

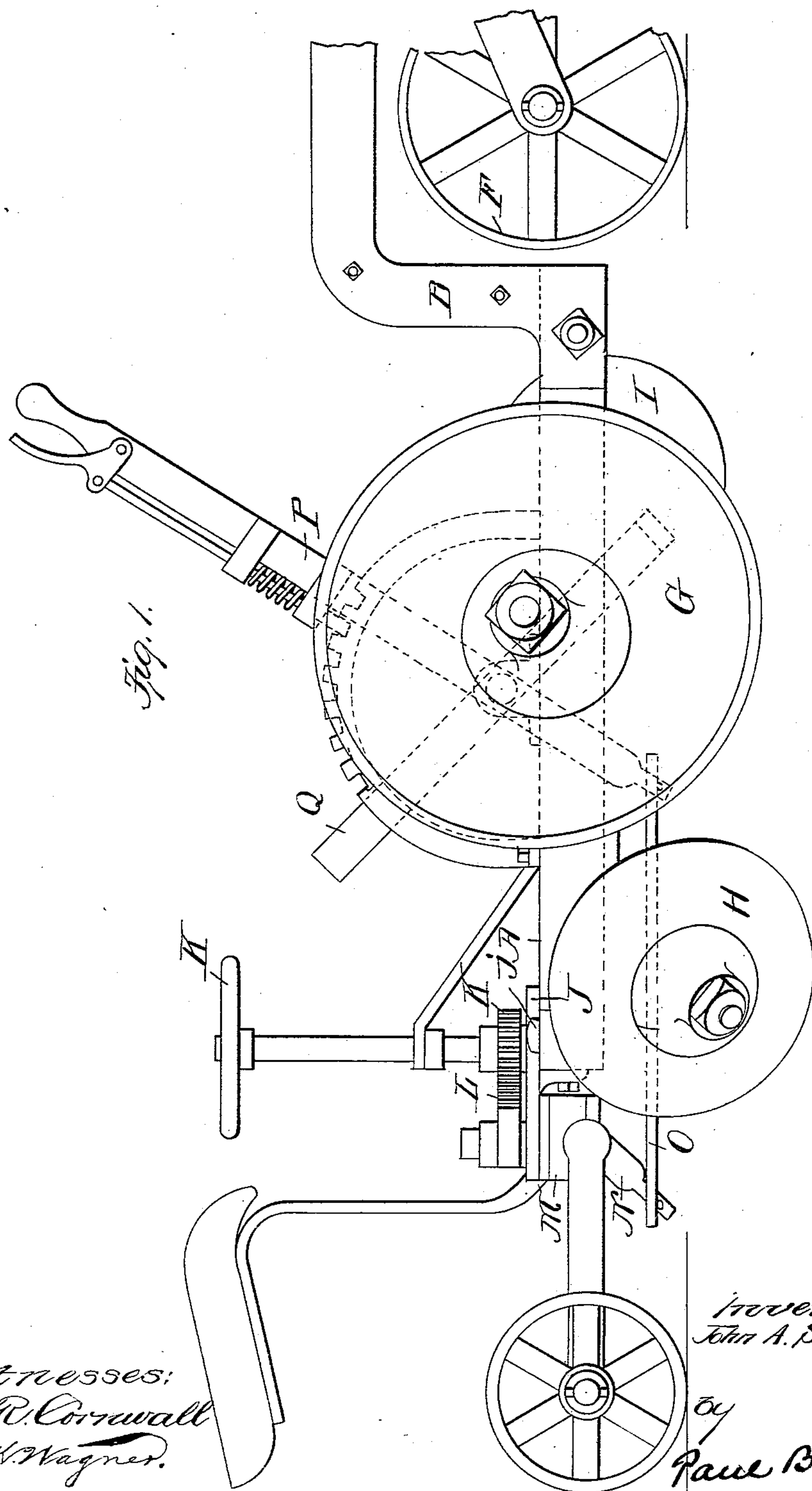
(No Model.)

3 Sheets—Sheet 1.

J. A. STEWART.
DISK PLOW.

No. 557,624.

Patented Apr. 7, 1896.



Witnesses:
F. R. Cornwall
Hugh V. Wagner.

Inventor
John A. Stewart

by
Paul Bakewell
his att.

