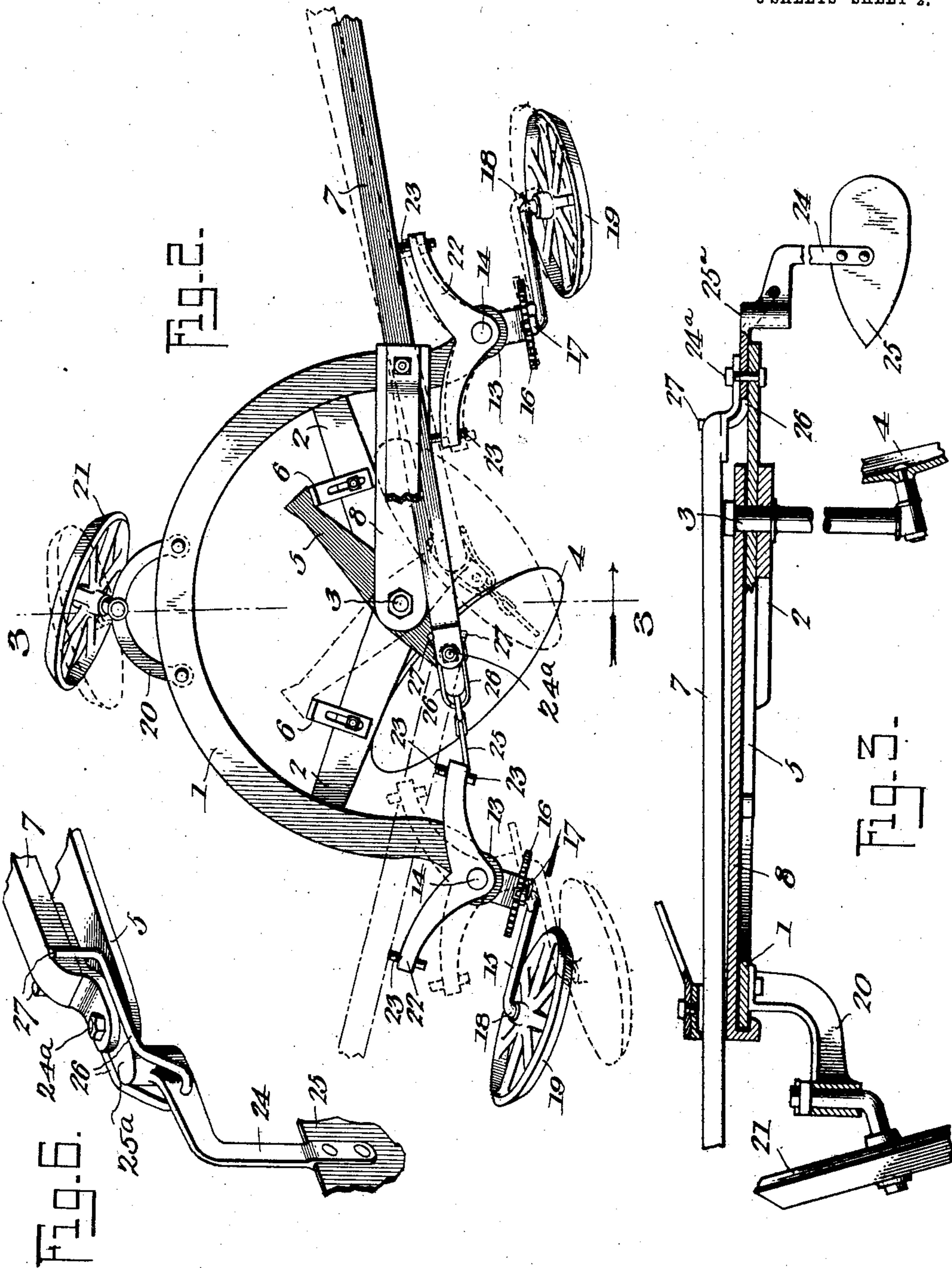


No. 785,963.

PATENTED MAR. 28, 1905.

