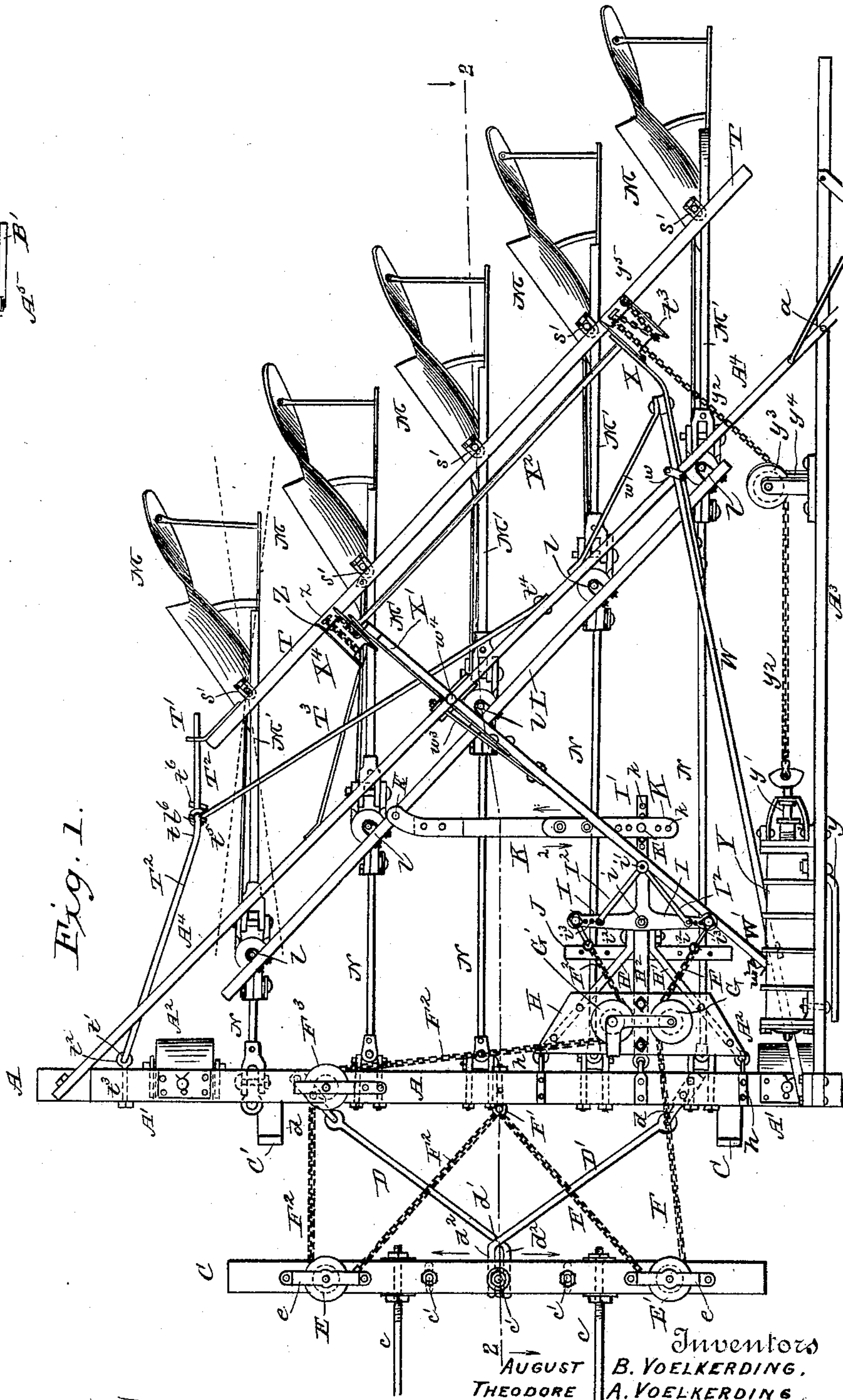


3 Sheets—Sheet 1.

GANG PLOW.

Patented Sept. 10, 1889.



H. C. Newman,  
E. S. Newman.

By his Attorneys  
Baldwin Davidson & Wright

3 Sheets—Sheet 2.

# GANG PLOW.

Patented Sept. 10, 1889.

