

No. 881,797.

PATENTED MAR. 10, 1908.

C. A. HARDY.

DISK PLOW.

APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 1.

Fig. 2

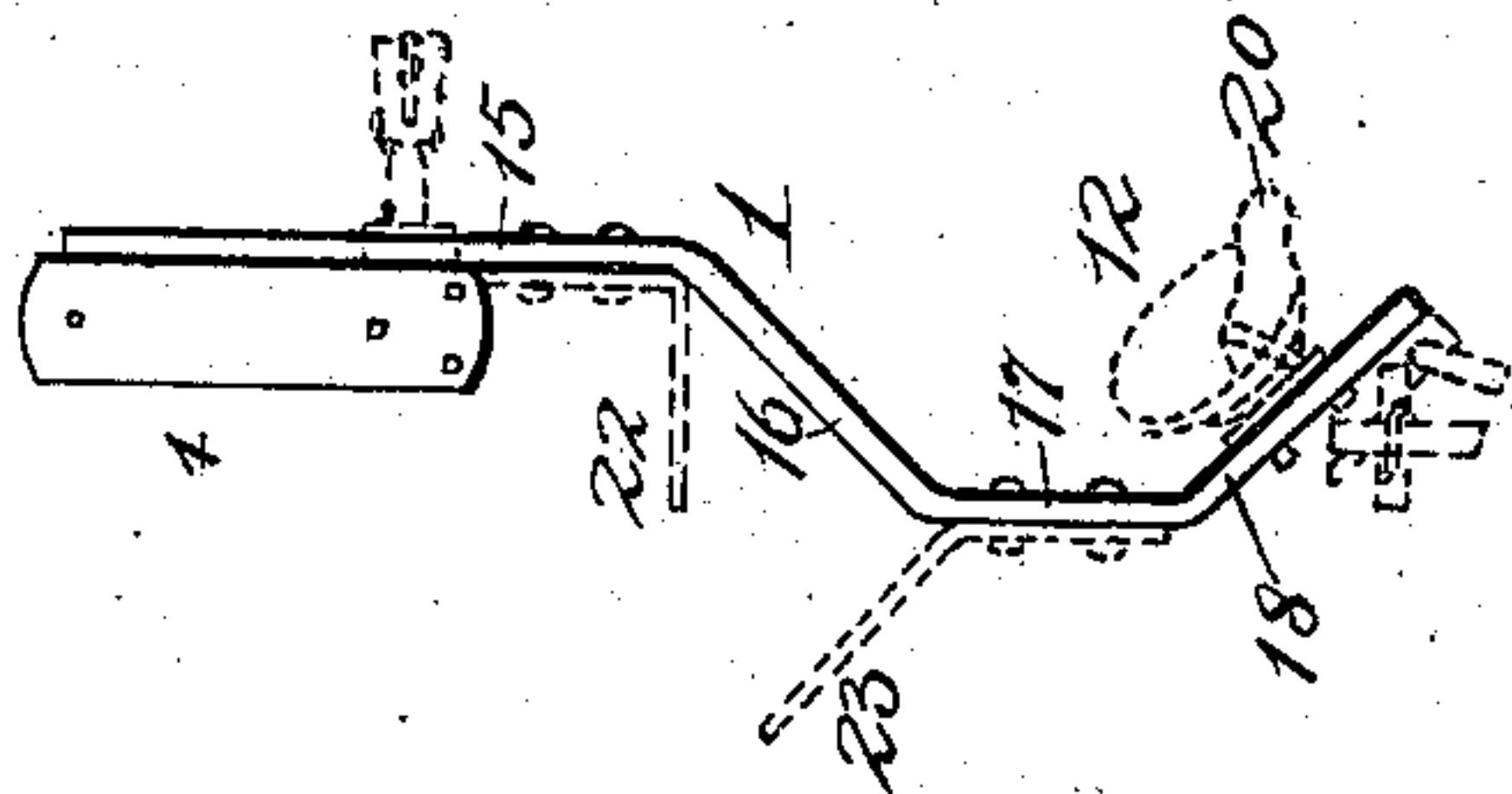