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REVERSIBLE DISK PLOW.
APPLICATION FILED MAY 5, 1904.

3 SHEETS—SHEET 2.



Witnesses
Eph. Stewart,
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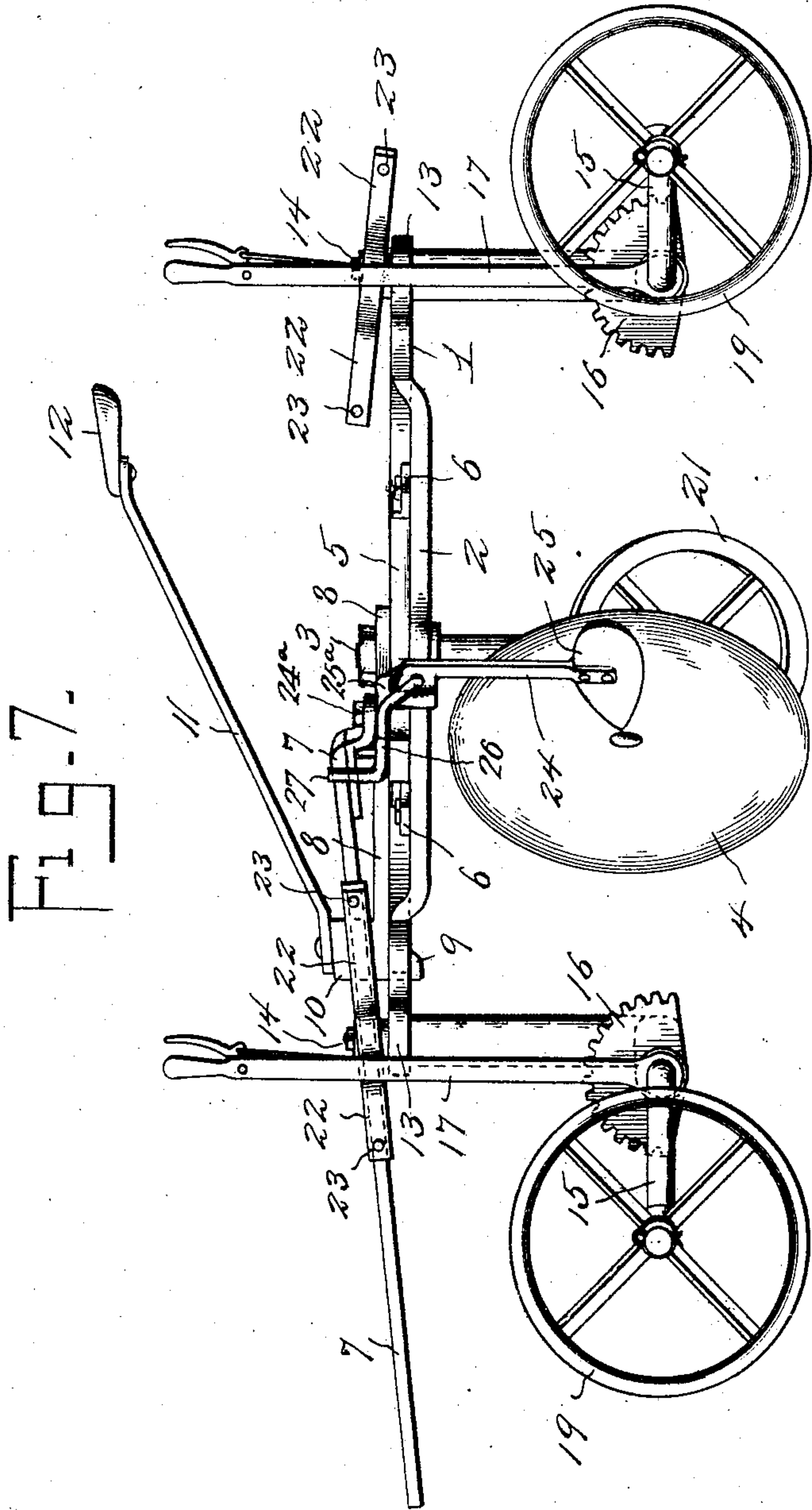
Ephraim Manes,
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UNITED STATES PATENT OFFICE.