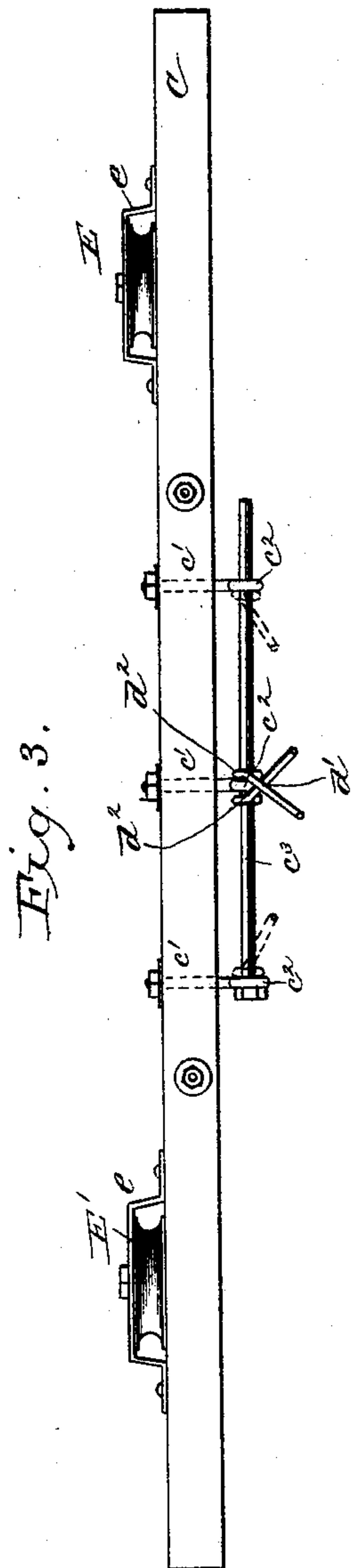


Fig. 3.

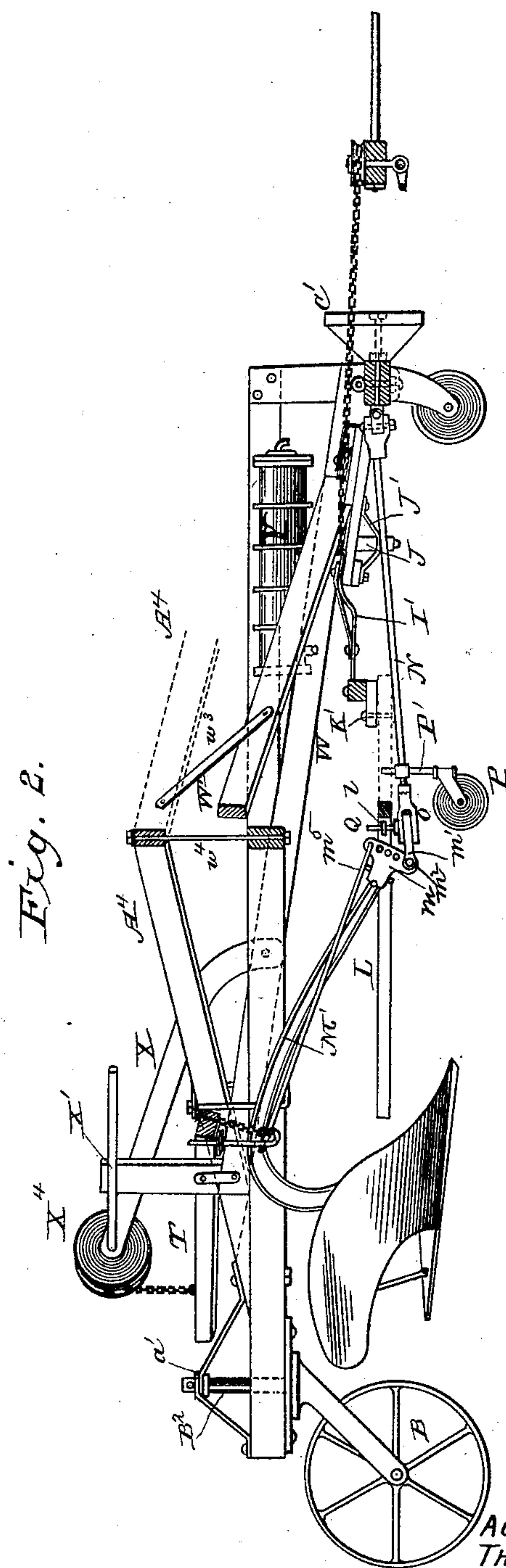


Fig. 2.

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(No Model.)

