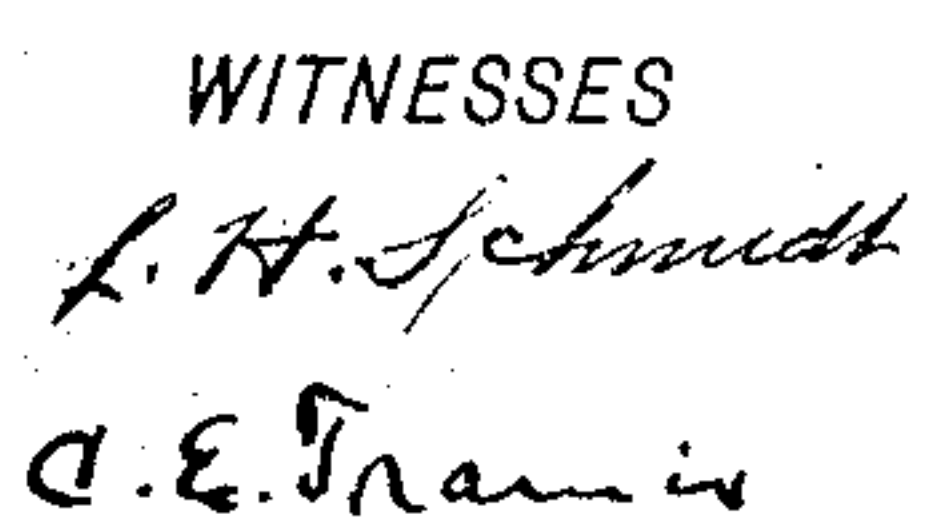


APPLICATION FILED MAY 25, 1908.

Patented June 22, 1909.

4 SHEETS—SHEET 1.



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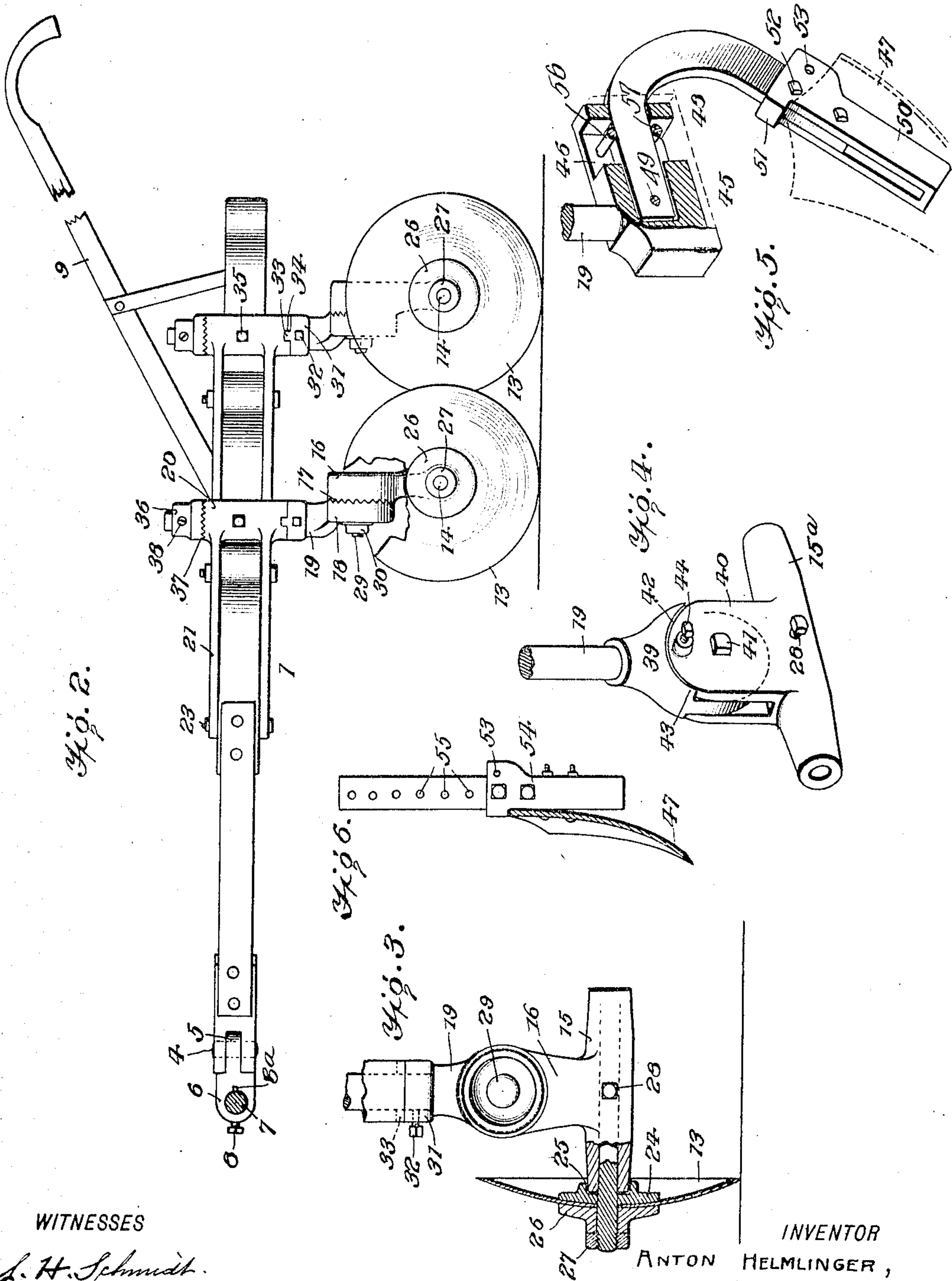
A. HELMLINGER.
CULTIVATOR.