EPHRAIM MANES, OF CHATTANOOGA, TENNESSEE.

REVERSIBLE DISK PLOW.

SPECIFICATION forming part of Letters Patent No. 785,963, dated March 28, 1905.

Application filed May 5, 1904. Serial No. 206,542.

To all whom it may concern:

Be it known that I, EPHRAIM MANES, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Reversible Disk Plow, of which the following is a specification.

This invention relates to disk plows of that class which are capable of being reversed, so that they may be used either as right-hand or as left-hand plows, as the case may demand, and it has especial reference to that class of reversible disk plows in which a suitably-constructed frame carries a pivotally-mounted disk-carrying standard, said standard being capable of being rotated upon its axis within certain predetermined limits, whereby the eventual position of the disk shall be determined.

The present invention has for its prime object to provide a device of the class referred to in which the reversal of the disk or disk-carrying standard shall be accomplished by the direct pull in a forward direction of the team attached to the implement.

Another object is to provide adjustable stop means of an improved character.

Still another object is to provide a spring-actuated and pivotally-mounted scraper which shall be reversible with the tongue, so as to be in position to coöperate with the disk in any position assumed by the latter.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being understood, however, that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications which come fairly within the scope of the invention, but which may be resorted

to without departing from the spirit or sacrificing any of the advantages of the same.

In said drawings, Figure 1 is a top plan view showing a plow constructed in accordance with the principles of the invention in position for operation. Fig. 2 is a top plan view in which the full lines represent the device as it appears after the tongue and subbeam have been swung around prior to reversing the direction of travel and in which the dotted lines represent the positions assumed by the various parts after a start has been made. Fig. 3 is a sectional view taken on the line 3 3 in Fig. 2, but showing the tongue in a position intermediate the positions shown in Figs. 1 and 2. Fig. 4 is a perspective detail view. Fig. 5 is a sectional detail view of a portion of the subbeam and tongue. Fig. 6 is a perspective detail view of the rear end of the tongue and the scraper. Fig. 7 is a side elevation of the device complete.

Corresponding parts in the several figures are indicated by similar numerals of reference.

The frame 1 of the improved plow is constructed on the lines of the arc of a circle and is provided with radial arms 2 2, converging with each other at a point which is concentric with the body 1 of the frame. This central point affords a pivotal point for the upper end of a standard 3, carrying a disk 4, said standard and disk being of ordinary or any approved construction.

Firmly secured upon the standard 3 above the frame-arms 2 2 is an arm 5, one end of which is extended in the direction of the segmental portion of the frame and is disposed in the path of a pair of slotted stop-lugs 6 6, which are connected adjustably with the radial arms 2 of the frame, said stop-lugs being provided for the purpose of limiting the movement of the arm 5. The opposite end of the latter supports a tongue 7, which is pivotally connected therewith.

8 designates a subbeam which is pivotally mounted upon the disk-carrying standard above the arm 5 and which is provided at its outer end with a hook 9, engaging under the segmental portion of the frame 1. Said sub-

beam is also provided at or near its outer end with a loop 10, through which the tongue 7 extends and is freely slidable. A seat-supporting bar 11 is likewise connected with the subbeam, from which it extends upwardly and rearwardly, carrying a seat 12, which is of ordinary construction.

The ends of the segmental portion of the frame are provided with divergent brackets 13, having vertical perforations in which are pivotally mounted shanks 14, having spindle-carrying cranks 15, pivotally connected therewith and capable of adjustment with relation thereto by means of the toothed quadrants 16 and levers 17, having spring-actuated pawls or dogs engaging said toothed quadrants. The spindles 18, carried by the cranks 15, support the ground-engaging wheels 19, which by the means described may be raised or lowered for the purpose of lowering or raising the frame of the machine, as may be required. Brackets 20, supporting a similarly-mounted land-wheel 21, are connected with the under side of the segmental portion of the frame. It will be observed that the land-wheel, as well as the furrow-wheels, being mounted upon swiveled caster-stems the said wheels will readily adapt themselves to any direction in which draft may be exercised upon the device. This feature, however, is well known in various forms of plows and is not herein claimed.

