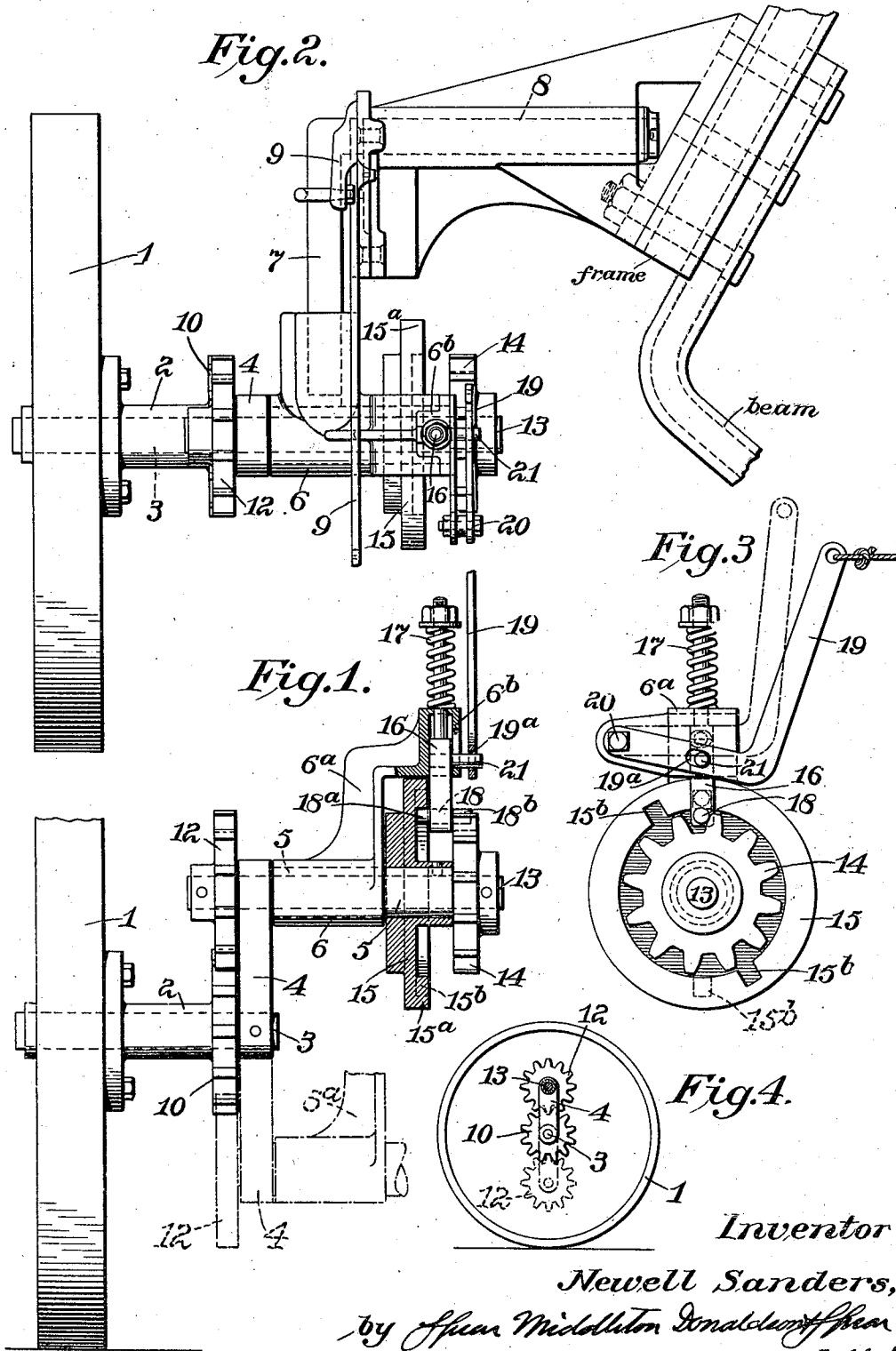


N. SANDERS.
WHEEL PLOW.
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1,218,003.

Patented Mar. 6, 1917.