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926,063.

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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

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Уг. 7.

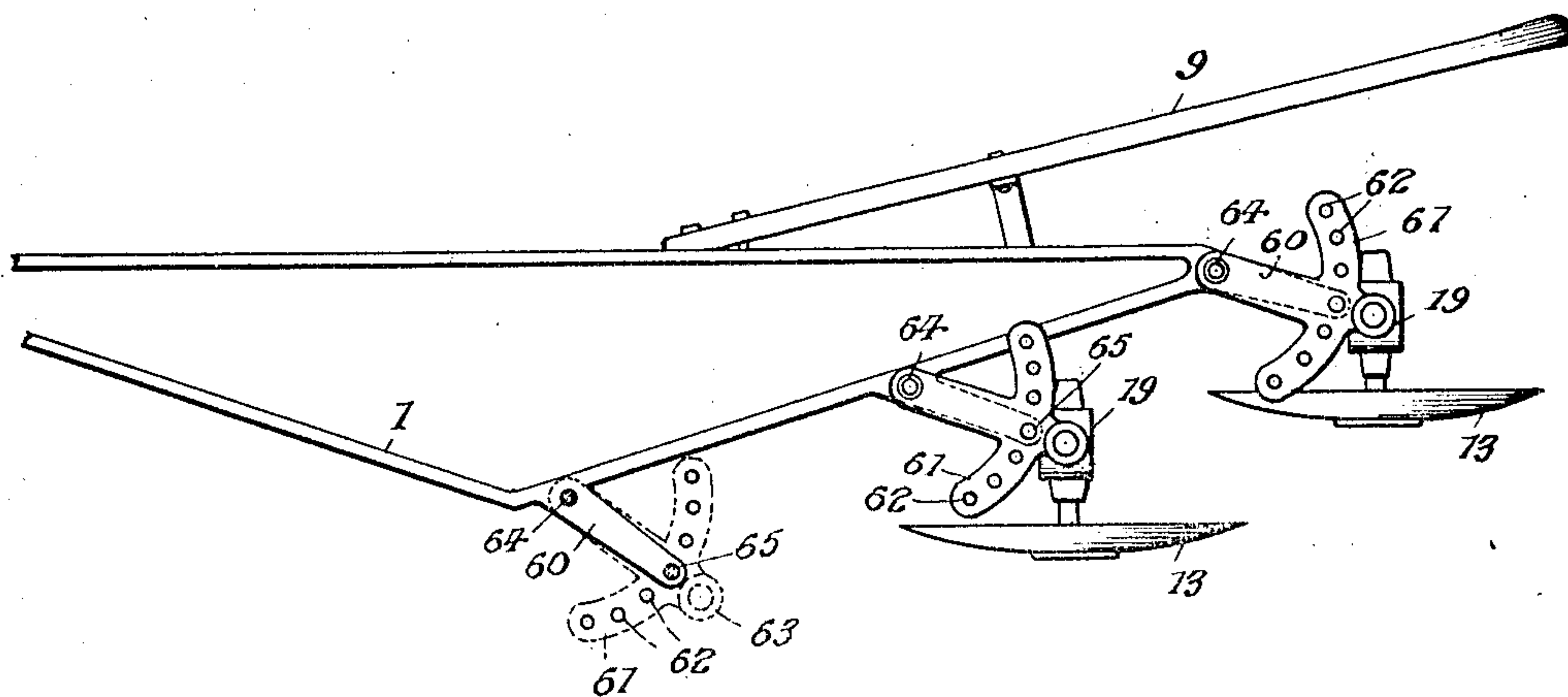
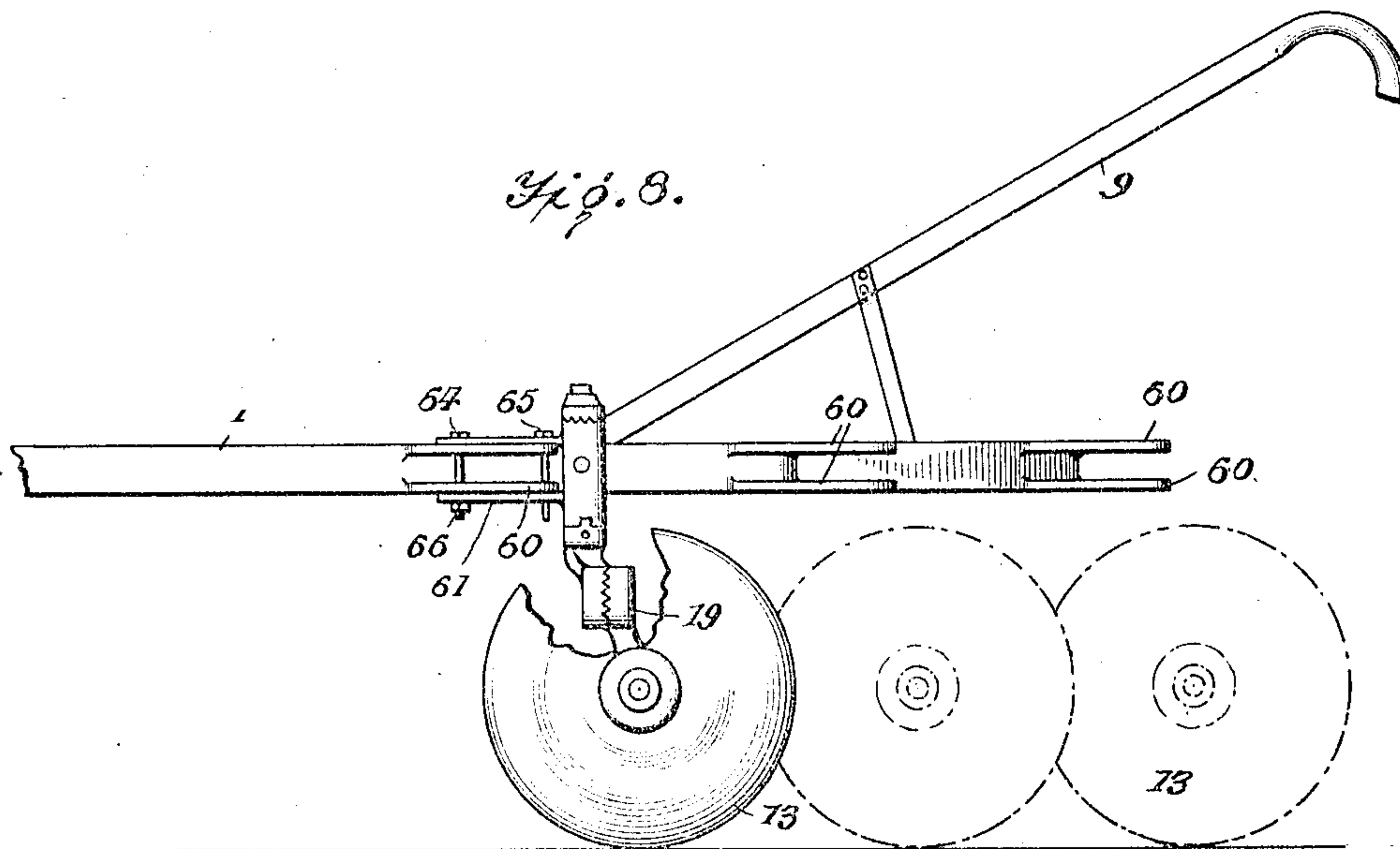
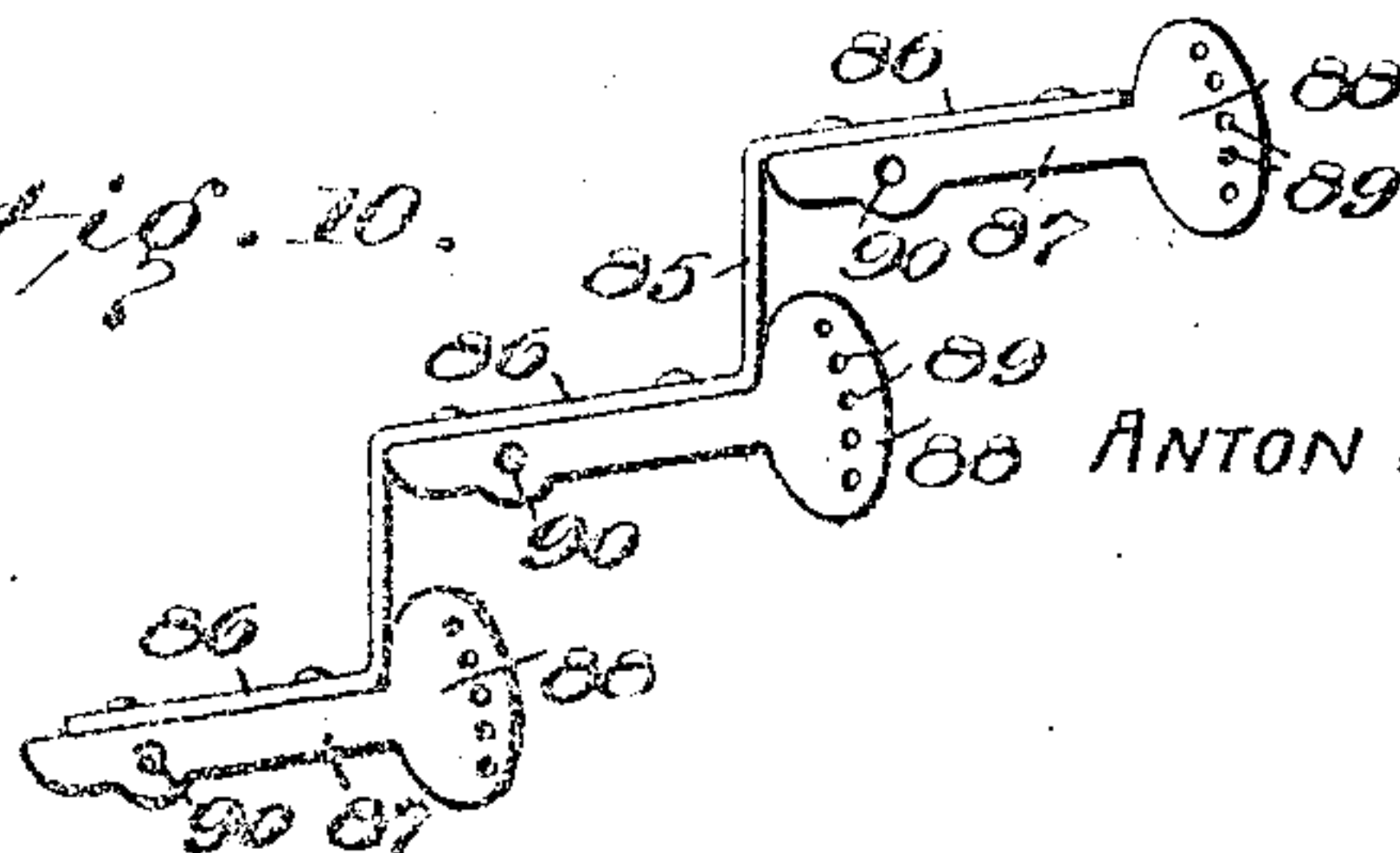


