

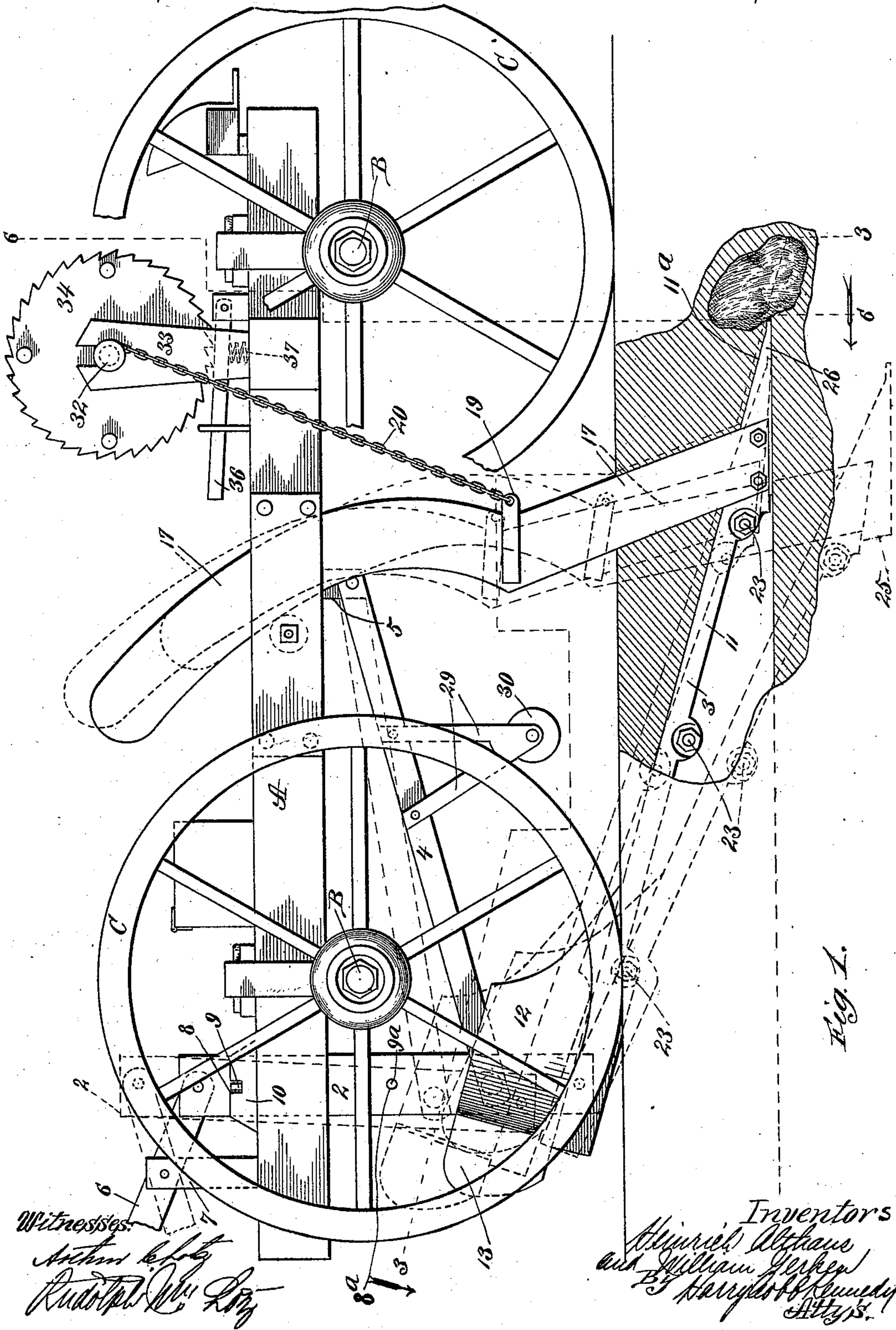
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4 Sheets—Sheet 1.

H. ALTHAUS & W. GERKEN.
DITCHING MACHINE.

No. 577,277.

Patented Feb. 16, 1897.