The stems or shanks 14, which support the furrow-wheels, are provided with divergent arms or brackets 22, disposed in the path of the tongue 7 and provided with set-screws 23 or other equivalent means which shall act as stops for the tongue to check the lateral movement of the latter and also to prevent the wheels carried by the shanks 14 from moving beyond a predetermined point previously fixed by adjustment of the screws 23.

Pivotally connected with the arm 5 at or near the point where the tongue 7 is pivotally connected with said bar and preferably upon the pin or bolt 24^a, which connects the tongue 7 with the arm 5, is an arm 24, carrying a scraper 25, which is approximately spoon-shaped, so that it shall be adapted to cooperate with the surface of the disk 4 in any position which may be assumed by the latter. The portion 25^a of the arm 24, which pivotally engages the pin or bolt 24^a, is preferably interposed between the arm 5 and the tongue 7. The arm 24 is provided with springs 26, permanently connected therewith and having upturned ends 27, which rest against opposite sides of the tongue 7, thus affording means whereby the scraper shall be automatically held in contact with the face of the disk when the latter is in operative position. The intermediate portions of the springs 26 lie against opposite sides of that portion 25^a of the arm 24 which is interposed between the arm 5 and

the tongue 7, so that when the latter turns upon its pivot the arm 24 will be carried with it by the action of the springs, which latter when the scraper comes into contact with the plow-disk will flex, so as to hold the said scraper resiliently in contact with the plow-disk. The springs being thus disposed will obviously not obstruct or in any wise interfere with the free movement of the parts 5, 7, and 24 with relation to each other.

The operation of this invention may be briefly described as follows: The normal operative position of the device will be clearly understood by reference to Fig. 1, in which it will be seen that the tongue 7 is practically in alinement with the furrow-wheels 9 10 and the land-wheel 21, the disk 4 being disposed at the proper angle for efficient work, where it is retained by the extremity of the arm 5 bearing against one of the adjustable lugs 6, which have been previously adjusted to determine the angle at which the disk 4 shall be held with relation to the line of progress. When it shall be desired to reverse the plow at the end of a row, the team, which is attached to the extremity of the tongue, is simply started to walk around the landside of the plow, the subbeam 8 turning upon the fulcrum afforded by the upper end of the disk-carrying standard, while the tongue 7 turns upon the fulcrum formed by its pivotal connection with the arm 5, this being made possible by the fact that the tongue is slidingly connected with the subbeam by means of the loop 10. The subbeam being disposed above the arm 5 readily clears the adjusting-blocks 6, which are disposed in the path of said arm, and the tongue, if mainly disposed above the subbeam, will encounter no hindrance to its turning. It will be noted that while the tongue and subbeam are being reversed the disk remains stationary in the ground. The related parts are made of proportions which will enable the tongue to clear the disk. As the tongue is reversed it carries with it the scraper 25, as will be readily understood. The limit of the movement of the tongue is reached when the latter passes into engagement with the stop members 23 in the divergent arms 22 of the shank of the furrow-wheel, which was previously the rear one, but which when the reversal takes place becomes the front wheel. The tongue striking against one of said stop members will induce the shank 14 to partially turn in its bearings until the other stop member comes in contact with the tongue, thus opposing the further movement of the latter. It will now be seen that by simply starting the team in a forward direction the draft of the tongue will be exerted upon one end of the arm 5, which latter is rigidly connected with the disk-carrying standard, the latter will be oscillated in its bearing in the frame, and the position of

the disk will be properly reversed, the movement being checked when the opposite end of the arm 5 encounters the stop member 6. As the draft is continued the land-wheel and the rear furrow-wheel will readily swing into alinement with the line of draft, and the plowing may now continue until the opposite end of the field is reached and it again becomes necessary to reverse.