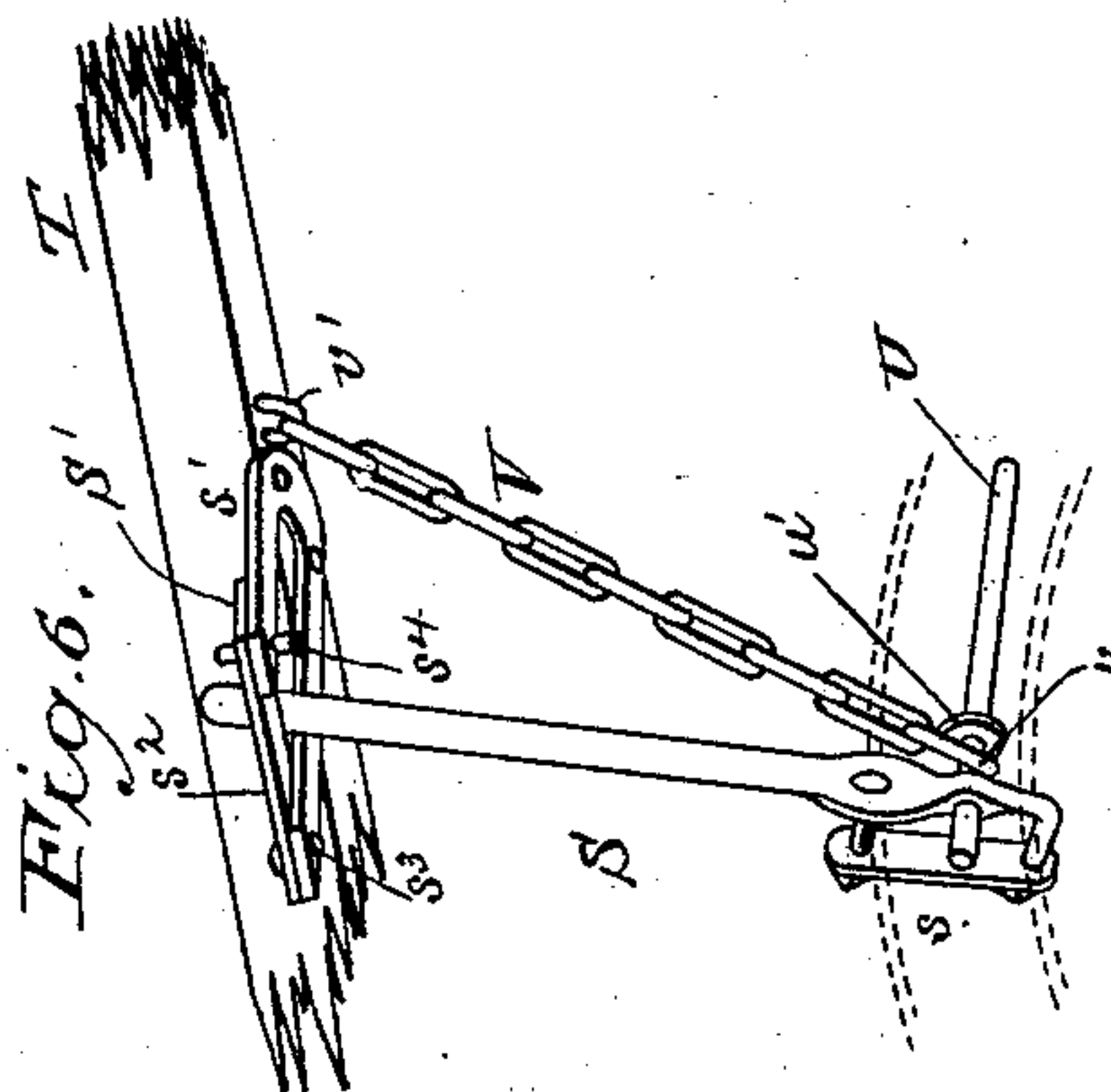
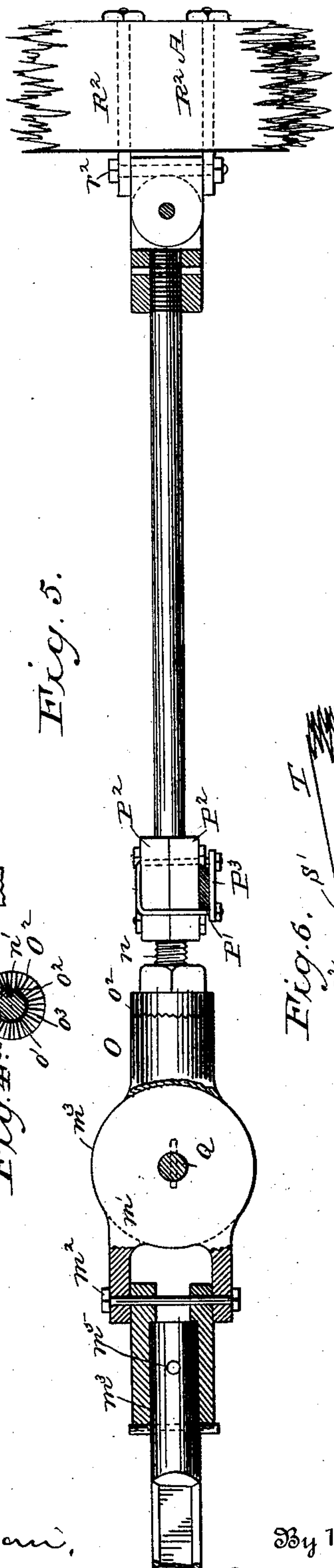
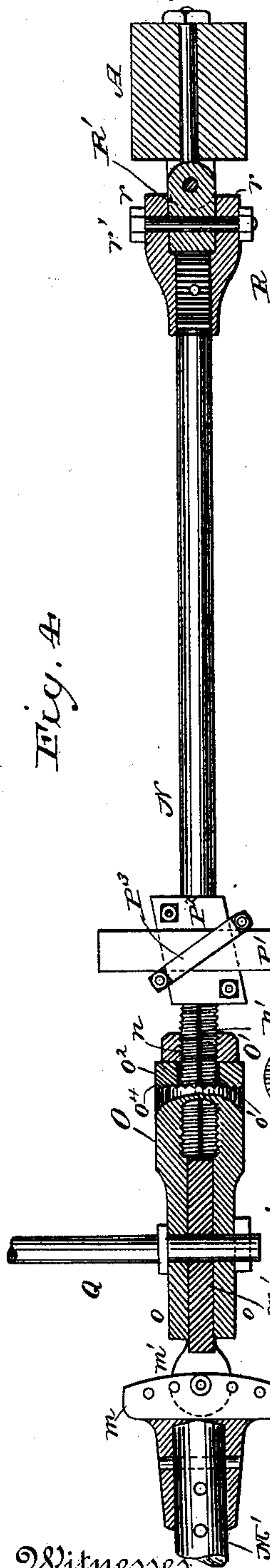
3 Sheets—Sheet 3.

