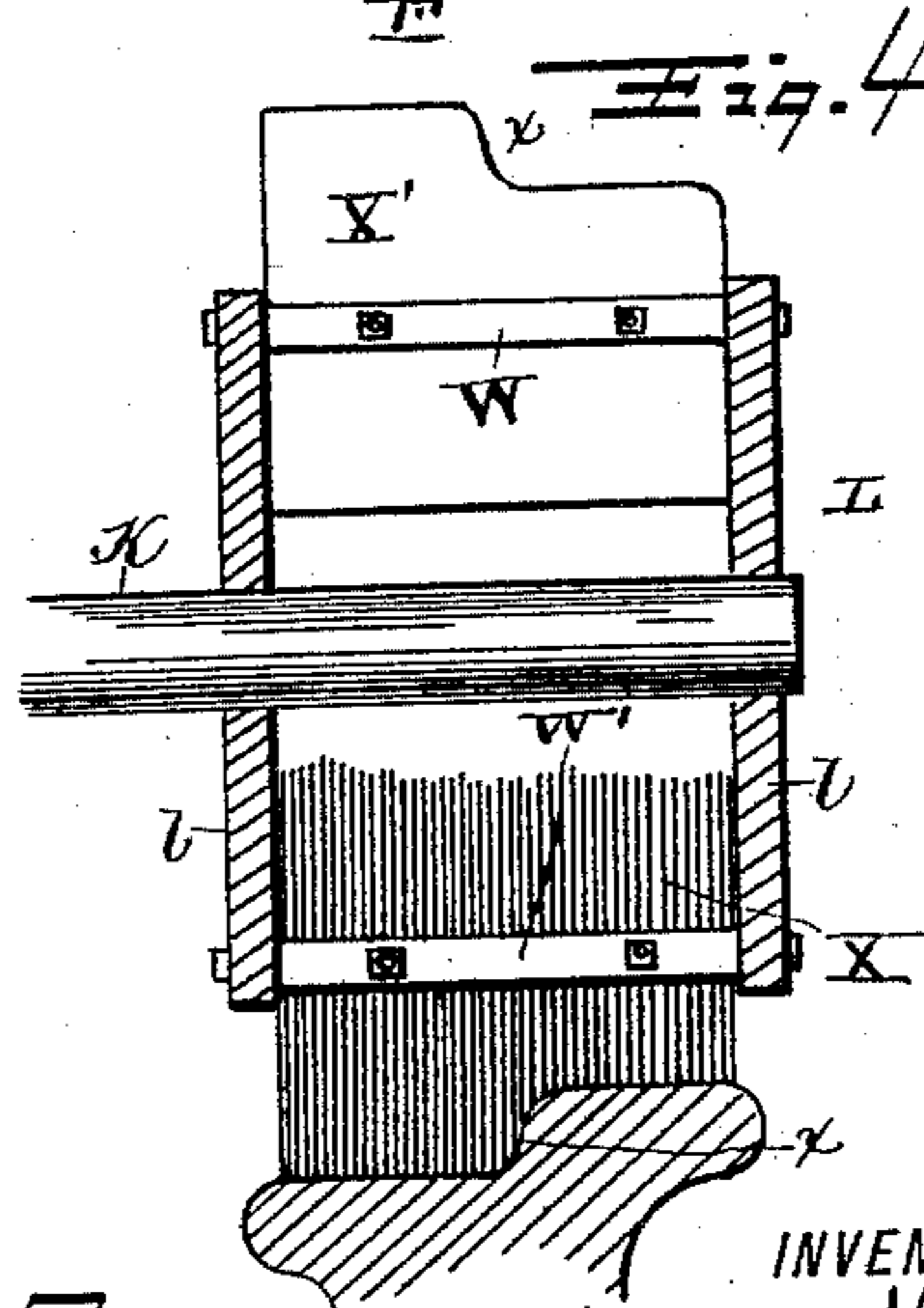