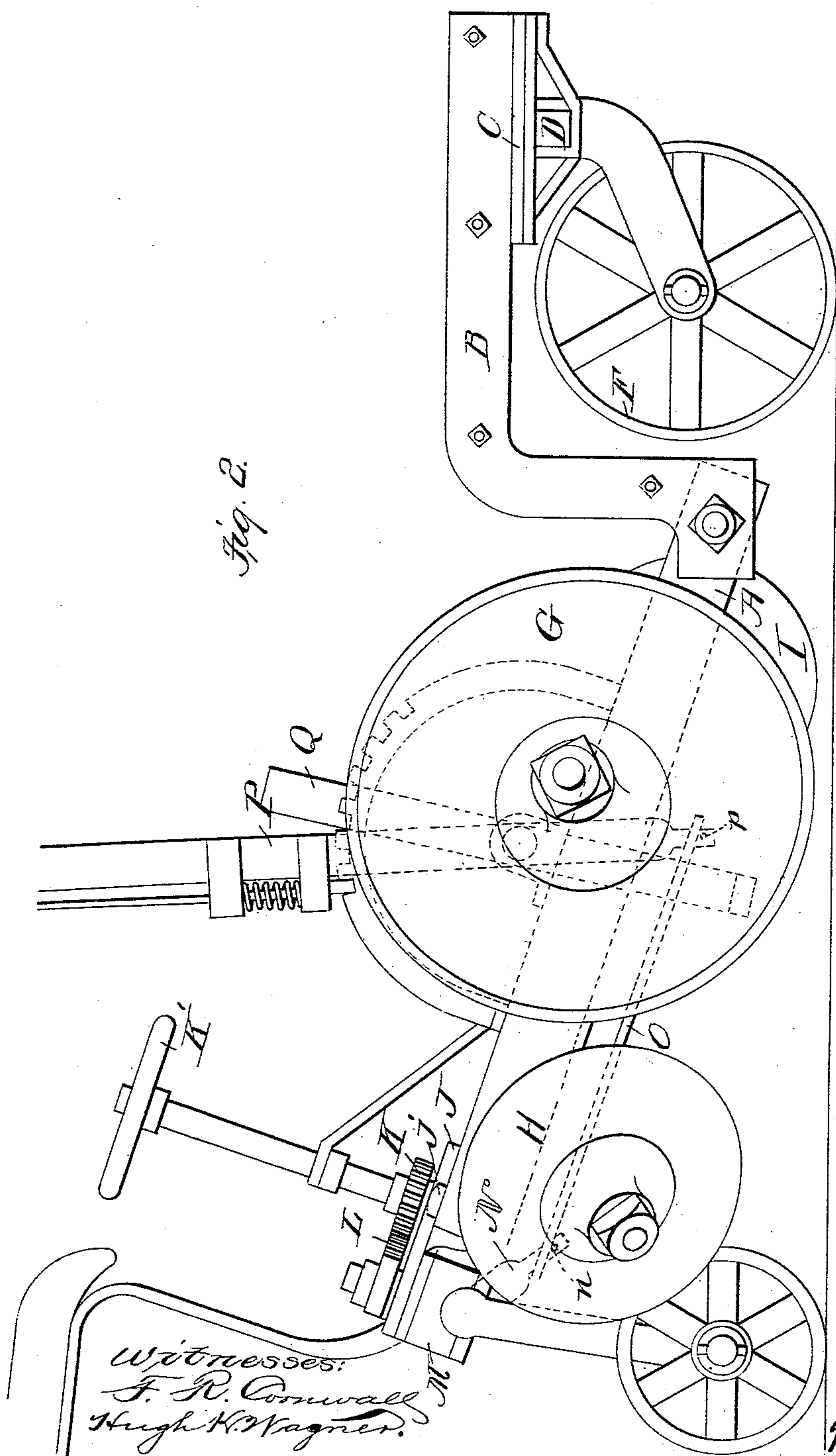
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