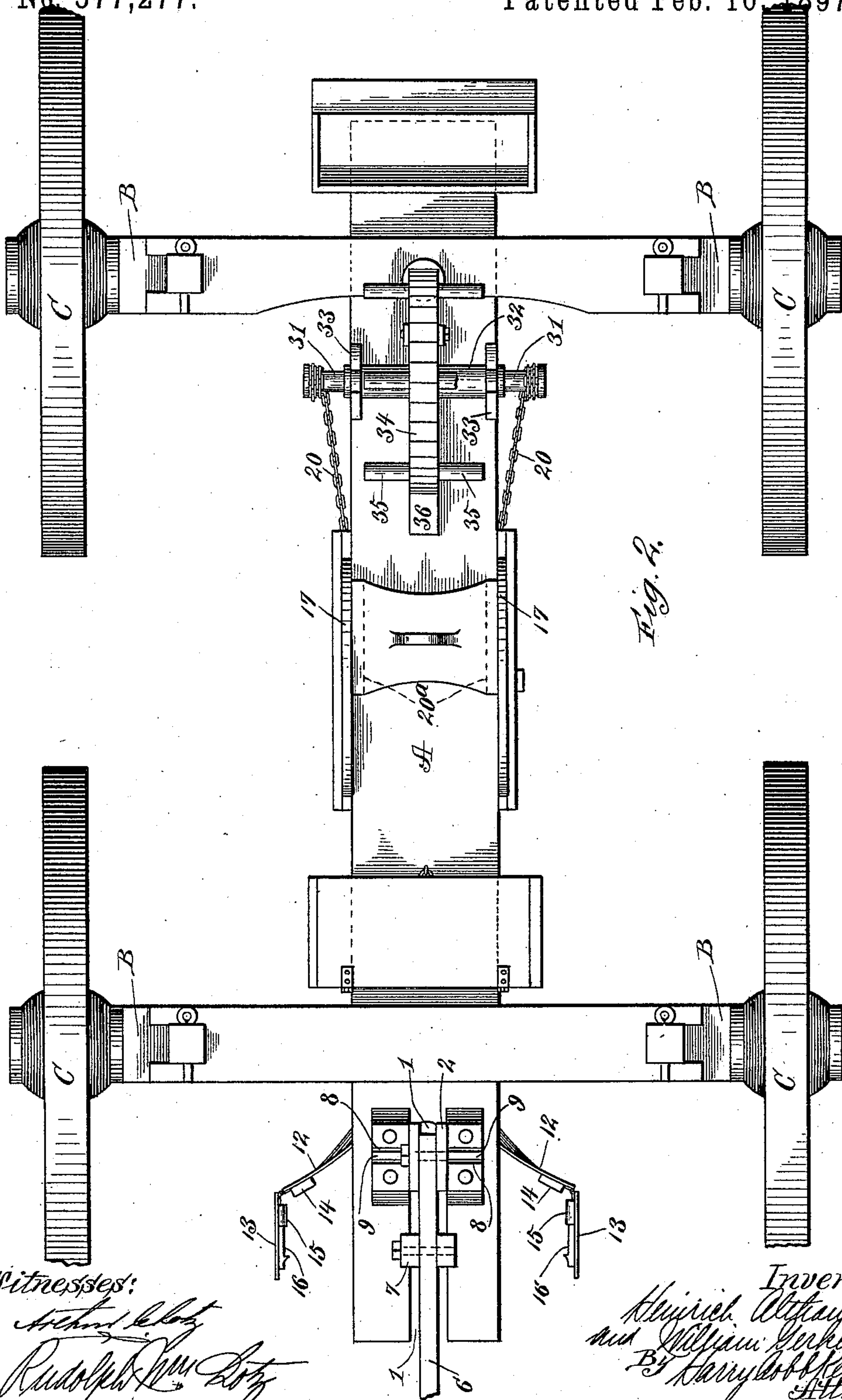
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No. 577,277.

Patented Feb. 16, 1897.