Fig. 8.



Aug. 20.



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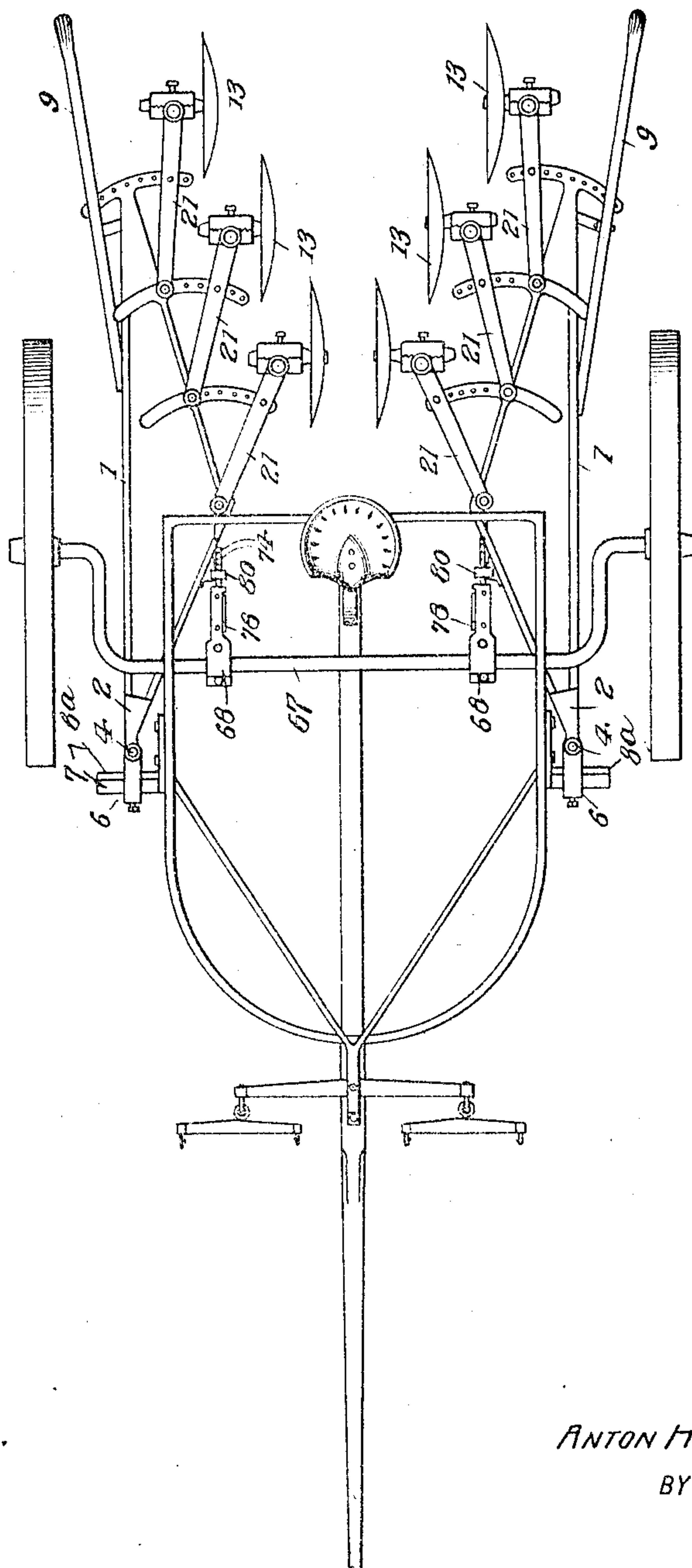
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4 SHEETS—SHEET 4