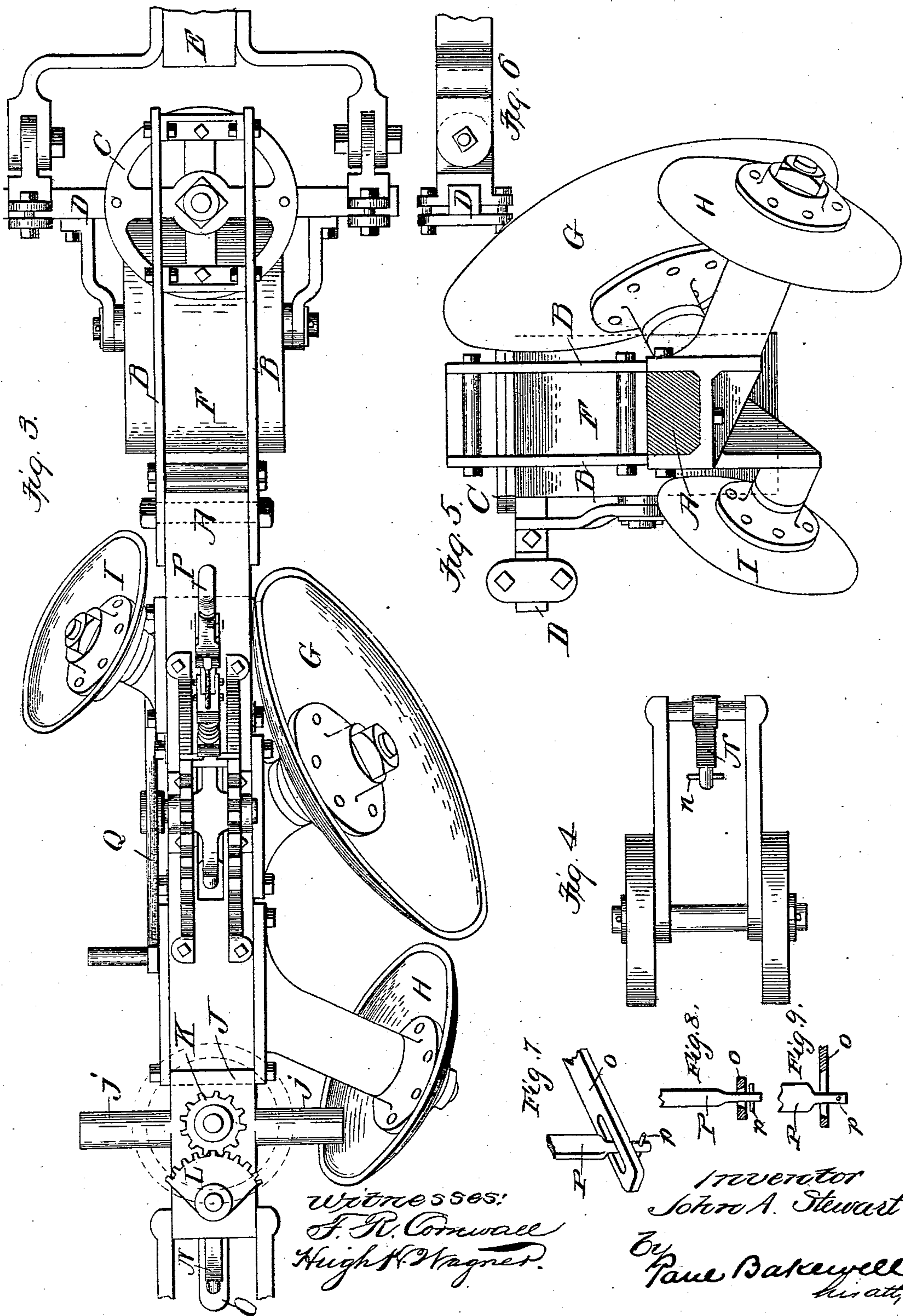
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UNITED STATES PATENT OFFICE.