Fig. 1

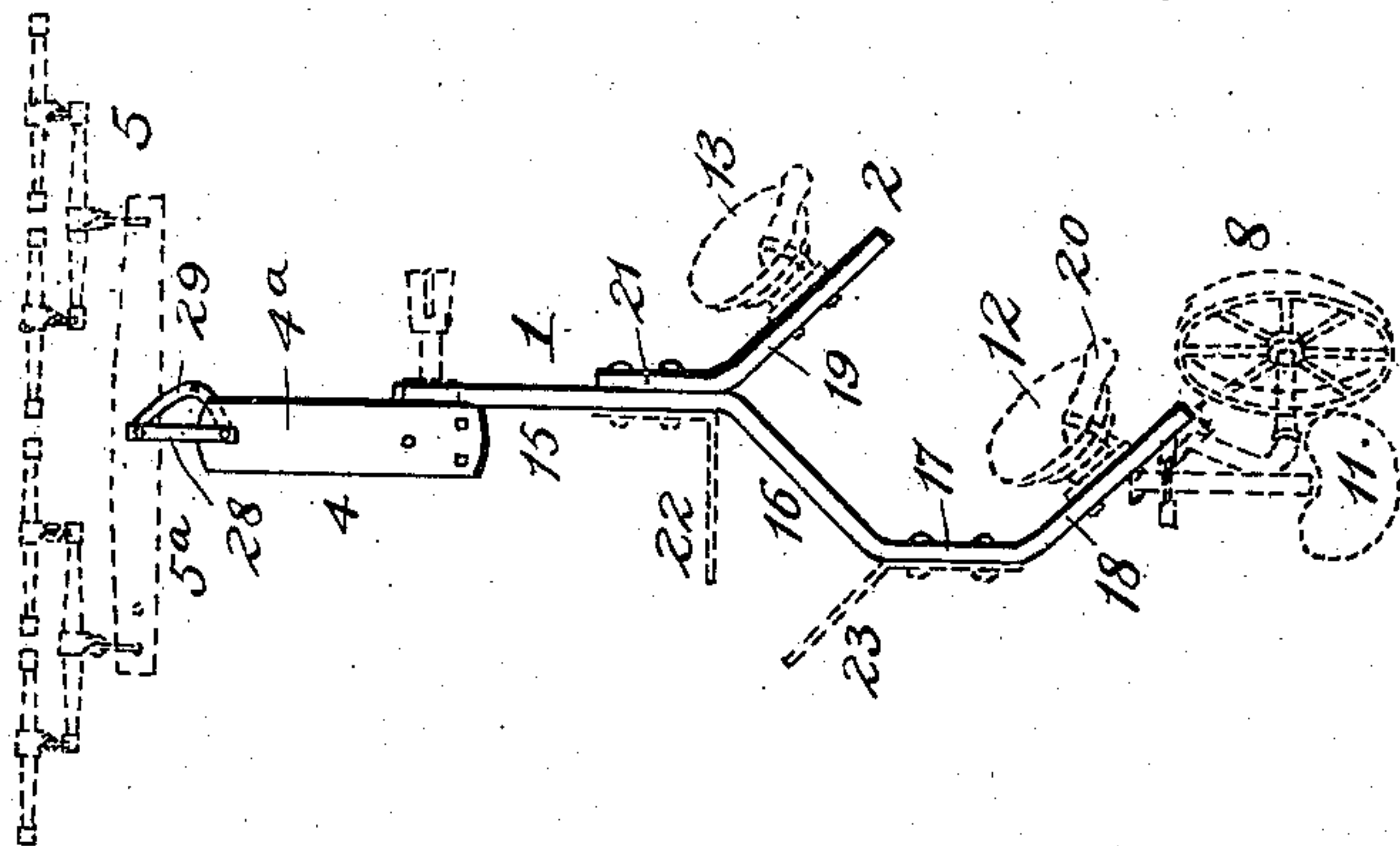
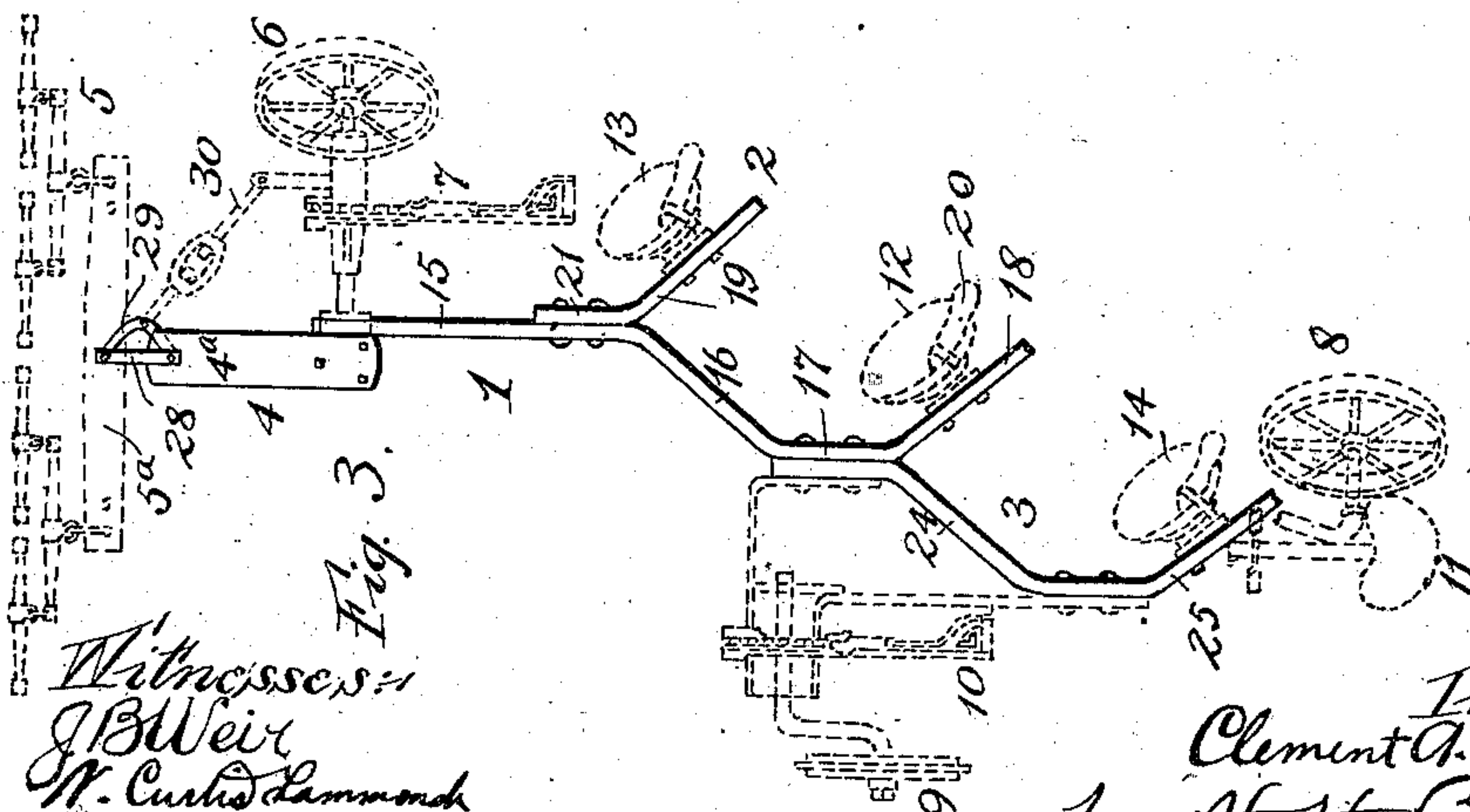