Fig. 11.



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UNITED STATES PATENT OFFICE.

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No. 926,003.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANTON HELMLINGER, a citizen of the United States, and a resident of Hanover, in the county of Washington and State of Kansas, have invented certain new and useful Improvements in Cultivators, of which the following is a specification.

My invention is an improvement in cultivators, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawing forming a part hereof, Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of one of the plows. Fig. 3 is a rear view of a disk and the manner of mounting the same. Fig. 4 is a similar view of a modified form of mounting, Fig. 5 is a modification wherein a shovel is used instead of a disk. Fig. 6 is a side view partly in section of a straight mounting for the shovel. Fig. 7 is a plan view of a modified form. Fig. 8 is a side view of the same, Fig. 9 is a detail perspective view of the connection between the axle of the cultivator and the plow, Fig. 10 is a reduced plan view of a modified form of frame, and, Fig. 11 is a plan view of a cultivator frame with the improvement attached.

In the present embodiment of the invention, two plow supporting frames are provided, each consisting of a substantially triangular frame 1, the base of the triangle being at one side of the frame, and the apex at the other.

At one of the acute angles of the triangular frame is arranged a bracket 2, provided at its free end with spaced lugs 3, each provided with an opening for receiving a pin 4, which is also adapted to pass through a lug 5, received between the bearings and provided with an opening, the said lug being integral with a casting 6 having an opening therethrough for receiving a stub shaft 7 on the cultivator, a set screw 8 and a key 8^a being provided for preventing movement of the casting longitudinally of the stub shaft, and the stub shaft is provided with a key 8^a for preventing rotary movement with respect to the casting.

A handle 9 of ordinary construction is connected with the base on the triangular frame, and on the side opposite the bracket 2 before mentioned, integral are shaped bearings 10 are provided, the said bearings

being arranged one behind the other and each provided with a longitudinal series of openings 11, for a purpose to be presently described. The above mentioned side is also provided with spaced bearings 12 one at the apex of the triangular base, one at the acute angle opposite the bracket 2, and the other intermediate the first two mentioned. The cultivator disks 13 are journaled on to shafts 14, which are secured in sleeves 15, each of which is provided with an upwardly extending lug 16, having one of its faces corrugated as at 17, and engaging a lug 18 having a similarly corrugated face, the lug 18 being secured to, or integral with the lower end of the shaft 19, which is arranged in a sleeve 20, provided with forwardly projecting arms 21, 22, the arms embracing the cultivator frame, and being retained in position by a bolt 23, passing through openings in the ends of the arms, and one of the bearings 12 before mentioned and other bolts 23^a passing through holes 11 in arcs 10.

A collar 24 is arranged on the shaft 14 before mentioned, the said collar having its outer face shaped to fit the inner face of the disk, and being provided with a recess 25 for receiving the end of the sleeve, and a second collar 26 is also arranged on the shaft for engaging the outer face of the disk, the said collar having its inner face shaped to fit the outer face of the disk, and both collars are retained in place by a nut threaded on to the end of the shaft. A set screw 28 is threaded through the sleeve 15 for engaging the shaft 14 to prevent rotation thereof with respect to the sleeve.