JOHN A. STEWART, OF HOUSTON, TEXAS, ASSIGNOR OF TWO-THIRDS TO
JAMES C. DUKE, OF DALLAS, TEXAS, AND CHARLES W. MANSUR, OF
ST. LOUIS, MISSOURI.

DISK PLOW.

SPECIFICATION forming part of Letters Patent No. 557,624, dated April 7, 1896.

Application filed July 29, 1895. Serial No. 557,434. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. STEWART, a citizen of the United States, residing at the city of Houston, county of Harris, State of Texas, have invented a certain new and useful Improvement in Disk Plows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a side elevational view of my improved plow. Fig. 2 is a similar view showing the plow in a raised position, as in traveling to or from a field. Fig. 3 is a top plan view. Fig. 4 is a plan view of the rear caster. Fig. 5 is a rear view, the beam being in section, as taken just in front of the steering-gear. Fig. 6 is a side view of the tongue connection. Fig. 7 is a detail view of the universal connections of the link O. Fig. 8 is a cross-sectional view through said connection, and Fig. 9 is a longitudinal sectional view.

This invention relates to a new and useful improvement in disk plows, the object being to construct a plow of the kind described in which the resistance encountered by the main cutting or master disk in operation is counteracted by oppositely-disposed disks, one of which acts as a subsoiler, the other as a jointer, making a partial penetration of the land, which is followed by the master-disk in the succeeding furrow. The end thrust of the master-disk is overcome by the two smaller ones, which utilize this thrust or side pressure to assist the main disk in performing its duties. Incidental to this are improved features of construction, as will hereinafter be described, and afterward pointed out in the claims.

In the drawings, A indicates the beam or frame, whose front end is pivoted in a hanger B, preferably formed of two plates which are properly spaced and which straddle the beam. These plates, as shown, are formed with two members—a vertical member and a horizontal member—the beam being secured between the lower ends of the vertical members, while under the front end of the horizontal members is arranged a fifth-wheel C, to the lower

or rotary member of which is secured a draft-bar D, to which the tongue E is attached in a suitable manner. Depending from the draft-bar is a rearwardly-extending bracket, in which is mounted the front ground-wheel or caster F. By the above construction it will be seen that a heavy pull on the draft-bar will have a tendency to straighten the line of resistance—i. e., elevate the front end of beam A—at the same time relieving the wheel F of its weight.

Mounted upon the axle of hangers secured to beam A are disks G, H, and I.

G is the master or main disk, its axis inclining forwardly and upwardly, thus throwing its lower and rear cutting edges away from the beam and its upper and front cutting edges close to the beam. This disk upon the forward movement of the plow cuts and turns the furrow away from the beam and by its peculiar inclinations has a tendency to run to one side and out of the ground.

Disk H is located behind the master-disk and tends to counteract these tendencies of said master-disk, as above set forth, and in order to do so effectually its axis is inclined rearwardly and downwardly. This disk also acts as a subsoiler and makes, practically, a second furrow in the bottom of the furrow cut by the main disk. In cutting this second furrow below the depth of cut of the main disk, and acting as a subsoiler, disk H turns its furrow inwardly toward the beam, and in doing so tends to enter the ground and force the disk G into the ground, at the same time forcing the beam in an opposite direction from what the master-disk forces it. The disk I is inclined correspondingly to disk H, but is located on the opposite side of the beam and in advance of the master-disk.

Disk I acts in the capacity of a jointer, and tends to enter the ground in making its preliminary furrow and to force the front end of the beam in a direction opposite that which the master-disk is tending to force it. The resistances and the tendencies of the master-disk are thus encountered and counteracted by the disks H and I in such manner that, while each of said disks is performing its particular office, the plow is guided in a straight

path, rendering the draft comparatively easy by relieving it of all lateral strain.

Secured to the rear end of beam A is a plate J, which affords bearings for a steering-gear composed of a driving-pinion K, operated by a handle K', said pinion meshing with a segment L, upon the shaft of which and underneath the plate J is a bearing-box M for the pivot-rod of the rear caster-wheels. Extending from this pivot-rod is an arm N, the lower end of which is rounded, as shown, to afford a bearing for one end of a link O, which holds the caster-wheels in position. The other end of this link is connected in a similar manner to the lower end of a lever P, which is mounted in a slot in beam A, said lever being held in an adjusted position by the engagement of a dog carried thereby with a toothed segment or segments on the beam. The ends of this link are slotted, as shown in Figs. 7 to 9, said slot being formed with beveled walls to permit the free movement of the rounded projections of lever P and arm N, which pass therethrough. Pins *p* and *n* pass through the lower ends of lever P and arm N, said pins being of such length as to span the slots of link O to hold said link in position.

The connections between the link, the arm N, and the lever P are practically universal joints, permitting freedom of movement between the parts when lever P is actuated to bring the rear casters forward and raise the beam A, as shown in Fig. 2. While in this position the steering-gear may be operated, the universal joints accommodating the swing of the rear casters.

To afford a rest for the operator's feet and also to give a foothold while operating the lever P, I form laterally-extending rests *j* on the plate J, as shown in Fig. 3.