A. B. & T. A. VOELKERDING.

GANG PLOW.

No. 410,946.

Patented Sept. 10, 1889.



Witnesses

H. C. Newman,  
E. S. Newman

Inventors  
AUGUST B. VOELKERDING  
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By his Attorneys  
Baldwin Davidson & Wright.



# UNITED STATES PATENT OFFICE.

AUGUST B. VOELKERDING AND THEODORE ARNOLD VOELKERDING, OF  
AUGUSTA, MISSOURI.

## GANG-PLOW.

SPECIFICATION forming part of Letters Patent No. 410,946, dated September 10, 1889.

Application filed May 3, 1889. Serial No. 309,476. (No model.)

*To all whom it may concern:*

Be it known that we, AUGUST B. VOELKERDING and THEODORE ARNOLD VOELKERDING, both citizens of the United States, and both residing at Augusta, in the county of St. Charles and State of Missouri, have jointly invented certain new and useful Improvements in Gang-Plows, of which the following is a specification.

Our invention especially relates to that class of plows in which two or more plows or cultivators are connected together and drawn forward simultaneously by a traction-engine or other suitable power.

The primary object of our invention is to provide means for changing the course or general direction of travel of the plows to correspond with the movement of the engine or draft power.

Heretofore, so far as we are aware, in this class of plows the plow-beams have been connected to and moved positively with the frame in which they are mounted and to which the engine is attached; but by our invention we provide a connection between the plow-beams and the engine, whereby they may be moved in the frame to compensate for the variations in the direction of travel of the engine without necessarily moving the frame bodily.

Our improved organization is especially desirable in turning around stumps, rocks, and other obstructions, and by our improvements the plow or plows will be automatically shifted to one side or the other to steer clear of the obstructions without an abrupt movement or twisting action, which would break the continuity of the furrow or disorganize the arrangement of the plows in their frame.

While our invention is especially designed for gang-plows, our improvements may be used with a single plow.

Our invention comprehends not only improved instrumentalities for changing the course of the plows, but also improvements in the general organization of the plows and their frame, and in certain details of construction, which will be hereinafter specifically described and claimed.

In the accompanying drawing, illustrating

our invention, Figure 1 is a plan view of a gang-plow embodying our invention; Fig. 1<sup>a</sup>, a detail view of one of the caster-wheels and a part or extension of the frame to which it is secured. Fig. 2 is a longitudinal central section on the line 2 2 of Fig. 1. Fig. 3 is a rear view, on an enlarged scale, of the cross-beam which is secured to the engine, showing also some of the course-changing devices attached to it. Fig. 4 is a detail view, on an enlarged scale, partly in side elevation and partly in section, of the end of one of the plow-beams and its clevis, its draft-rod, and the coupling devices therefor. Fig. 4<sup>a</sup> is a detail view of the clamping-nut used in connection with the coupling of the plow-beam and its draft-rod. Fig. 5 is a similar view to Fig. 4, showing a plan of the same, but partly in section; and Fig. 6 is a detail view showing the devices for suspending the plow-beams.

The front cross-beam A is provided near each end with downwardly-projecting brackets A', in which are journaled supporting-wheels A<sup>2</sup>. A side beam A<sup>3</sup> extends from one end of the front beam A rearwardly at right angles thereto, and diagonal beams A<sup>4</sup> extend from the opposite end of the beam A to near the rear end of the beam A<sup>3</sup>, connecting therewith at a. The end of the beams A<sup>4</sup> extends beyond the side beam A<sup>3</sup>, as shown in Fig. 1<sup>a</sup>, and short rods or braces A<sup>5</sup>, extending upwardly and joining at a', as shown in Fig. 2, connect the end of the beams A<sup>4</sup> to the side beam A<sup>3</sup>. (See Fig. 1<sup>a</sup>.) As clearly shown in Fig. 2, the diagonal beams A<sup>4</sup> are inclined upwardly, and are joined together near the center of the plow-frame.

A caster-wheel B, mounted in a suitable bifurcated frame B', having a shank B<sup>2</sup>, is journaled in the extension A<sup>6</sup> of the frame, passing through the short brace-rods A<sup>5</sup>, as shown in Figs. 1<sup>a</sup> and 2. By this construction the main frame of the plow, it will be observed, is substantially triangular, and is supported on the wheels A<sup>2</sup> and B. The cross-beam C is rigidly secured to the engine by bolts c, and is provided with bolts c', having eyes c<sup>2</sup> below the beam, through which extends a long bolt or rod c<sup>3</sup>. We have shown



three such eyebolts in the drawings, the middle bolt extending centrally through the beam C, and the two others being arranged at equal distances on each side thereof. The bolt or  
 5 rod  $c^3$  is preferably headed at one end, as shown, the other end being plain, so that by removing the bolt the connection between the engine and the plow may be broken at this point, as will be hereinafter described.

