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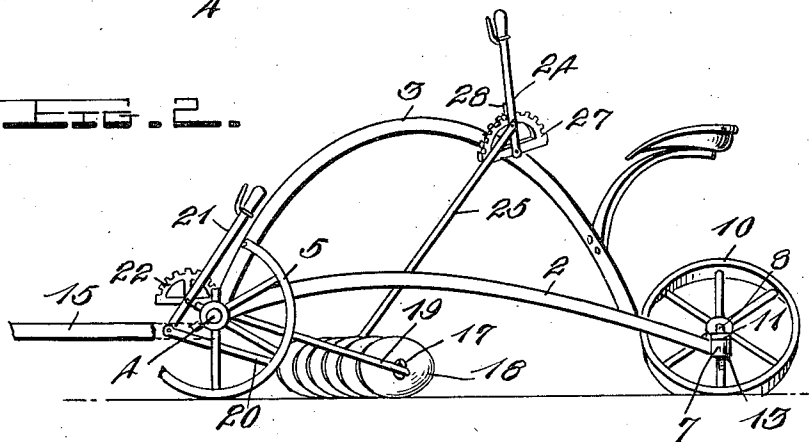
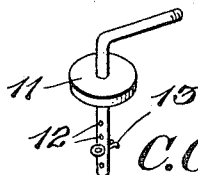
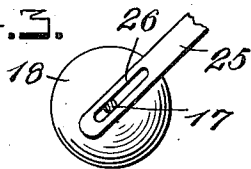


FIG. 3.



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CONRAD GRONQUIST, OF BIGELOW, KANSAS.

ROTARY-DISK PLOW.

1,017,146.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed September 20, 1911. Serial No. 650,331.

To all whom it may concern:

Be it known that I, CONRAD GRONQUIST, a citizen of the United States, residing at Bigelow, in the county of Marshall and State of Kansas, have invented certain new and useful Improvements in Rotary-Disk Plows, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to new and useful improvements in plows and more particularly to a rotary disk plow and my object is to provide a device of this character wherein means are provided for the disposition of the disks to various angles with respect to the frame upon which they are carried.

A further object of the invention resides in providing improved means for securing certain of the wheels on the frame of the device and a still further object resides in providing wheels which are disposed at an angle on their respective spindles.

A still further object of the invention resides in providing a device which is extremely simple in construction, thereby readily and cheaply manufactured and one which will be very effective and useful in operation.

With these and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts, that will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawing, forming a part of this application Figure 1 is a top plan view of the device; Fig. 2 is a side elevation thereof; Fig. 3 is a detail section as seen on line 3—3 Fig. 1, and Fig. 4 is a detail perspective view of one of the spindles of the freely swinging wheels of the device.

In carrying out my invention I shall refer to the drawings, in which similar reference characters designate corresponding parts throughout the several views and in which—

1, 2 and 3 indicate respectively the bars forming the frame of my improved plow, said frame being substantially triangular in plan and said bar 3 being arched upwardly for a purpose to be hereinafter and more particularly described. The bar 1 has a spindle 4 formed on one end thereof, upon which is mounted a wheel 5 and the opposite end of said bar 1 has a sleeve or the

like 6 formed thereon, while the bar 2 at its rear end, or adjacent the point of its intersection with the bar 3, also has a similar sleeve 7 formed thereon and adapted to enter said sleeves 6 and 7 are the angular spindles 8. These spindles are substantially inverted L shape, the vertical portion thereof being that portion which is adapted to enter said sleeves, and the horizontal portions thereof have mounted thereon the wheels 9 and 10, the former being disposed on the one side of the bar 1, while the latter forms the rear wheel on the frame and both of the said wheels 9 and 10 are disposed at an angle to the vertical longitudinal plane of the machine. As stated, the vertical portions of the L shaped spindles 8 are loosely disposed in the sleeves 6 and 7 and in order to limit the downward movement of the same in said sleeves and at the same time allow the same to be readily rotated therein, the collars 11 are provided on the vertical portions of said spindles immediately adjacent the bend therein, which collars are adapted to contact with the upper faces of said sleeves. In order to retain the spindles in their positions in the sleeves, the vertical portions thereof are provided with a plurality of openings 12 into any one of which may be disposed a cotter pin 13 or the like, which pin will contact with the under or lower edge of the sleeve to properly retain the spindle therein. The spindle which is disposed in the rear sleeve 7 is adapted to freely rotate therein without any intervention whatsoever but the spindle in the sleeve 6 has connected therewith one end of a rod or the like 14, said rod having its opposite end secured to a tongue 15 which is in turn secured to the front bar 1 of the frame. This tongue 15 has mounted thereon the double trees 16 whereby draft may be attached to readily draw the machine from place to place and thus it will be seen that as the frame is turned the connection between the tongue and the spindle carrying the wheel 9 will cause said wheel to be turned in the proper direction. The wheel 10 will turn in the proper direction automatically.