To assist in elevating beam A and relieve lever P of some of its work, I mount on the pivot-bolt of said lever a lifting-shoe Q, which by being pressed forward by the operator's foot contacts with the ground at its lower end, and the forward movement of the plow forces the rear end of the beam upwardly, the shoe of lever Q acting as a fulcrum.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my invention may be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a disk plow, the combination with a main rotary disk which is adapted to cut and turn a furrow, and a subsoil device arranged to penetrate and loosen up the soil below the depth of cut of the main disk, said subsoiler being adapted to draw the main cutting-disk into the soil and hold it to its work; substantially as described.

2. In a disk plow, the combination with a main rotary disk which is adapted to cut and

turn a furrow, and a rotary disk arranged behind the main disk, and acting as a subsoiler, said subsoiler cutting a furrow below the depth of cut of the main disk and turning said furrow in a direction opposite that which the furrow is turned by the main disk, said subsoiler also tending to draw the main disk into the soil; substantially as described.

3. The combination with a rotary main disk whose axis is inclined forwardly and upwardly with relation to the line of travel of the beam or frame, and a rotary subsoiler which is located behind and below the depth of cut of said main disk, the axis of said subsoiler being inclined rearwardly and downwardly; substantially as described.

4. In a plow, the combination with a main rotary disk which is adapted to cut and turn a furrow, and a jointer arranged to penetrate into the soil to make a preliminary furrow, said jointer being adapted to draw the main cutting-disk into the soil and hold it to its work; substantially as described.

5. In a plow, the combination with a main rotary disk which is adapted to cut and turn a furrow, and a jointer arranged to penetrate into the soil to make a preliminary furrow, the furrow made by the jointer being turned in a direction opposite that in which the furrow is turned by the main cutting-disk, whereby the side thrust of the main cutting-disk is counteracted to some extent, and, by the angle of the jointer, the main cutting-disk is drawn into the ground and held to its work; substantially as described.

6. The combination with a rotary main disk whose axis is inclined forwardly and upwardly with relation to the line of travel of the beam or frame, and a rotary jointer which is located in advance of the main cutting-disk, the axis of said jointer being inclined rearwardly and downwardly; substantially as described.

7. The combination with a beam or frame, of a main rotary disk which is adapted to cut and turn a furrow, a subsoil device located behind the main rotary disk and adapted to penetrate and loosen up the soil below the depth of cut of the main disk, and a jointer arranged on the opposite side of the beam or frame and in advance of the main cutting-disk, said jointer being adapted to cut a preliminary furrow to be followed by the main disk in the succeeding furrow; substantially as described.

8. The combination with a beam or frame, of a main rotary disk which is adapted to cut and turn a furrow away from the beam, a rotary subsoiler located behind the main disk and adapted to cut and turn a furrow toward the beam, below the depth of cut of the main disk, and a rotary jointer located on the opposite side of the beam and in advance of the main disk, said jointer being adapted to cut and turn a preliminary furrow to be followed by the main disk while said main disk is making a succeeding furrow, said jointer turning

said furrow in the same direction as the subsoiler; substantially as described.

5 9. The combination with a pivoted beam or frame, of a hanger to which said beam is pivoted, a fifth-wheel which is carried by said hanger, and a caster which depends from the lower member of the fifth-wheel and to the rear thereof said wheel contacting with the ground in front of the pivotal connection between the beam and hanger; substantially as described.

10 10. The combination with a beam or frame, of a trailing caster-frame pivoted to the rear end thereof, means for swinging said caster-frame forwardly on its pivot to elevate the beam, and a steering apparatus connected to said caster-frame to move the same laterally at an angle relative to the beam; substantially as described.

20 11. The combination with a beam or frame,

and a fulcrum-shoe pivoted thereon, which, when thrown in contact with the ground, will elevate the beam by its forward movement; substantially as described.

12. The combination with a beam or frame, 25 of a wheeled frame pivoted thereto, means for causing said frame to assume an angular position, whereby the beam is elevated, and a fulcrum-shoe pivoted on the beam, which, when thrown in contact with the ground, will 30 elevate the beam by its forward movement and assist the wheeled frame; substantially as described.

In testimony whereof I hereunto affix my signature, in presence of two witnesses, this 35 20th day of July, 1895.

JOHN A. STEWART.

Witnesses:

F. R. CORNWALL,
HUGH K. WAGNER.