Inventor

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UNITED STATES PATENT OFFICE.

NEWELL SANDERS, OF CHATTANOOGA, TENNESSEE

WHEEL-PLOW.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NEWELL SANDERS, a citizen of the United States, and resident of Chattanooga, Tennessee, have invented certain new and useful Improvements in Wheel-Plows, of which the following is a specification.

My present invention relates to improvements in wheel plows and has among its objects to provide means for utilizing the power of one or more of the plow wheels to effect the raising and lowering of the plow, and further to make this change of elevation gradual and provide means for positively locking the plow in its different elevations without permitting it to fall from one position to another and without the necessity of any manual adjustments.

With these and other objects in view the invention includes the novel features of construction and arrangement and combination of parts hereinafter particularly described and defined by the appended claims.

In the accompanying drawing, showing an embodiment of my invention, I have illustrated my improved raising and lowering means as applied to the landside wheel, but it will be understood that it is applicable to any of the supporting wheels of the plow, the landside wheel only being shown for convenience of illustration.

In this drawing,

Figure 1 is a side elevation,

Fig. 2 a plan view, and,

Figs. 3 and 4 detail views.

Referring more particularly to this drawing, the numeral 1 designates a supporting wheel provided with a hub 2 which is journaled on a stub axle 3. This stub axle is carried by one end of a crank arm 4, the opposite end of which is secured to a sleeve 5 journaled in a bearing member 6. Where the wheel employed for the automatic raising and lowering is the landside wheel, the sleeve may be journaled in a bearing member 6 which is connected with the frame by a crank member 7 which may be swung in its bearing 8 on the frame and held in its adjusted position by means of a hand lever 9 operating in the ordinary and well understood manner, so that when desired the raising and lowering may be effected manually without resorting to the power raising and lowering means. Journaled on the stub shaft 3, and preferably between it and the crank arm is a spur gear 10 which is non-

rotatably connected with the hub 2 of the supporting wheel conveniently by being formed integral with hub 2, and this spur gear 10 meshes with a second spur gear 12 fast on a shaft 13 journaled within the sleeve 5.

This shaft 13 carries at its opposite end a spur gear 14 rigidly secured thereto while adjacent to said spur gear is a member 15 preferably of disk or wheel shape having an annular flange 15^a concentric with the shaft 13 provided with internal recesses 15^b. This member 15 is fast on the opposite end of the sleeve 5. A bracket 6^a carried by the bearing 6, or other convenient frame part, has a guide 6^b for a plunger 16 which is movable toward and from the shaft 13 and is normally forced upwardly away from the shaft by a spring 17 so that a pin or projection on one side thereof normally rests in one of the recesses 15^b of the stationary flange 15^a. This projection is preferably in the shape of a pin 18 passing through and held in the plunger and projecting from both sides thereof so as to form a projection 18^a on one side to coöperate with the recesses 15^b, and a similar projection 18^b on the opposite side to engage with the teeth of the spur gear 14. Normally, the plunger 16 being held in its outermost position with the projection 18^a in engagement with one of the recesses 15^b, the member 15 and with it the sleeve 5 and arm 4 are held locked rigidly to the frame and the plow maintained at a certain elevation.

During this time while the gears 10, 12 and 14 are rotating, said rotation is without effect, the movement being purely an idle one. When it is desired to raise the plow, supposing it to be drawn forwardly, movement of the plunger inward disengages projection 18^a from the recess 15^b. Simultaneously with such disengagement, projection 18^b enters between the teeth of spur gear 14 and locks the same against rotation, simultaneously holding gear 12 stationary. Continued movement, therefore, of spur gear 10 causes it to roll around and upon gear 12, swinging arm 4 in the proper direction to effect the elevation of the plow. Arm 4 being fast on sleeve 5, also rotates element or disk 15 and this movement continues until another notch 15^b registers with projection 18^b when the spring immediately forces the plunger outward, causing the projection 18^b on said plunger to release the gear 14 and

projection 18^a to lock the wheel or disk 15, thus automatically arresting the elevating movement of the plow. To lower the plow it would only be necessary to withdrawn the
 5 plunger by hand which would produce the same effects under the action of gravity, but in a reverse direction.