10 Two diagonal draft-rods or brackets D D' are hinged to brackets or clips  $d$ , secured to the front beam A of the plow-frame on each side of its central line of draft. The rods cross at  $d'$  and are bent abruptly at this point,  
 15 the end of each rod being provided with a loop or eye  $d^2$ , extending over the bolt or rod  $c^3$ , one on each side of the central eyebolt  $c'$ . By this construction the plow-frame is connected with the engine, so as to be moved  
 20 forwardly with it. The diagonal rods are arranged as shown in Fig. 1, the loops  $d^2$  lying close to the central eyebolt  $c'$ . When the engine is backed, the loops  $d^2$  slide along the rod  $c^3$  toward the end eyebolts  $c'$ , as shown  
 25 by dotted lines in Fig. 3, and the diagonal rods D D' are straightened out, the cross-beam C of the engine approaching the front cross-beam A of the plow-frame and coming in contact with the buffers C' on the front  
 30 side of the cross-beam A. On the upper side of the engine-beam C are sheaves or pulleys E E', one near each end of the beam, mounted in suitable bearings and inclosed by straps  $e$ , of ordinary construction.

35 A chain F, secured to an eyebolt F', projecting from the front beam of the plow-frame about midway between its ends, extends forward diagonally around the pulley E', and then backwardly to and over a pulley  
 40 G, mounted on a platform H in rear of the cross-beam A. The end of the chain F is secured to one of the arms of the oscillating cross-head I. A chain F<sup>2</sup> extends in an opposite direction from the eyebolt F' over the  
 45 pulley E on the engine cross-beam C, thence rearwardly over a pulley F<sup>3</sup> on the front cross-beam A of the plow-frame, thence over a pulley G' on the platform H, and its rear end is secured to the opposite arm of the oscillating cross-head I. The platform H is  
 50 mounted on bars H', hinged to eyebolts or clips  $h$  on the rear side of the beam A, and at their rear ends secured to a short central beam H<sup>2</sup>, hinged in like manner to the front beam A and extending rearwardly at right  
 55 angles thereto.

A cross-beam J, made in two parts, as shown in Fig. 2, extends across the ends of the rods or beams H' and H<sup>2</sup>, and is secured thereto by  
 60 braces J', as shown in Fig. 2.

The oscillating cross-head I, which is hinged at  $i$  to the outer end of the beam H<sup>2</sup>, has a rearwardly-extending arm I', which is bent downwardly, as shown in Fig. 2, and secured  
 65 at its outer end to the end of the horizontal link K. The end of the arm I' and the end of the link K are provided with a series of

perforations  $k$  for the securing-bolt K', by which construction the connection between the arm I' and the link K may be adjusted. 70  
 Brace-rods L<sup>2</sup> are secured together on a bolt  $i'$  on the arm I', and extend to the outer ends of the arms I, and are secured thereto by bolts  $i^2$ , which may be extended through any of the holes or perforations  $i^3$  in the ends of 75  
 the arms I. The outer end of the link K is secured by means of a pivot-bolt K' to a diagonal plow-connecting beam L. The plow-connecting beam L extends diagonally between the front beam A and the side beam A<sup>3</sup> 80  
 and within the diagonal beams A<sup>4</sup> and below them.

The plows proper M (five being shown in the drawings) may generally be of any well-known construction, as may also their beams 85  
 M'. Each plow-beam is provided at its front end with a draft-rod N, connected to the front beam A of the plow-frame in an improved manner, as will be hereinafter described.

The plows M are arranged diagonally, as 90  
 shown in the drawings, and the draft-rods N are each made of a corresponding length to accommodate this arrangement of the plows. Each plow-beam is provided with a clevis  $m$  of the usual construction, to which is ad- 95  
 justably secured the link  $m'$ , (shown as bifurcated at its rear end and secured to the clevis by means of a through-bolt  $m^2$ .) The front end of the link is made circular or disk-shaped at  $m^3$ , as shown in Fig. 5, which end fits be- 100  
 tween disk-shaped bifurcated rear end  $o$  of the coupling O.

The coupling O is secured to the draft-rod N in the following manner: The rear end  $n$  of the draft-rod N is screw-threaded, as shown, 105  
 and provided with a straight longitudinal groove  $n'$ . To make the connection between the draft-rod N and the coupling O, a nut O' is first screwed onto the end of the draft-rod, and then a washer O<sup>2</sup>, having a central open- 110  
 ing  $o'$ , larger than the screw-threaded end  $n$  of the draft-rod, is slipped on. This washer is provided with a feather  $o^2$ , which fits in the groove  $n'$ . The rear end or face  $o^3$  of the washer is serrated, as shown in Fig. 4<sup>a</sup>, and 115  
 engages with the corresponding serrated front end  $o^4$  of the coupling O. When the washer O<sup>2</sup> is brought into engagement with the coupling O, the nut O' is screwed home to tightly clamp the washer to the coupling. A firm 120  
 connection is thus made between the draft-rod and the plow-beam. The coupling may be adjusted readily, so as to lengthen or shorten the draft-rod N, by adjusting the coupling O on the end of the draft-rod and 125  
 correspondingly adjusting the washer O<sup>2</sup> and the nut O'. This adjustment is chiefly, however, to vary the width of furrow the plow is to take or cut.