Fig. 3



Witnesses:
J. B. Weir
W. C. Hammond

Inventor:
Clement A. Hardy
by H. H. Blair
Attorney

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2 SHEETS—SHEET 2.

Fig. 4

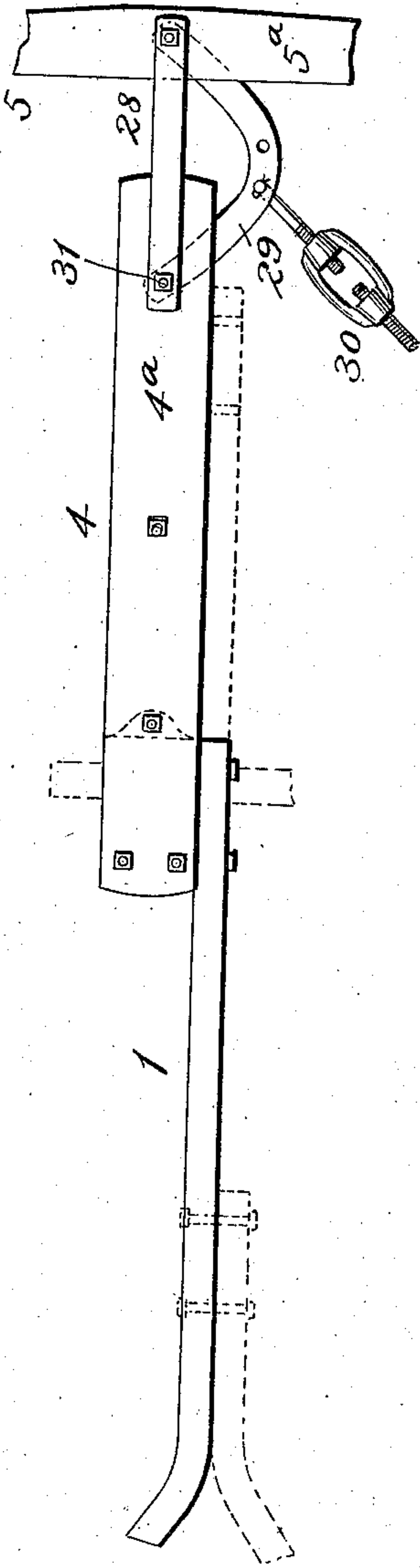


Fig. 5.

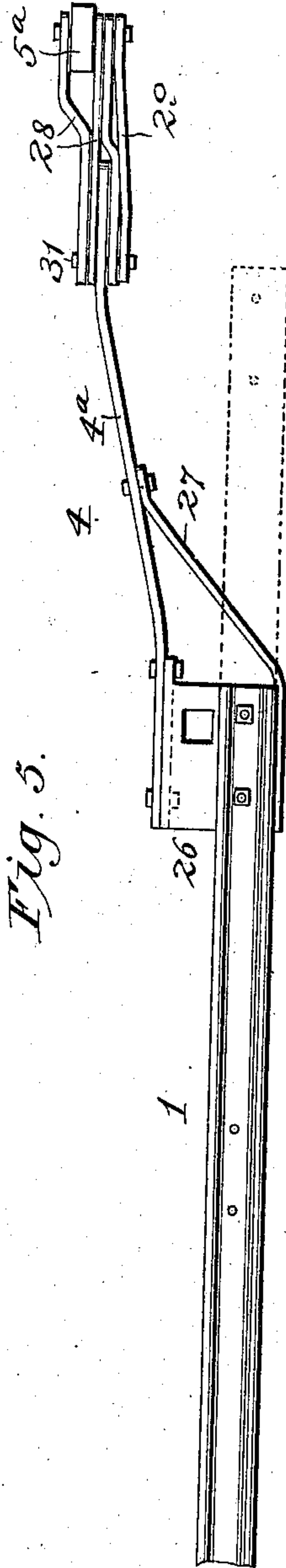
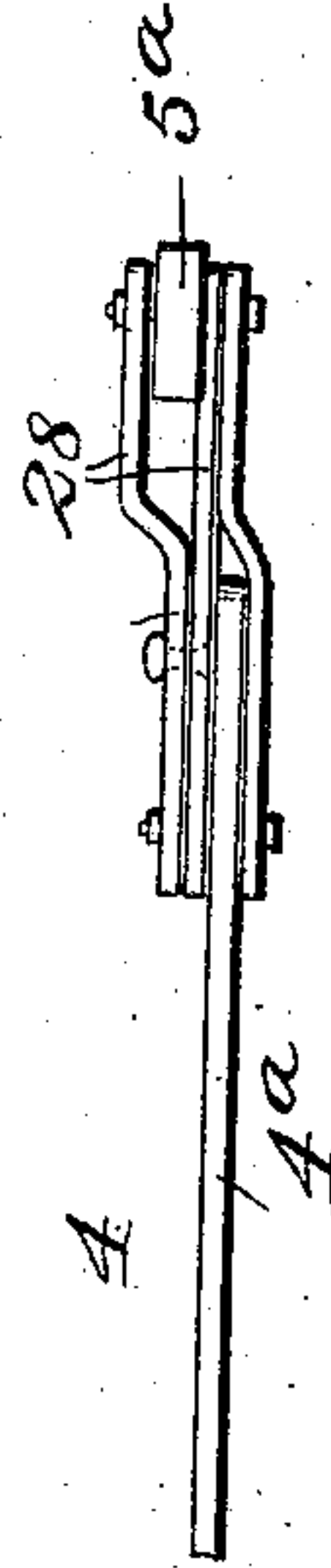