The lugs 16 and 18 before mentioned are circular in shape and the lug 16 is provided with a bolt 29, projecting from the center thereof, which traverses a central opening in the lug 18, and has a nut 30 threaded thereon, for retaining the disk 13, in position.

It is obvious by loosening the nut 30, the disk 13, may be rotated to vary the inclination of the disk with the perpendicular.

The shaft 19 before described is provided adjacent to the disk 13 with a collar 31, secured in position by a set screw 32, and provided on its upper face with oppositely arranged lugs 33, which are adapted to be received in notches 34 in the sleeve 20 in which the shaft is arranged. A set screw 35 traverses the sleeve and engages the shaft,

and a collar 36 is arranged above the sleeve, the lower end of the collar being corrugated as at 37, for engaging a similarly corrugated edge of the sleeve, and the collar is secured in place by a set screw 38.

It will be evident that by loosening the set-screw 38, and lowering the shaft to bring the lug out of engagement with the notch, the shaft may be rotated to vary the angle of the shaft 14 with the frame.

In the modified form shown in Fig. 4, the lower end of the shaft 19 is provided with a knuckle 39, which is received between the spaced lugs 40, on a sleeve 15^a, similar in all respects to the sleeve 15 before described, and provided with a set screw 28. A bolt 41 traverses the lugs and the knuckle, and the upper ends of the lugs are rounded as at 42 on the arc of a circle whose center is the bolt 41, and the knuckle is provided with arc shaped shoulders 43 against which the rounded ends abut. A set screw 44 traverses one of the lugs 40, and engages the knuckle for retaining the sleeve in its adjusted position: When it is desired to use shovels instead of disks, the construction shown in Fig. 5 may be made use of. With this construction, the lower end of the shaft 19 is provided with a box 45, having a longitudinal recess and a vertical passage 46. When the shovel 47 is to be supported by a curved beam, the beam 48 has one of its ends inserted in the longitudinal recess of the box 45, and secured in place by a pin 49, and the other end has pivoted thereto, a yoke 50, the arms of the yoke being arranged on each side of the beam, and the plow 47 is secured to the edges of the yoke. The ends of the arms of the yoke are connected at the front of the beam as at 51, and a pin 52 is provided which is adapted to traverse one of a series of openings 53 in the arms of the yoke, and an opening in the beam. By inserting the bolt in different openings, the angle of the shovel with respect to the beam may be varied.

When a straight beam is used, as shown in Fig. 6, the said beam 54 is provided with a longitudinal series of alined openings 55, the shovel 47 being secured to the lower front edge of the beam. The beam is inserted in the vertical passage 46, and bolts 56, 57 are inserted through the openings 55, and registering openings in the box. It is evident that by placing the bolts 56, 57 in different openings 55, the shovel 47 may be adjusted vertically with respect to the box.

In the construction shown in Figs. 7 and 8, the frame 1 is provided with pairs of oppositely arranged lugs 60, provided at their outer and inner ends with alined openings, and arc-shaped plates 61 having a series of openings 62 are arranged above and below the said lugs, the plates having integral therewith a bearing 63, for receiving the

shaft 19, before mentioned, and bolts 64, 65 pass through the openings in the ends of the lugs, for securing the parts in their adjusted position, the bolts 64 being provided with a nut 66.

The bolt 65 is engaged with one of the openings 62, this permitting adjustment of the bearings which support the disks. In Fig. 9 is shown mechanism for adjustably connecting the plow with the axle 67 of the cultivator, this mechanism comprising a pair of spaced plates 68, provided with registering recesses 69 for receiving the axle, and with openings 70 on each side of the recess for bolts 71, which secure the plates together.

A bar 72 is pivoted between the plates as at 73, the one end of the bar being rounded and provided with a longitudinal series of openings 74, and the other end is provided with a single opening 75, adapted to register with openings 76 in the plates, when the bar is in the position shown in Fig. 1, and a pin 77 is passed through the registering openings. The other end of the bar is provided with oppositely projecting lugs 78, adapted to engage the edges of the plates, to limit the swinging movement of the bar, and the plates are connected together at their outer ends as at 79.