Witnesses:

Arthur Klotz
Rudolph Klotz

Inventors:

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and William Gerken
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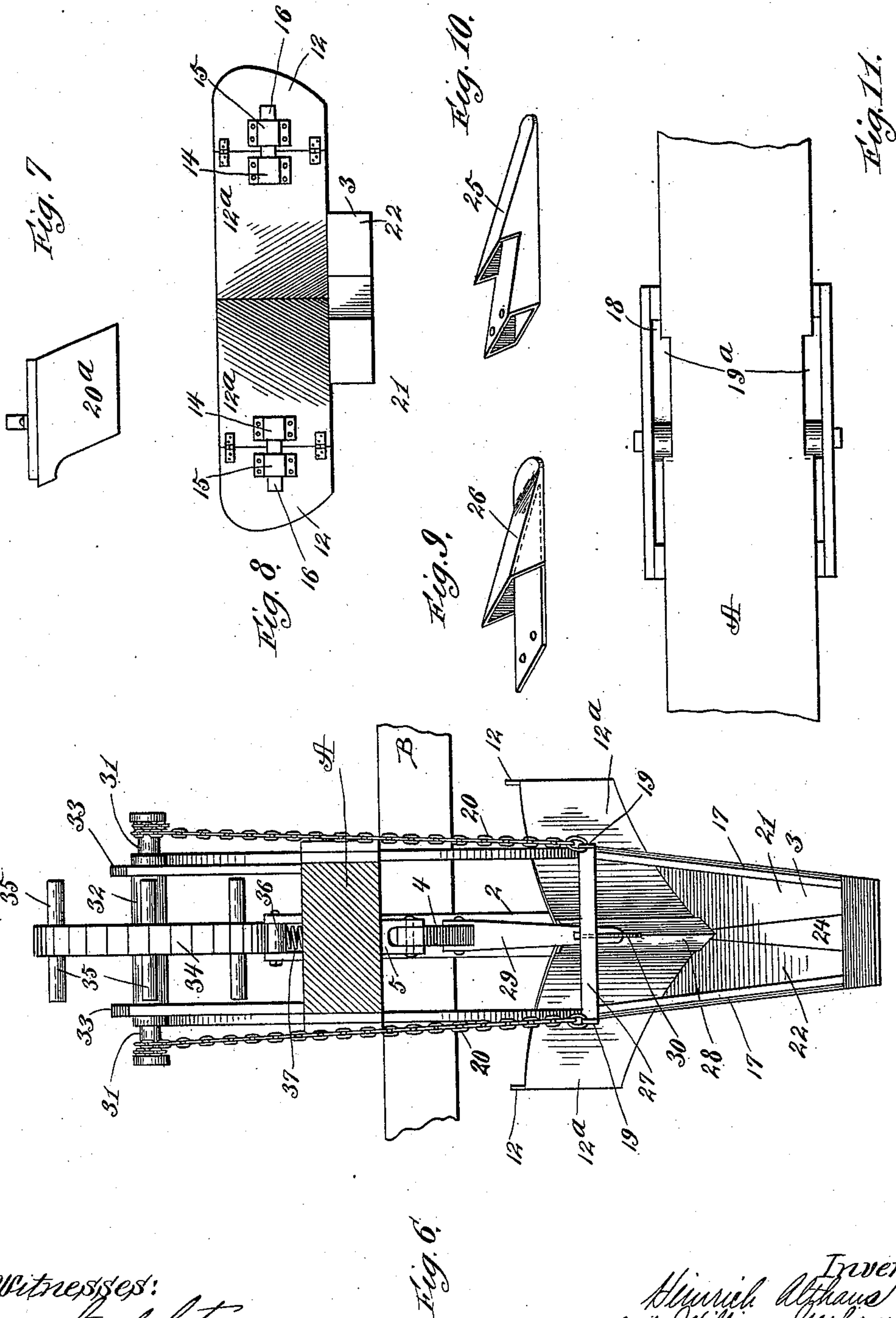
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H. ALTHAUS & W. GERKEN.
DITCHING MACHINE.

No. 577,277.

Patented Feb. 16, 1897.