Fig. 6.



WITNESSES:

Sidney P. Hollingsworth
N. Curtis Hammond

INVENTOR

Clement A. Hardy

By

H. H. Bliss
Attorney

UNITED STATES PATENT OFFICE.

CLEMENT A. HARDY, OF CHICAGO, ILLINOIS.

DISK PLOW.

No. 881,797.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed April 10, 1905. Serial No. 254,691.

To all whom it may concern:

Be it known that I, CLEMENT A. HARDY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Disk Plows, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in disk plows, it relating more particularly to the framework which supports the disks.

One of the purposes aimed at is to provide such a construction and relation of parts that greater strength and rigidity shall be attained than those incident to plow frames as heretofore made. The common practice in making disk plows of this class has been to secure a plow disk to the draft frame by a connecting bar or carrier and then attach one or more supplemental disks in rear of the front one, those in the rear being supported by carriers attached to the carrier of the front disk. This plan of construction has necessitated the presence of a large number of joints, and at these joints are experienced the strains exerted on the plow when at work, the result being that the several parts of the mechanism are subjected to such torsional and displacing stresses that looseness is constantly occurring and breakage of the connecting parts frequently met with.

The object of the present construction is to so arrange the frame element that the parts which transmit the main draft shall extend rigidly from the draft devices to the central part of the working area, and have the supplemental working parts arranged symmetrically in relation to this main line of draft or strain.

I form the main central element of the machine in two parts, one at the front for receiving the draft, and the other in rear thereof carrying a plow disk, and the two rigidly secured together, an adjustable connecting device being preferably employed. These parts of the frame and the plow disk carried thereby can always remain in working connection whether the implement is to be used as a one disk plow, or is to be equipped as a two disk plow or a three disk plow. By having a centrally arranged line of draft bars rigidly connected and extending continuously from the draft point back to the central disk when three disks are employed the forward disk can have its carrier

secured to the central bar and the rear disk can be similarly attached and a much more rigid and durable structure is provided.

Figure 1 is a plan view illustrating a disk plow having parts constructed and arranged to embody my improvements, some of the said parts being shown in full lines and some being conventionally illustrated in dotted lines. Fig. 2 is a plan view showing the parts of the frame used when a single disk plow is to be provided. Fig. 3 is a plan view indicating the construction and arrangement of parts used when three disks are to be employed. Fig. 4 is a plan view of the draft beam or frame to which the central plow frame is rigidly attached. Fig. 5 is a side view of the parts in Fig. 4. Fig. 6 shows a modification of the connecting devices which join the draft beam and the doubletree.

The central element or main draft element of the plow frame is indicated as an entirety by 1. It can be made in any suitable way. I prefer to form it by properly bending a bar of wrought metal, angle or other, so as to have the conformation, when seen in plan view, that is illustrated in the drawings. That is to say, it has the front bar or arm 15, and the central bars 16 and 17, the part at 16 being inclined to the front arm and extending toward the land and the part 17 being on longitudinal lines. At the rear end it is bent to have the inclined part 18 extending toward the furrow. It will be understood, however, that the essential features of the invention are not limited to any specific form or shape as there can be numerous modifications without departing from the important matters. The details which I have selected and above described enable me to attain important ends which will be understood. The forward bar or arm 15 is rigidly secured to the draft beam 4, my plow in this respect differing from those in which hinge connection has been used or suggested at the point of union between the draft beam and the central plow beam. To the front end of the draft beam 4 are secured in the ordinary way, or in any preferred manner, the draft devices which are provided for hitching the horses. In the construction indicated in the drawings there is a conventional illustration of a four horse hitch comprising swingletrees, doubletrees, etc.