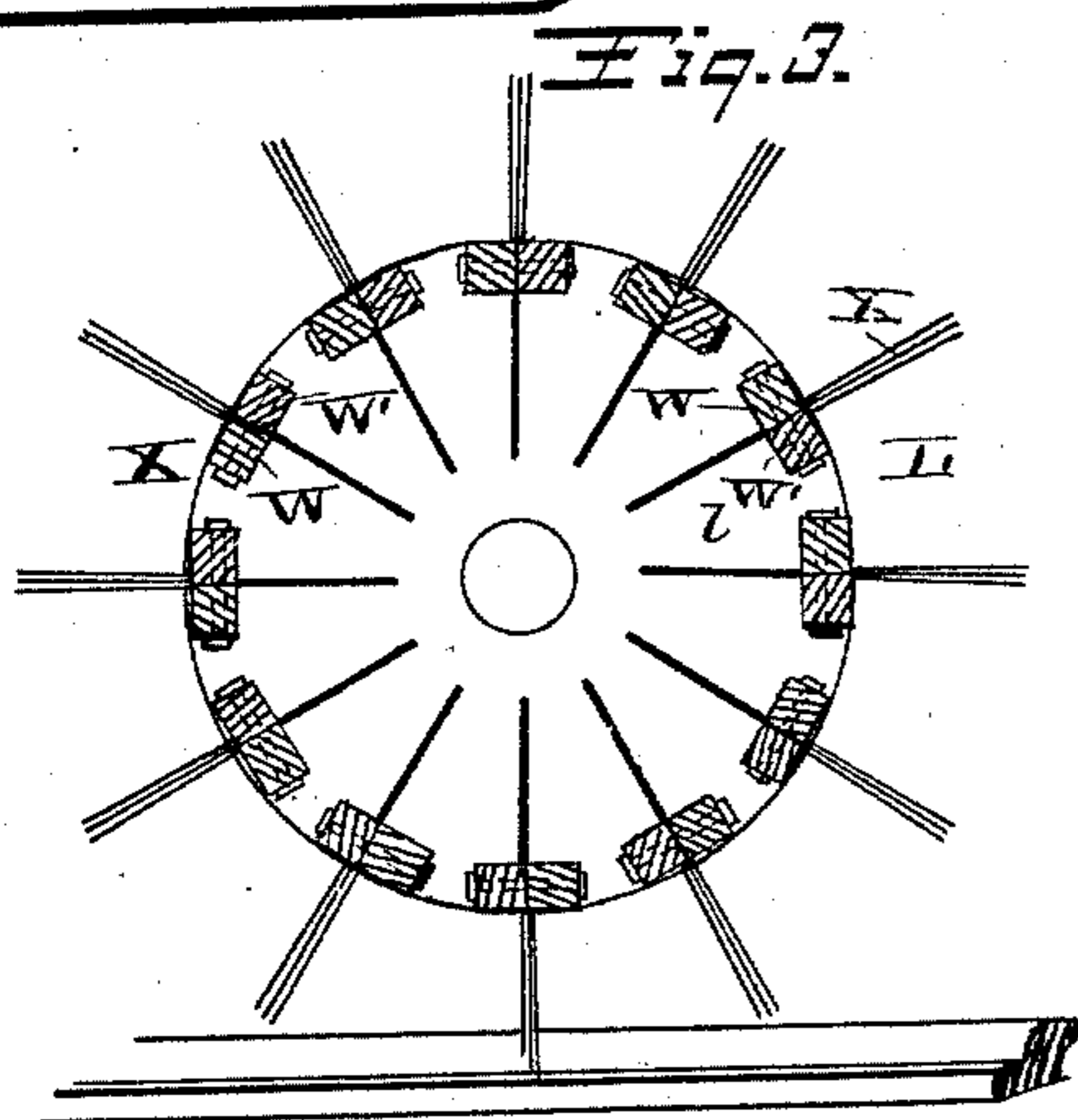
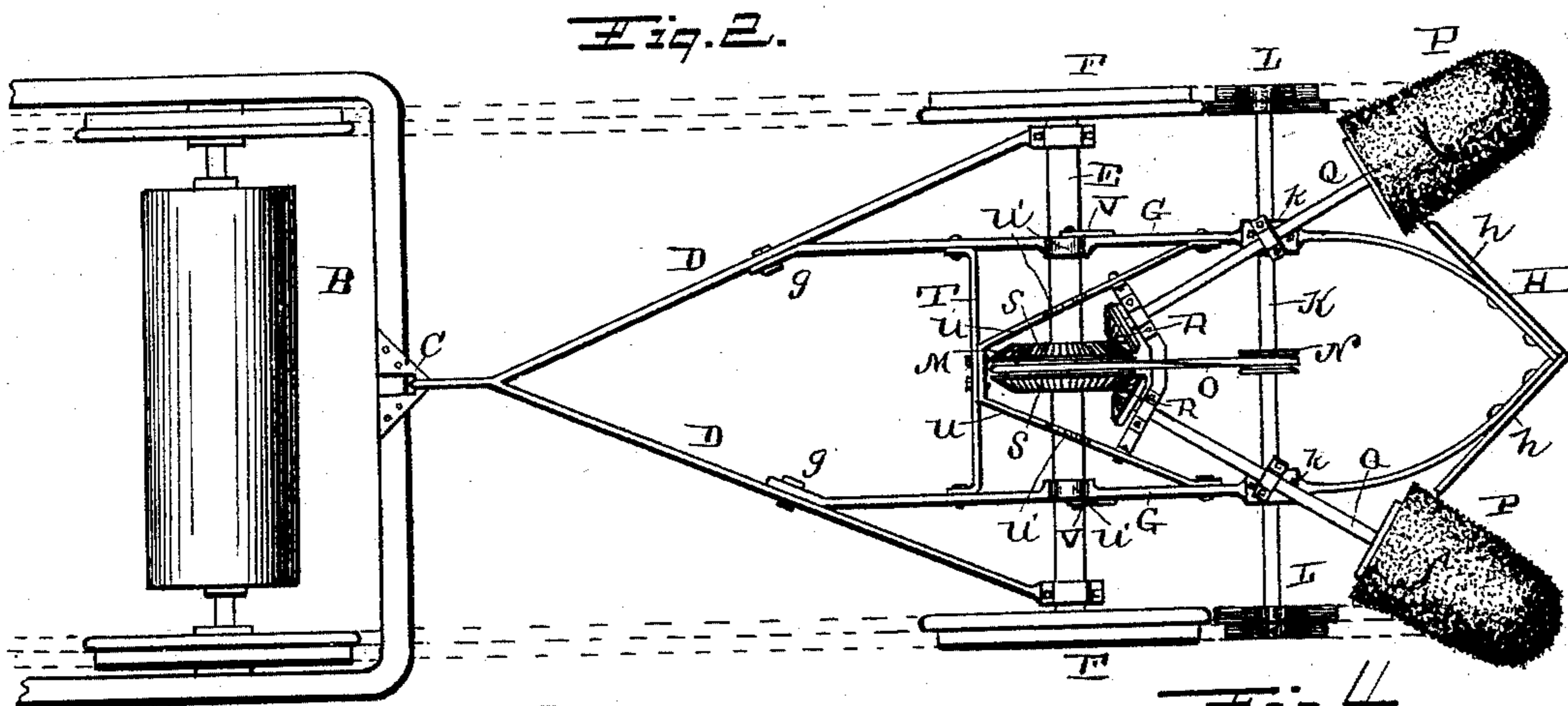
