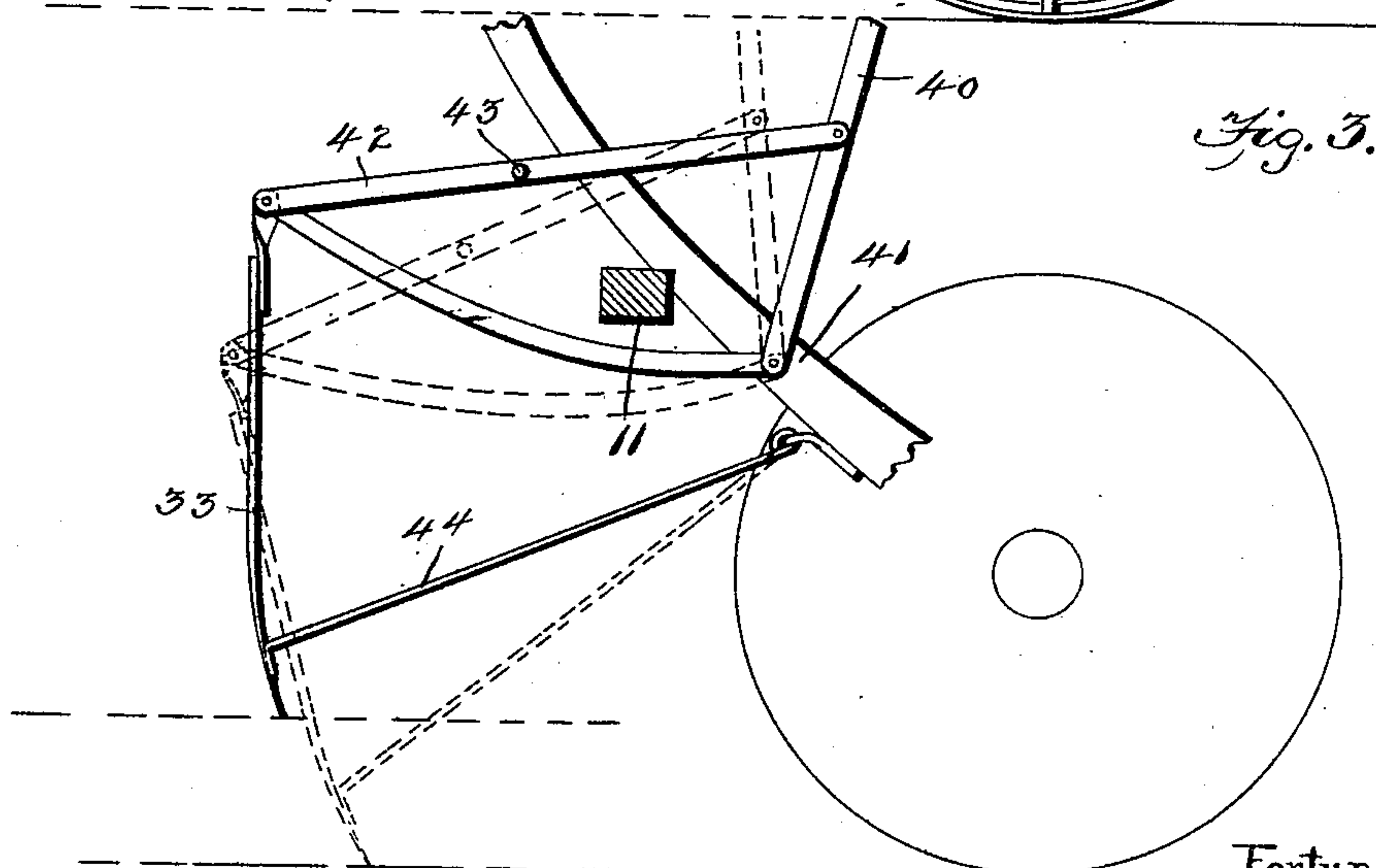
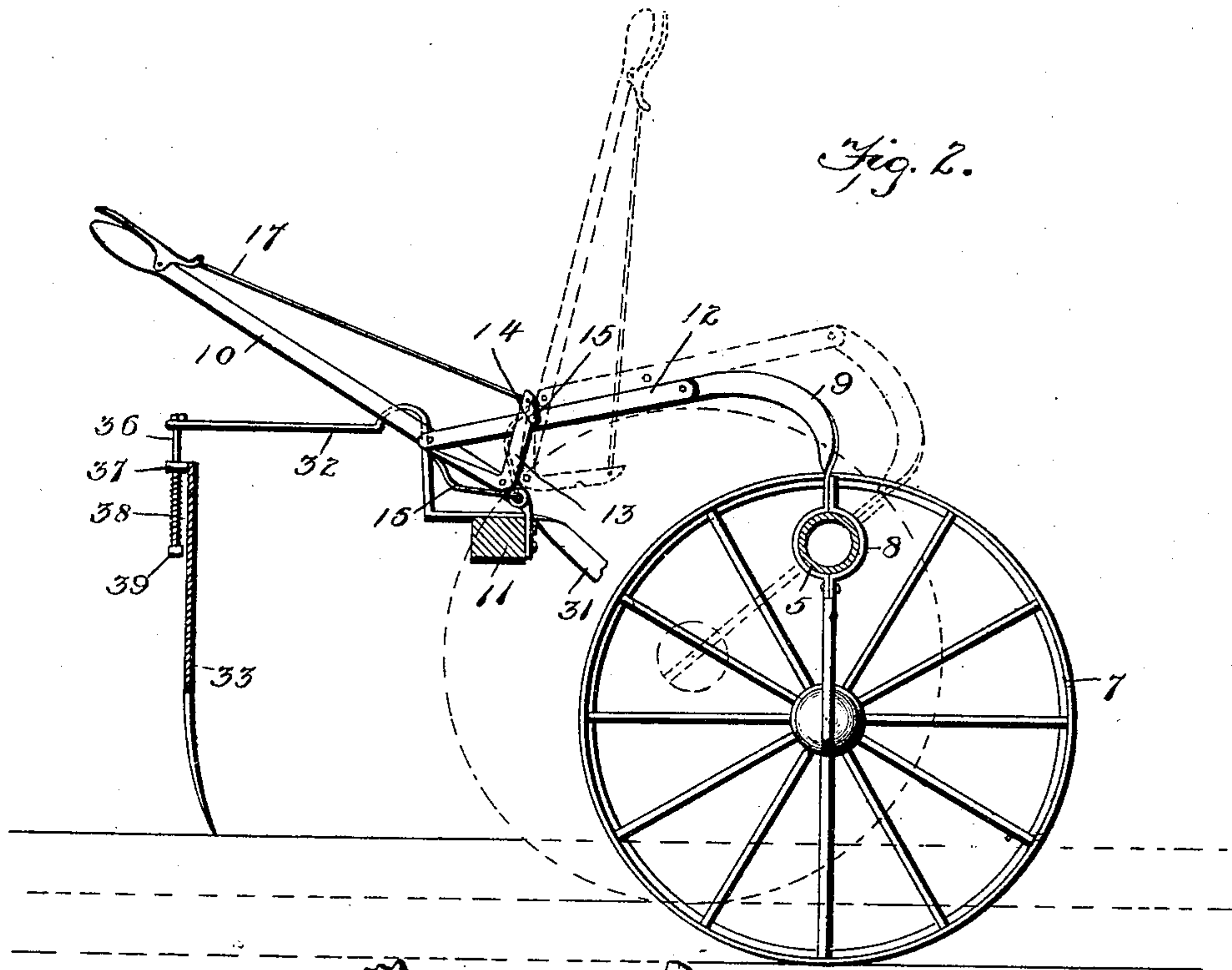
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2 Sheets—Sheet 2.