Each draft-rod is provided with a caster- 130  
 wheel P, the upright shank P' of which extends through a bearing-block P<sup>2</sup>, secured to the draft-rod N by clips P<sup>3</sup>. By adjusting the clips P<sup>3</sup> the caster-wheels may be adjusted



vertically relatively to the draft-rods. The caster-wheels may also, by this construction, be adjusted longitudinally on the draft-rods.

A guide-rod Q extends centrally through the coupling O, forming the pivot for the link  $m'$ , and extending upwardly through staples, eyes, or brackets  $l$  on the side of the plow-connecting beam L. The front end of each draft-rod is screw-threaded, and is secured to the coupling R, which is bifurcated at its front end  $r$ , between which bifurcated ends is embraced the rear end of the link R', which is hinged at its front end between the eye-bolts R<sup>2</sup>, extending rearwardly from the front beam A. The pivot-bolt  $r'$ , which connects the coupling R to the link R', is arranged at right angles to the bolt  $r^2$ , which connects the link R' to the eyebolts R<sup>2</sup>, thereby providing a universal joint.

To the upper rear end of each plow-beam M' is secured a vertical rod S by means of a clip  $s$ . The upper end of the rod S extends through a frame S' on the rear plow-connecting beam T. The frame S' is preferably in two parts. A U-shaped bracket  $s'$  is secured to the underside of the beam T, and projects rearwardly therefrom, to the outer end of which is secured a cross connecting-bar  $s^2$ .

To the front end or clevis  $m$  of each plow-beam is secured a rod U, which extends upwardly and rearwardly and through a perforation  $u$  in the lower end of the bar S, and through a perforation in a bracket  $u'$  on the side of the plow-beam. The rod U extends through the lower link  $v$  of a chain V, which extends upwardly and diagonally, as shown in Fig. 6, and is secured by means of a hook  $v'$  to the beam T, and suspends the beam therefrom. The lower link  $v$  is located between the lug or bracket  $u'$  on the plow-beam and the lower end of the bar S. The cross-bar S<sup>2</sup> is secured at one end to the bracket  $s'$  by means of a bolt  $s^3$ , and at the other end by means of a wooden break-pin  $s^4$ . By this construction, if there be a detrimental strain on the plow, the pin  $s^4$  will break, allowing the bar S to come out of the bracket  $s'$ , thereby permitting the plows to fall laterally independently of each other, but prevented from moving too far out of their normal position by the chains V, which will now sustain them. By this means breakage of the plows is prevented, it being much easier to reset the plows after being once shifted out of their normal position than to repair a broken plowshare. By this construction, also, only one plow need thus be disarranged, the remaining plows being allowed to retain their normal position.

To the inner end of the rear plow-connecting beam T is secured a bracket T', through a perforation in which extends a side guide-rod T<sup>2</sup>, which is bent at  $t$ , and then extended forwardly and diagonally, where it is provided with an eye  $t'$ , engaging with an eye  $t^2$  on a bolt  $t^3$ , secured to the front cross-beam A of the plow-frame. A rod T<sup>3</sup>, secured to the outer diagonal cross-beam A<sup>4</sup> at  $t^4$ , is pro-

vided on its outer end with an eye  $t^5$ , which embraces the rod T<sup>2</sup> between wooden break-pins  $t^6$ . By this means the bar T<sup>2</sup> is held in position, and is sustained should it become disengaged from the bracket T'. The rod T<sup>3</sup> also holds the bar T<sup>2</sup> in such position as to hold the rear plow-connecting beam T in its normal position, as indicated in the drawings, in the line of draft. The beam T holds the plows in the same general position in the frame, the points or beams being shifted to correspond with any change in the course of the engine.

A diagonal beam W, secured to the end of the front beam A, extends over the front plow-connecting beam L and the diagonal cross-beam A<sup>4</sup>, to which latter it is secured by a clip  $w$ . The inner end of the beam W is braced to the diagonal beam A<sup>4</sup> by a brace-rod  $w'$ . Another diagonal beam W', secured at  $w^2$  to the beam W, extends over the end of the cross-head I and over the link K nearly to the plow-connecting beam T. A brace  $w^3$  connects the beam W' to the diagonal beam A<sup>4</sup>, and is also connected thereto by means of a bolt  $w^4$ , as shown in Fig. 2, which, it will be observed, extends through the beams A<sup>4</sup> at their apex.

A bracket X is secured to the rear end of the beam W, and a standard or bracket X' is secured to the inner end of the beam W'. In the upper ends of the brackets X and X' is journaled a shaft X<sup>2</sup>, on each end of which are drums X<sup>3</sup> and X<sup>4</sup>.

