

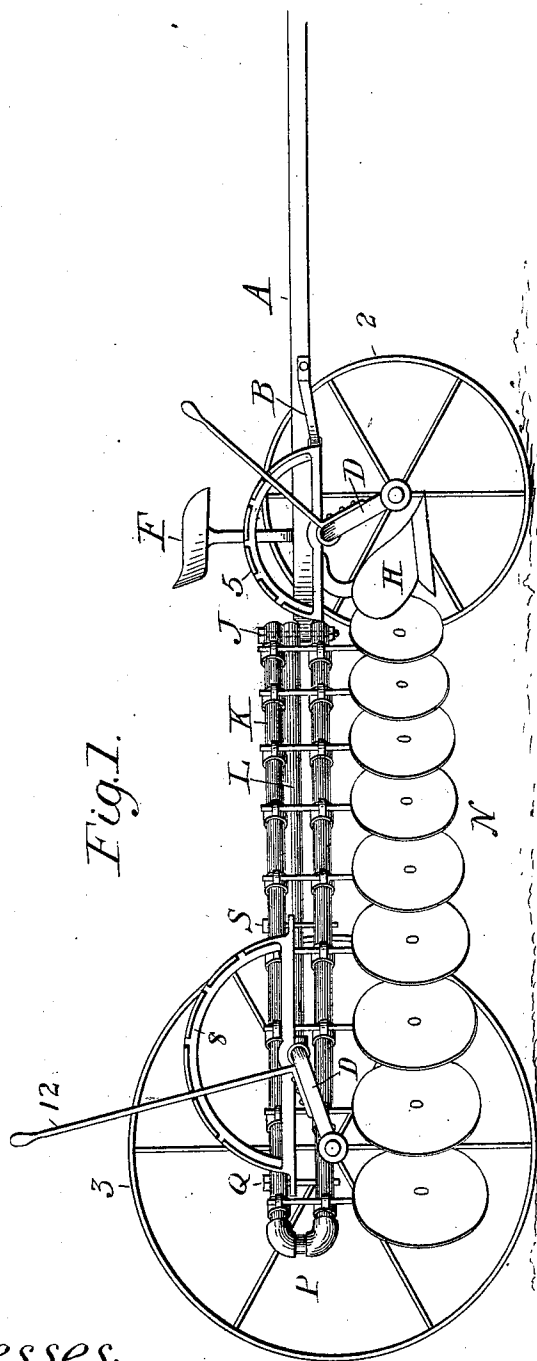
(No Model.)

3 Sheets—Sheet 1.

D. HARMON.
ROAD GRADER AND DITCHER.

No. 561,988.

Patented June 16, 1896.



Witnesses:

E. W. Hill
W. H. Jennings

Inventor:

Daniel Harmon

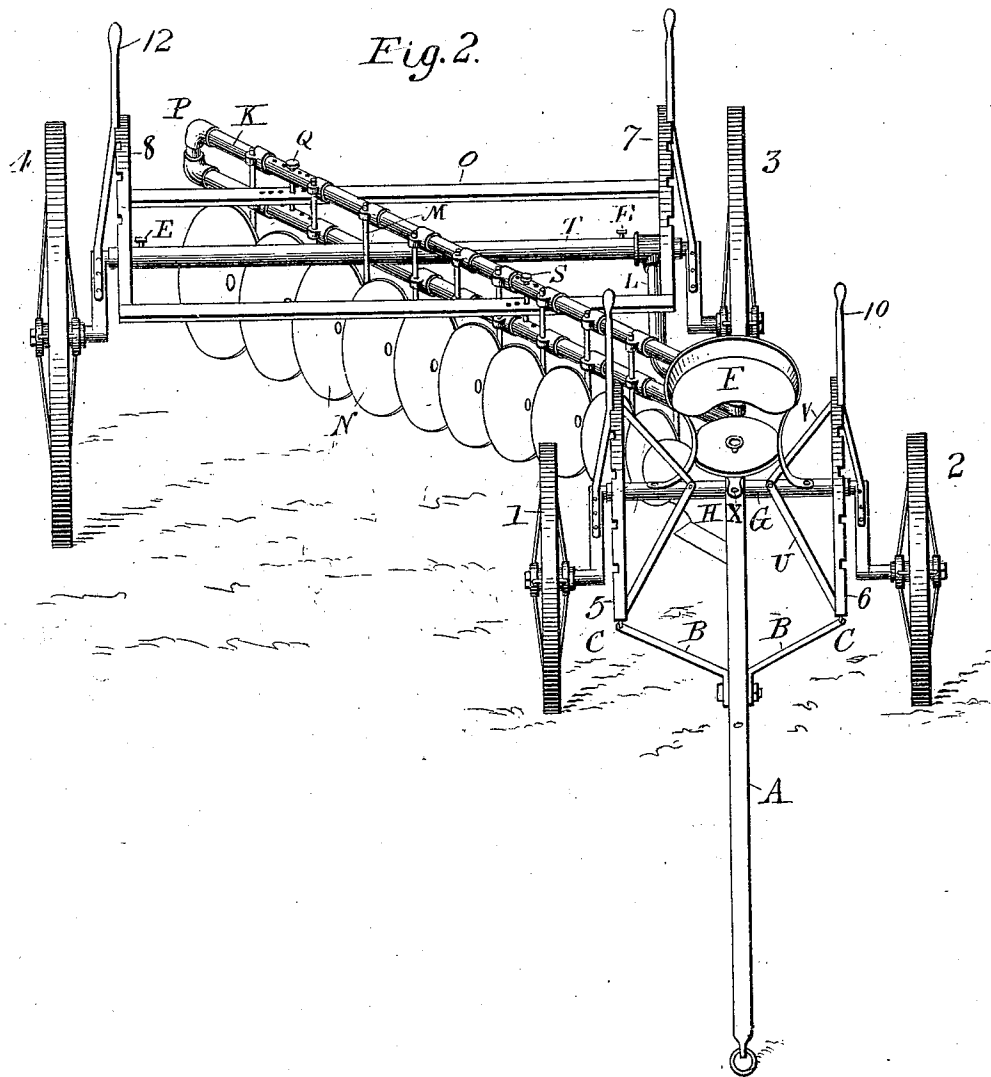
(No Model.)

3 Sheets—Sheet 2.

D. HARMON.
ROAD GRADER AND DITCHER.

No. 561,988.

Patented June 16, 1896.



Witnesses:

E. W. Keill

W. B. Jennings

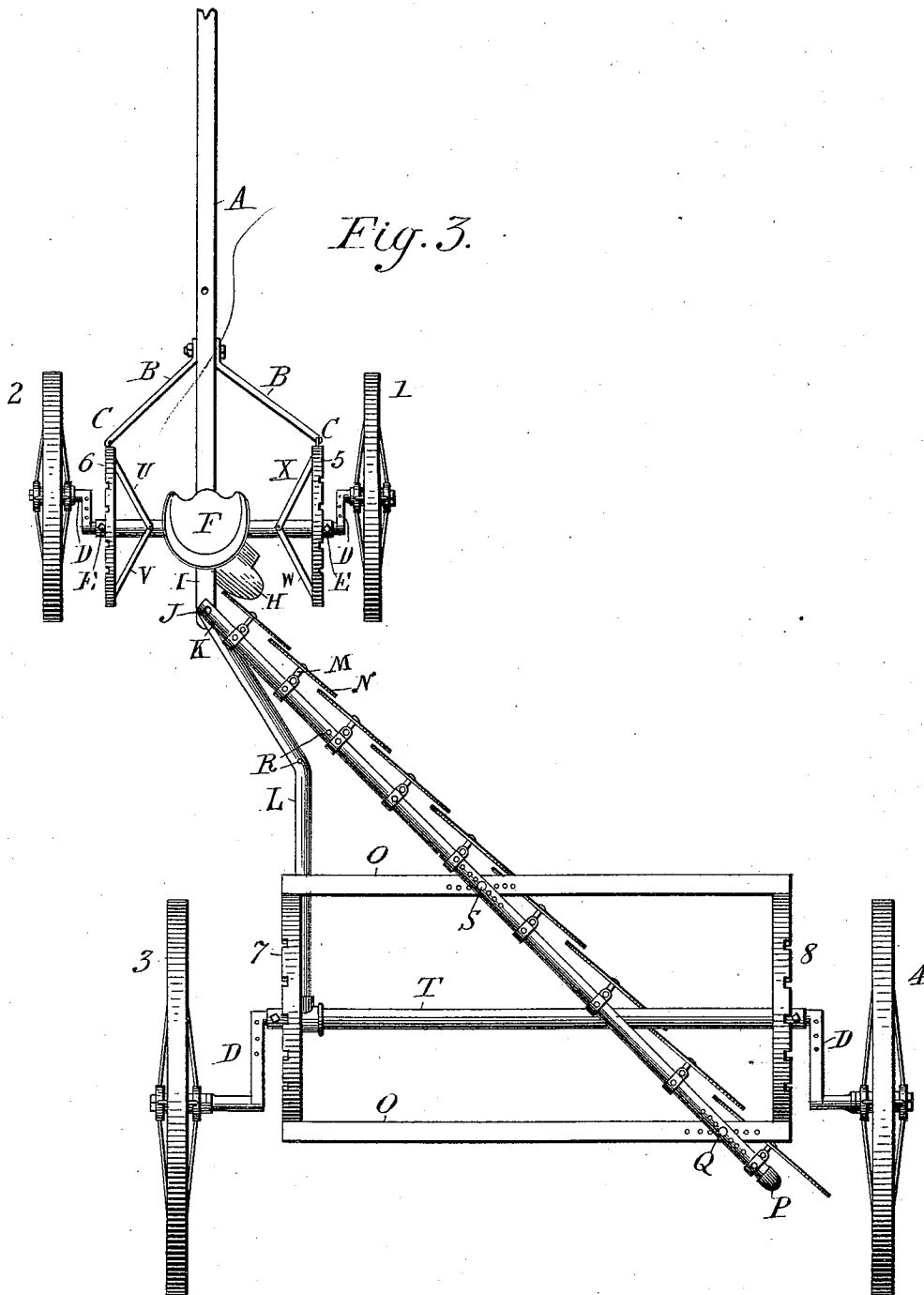
Inventor.

Daniel Harmon

D. HARMON.
ROAD GRADER AND DITCHER.

No. 561,988.

Patented June 16, 1896.



Witnesses:
Crowhill
W H Jennings

Inventor:
Daniel Harmon

UNITED STATES PATENT OFFICE.

DANIEL HARMON, OF DAVENPORT, NEBRASKA.

ROAD-GRADER AND DITCHER.

SPECIFICATION forming part of Letters Patent No. 561,988, dated June 16, 1896.

Application filed August 27, 1894. Serial No. 521,469. (No model.)

To all whom it may concern:

Be it known that I, DANIEL HARMON, a citizen of the United States, residing at Davenport, in the county of Thayer, State of Nebraska, have invented a new and useful Road-Grader, of which the following is a specification.

My invention is designed for grading roads; and it consists, first, in the peculiar construction of the plow-beam, which serves as a tongue to the trucks and bar to the plow, and also has a projection at the rear end for pivoting the gang-spreader; second, in the gang-spreader, which is composed of revolving circular disks of steel, which act as the moldboard of the spreader, and are fastened to a backbone of double steel tubing; third, in the means employed for regulating the width of the moldboard of the spreader and for counteracting the side draft by having the left rear wheel follow in the furrow of the plow.

In the drawings, Figure 1 is a side view of the machine. Fig. 2 is a front view. Fig. 3 is a plan view of the same.