Witnesses:

T. L. Mochman
Horace G. Deitz

Fortunat Ponton,
and Paul Grenier, Inventors

By *Marion Marion*
Their Attorneys

UNITED STATES PATENT OFFICE.

FORTUNAT PONTON, OF JOLIETTE, AND PAUL GRENIER, OF ST. JEAN BAPTISTE DE ROUVILLE, CANADA.

DRAIN-DITCHING PLOW.

SPECIFICATION forming part of Letters Patent No. 632,060, dated August 29, 1899.

Application filed January 14, 1899. Serial No. 702,195. (No model.)

To all whom it may concern:

Be it known that we, FORTUNAT PONTON, residing at Joliette, county of Joliette, and PAUL GRENIER, residing at St. Jean Baptiste de Rouville, county of Rouville, Province of Quebec, Canada, subjects of Her Majesty the Queen of Great Britain, have invented certain new and useful Improvements in Drain-Ditching Plows, (for which we have obtained Canadian Patent No. 61,371, dated October 12, 1898;) and we do hereby 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.

Our invention relates to improvements in drain-ditching plows.

The object of our invention is to provide a device of this character which is simple and efficient in operation and durable in construction.

A further object is to provide a device in which the transporting-wheels are thrown out of position when the plow is in its operative position, the plow being supported in operative position by a supplemental roller adjustably mounted to travel within the ditch being formed.

A further object is to provide a plow of this character with means for regulating the depth of the drain to be made.

A further object is to provide a cross-drain-cleaning attachment which is directly under the control of the operator.

To these ends our invention consists in the improved construction and combination of parts hereinafter fully described, and particularly pointed out in the appended claims.

In the drawings, in which similar numerals of reference indicate similar parts in all of the views, Figure 1 is a perspective view showing our improved plow. Fig. 2 is a sectional view showing the mechanism for operating the transporting-wheels and also showing the arrangement of the cross-drain-cleaning plate. Fig. 3 is a sectional view showing the mechanism for operating the cleaning-plate. Fig. 4 is a perspective view showing the construction of the cleaning-plate. Fig. 5 is a detail showing the attachment for guid-

ing the plowed ground into the path of movement of the side shields.

1 designates a plow-beam of any preferred construction, having at its front end the usual clevis 2 and wheel 3. To the rear end of the beam 1 is connected a seat 4 for the operator.

Pivotally mounted on the plow-beam 1 is an axle 5, having at each end thereof a lateral extension 6, on which is mounted the spindle for the reception of the wheels 7. The wheels 7 serve to support the plow when being transported from place to place; but when the plow is to be used for the forming of drains the axle 5 is allowed to rotate, and thus change the position of the wheels 7, allowing them to pass freely over the surface of the ground on the sides of the ditch. To hold the wheels in fixed position while the plow is being transported, we provide a suitable clip 8, which is adapted to embrace the axle 5, which clip is provided with a rearwardly-extending portion 9, connected to an operating-lever 10, pivotally connected to a laterally-extending bar 11, connected to the beam 1, the connection between the portion 9 and the operating-lever 10 being by means of a connecting-bar 12, as best shown in Fig. 2.

An angular locking-lever 13 is pivotally mounted on the lever 10, one of the ends of said lever 13 extending upwardly and provided with a notch 14, which is adapted to engage with a pin 15, formed on the connecting-bar 12, this position being maintained by reason of a spring 16, connected in a suitable manner to the lever 10, said spring being adapted to bear against the opposite end of the lever 13, and thus hold the lever 13 in its engagement with the pin 15. When the locking-lever is released from engagement with the pin 15 by means of a suitable operating-lever 17, the weight of the plow, in addition to the forward movement of the operating-lever 10 caused by the operator, will serve to practically rotate the axle 5 and allow the plow portion, hereinafter described, to pass downward into contact with the ground and allow the wheels 7 to move freely over the surface of the ground without supporting any portion of the mechanism. When the plow is to be removed to any point, the operating-

lever 10 is drawn rearwardly, thus causing the axle 5 to be partially rotated until the pin 15 engages with the notch 14, which serves to lock the wheels 7 in position and place the plow in position ready for removal.