The rounded end of the bar 72 is inserted in a holder 80, which passes through a bearing 81 on the triangular frame 1 and is retained in position by means of a cotter pin passing through one of the holes 74. This connection may be made rigid by turning the bar 72 so that the hole 75 registers with the openings 76 after which the pin 77 is inserted through the registering holes.

In Fig. 10 is shown a modified form of frame comprising a plate 85, bent in step form as shown, to form three parallel offset portions 86, to each of which is secured a bracket 87, comprising a straight portion secured to the bar and an arc-shaped portion 88 provided with a series of openings 89. The straight portion is also provided with an opening 90. The opening 90 and one of the openings 89 are adapted to receive bolts whereby to secure the arms 21, 22, before mentioned.

A loop 91 is arranged on each of the frames to which is attached the apparatus for raising and lowering the frames.

The cultivator frame which may be of any suitable construction is provided with stub shafts 7 projecting laterally from the frame in front of the axle, and the casting 6 on the triangular frame receives the said stub shafts. The triangular frame is also connected to the axle of the cultivator by means of the mechanism shown in Fig. 9, the plates 68 being clamped upon the axle 67 as shown in Figs. 9 and 11.

I claim:

1. In a cultivator, a substantially trian-

gular open frame, one of the sides thereof being provided with spaced bearings, and with spaced arc shaped projecting arms, corresponding to the bearings and formed on the arc of a circle whose center is the corresponding bearing, each provided with a longitudinal series of openings, means at the corner of the frame opposite said side for securing said frame to the cultivator, sleeves provided with radial spaced arms, adapted to engage above and below the frame, said arms being provided with openings aligned with one of the bearings, and with openings adapted to register with the openings of the corresponding arc shaped projection, bolts traversing the registering openings, shafts engaging the sleeves, means for adjusting the shafts with respect to the sleeves, a sleeve pivoted to the lower end of each shaft, means for fixing the sleeve with respect to the shaft, a shaft in the sleeve, cultivator disks on the shaft, and means for securing the disks in place.

2. In a cultivator, a substantially triangular frame having one of its sides provided with spaced bearings, and with spaced arc shaped projecting arms, corresponding to the bearings and formed on the arc of a circle whose center is the corresponding bearing, each provided with a longitudinal series of openings, means at the corner of the frame opposite said side for securing the frame to the cultivator, sleeves provided with radial spaced arms adapted to engage above and below the frame, a pin traversing the ends of the arms and a bearing, said arms being provided with openings adapted to register with the openings of the corresponding arc shaped projection, bolts trav-

ersing the registering openings, shafts in the sleeve, means for adjusting said shafts with respect to the sleeve, and cultivators supported by the shaft.

3. In a cultivator, a substantially triangular frame having one of its sides provided with spaced bearings, and with spaced arc shaped arms formed on a circle whose center is a bearing, each having a longitudinal series of openings, means at the corner of the frame opposite said side for securing the frame to a cultivator, sleeves provided with radial spaced arms adapted to engage above and below the frame, the ends of said arms being connected with a bearing, said arms being provided with openings adapted to register with the openings of the corresponding arc-shaped projection, bolts traversing the registering openings, and cultivators supported by the sleeves.

4. In a cultivator, a frame provided with spaced bearings, and with spaced arc shaped arms formed on a circle whose center is a bearing, each having a longitudinal series of openings, means for securing the frame to a cultivator, sleeves provided with radial spaced arms adapted to engage above and below the frame, the ends of said arms being connected with a bearing, said arms being provided with openings adapted to register with the openings of the corresponding arc shaped projections, whereby to adjust the position of the sleeves and cultivators supported by the sleeves.

ANTON HELMLINGER

Witnesses:

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AUGUST JAEDICKE, Jr.