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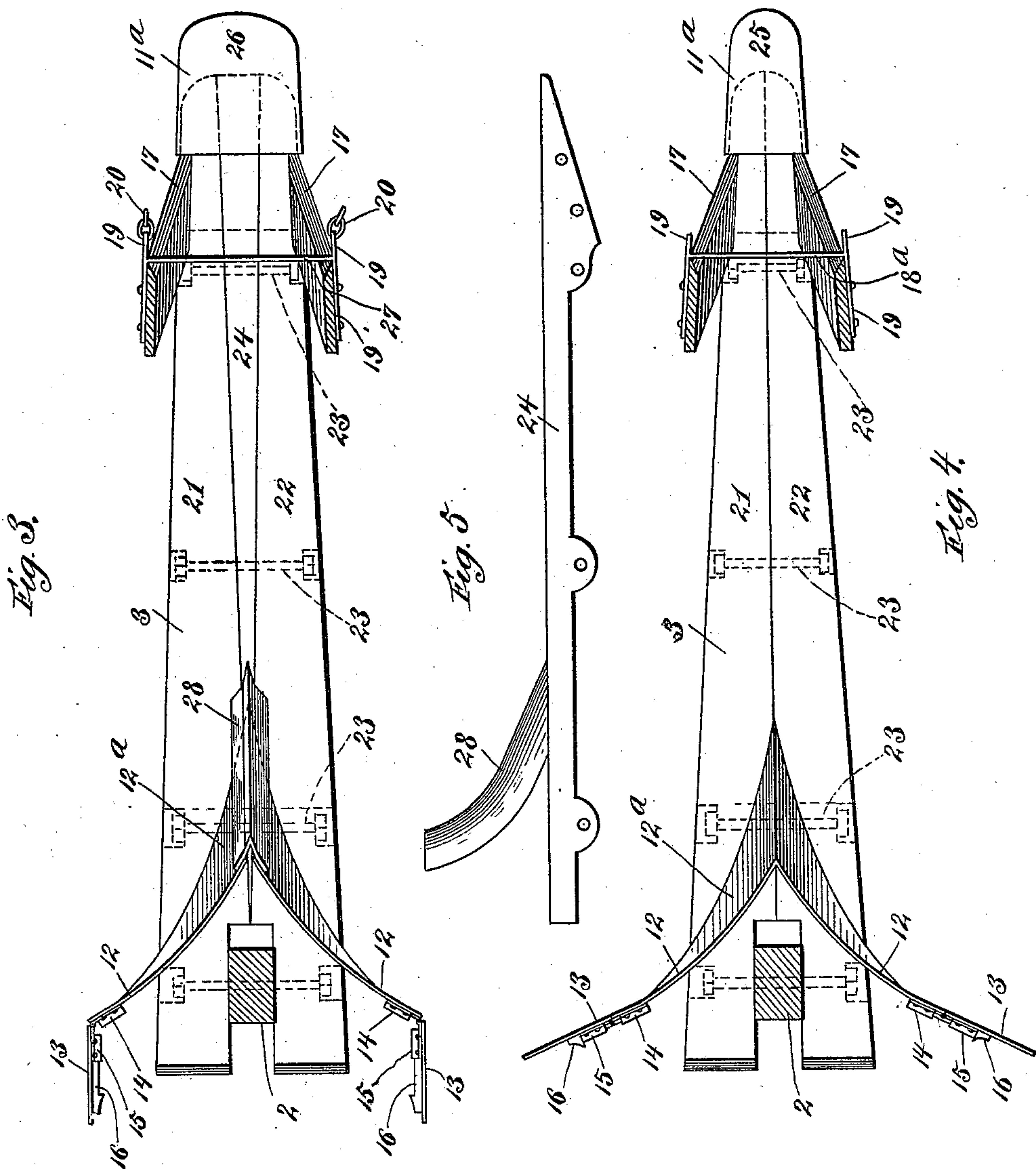
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4 Sheets—Sheet 4.

H. ALTHAUS & W. GERKEN.
DITCHING MACHINE.

No. 577,277.

Patented Feb. 16, 1897.



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UNITED STATES PATENT OFFICE.

HEINRICH ALTHAUS AND WILLIAM GERKEN, OF DYERSVILLE, IOWA.

DITCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 577,277, dated February 16, 1897.

Application filed June 24, 1895. Serial No. 553,939. (No model.)

To all whom it may concern:

Be it known that we, HEINRICH ALTHAUS and WILLIAM GERKEN, citizens of the United States, residing at Dyersville, in the county of Dubuque and State of Iowa, have invented certain new and useful Improvements in Ditching-Machines; 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.