Similar letters and numbers refer to similar parts in the different figures.

The numerals apply to parts that are old and the letters to parts that are new.

In the illustrations, A represents the beam of the plow, which is attached to the front axle G by a coupling-pin X. This beam A is bent so as to form the bar of the plow, and at the base of the bend forms the landside. The same beam A also has a projection I at the rear, to which the gang K K is attached by means of the pin J. BB, the "hounds" of the tongue, are loosely bolted to the tongue A at one end and are fastened by a joint C at the other end to the lever-ratchets 5 and 6. D, the spindles of the wheels, are bent twice, each time in the opposite direction, forming them into the shape of a crank. One end enters the hub of the wheel and the other enters the hollow axle G, where it is secured by a set-screw E, which runs in a circular furrow or groove in the spindle.

5, 6, 7, and 8 are ratchets for the steel spring-levers 9, 10, 11, and 12, used in raising the plow and regulating the depth of the furrow.

9, 10, 11, and 12 are spring steel levers attached to the spindles D just outside the hollow axles G and T.

K K are pieces of steel tubing from ten to fifteen feet long, which form the backbone or frame for the gang of revolving shovels. K K is coupled to I by the pin J, and connected at the rear by two elbow-joints P. K K is fastened to the rear steel frame by the pins Q and S. The width of the spreader is adjusted by having a series of holes in the rear steel frame O, and also in K K, in which the pins Q and S can be changed.

L is the coupling-pole, being bent near the front end so as to form an obtuse angle. It is connected at the rear hollow axle by a T-joint, and is also fastened to the rear steel frame O. This coupling-pole extends straight forward until it reaches the double tubing K K, where it is bent and runs along between K K to I, where it receives the pin J. There is also a hole at the angle, so that when it is used in that one position it can be strengthened by the pin R. It is generally used in this position.

M is a shank of heavy iron bent to a right angle at the base for the steel disk N and fastened to K K by an adjustable clamp. This clamp allows the disks to be adjusted from right to left and also in their position upon K K.

O is a steel frame for the ratchets 7 and 8 of the rear adjusting-levers 11 and 12.

N is one of the revolving shovels which carry and distribute the dirt. They are circular pieces of steel shaped like a breakfast-plate with the concave side toward the right.

1 is the right fore wheel, which runs in the preceding furrow after the first round.

2 is the left fore wheel, which runs on the sod or uncut ground.

3 is the left rear wheel, which runs directly behind the plow in the furrow and prevents side draft.

4 is the right rear wheel, which runs on the grade at the right of all machinery.

The front end of the tongue is provided with a hook and ring, to which a lead team may be hitched.

F is the driver's seat over and attached to the front axle.

What I claim as new, and desire to secure by Letters Patent, is—

1. The beam of the plow constructed to serve also as a tongue to the trucks, and hav-

ing the projection at the rear for pivoting the gang-spreader; substantially as set forth.

2. The gang-spreader comprising the backbone of double tubing and the revolving
5 shovels fastened thereto, substantially as set forth.

3. The rear steel frame, arranged at one side of the line of draft of the forward truck by means of the offset coupling-pole L, to cause
10 the left rear wheel to follow in the furrow of the plow; whereby side thrust is counteracted substantially as set forth.

4. In a road-grader, the spreader formed of a series of approximately upright rotary disks,
15 substantially as set forth.

5. In a road-grader, the series of approximately upright rotary disks lapping by each

other to form a spreader, substantially as set forth.

6. In a road-grader, the spreader formed of 20 a series of approximately upright rotary disks lapping by each other and arranged in a line oblique to the line of draft.

7. The combination with the tongue A the gang-frame K, K, and the rear frame, of the
25 coupling-pole L, substantially as set forth.

8. The combination of the front truck and the tongue of the hounds B, B, fastened loosely to said truck to prevent binding of the latter, substantially as set forth.

DANIEL HARMON.

Witnesses:

HARRY G. TRAVER,
J. ELBERT SWEET.