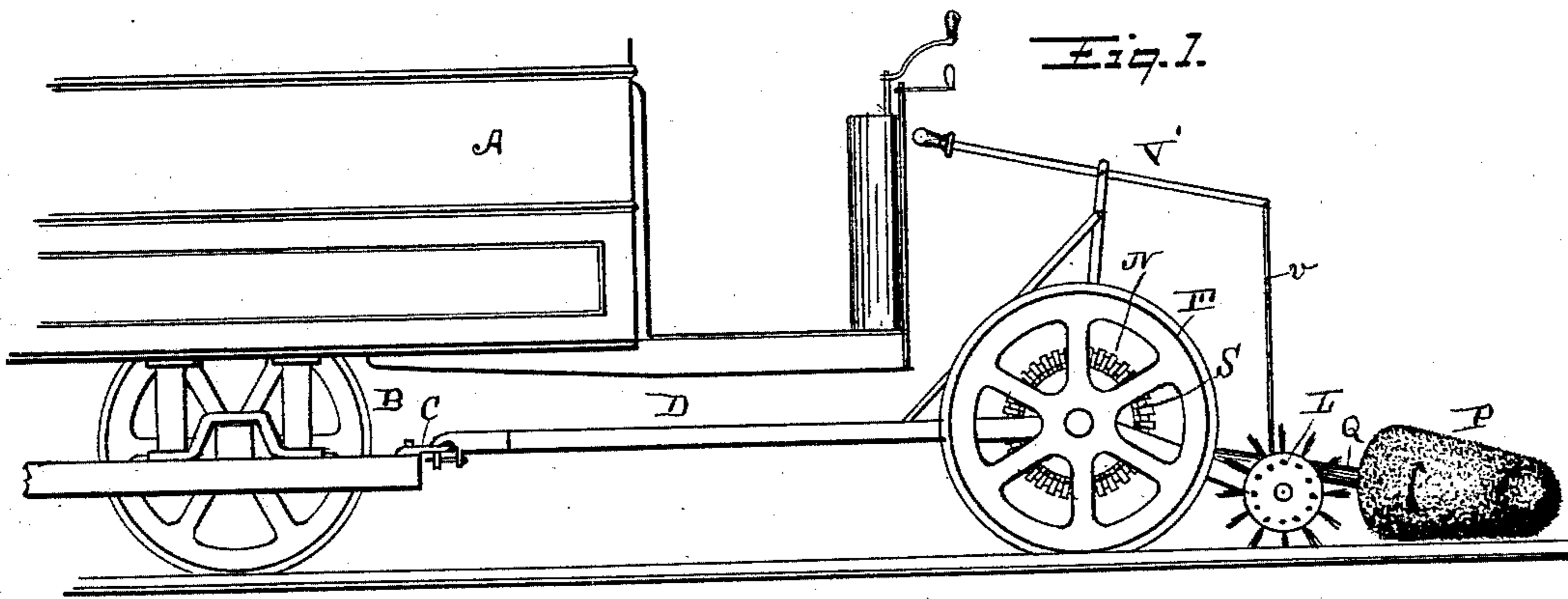