10 Having thus described the invention, what is claimed is—

1. In a reversible disk plow, a plow-carrying shank mounted for rotation, a crank upon said shank, a tongue pivoted upon said crank, and stops disposed in the path of said crank.

15 2. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, whereby the latter may be turned, stops secured upon the frame in the path of said crank, and a tongue pivoted upon the latter.

3. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, an arm mounted securely upon said shank, a tongue connected pivotally with said arm at one side of the shank, and stops mounted upon the frame in the path of the extension of the arm at the opposite side of the shank.

30 4. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, a tongue connected pivotally with said crank, and stops mounted adjustably upon the frame in the path of the crank.

5. In a device of the class described, a segmental frame, arms extending from said frame and converging at a point concentric therewith, a plow-carrying shank journaled at said concentric point, a crank upon said shank, stop members mounted adjustably upon the converging arms of the frame in the path of the crank, and a tongue connected pivotally with the latter.

45 6. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, means for limiting the rotary movement of said shank, a crank upon the latter, and a tongue pivotally connected with said crank.

7. In a device of the class described, a frame, a plow-carrying shank mounted for rotation in said frame, a crank upon said shank, a tongue connected pivotally with said crank, and guiding means for said tongue.

8. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft-bar connected pivotally with said crank, and guiding means for said draft-bar connected pivotally with the plow-carrying shank.

9. In a device of the class described, a frame, a plow-carrying shank mounted for rotation

therein, a crank upon said shank, a draft-bar connected pivotally with said crank, guiding means for said draft-bar connected pivotally with the shank, and means for limiting the rotation of the latter.

10. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft-bar connected pivotally with said crank, guiding means for said draft-bar connected pivotally with the plow-carrying shank, and stops mounted upon the frame in the path of the crank upon the plow-carrying shank.

11. In a device of the class described, a frame having a segmental body forming an arc of a circle, a disk-carrying shank mounted for rotation concentrically with the arc of the frame, a crank upon said shank, a draft member pivoted upon said crank, and guiding means for said draft member pivoted concentrically with the shank and having means engaging the arc of the frame.

12. In a device of the class described, a frame, a plow-carrying shank mounted for rotation therein, a crank upon said shank, a draft member pivotally connected with said crank, guiding means for the draft member connected pivotally with the shank, and a seat-supporting bar upon said guiding means.

13. In a device of the class described, a supporting-frame, a disk-carrying standard mounted pivotally in the same, an arm connected rigidly with said standard, a subbeam connected pivotally with the standard above said arm, and a draft member connected pivotally with the arm and slidably with the subbeam.

14. In a device of the class described, a frame, a disk-carrying standard connected pivotally with said frame, an arm connected rigidly with said standard, a subbeam connected pivotally with said standard, a draft member connected pivotally with the arm and slidingly with the subbeam, and stop means connected adjustably with the frame in the path of the arm with which the draft member is pivotally connected.

15. In a device of the class described, a frame, a disk-carrying standard connected pivotally with said frame, an arm connected rigidly with said standard, means for limiting the movement of said arm, a subbeam connected pivotally with the standard and having a loop formed thereon, a draft member connected pivotally with the arm and extending slidably through the loop of the subbeam.

16. A frame having a segmental body forming an arc of a circle, and arms converging at a point concentric with said arc, a disk-carrying standard pivoted concentrically with the arc of the frame, an arm connected with said standard, a subbeam connected loosely with the latter and having an arc-engaging

hook, and a draft member connected pivotally with the arm and connected slidingly with the subbeam.

17. In a device of the class described, a frame having a segmental portion, a disk-carrying standard pivoted concentrically with said segmental portion, an arm connected rigidly with said disk-carrying standard, a subbeam connected pivotally with the latter and having a frame-engaging hook, a seat-carrying bar connected with said subbeam, a draft member connected pivotally with the arm and slidingly with the subbeam, and means disposed in the path of the arm to limit the movement of the latter and the disk-carrying standard.