At 6 in Fig. 3 there is indicated a supporting wheel and a set of parts for carrying it and connecting it to the plow frame and to

the draft devices. These may be of any well known construction and need not be here described in detail; it being sufficient to say that at 7 I prefer to have an adjusting apparatus of any of the well known sorts for vertically adjusting the front parts of the framework upon the front wheel. This wheel is inclined to the horizontal and to the vertical and is so situated as to travel along the outermost furrow. At 8 there is a second furrow wheel and a set of parts for carrying and supporting it and connecting it to the rear end of the plow frame. The details of this part of the structure can also be of any suitable form. The wheel should be mounted at an inclination to the horizontal and to the vertical, and it should be supported in such way that it can move as a caster wheel.

The land wheel indicated by the dotted lines at 9, is connected to the central part of the plow frame. This wheel also should have means situated substantially as is indicated by 10 for vertically adjusting the plow frame in relation to it. When the parts requisite to provide a two disk plow are used, as illustrated in Fig. 1 the land wheel and its connecting and adjusting devices are attached by means of angle bars 22 and 23 bolted to the central part of the beam 1.

At 11 there is indicated by dotted lines the place of attachment and the relative position of the seat for the driver.

The central beam 1 is provided with a plow disk 12 and suitably connecting devices for securing the disk to the inclined part 18 of the beam. The disk itself and also the means for securing it in position may be of any of the well known sorts. I employ connecting devices of such nature that the disk can be adjusted to either of several positions to permit it to stand inclined to the horizontal, and inclined both to the vertical transverse planes and the vertical longitudinal planes of the machine. With the disk can be combined a scraping mechanism, as conventionally indicated at 20, of any preferred sort.

When it is desired to provide a two disk plow as indicated in Fig. 1 I employ a short supplemental disk beam indicated as a whole by 2, it having an inclined arm 19 and an arm or plate 21 adapted to be bolted to the side of the forward arm 15 of the frame beam 1. At 13 there is a plow disk attached to this beam 2, which disk in practice has supporting, adjusting and cleaning devices similar to those above described.

In Fig. 1 the front furrow wheel 6 and the land wheel 9 are not illustrated, but it will be understood that use is made of supports and suitable means for attaching and adjusting them such as are conventionally illustrated in Fig. 3.

When it is desired to provide a one disk

plow the beam 2 and its disk 13 together with its attaching and adjusting devices are removed and the plow frame is set forward in relation to the draft beam 4, as shown in Fig. 2, and is again rigidly fastened in place. When a plow with three disks is desired the rear caster furrow wheel 8 and the seat 11 are removed from the beam 1 and a second supplemental beam indicated by 3 is attached to the part 17 as illustrated in Fig. 3. This beam 3 has an outward inclined section 24 and an oppositely turned section 25 at the rear end. To the latter there is secured a plow disk 14 and with it there are combined fastening, adjusting and cleaning devices substantially similar to those above described. The rear furrow wheel 8 and the seat 11 are also secured to this second supplemental frame beam 3.

Upon comparison of the structures shown in Figs. 1, 2, 3, respectively, it will be seen that in each case the disk 12 and its frame bar 1 remain in substantially the same position along the central longitudinal lines of the machine. This frame bar 1 and the draft frame or bar 4 constitute the governing element in the draft part of the apparatus. This disk 12 is under all adjustments substantially central, longitudinally, of the apparatus, and when the disks 13 and 14 are present they are situated symmetrically in relation to the central longitudinal lines. There being no hinge joints either between the parts 1 and 4 or between the part 1 and either of those at 2 and 3 extreme rigidity is assured throughout the whole structure.