(No Model.)

W. H. LEIGH.  
TRACK SWEEPER.

No. 485,348.

Patented Nov. 1, 1892.



WITNESSES:

*W. G. Doyle*  
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Fig. 5.



INVENTOR  
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BY *J. E. Doyle*  
HIS ATTORNEY.

# UNITED STATES PATENT OFFICE.

WILLIAM H. LEIGH, OF BEAVER FALLS, PENNSYLVANIA.

## TRACK-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 485,348, dated November 1, 1892.

Application filed May 7, 1892. Serial No. 432,203. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. LEIGH, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Track-Sweepers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being made to the accompanying drawings, which form a part of this specification.

The invention has for its object to provide a sweeping apparatus which may be attached to and used in connection with a railway-car without necessitating any modification of the construction of the latter, and while applicable to any tramway or traction car is especially adapted to street-cars propelled by motors actuated by electricity, in which it is desirable to maintain at the maximum the traction of the car-wheels upon the rails. In such railways it is absolutely necessary that the rails be kept clear and free from snow, ice, or accumulations of any kind which would interfere with the car-wheels making direct contact with the rails, and thereby prevent the traction necessary to utilize the entire power of the motor in propelling the car.

The invention consists in the improvements hereinafter described and claimed, comprising revoluble scrapers or cleaners arranged in advance of the car-wheels and having their peripheries shaped to conform to the rails, whereby the snow, ice, or other accumulation is removed from the tread and also the depression or offset of each rail, and means whereby said scrapers or cleaners are supported and rotated in a reverse direction to the car-wheels, revoluble brushes to receive the snow or other accumulations from the plow and propel the same beyond the paths of the car-wheels, and means for connecting the sweeper to the car and operating the same independently of the latter.

In order that the invention may be more fully described reference is made to the drawings, which illustrate a sweeper embodying the improvements, the several views being, Figure 1, a side view applied in the operative

position to a car-truck; Fig. 2, a top plan view; Fig. 3, a sectional view of a scraper or cleaner, taken parallel with the plane thereof; Fig. 4, a section of a scraper or cleaner, taken in the plane of the axis thereof; Fig. 5, a detail view to show one of the latches, whereby the brush-frame is held in its elevated position.

A portion of the car is indicated at A, its truck B being provided with a clevis C, with which is engaged the rear end or apex of the V-shaped supporting-frame of the sweeper. The side bars D D of this supporting-frame are provided at their front divergent ends with boxes, in which is mounted the main shaft E, carrying the traction-wheels F, which travel upon the rails in advance of the car-wheels. To this supporting-frame is pivoted a brush-frame having side arms G G, (the pivotal points being seen at g g,) said side arms being converged or bent toward each other at their front ends to form a support for the plow H.

In suitable boxes k k on the side arms is mounted a counter-shaft K, parallel with the main shaft and bearing at its opposite ends the scrapers or cleaners L L, hereinafter described in detail. The counter-shaft is geared or otherwise connected to the main shaft, so that the rotary motion of the latter is transmitted to the former to operate the scrapers or cleaners, the preferred means of connection being as shown in the drawings, wherein the main shaft is provided with a grooved pulley M and the counter-shaft is provided with a similar pulley, the two being connected by a wire belt O. This belt is preferably crossed, so as to give the counter-shaft a reverse motion to the main shaft.