This invention relates to a novel construction in a ditching-machine, and has for its object to provide a machine of the kind specified of simple and durable construction and efficiency of operation; and it consists in the features of construction and combinations of parts hereinafter fully described and specifically claimed.

In the accompanying drawings, illustrating our invention, Figure 1 is a side elevation of a ditching-machine constructed in accordance with our invention. Fig. 2 is a top plan view of the same. Figs. 3, 4, and 5 are detail views of the shovel or ditcher we employ. Fig. 6 is a sectional view of the machine, taken on the line 6 6 of Fig. 1. Figs. 7, 8, 9, 10, and 11 are detail views of various parts of the device.

Referring now to said drawings, A indicates the beam upon which the ditching mechanism is supported. Said beam A is supported upon axles B, provided with wheels C. Our device is adapted to be drawn by horses and is provided in the usual manner with a pole, (not shown,) by means of which it is steered and drawn. Said beam A is provided at its rear end portion with a vertical opening 1, through which a post 2 passes, to the lower end of which the rear end of the shovel 3 is pivotally secured. Pivotaly secured to said post 2, above the said shovel 3, is a brace-beam 4, the other end of which is pivotally secured to a lug 5 on the beam A at about its middle portion. The upper end of said post 2 is bifurcated to receive the end of a lever 6, which is pivotally secured therein, in an obvious manner. Said lever 6 is pivoted upon an upright 7 on the rear end portion of said beam A and to the rear of said opening 1 and is adapted to raise and lower said post 2. Said post 2 is further provided with a transverse opening 8, adapted to receive a pin 9,

which engages projections 10 on either side of the opening 1 on the upper face of said beam A and limits the downward movement of said post 2. Said post 2 is further provided with a transverse opening 8^a, adapted to receive a pin 9^a, which engages the lower face of the beam A and limits the upward movement of said post 2. The said shovel 3 consists of two boards 21 and 22, removably secured together side by side by means of bolts 23, passing through transverse openings in said boards 21 and 22. Said boards 21 and 22 together form what may be termed one board, the rear end portion of which is bifurcated to receive the end of the post 2, to which said boards or shovel are pivoted. Said shovel is sharpened at its forward end and is provided with removable shovel-points 11^a. Said shovel 3 is further provided with a plow 12^a adjacent and forward of said bifurcated portion. The said plow 12^a is provided with extensible moldboards 12, which are made extensible by means of a plate 13, hinged to the rear ends of said moldboards 12 and adapted to be locked into position to extend said moldboards by means of a locking device consisting of eyelets on said moldboards 12 and extensions 13, (indicated by 14 and 15, respectively,) through which a pin 16 is adapted to pass and hold said moldboards and extensions locked to form one continuous moldboard. Obviously by means of said extensions the distance to which the earth removed from a ditch shall be removed therefrom may be regulated.

Secured to the forward end portion of said shovel 3, and on each side thereof, are two upwardly-extending cutters 17, which cut the sides of the ditch. Said cutters 17 extend upwardly through guide-slots 18 on each side of said beam A, which serve to hold said cutters firmly in position and prevent them from spreading and contracting. The said cutters 17 extend upwardly in a slightly outwardly-inclined position, so as to cut a wedge-shaped ditch, to about their middle portions, whence they are parallel with each other, provided said machine is making the first or shallow cut and the shovel 3 is widest. Secured to said cutters 17 at their bent middle portions is a cross-rod or brace 27, which is made removable and is provided at its forward end

adjacent each of said cutters with eyelets 19, to which chains 20 are adapted to be secured. Said cross-piece 18 serves to still further secure said cutters 17 against spreading or contraction. The said guide-slots 18 are provided with inward extensions 19^a to allow said cutters sufficient play-room to prevent their wedging by variation in position with relation to each other. Said inward extensions 19^a are adapted to be filled while the machine is making its first or shallow cut by plugs 20^a, suitably secured together by a cross-piece, so that they may be removed and inserted together. The said shovel 3 is adjustable in width, and the means of so adjusting the same will now be fully described. As heretofore stated, said shovel 3 consists of two pieces 21 and 22, secured together by bolts 23, passing through transverse openings 21 and 22. The shovel-points 11^a are made in varying widths to accommodate the various widths of the shovel.