In Figs. 4, 5 and 6 I have shown more in detail parts which can be used as a draft beam or frame, to which the central plow beam 1 can be secured. 4^a is a top bar or plate secured at its rear end to the bracket piece 26, there being a branch bar 27 extending from the under side of the bracket to the upper side of the bar 4^a. The draft frame 4 can be connected to the doubletree at 5^a by links 28. 29 represents one or more curved links also interposed between the beam or frame 4 and the doubletree, and serving as a means for connecting the front end of the draft rod 30 which extends back to the carrier of the front furrow wheel 6. The parts which support this wheel include a vertical pivot of the well known character around which the wheel can turn in correspondence with the turning of the horses and the swinging of the doubletree around the axis at 31, such turning causing the turning of the wheel through the draft rod 30.

What I claim is:—

1. In a disk plow, having a front furrow wheel, a rear furrow wheel and a land wheel, a framework comprising a draft bar or frame and a rearwardly extending disk-supporting bar or frame rigidly secured to and adjustable longitudinally of the draft bar or frame,

in combination with a plow disk situated substantially in the central vertical longitudinal plane of travel of the machine, said rearward extending disk-supporting bar or
 5 frame being adapted to have a supplemental plow disk connected thereto in front of the aforesaid plow disk, and adapted to have a second supplemental plow disk secured thereto in rear of the latter, substantially as
 10 set forth.

2. In a disk plow, the combination of the draft frame or bar 4, the disk frame bar 1 adapted to be secured to the draft bar 4 in either of several positions longitudinal
 15 of the said draft bar and having the rear inclined part 18 adapted to support a plow disk and the oppositely inclined part 16 in front of the plow disk, means connected to the frame bar 1 adapted to carry a plow disk in
 20 front of the part 18, means connected to the part 18 adapted to carry a plow disk, and a suitable land wheel and furrow wheel for supporting the said parts, substantially as set forth.

25 3. In a disk plow, the combination of the draft bar or frame 4, the furrow wheel connected thereto, the disk supporting frame beam 1 rigidly secured to the bar or frame 4 and having the inclined part 18 at the rear
 30 and the oppositely inclined part 16 between the rear and front ends, the disk supporting frame bar 2 detachably secured to the forward part of the bar 1 and having the inclined part 19 approximately parallel to the
 35 inclined part 18, a furrow wheel behind the frame bar 1, and the land wheel, substantially as set forth.

4. In a disk plow, the combination of the draft bar or frame, a front furrow wheel supported on said draft bar or frame, a forward
 40 plow disk, a frame bar for said disk, a second rear plow disk, a frame bar for the rear disk extending continuously therefrom forward to the draft bar or frame and rigidly secured
 45 thereto independently of the front furrow wheel and longitudinally adjustable thereon and adapted to have the frame bar of the forward disk detachably connected to it rigidly, a rear furrow wheel detachably connected to
 50 the second aforesaid frame bar, and a suitable land wheel, substantially as set forth.

5. In a disk plow, the combination of the draft bar or frame adapted to have the draft animals connected thereto, a front furrow
 55 wheel supported on said draft bar or frame, a forward plow disk, a frame bar for said disk, a second rear plow disk, a frame bar for the rear disk extending continuously therefrom forward to the draft bar or frame and
 60 rigidly secured thereto and longitudinally adjustable thereon and adapted to have the frame bar of the forward disk detachably connected to it rigidly, substantially as set forth.

6. In a disk plow, the combination of the
 65 draft bar or frame, means for connecting the

draft animals thereto, a forward plow disk, a second plow disk relatively in rear thereof, a disk supporting frame bar for the rear disk extending forward therefrom continuously
 70 to the draft bar or frame and rigidly secured adjustably to the latter, and a supplemental disk supporting frame bar for the front disk rigidly and detachably secured to the forward part of the aforesaid frame bar at
 75 points behind the draft frame, a land wheel, and suitable furrow wheels, substantially as set forth.

7. In a disk plow, the combination of the forward plow disk, the rear plow disk, the intermediate plow disk, the frame bar for the
 80 intermediate disk, the draft bar secured thereto rigidly and longitudinally adjustable thereon, two supplemental frame bars, one secured to the forward part of the intermediate frame bar for supporting the forward
 85 disk and one secured to the rear part of the intermediate bar for supporting the rear disk, a front furrow wheel, a rear furrow wheel, and a land wheel, substantially as set forth.