A steam-cylinder Y, provided with a steam-inlet pipe  $y$ , which leads to the boiler of the engine, is secured to the front end of the plow-frame, and its piston-rod  $y'$  is secured at its outer end to a chain  $y^2$ , which extends over a sheave or pulley  $y^3$ , mounted in a bracket  $y^4$ , secured to the side beam A<sup>3</sup>. The chain  $y^2$  then extends over the pulley or drum X<sup>3</sup>, and its end is secured to the rear plow-connecting beam T at  $y^5$ . A chain Z, secured to the drum X<sup>4</sup>, passes around the drum, and is secured at  $z$  to the beam T. By this construction, when the piston in the cylinder Y is drawn forward, the drums will be turned to wind up the chains  $y^2$  and Z, so as to elevate the plows at their rear ends about the bolts  $m^2$  as a center. When the steam is exhausted from the cylinder, the plows will drop to their normal position by their own weight.

It will be observed that the end  $m^3$  of the plow-beam is made circular in cross-section and fits in a corresponding socket  $m^4$  in the coupling O. It is secured to the coupling by a wooden break-pin  $m^5$ , which is strong enough to stand ordinary strains, but gives way when any obstacle is met with which would tend to break the plow or the course-changing devices. By making the end of the plow-beam round the pin will also be broken to allow the plow-beam to disconnect from its socket, should the plow meet with an obstacle that twists it. Thus detrimental straining, twisting, or breaking of the course-changing de-



vices is avoided. Should any plow become disconnected, the rear end of the draft-rod will be supported by the caster-wheel P.

It will be noticed that the platform H is free to swing vertically, as it rests on the draft-rods. Thus the course-changing devices are always kept in line with the connecting-bar L and the ends of the plow-beams.

The apparatus thus minutely described is simple in construction and operation and does the required work efficiently; but it is obvious that other organizations of instrumentalities within proper limits may be employed, and that the details of construction of the machine may be varied without departing from the novel features of our invention.

The operation of our improved plow has been indicated in the foregoing description. It will be obvious, however, that the main frame of the plow is strong and rigid; that the connections between the frame and the plows are sufficiently flexible and adjustable to avoid undue strain, and to provide for the necessary relative arrangement of the plows and their connected parts to accommodate different classes of work and different uses of the plows, and that the course-changing devices operate positively and efficiently to shift the plows to the right or left, or to the proper position to steer clear of obstructions and to follow the course of the engine or draft-power.

To illustrate the operation of the course-changing devices, assume that the engine turns to the right, as illustrated by the arrow 1 in Fig. 1. The chain F will then be drawn forward, so as to pull forward the corresponding arm of the cross-head I. This will cause the link K to move in the direction indicated by arrow 2, moving the front plow-connecting beam L in a like direction, and shifting all the plows and the plow-beams to the left-hand side about the bolts  $r'$  at the front ends of the draft-rods N and the upright rods Q as centers. The plows are thus shifted simultaneously and correspondingly without changing the position of the plow-frame or the general position of the plows in the frame, because when the engine is turned, as above described, the eye  $D^2$  of the rod D slides along the rod or bolt  $c^3$ , thereby, while maintaining the connection between the plow-frame and the engine, avoiding unnecessarily shifting the plow-beams bodily. If, however, the movement of the engine is abrupt and decided, as where it is desired to turn the plow around to change its general direction or to reverse it, then the connection between the engine and the plow-frame, by means of the rods D and  $D'$ , is such as to swing the plow-frame around into position for its new course.

The manner of connecting up each plow with its draft-rod and with the main frame has been fully set forth, as has also the construction and operation of the devices for

elevating the plows and for disconnecting them from their normal attachment to the frame when there is liability of breakage, and reference is made to the body of the specification for a more full and detailed description.

Having thus described the construction and operation of our improved plow, what we claim as our invention is—

1. The combination, substantially as hereinbefore set forth, of the plow-frame having a front cross-beam, the engine-beam, and the diagonal draft-rods crossed at their outer ends, hinged to the front beam of the plow-frame, and supported on the engine-beam, on which they are free to slide transversely to the line of draft.

2. The combination, substantially as hereinbefore set forth, of the plow-frame having a front cross-beam, the engine-beam, the diagonal draft-rods hinged to the front beam of the plow-frame, crossed at their outer ends and sliding upon a bolt or bar suspended from the engine-beam, and extending through eyes or loops on the outer ends of the draft-rods.

3. The combination, substantially as hereinbefore set forth, of the plow-frame having a front cross-beam, the engine-beam, the diagonal draft-rods hinged to the front beam of the plow-frame and crossed at their outer ends, and the horizontal rod or bar on the engine-beam, and secured thereto by three eyebolts, said horizontal bolt or rod extending through eyes or loops in the outer ends of the draft-rods, which are free to slide on the horizontal rod between the central eyebolt and the end ones.

4. The combination, substantially as hereinbefore set forth, of the plow-frame, a plow mounted therein, the engine or draft-power, and connections between the plow and the draft-power for moving the plow horizontally in the frame.

5. The combination, substantially as hereinbefore set forth, of the plow-frame having a front cross-beam, a series of plows connected with the front beam by vertical pivots, the engine or draft-power, and connections between the engine and the plows, whereby they may be moved horizontally relatively to their frame.