We will limit the present description of the shovel to two widths and indicate the shovel-points used for each width by 25 and 26. To widen said shovel, the cross-piece 18^a and shovel-point 25 are removed, as are also the bolts 23. A wedge-shaped piece 24 is then inserted between said pieces 21 and 22, the sharp end of said wedge-shaped piece 24 being held between the rear end portions of said pieces 21 and 22 and the wide end between the forward end portions of said pieces 21 and 22. Longer bolts 23 are then inserted in the transverse openings in said pieces 21, 22, and 24 and said three pieces firmly secured together. Then a wide shovel-point 26 is slipped over the end of said shovel 3 and a correspondingly wide cross-piece 27 is secured to said cutters 17 to replace the cross-piece 18^a. The said wedge-shaped piece 24 is provided with a V-shaped metal projection 28, which is adapted to fit over the front ends of the moldboards 12 of the plow 12^a to cover the space between said forward ends of said moldboards occasioned by the insertion of said wedge-shaped piece 24. Secured to said brace-beam 4 are two sets of downwardly-extending arms 29, which meet in a point about midway between said beam A and shovel 3 and are provided with bearings, in which a colter-wheel 30 runs. The chains 20, secured to said eyelets 19^a, extend upwardly, and at their upper ends are secured to reels 31 on the ends of a shaft 32, running in bearings in the ends of uprights 33 on said beam A. Secured to said shaft 32, between said uprights 33, is a ratchet-wheel 34, provided with handle-bars 35 on either side thereof, by means of which said ratchet-wheel 34 and shaft 32 are revolved. Said ratchet-wheel 34 is adapted to be engaged by a pawl 36, pivoted at one end to said beam A and having its free end extending rearwardly underneath said ratchet-wheel in a position to be engaged by the foot of the operator in charge of said wheel. The said pawl 36 is normally held in engagement

with said ratchet-wheel 34 by a spring 37, extending between said pawl and beam A. By means of said chains and reels the depth of the cut made by the shovel can be regulated with great ease.

In operation it is usual to make the shallow cut of the ditch first, and for this purpose the wedge-shaped piece 24 is inserted to widen said shovel. This first cut we prefer to make about ten inches deep, and after said cut has been made the said wedge-shaped piece 24 is taken out of the shovel, the narrow shovel-point 25 slipped over the end of same, and the narrow cut to the depth of an additional eight or ten inches is made. The machine is so constructed that the width of the bottom of the first cut will coincide with the top of the second cut, thus making a very evenly-cut ditch.

In Fig. 1 we have shown the shovel-point striking a rock partially underneath the same, so that ordinarily it would be wedged in this position and could not be raised by the reel. To obviate this difficulty, we have constructed the post 2 as above described, so that when the shovel-point strikes a rock by pressing the free end of the lever 6 the said post 2 is raised, as shown in dotted lines, and the shovel will take the position shown in dotted lines, the shovel-point being pulled a short distance back, when it may be raised over the rock by means of the reel and the cut continued on the other side. Obviously we do not intend to use this machine in stony ground, as it is designed only to cut ditches for draining marshy lands, in which rocks seldom occur.

It will, of course, be understood that we do not wish to be limited to the exact construction herein shown and described, as we contemplate making slight alterations without departing from the spirit of our invention.

We claim as our invention—

1. In a machine of the class specified, a shovel consisting of two pieces, and a wedge adapted to be inserted between them to adjust the width of the shovel, substantially as described.

2. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel consisting of a wedge-shaped piece adapted to be inserted between the two pieces composing said shovel, and means for raising and lowering said shovel, substantially as described.

3. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel, a plow on said shovel, provided with extensible moldboards, and means for raising and lowering said shovel, substantially as described.

4. In a machine of the kind specified, a shovel consisting of two pieces suitably secured together, means for adjusting the width of said shovel, a plow on said shovel, pro-

vided with extensible moldboards, said extensions consisting of plates hinged to the rear ends of said moldboards, means for locking said extensions in position with relation
5 to said moldboards so as to form practically continuous moldboards, and means for raising and lowering said shovel, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

HEINRICH ALTHAUS.
WILLIAM GERKEN.

Witnesses:

D. A. GENRIG,
HENRY KREMER.