8. In a disk plow, the combination of the
 90 draft frame, means for connecting the draft animals thereto, a disk supporting frame bar secured rigidly and adjustably to the draft frame and extending continuously therefrom to the disk supported thereby, a supplemental
 95 disk-supporting frame bar detachably secured rigidly and directly to the forward part of the aforesaid frame bar at points in rear of the draft frame, suitable front and rear furrow wheels connected to the aforesaid part, and a land wheel, substantially as set forth.

9. In a disk plow, the combination of a front plow disk, a rear plow disk, an intermediate plow disk, a frame bar for the intermediate disk, a draft bar rigidly secured
 105 thereto, a supplemental frame bar for the forward disk detachably secured to the frame bar of the intermediate disk at points behind the draft bar, a rear frame bar detachably secured to the frame bar of the intermediate disk, and suitable supporting wheels on the furrow side and the land side of the plow, substantially as set forth.

10. In a disk plow, the combination of the draft bar or frame, a plowing disk, a disk-
 115 supporting bar extending backward from the draft frame and bent first away from and then back to the center lines of said draft frame, a second disk in front of that aforesaid, a supplemental disk-supporting bar bent outward
 120 from the lines of the draft frame and secured rigidly directly to the said bent disk supporting bar of the first aforesaid disk, a front furrow wheel connected to said draft bar or frame, and a rear furrow wheel and a land
 125 wheel connected to the said first described disk supporting bar, substantially as set forth.

11. In a disk plow, the combination of the draft bar or frame, an intermediate plowing
 130

disk, a disk-supporting bar rigidly secured to the draft frame and extending backward therefrom and bent first away from and then back to the center lines of the said draft frame, a front disk in advance of the afore-said disk, a second disk-supporting bar for the front disk bent outward from the center lines of the draft frame to the point where its disk is attached, a rear disk, and a supporting bar therefor bent first away from and then back toward the center lines of the draft frame, a front furrow wheel connected to the draft frame, and a suitable rear furrow wheel and a land wheel for supporting the intermediate disk and the rear disk, substantially as set forth.

12. In a disk plow, the combination of the draft frame, the disk 12, the disk carrying bar 1 having the part 15 connected rigidly to the draft frame, the inwardly inclined or bent part 16 and the outwardly inclined part 18 secured to the disk, the disk 13 and the supporting bar therefor having the outward turned part 19 and secured rigidly to the bar 1 independently of the attachment to the draft frame, substantially as set forth.

13. In a disk plow, the combination of the draft frame, the intermediate disk 12, the front disk 13, the rear disk 14, the disk-supporting bar 1 for the disk 12 secured rigidly to the draft frame and bent as at 16 inward from the center lines of the draft frame and as at 18 outward toward said lines, the bar 2 for the front disk bent outward as at 19 and rigidly secured directly to the bar 1, and the bar 3 for the rear disk bent inwardly as at 24 and outwardly as at 25, substantially as set forth.

14. In a disk plow, the combination of a draft frame or bar, a front furrow wheel connected to said draft frame or bar, a disk-supporting bar rigidly secured to and adjustable longitudinally of said draft frame or bar and extending backward therefrom and first away from and then back to the center lines of said draft frame or bar, a plow disk carried by said disk-supporting bar, a rear furrow wheel detachably connected to the rear end of said disk-supporting bar, and a land wheel detachably connected to said disk-supporting bar.

15. In a plow, a frame therefor comprising a main beam, a secondary beam detachably secured to one side thereof, said main beam being deflected behind said secondary beam towards one side, a secondary beam also detachably secured to the deflected portion of the main beam on that side of said main beam opposite the first mentioned secondary beam, the said beams having their rear ends bent to lie in parallel relation and equally spaced.

16. In a plow, a main beam having a straight portion to which the draft devices and a supplemental beam are attached, a bent portion for the attachment of another secondary beam and a final portion turned at about a right angle to said bent portion for carrying a plowing means.

In testimony whereof I affix my signature, in presence of two witnesses.

CLEMENT A. HARDY.

Witnesses:

G. R. BRANDON,
HUGH W. DYAR.