A rod or bar 17 rotatably carrying thereon a gang of disks 18 has one end thereof pivotally engaged with one end of an additional bar or arm 19, the opposite end of said member 19 being pivotally engaged

with the bar 1 adjacent the end carrying the wheel 5 thereon and said bar 17 has also engaged therewith adjacent its opposite end, an additional bar 20. Said bar 20 is in turn
 5 pivoted to the lower end of a lever 21 which is fulcrumed on a rack 22 carried on the bar 1 and it will be seen from the above described structure that when said lever is moved forwardly or rearwardly, the bar 17
 10 will be correspondingly moved rearwardly or forwardly with respect to the bar 1 to correspondingly dispose the disks 18 at various angles. In order to retain the lever 21 in any adjusted position, a spring detent
 15 23 is provided in connection therewith and adapted to engage the teeth of the rack 22, said lever being also provided with a gripping member to release said detent when desired and thus when the bar 17 is disposed
 20 at a particular angle, through said lever, the engagement of said disks with the ground will not affect the position thereof.

I have also provided means for the raising and lowering of the gang of disks during the
 25 operation of the machine and to this extent I provide on the arched bar 3, a pivoted lever 24, said lever having pivoted thereto, intermediate of its ends, one end of an additional bar 25 and the opposite end of said latter bar
 30 is slotted as shown at 26 and receives there-through the bar 17. Thus, when the lever 24 is moved rearwardly, the bar 17 with the gang of disks thereon will be raised and when moved forwardly will allow said disks
 35 to drop downwardly into engagement with the ground and in order to retain said lever 24 in any desired position a rack 27 is provided on the bar 3 with the teeth of which is adapted to be engaged the spring detent 28
 40 on said lever.

From the foregoing it will be seen that I have provided an improved rotary disk plow wherein the gang of disks may be raised or lowered and may also be disposed at various
 45 angles with respect to the frame of the machine. It will further be seen that the gang of disks may be readily raised without interfering with the bars of the frame, in view of the arching of the rear bar thereof. It will
 50 still further be seen that by slotting the bar which engages the bar carrying the disks and which is adapted to raise said disks from their engagement with the ground, said bar carrying the disks may be moved
 55 forwardly or rearwardly with respect to the front bar of the frame to correspondingly dispose the disks at various angles. Furthermore, it will be observed that the disks are disposed so as to throw the earth
 60 in the opposite direction to the direction in which the wheels of the frame are inclined, so that the machine will be adapted to travel in a straight line. It will further be seen that I have provided a plow of im-
 65 proved and simple structure which may be

readily and cheaply manufactured, one which is very durable in construction and extremely effective and useful in operation.

Having thus described my invention, what is claimed is:—

70 1. A plow of the class described comprising a frame of substantially triangular design, one arm of which is arched, a plurality of disks pivotally carried on one of the other arms of the frame, means carried on the
 75 arched arm for raising and lowering said disks, and additional means to dispose the same to various angles with respect to the frame.

80 2. A plow of the class described comprising a frame, one arm of which is arched, a bar carrying a plurality of disks thereon, means to pivotally mount said bar on one of the other arms of the frame, means carried on the arched arm and having connection
 85 with the said bar for raising and lowering the same, and means to dispose said bar to various angles with respect to said frame.

90 3. A plow of the class described comprising a frame, one arm of which is arched, a bar carrying a plurality of disks thereon, a connecting rod having one end thereof pivotally engaged with said bar adjacent its one end, the opposite end of said rod being
 95 pivotally engaged with one arm of the frame, a lever pivotally carried on the arched arm of the frame, connecting means between said lever and the disk carrying bar to raise and lower the same, and means also
 100 in connection with said bar to dispose the same to various angles.

105 4. A plow of the class described comprising a frame, one arm of which is arched, a bar carrying a plurality of disks thereon, a connecting rod having one end thereof
 110 pivotally engaged with said bar adjacent its one end, the opposite end of said rod being pivotally engaged with one arm of the frame, a lever pivotally carried on the arched arm of the frame, connecting means
 115 between said lever and the disk carrying bar to raise and lower the same, an additional rod having one end thereof engaged with said disk carrying bar, and an additional lever fulcrumed on another arm of the frame
 120 and having the opposite end of the last referred to rod pivotally engaged therewith, whereby said disks may be disposed at various angles.

125 5. A plow of the class described comprising a frame of substantial triangular design, one arm of which is arched, wheels carried at the points of intersection of said arms, certain of said wheels being swivelly
 130 mounted thereon, a bar carrying a plurality of disks thereon, a connecting rod having one end thereof pivotally connected with said bar adjacent its end, the opposite end of said rod being pivotally connected
 135 with one arm of the frame, an additional

rod having one end thereof engaged with the
opposite end of said disk carrying bar, a
lever fulcrumed on the last referred to arm
of said frame and having the lower end
5 thereof pivotally connected to the last re-
ferred to rod, an additional lever fulcrumed
on the arched arm of the frame, a connecting
rod having one end thereof pivoted to the
last referred to lever, the opposite end of

said connecting rod being slotted to receive 10
therethrough the disk carrying arm.

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

CONRAD GRONQUIST.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
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