18. In a device of the class described, a frame, rotary supporting means for said frame including furrow-wheels having swiveled shanks, stop members connected with said shanks, a pivoted disk-carrying standard, a crank upon the latter, and a draft member connected pivotally with said crank and disposed in the plane of the stop members upon the swiveled shanks of the supporting-wheels.

19. In a device of the class described, a frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, a pivoted disk-carrying standard, a crank upon the latter, a draft member connected pivotally with said crank, stop members connected with the swiveled shanks of the furrow-wheels and disposed in the path of the draft member, and stops disposed upon the frame in the path of the crank upon the plow-carrying shank.

20. In a device of the class described, a frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, a pivoted reversible draft member, and divergent stop means upon each of the swiveled shanks of the furrow-wheels.

21. In a device of the class described, a frame, a plow-carrying standard mounted for rotation therein, a crank upon said standard, a draft member pivoted upon said crank, guiding means for said draft member connected pivotally with the standard, and rotary supporting means including furrow-wheels having swiveled shanks and stop means upon said shanks disposed in the path of the draft member.

22. In a device of the class described, a plow-carrying frame, rotary supporting means for said frame, including furrow-wheels having swiveled shanks, divergent arms upon each of said shanks and constituting stops, and a reversible draft member mounted pivotally and adapted for engagement with the divergent stop means upon said furrow-wheels.

23. A frame, rotary supporting means for said frame, including furrow-wheels having vertically-disposed, pivotally-mounted caster-shanks, arms diverging from the latter and

having adjustable stop members, a pivoted disk-carrying standard, an arm connected rigidly with the latter, and a draft member connected pivotally with said arm and disposed in the plane of the stop members borne by the diverging arms of the caster-stems of the furrow-wheels.

24. In a device of the class described, a wheel-supported and pivoted disk-carrying standard, an arm connected rigidly with said standard, a subbeam connected pivotally with the latter, a draft member connected pivotally with said arm and slidingly with said subbeam, front and rear rotary supporting members having caster-shanks, arms diverging from said caster-shanks, and stop members connected adjustably with said arms and disposed in the path of the draft member of the device.

25. In a device of the class described, a frame, a disk-carrying shank mounted pivotally in said frame, an arm connected rigidly with said shank, a draft member connected pivotally with said arm to reverse the position of the shank by a direct pull upon the arm, a scraper-carrying member connected pivotally with said arm, and tension-springs abutting upon the draft member to reverse the position of said scraper and to hold the latter resiliently in contact with the face of the disk.

26. In a device of the class described, a pivotally-mounted disk-carrying shank having an arm constituting a crank, a scraper-carrying member connected pivotally with the latter, a draft member connected pivotally with said arm or crank, and springs connected with the scraper-carrying member and having upturned ends abutting upon opposite sides of the draft member.

27. In a device of the class described, a pivotally-mounted disk-carrying shank having an arm constituting a crank, a scraper-carrying member connected pivotally with the latter, a draft member connected pivotally with the arm or crank, and spring means connected with the scraper-carrying member and having engagement with the draft member.

28. In a device of the class described, a non-reversible frame, a reversible draft member, a plow-carrying standard mounted for rotation, and a member constituting a link connection between the draft member and the plow-carrying standard to effect reversal of the position of the latter by direct draft upon the draft member.

29. In a device of the class described, a non-reversible frame, rotary supporting means for said frame, including furrow-wheels, a draft member pivotally mounted to swing in a horizontal plane to project at either end of the frame, a member constituting a link connection between said draft member and the plow-carrying standard for reversing the lat-

ter by direct draft upon the draft member,
and stops connected with the furrow-wheels,
disposed in the path of the draft member, to
change the position of the furrow-wheel near
5 the draft member when the latter is reversed.

30. In a reversible disk plow, a disk-carry-
ing standard, an arm extending radially from
said standard at an angle from the normal line
of draft, and draft means connected pivotally
10 with said arm, the latter constituting a link

connection whereby reversal of the disk is
accomplished by direct draft upon the said
draft member.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 15
the presence of two witnesses.

EPHRAIM MANES.

Witnesses:

R. A. PALMER,
JACOB SMITH.