18 designates the tongue, which is pivotally mounted on trunnions 19, connected to the beam 1 and extends forwardly in the usual manner, the tongue being adjustably connected to the beam by means of a suitable tooth-bar 20, connected to the beam 1 and extending upwardly through an opening formed in the tongue 18.

A spring-operated pawl 21 is mounted on the upper face of the tongue 18, said pawl being adapted to rest within any one of the notches formed in the bar 20, said pawl 21 being adapted to be moved out of position by means of a suitable cord 22, arranged in the manner shown in Fig. 1, said cord being connected with a suitable gripping device 23, mounted on an operating-lever 24, which said lever is pivotally mounted in trunnions 25, connected to the tongue 18. The front end of the lever 24 is pivotally mounted in suitable trunnions 26, connected to the beam 1 and extending upwardly, as best shown in Fig. 1. It will be seen that when it is desired to change the position of the beam 1 relative to the tongue 18, which position is varied according to the depth of the drain which is being formed, the pawl 21 is first moved out of engagement with one of the notches in the bar 20 by the moving of the gripping device 23, after which the operating-lever 24 is raised or lowered in accordance with the direction in which the beam 1 is to be moved, the trunnions 26 serving as a fulcrum for the lever 24. After the beam and tongue have reached their proper positions the pawl 21 is allowed to enter the proper notch, and these parts will be held in fixed position.

The ditching-plow proper consists, essentially, of the plow-point 27, of a configuration suitable for cutting on opposite sides, the upper portion of said point being connected to the beam 1 in suitable manner, the point 27 being continued rearwardly in the attachment 28, which serves to cut the ground and at the same time forces it upward out of the drain and in front of the rearwardly-extending plates 29, which serve to force the ground a distance away from the drain, the attachment 28 being preferably formed as shown in Fig. 5. The plates 29 are supported from the axle by suitable supports 30 and are also supported from the bar by means of suitable downwardly-extending rods 31, connected to the plate 29 near its rear end, said rods 31 forming a continuation of the cross-drain-cleaning-plate-supporting rods 32. It will be seen that by this construction the plow proper is held in a fixed position relative to the axle and practically immovable against any tendency of the accumulated ground causing it to be moved out of its proper position.

The cross-drain-cleaning plate 33 is formed substantially as shown in Fig. 4, having a central downwardly-extending portion 34, which is adapted to fit within the drain being made, while the end portions 35 are adapted to be pressed downward into the cross-drains and carry the ground which has been forced therein during the making of the drain out of the cross-drain. The plate 33 is preferably mounted as shown in Fig. 2, being slidably connected on the supporting-rods 32, the connection being by means of a bolt 36, passing through a lug 37, formed on the plate 33, said plate being held normally above the surface of the ground by a spring 38, interposed between the lug 37 and the nut 39, located on the bolt 36. When it is desired to bring the plate 33 into operation, the operating-lever 40, pivotally connected to the seat-post 41 and also connected by means of a connecting-brace 42 with the plate 33, is moved rearwardly, and at the same time the operator places his foot on a laterally-extending pin 43, formed on the connecting-brace 42, pressing down on said pin at the same time as the lever 40 is moved rearwardly. This movement of the lever and of the connecting-brace 42 causes the plate 33 to be moved downward against the action of the spring 38 into its operative position and remains in such position until the operator releases the lever and removes his foot from the pin 43, when the spring 38 forces the plate 33 upward into its inoperative position. To hold the plate 33 from any liability of springing, &c., we provide a brace 44, connecting said plate to said seat-post 41, as best shown in Fig. 3.

To regulate the distance which the plow-point 27 is to enter the ground, and consequently regulating the depth of the drain, we provide a roller 45, pivotally mounted on bearings 46, which are pivotally mounted on the beam 1, said roller also serving as a supporting means for the plow when in its operative position. The position of the roller 45 is varied by means of an operating-lever 47, pivotally connected to the beam 1 and having its front end connected to said roller 45 by means of a connecting-bar 48, the lever 47 being held in fixed position by means of a suitable segmental rack 49, mounted on the beam 1, within the teeth of which a suitable spring-pawl is adapted to be placed. The bearings 46 are arranged, preferably, as shown in Fig. 1, the upper end thereof being curved to allow of a greater change in the position of the roller 45 when the position of the operating-lever 47 is changed.