The rotary brushes P P converge toward their rear ends and are carried by stems Q, mounted in bearings on the brush-frame and provided with miter-pinions R, which mesh with miter-gears S S on the main shaft. For convenience and economy in construction the gears S and the grooved pulley M are connected together or formed integral. The brushes are arranged approximately at right angles to the blades h h of the plow and project beyond the same, so as to receive the snow which is gathered by the plow and pre-

vent accumulation. The brushes rotate in opposite directions. The brush-frame is provided with a transverse brace T and convergent braces U U, said convergent braces, as well as the side arms of the brush-frame, being provided with stirrups U' U', which rest upon the main shaft and support the front end of the brush-frame at such an elevation as to hold the plow and brushes at the proper distance from the bed of the track. Small pivoted latches V V are carried by the side arms to engage the main shaft and hold the front end of the brush-frame in its elevated position when the sweeper is not in use, the brush-frame having been previously described as hinged to the plow-frame at g, and thus rendered capable of being uplifted, so that the concave end of the pivoted latch V (see Fig. 5) will engage the main axle E and prop the brush-frame up in an inclined plane above the plow-frame. This construction will be readily understood from Figs. 2 and 5. A lever V' is employed to elevate the brush-frame and is connected to the latter by a rod v, said lever being within reach of a person standing upon the platform of the car.

The scrapers or cleaners, which form an important feature of this invention, consist of parallel disks ll, between which are arranged the clamping blocks or bars W W' and the metallic teeth X, the projecting ends of which are cut, so as to form an offset  $\alpha$  to fit the offset in the rail, the relative positions of the teeth and the rail being indicated in Fig. 4, in which is shown a section of a rail in common use. The blocks or bars W are bolted at their ends to the disks and the blocks or bars W' are bolted to the former, the teeth being arranged between the two members of the clamp thus formed.

For the removal of snow, dirt, and other loose obstacles the teeth X are sufficient; but when there is an accumulation of ice on the rails it is expedient to employ blades or cutters X' in place of the teeth, as indicated in Fig. 4. These blades or cutters will be shaped to conform to the rails, as described.

Ordinary rotary brushes, which only touch the treads of the rails, are insufficient in this connection, for the reason that the accumulation of the obstacle in the depression or slot of the rail will prevent a perfect contact between the latter and the wheel even when the tread is free, and therefore it is preferable to employ scrapers or cleaners provided with the above-described offsets.

Having thus described the invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In combination with a rearwardly-divergent plow, the rearwardly-convergent rotary brushes arranged approximately at right angles to the sides of the plow and projecting at their front ends beyond the same, substantially as specified.

2. In combination with a plow, the rearwardly-convergent brushes and rotary scrapers or cleaners arranged to operate in contact with the rails, substantially as specified.

3. The rotary scrapers or cleaners provided with offsets to conform to the shape of the rails, in combination with the plow-frame and brushes preceding said scrapers or cleaners and arranged at a prescribed angle thereto, substantially as specified.

4. The rotary scrapers or cleaners provided with clamping blocks or bars and metallic teeth or plates engaged between said blocks or bars, in combination with a rotary shaft, operating means for said shaft, and a wheeled truck-frame carrying said shaft and actuating means, substantially as specified.

5. The rotary scrapers or cleaners having parallel disks, clamping blocks or bars W W', connecting said disks, and teeth or plates engaged between said blocks or bars, in combination with a wheeled truck-frame and scraper-shaft carried by said frame, substantially as specified.

6. The combination of the supporting-frame adapted to be connected to the front end of a truck, as described, and carrying a main shaft provided with traction-wheels, the scrapers or cleaners carried by a counter-shaft which is geared to the main shaft, the plow, and the rotary brushes arranged upon opposite sides of the plow and geared to the main shaft, substantially as specified.

7. The combination of the main shaft carrying traction-wheels, the brush-frame provided with stirrups to bear on the main shaft, latches to engage the main shaft when the brush-frame is elevated, and the plow and brushes carried by the brush-frame, said brushes being geared to the main shaft, substantially as specified.

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

WILLIAM H. LEIGH.

Attest:

JOS. C. ROUZER,  
C. E. DOYLE.