6. The combination, substantially as hereinbefore set forth, of the plow-frame, a series of plows mounted therein, the plow connecting beam L, the cross-head, the link connecting the cross-head with the plow-connecting beam, the engine or draft-power, and flexible connections between the engine or draft-power and the cross-head.

7. The combination, substantially as hereinbefore set forth, of the plow-frame, the plows flexibly connected therewith, the plow-connecting beam, the cross-head, a link connecting the cross-head to the plow-connecting beam, the chains secured to the front side of the front cross-beam of the plow-frame and to opposite arms of the cross-head, and the



sheaves or pulleys on the plow-frame and on the cross-beam of the engine, over which the chains extend.

8. The combination, substantially as hereinbefore set forth, of the plow-frame, the plows flexibly connected therewith, the plow-connecting beam, the oscillating cross-head, the link connecting the cross-head to the plow-connecting beam, the platform on which the cross-head is mounted and which is hinged to the front cross-beam of the frame, and flexible connections between the cross-head and the engine or draft-power.

9. The combination, substantially as hereinbefore set forth, of the plow-frame, a series of plows mounted therein, the plow-beams, the draft-rods flexibly connected to the plow-beams and to the front cross-beam of the plow-frame, the diagonal plow-connecting beam, the cross-head, the link connecting the cross-head with the plow-connecting beam, and the platform on which the cross-head is mounted, hinged to the front beam of the frame and resting on one or more of the draft-rods to which the plow-beams are connected.

10. The combination, substantially as hereinbefore set forth, of the plow-frame, the plows mounted therein, the rear plow-connecting beam to which the plows are attached, and the bar  $T^2$  at one end of the frame, yieldingly connected with the plow-connecting beam  $T$  and flexibly connected to the front cross-beam.

11. The combination, substantially as hereinbefore set forth, of the plow-frame, the diagonal rods  $W$  and  $W'$ , the brackets on the ends of the rods, the shaft journaled in the ends of said brackets, a drum on each end of the shaft, the rear plow-connecting beam, the flexible connection between each drum and the plow-connecting beam near each end, and a chain for operating the shaft and drums.

12. The combination, substantially as hereinbefore set forth, of the plow-frame, a series of plows mounted therein, the plow-beams, the draft-rods flexibly connected with the plow-beams and with the front beam of the plow-frame, the front plow-connecting beam, and the vertical guide-rods extending through eyes or guides in the plow-connecting beam.

13. The combination, substantially as hereinbefore set forth, of the front beam of the plow-frame, the draft-rods extending rearwardly therefrom, and the caster-wheels secured to the draft-rods and adjustable thereon both vertically and horizontally.

14. The combination, substantially as hereinbefore set forth, of the plow-frame, a plow, a plow-beam circular in cross-section at its front end, a clevis having a circular socket on the end of the plow-beam, a break-pin connecting the plow-beam to the clevis, and a

draft-rod connecting the clevis to the plow-frame.

15. The combination, substantially as hereinbefore set forth, of a plow, the plow-beam, a draft-rod, and a coupling for connecting the plow-beam with the draft-rod, having a flat horizontal circular link  $m'$ , connected with the plow-beam and hinged between a bifurcated end  $o$  of the coupling and adjustably connected with the draft-rod.

16. The combination, substantially as hereinbefore set forth, of a plow-beam, a draft-rod screw-threaded on its rear end, a coupling having a socket screw-threaded to receive the screw-threaded end of the draft-rod and serrated on its outer end, a washer serrated on its face and adapted to engage with the serrated end of the coupling and provided with a lug or feather engaging with a groove in the rear end of the draft-rod, and a clamping-nut on the screw-threaded end of the draft-rod for holding the washer in engagement with the coupling.

17. The combination, substantially as hereinbefore set forth, of the plow-frame, a plow mounted therein, a beam  $T$  above the plow, a vertical rod  $S$ , secured to the plow-beam, the frame  $S'$ , secured to the beam  $T$ , through which the rod  $S$  extends, and the chain  $V$ , connecting the plow-beam with the beam  $T$ .

18. The combination, substantially as hereinbefore set forth, of the plow-frame, the beam  $T$ , the vertical rod  $S$ , secured to the plow-beam, the frame  $S'$ , having a yielding cross-piece  $S^2$ , and a rod  $U$ , connected to the front end of the plow-beam and extending through a perforation in the lower end of the rod  $S$ , for the purpose specified.

19. The combination, substantially as hereinbefore set forth, of the plow-frame, a series of plows mounted therein, the draft-rods connected to the front cross-beam of the plow by vertical and horizontal pivots and connected to the plow-beam by couplings having vertical and horizontal pivots, the front plow-connecting beam having eyes or guides through which extend guide-bars on the couplings, the rear plow-connecting-beams, the oscillating cross-head, connections between the oscillating cross-head and the front plow-connecting beam, the engine or draft-power, and connections between the engine or draft-power and the oscillating cross-head.

In testimony whereof we have hereunto subscribed our names.

AUGUST B. VOELKERDING.

THEODORE ARNOLD VOELKERDING.

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