The operation of our improved device has been set forth heretofore in detail; but to enable a better understanding of the operation to be had we will now give a general description of the operation, which is as follows: As before stated, the plow is moved on the wheels 7 until the place where the drain is to be made has been reached. When the drain is to be commenced, the angular lever 14 is released

from engagement with the pin 15 and the plow proper allowed to drop downward until the roller 45 contacts with the ground, which releases the wheels 7 from serving as a supporting means and places the weight on the roller 45. The operating-lever 47 is then moved rearwardly a sufficient distance, bringing the roller 45 forward, until the inclination of the plow-point 27 is sufficient to cause it to move into the ground when the plow is drawn forward. The operating-lever 24 is then moved to regulate the height of the tongue above the beam 1, and the plow is entered the ground to a proper distance, which distance it obtained when the wheel 3 is brought into contact with the ground. When this occurs and the wheel 45 enters the drain being formed, the operating-lever 47 is moved until the wheel 45 is brought to a position where the plow will make a cut of the same depth. When a cross-drain is reached, the plate 33 is operated as hereinbefore described.

It will be readily seen that the operating-levers 10, 40, 47, and 24 can each be operated while the plow is in operation and that therefore the entire mechanism of the plow is entirely under the control of the operator, who need not leave his seat to regulate any portion of the device. The advantages of this construction are many, but are thought to have been sufficiently pointed out, reference being made to the drawings and to the specification.

While the construction herein shown and described is what is believed to be a preferable embodiment of the invention, it is to be understood that we do not limit ourselves thereto, as various changes in form, proportion, and minor details of construction may be resorted to, and we therefore reserve the right to modify or vary the invention as may fall within the spirit and scope thereof.

Having thus described our invention, what we claim as new is—

1. A drain-ditching plow, comprising a ditching-plow proper; means for moving said plow into and out of an operative position; a cross-drain-cleaning plate separate from and independent of the said plow; means for moving said plate into and out of an operative position; and independent means for regulating the position of said plow, relative to the surface of the ground, when in its operative position, substantially as described.

2. A drain-ditching plow, comprising a ditching-plow proper; means for moving said

plow into and out of an operative position; a cross-drain-cleaning plate separate from and independent of the said plow operatively mounted on said plow and normally held in inoperative position; means for moving said plate into an operative position; and independent means for regulating the position of said plow, relative to the surface of the ground, when in operative position, substantially as described.

3. In an agricultural implement, the combination with the axle; lateral extensions formed thereon; transporting-wheels mounted on said extensions, said wheels having a concentric movement about said axle, and also being adapted to be moved into and out of an operative position with relation to the frame of said implement; and an auxiliary wheel adjustably mounted on said frame, said auxiliary wheel being adapted to support the frame alternately with said transporting-wheels substantially as described.

4. A drain-ditching plow, comprising a beam; an axle connected to said beam and forming a support therefor when in inoperative position; an auxiliary wheel adjustably connected to said beam and adapted to support said beam when in operative position; means for releasing said axle for supporting said beam; and a ditching-plow connected to said beam, substantially as described.

5. A drain-ditching plow, comprising an axle; transporting-wheels mounted thereon and adapted to be moved into and out of an operative position; a beam connected to said axle; a ditching-plow secured to said beam; a supporting-roller for said beam when said wheels are in inoperative position; and means for moving said transporting-wheels into and out of their operative position, substantially as described.

6. The combination with a drain-ditching plow; of a cross-drain-cleaning plate mounted in rear of said plow and adapted to have movement into and out of an operative position, said plate having a downwardly-extending portion adapted to fit the drain being formed, and also having lateral extensions adapted to contact with the surface of said cross-drain, whereby the superfluous ground will be removed, substantially as described.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

FORTUNAT PONTON.
PAUL GRENIER.

Witnesses:

J. P. LEDUC,
A. D. QUENTIN.