As soon as the internally notched wheel 15 has moved sufficiently to carry the pro-
 10 jection out of register with the notch 15^b, the plunger is held in its innermost position and in locking engagement with gear 14 by the annular flange 15^a (as shown in full lines Fig. 3) until the next recess is reached,
 15 so that it is only necessary to give an initial inward movement to the plunger.

A convenient manner of operating the plunger is to provide a bell crank lever 19 fulcrumed upon a stationary pivot 20 and
 20 having a slot 19^a engaged by a pin 21 carried by the plunger. This bell crank lever may be connected by a cord to a suitable place on the tractor, not shown, within convenient reach of the operator's seat, so that a pull in
 25 the direction of the arrow will depress the plunger against the tension of the spring.

What I claim is:—

1. In a wheel plow, a supporting wheel, a frame carrying a furrow opener, a crank
 30 arm pivotally supported from said frame, said supporting wheel being rotatably connected with said crank arm, a gear concentric with said supporting wheel and connected to be driven thereby, a second gear
 35 supported from the frame and rotatable on an axis concentric with the pivotal axis of said arm and meshing with said first named gear, and means for locking either said crank arm or said second gear against move-
 40 ment.

2. In a wheel plow, a supporting wheel, a frame carrying a furrow opener, a sleeve
 45 rotatably supported from said frame, a crank arm rigidly carried by one end of said sleeve, said supporting wheel being rotatably connected with said crank arm, a gear connected to be driven by said supporting wheel, a second gear rotatable about an axis coincident with the axis of said sleeve and meshing
 50 with said first named gear, and means for locking either said sleeve or said second gear against movement.

3. In a wheel plow, a supporting wheel, a

frame carrying a furrow opener, a sleeve
 55 rotatably supported from said frame, a crank arm carried by one end of said sleeve, a supporting wheel journaled at the free end of said arm, a gear rigidly connected to said wheel concentric therewith, a shaft journaled in the sleeve and carrying a gear mesh-
 60 ing with the first named gear, notched locking wheels on said shaft and sleeve and locking means for engaging the notches of either one of the locking wheels.

4. In a wheel plow, a supporting wheel, 65 a frame carrying a furrow opener, a sleeve rotatably supported from said frame, a crank arm carried by one end of said sleeve, a supporting wheel journaled at the free end of said arm, a gear rigidly connected to said
 70 wheel concentric therewith, a shaft journaled in the sleeve and carrying a gear meshing with the first named gear, notched locking wheels on said shaft and sleeve and locking means adapted to lock either of said
 75 locking wheels, yielding means for normally holding said locking means in engagement with the locking wheel on the sleeve, and manually operated means for disengaging said locking means from the locking wheel
 80 on the sleeve and temporarily engaging it with the locking wheel on the shaft.

5. In a wheel plow, a supporting wheel, a frame carrying a furrow opener, a sleeve
 85 rotatably supported from said frame, a crank arm carried by one end of said sleeve, a supporting wheel journaled at the free end of said arm, a gear rigidly connected to said wheel concentric therewith, a shaft journaled in the sleeve and carrying a gear
 90 meshing with the first named gear, a locking wheel fast on the sleeve, a second locking wheel fast on the shaft, one of said elements having internal recesses and the other external recesses, a movable element having
 95 one or more projections to engage said notches, means for normally positioning said element to hold its projection in a recess of one locking wheel, and means for manually forcing it into position to engage its locking
 100 projection with a recess in the other locking wheel.

In testimony whereof, I affix my signature.

NEWELL SANDERS.