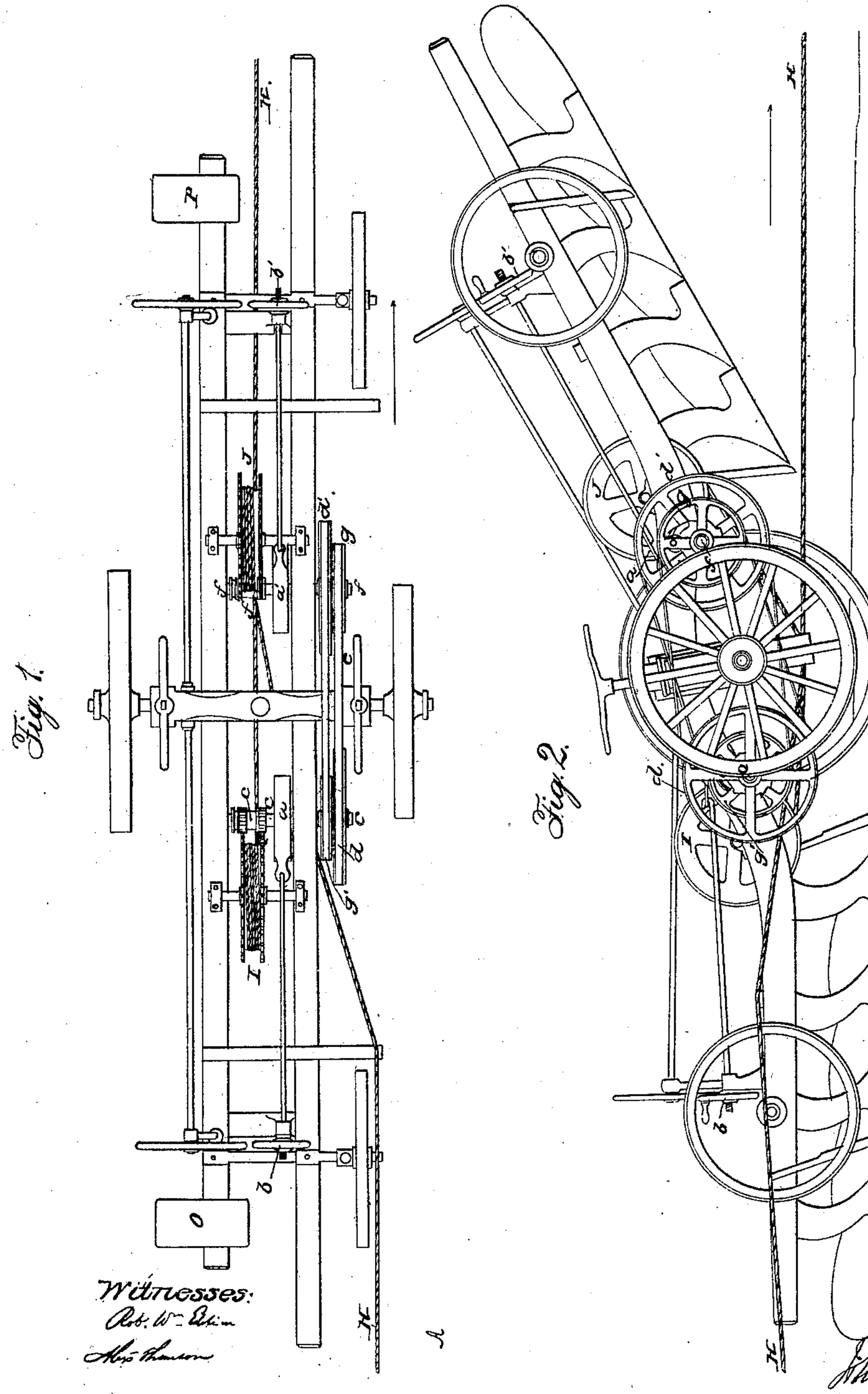
J. FOWLER, Jr.

Steam-Plow.

No. { 1,805 / 32,809. }

Patented July 9, 1861.



UNITED STATES PATENT OFFICE.

JOHN FOWLER, JR., OF LONDON, ENGLAND, ASSIGNOR TO WM. PENN TATHAM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINERY FOR PLOWING AND TILLING LAND.

Specification forming part of Letters Patent No. **32,809,** dated July 9, 1861.

To all whom it may concern:

Be it known that I, JOHN FOWLER, Jr., of 28 Cornhill, in the city of London, in the county of Middlesex, England, have invented certain new and useful Improvements in Machinery for Plowing and Tilling Land; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan, and Fig. 2 is a side view.

The same letters indicate like parts in all the figures.

My said invention relates to that class of machinery for plowing and tilling land by steam in which a locomotive steam-engine moves at given intervals along one edge of the field and ropes pass from the engine to and around a pulley in a carriage termed an "anchor," which is moved at intervals along the opposite edge of the field, the said ropes from the engine being attached to plows or other tilling-instruments to draw them across the field alternately in opposite directions.

Prior to my said invention the plows or other tilling-instruments carried drums for taking up the slack of the rope behind them, which drums were turned from time to time by manual power, according to the direction in which the plows or other tilling-instruments were traveling.

The object of my said invention is to prevent the necessity of turning the said apparatus by manual power, and for this purpose two drums are mounted on the plows or other tilling-instruments, on each of which a portion of the hauling-rope is wound. From one of these drums the rope passes directly to the winding or hauling capstan or drum, and from the other it passes first to the pulley on the anchoring-carriage, and then returns to the said winding or hauling capstan or drum. When it is necessary to take up the slack of the rope I gear together the axes of the two drums in such a manner that if the hauling-power is allowed to draw a length of rope off one of the drums (which is thus caused to revolve) this drum gives motion to the other drum, so as to wind up a greater length of rope than is drawn off. For this purpose I mount loosely on each of the axes of the drums, or on each of the axes from which the drums receive motion, two pulleys, one larger than the other, and by means of ratchets the larger pulley is caused to revolve with its axis when rope is running off the drum, and the smaller pulley in revolving carries its axis with it when it is turned in the direction necessary for winding the rope. There are two driving-belts employed, which each pass from the large pulley on one axis to the small pulley on the other. Thus when rope is running off one drum it causes a greater length to be taken up by the other drum in the proportion of the larger diameter to that of the smaller. When it is not required to take up slack rope the drum on which the strain of the hauling-rope comes is locked up by a brake or any other suitable means.

In the accompanying drawings, I and J are two drums, carried by the plows or tilling-instruments, on each of which a portion of the rope is wound. These drums have teeth formed on their flanges, which gear with pinions mounted on the axes *c* and *f*, respectively. *d* and *g'* are drums or pulleys of different diameters mounted on the axis *c*. *d'* and *g* are similar drums or pulleys mounted on the axis *f*. The large drums or pulleys *d* and *d'* are caused by means of ratchet-wheels and clicks or ratchets to revolve with their axes when these are caused to revolve by the drawing off of rope from their respective drums, but to revolve independently of their axis in the contrary direction. The small drums or pulleys *g g'*, on the contrary, revolve with their axes to wind rope onto their respective drums, but revolve independently of their axes in the opposite direction.

Supposing the plow or other tilling-instrument to be about to start from the headland A toward the headland B, the man accompanying the plows, who sits on the seat O when going from the headland A and on the seat P when going from the headland B, causes the brake *a* to be slackened by means of the wheel *b*. The draft of the rope is received by the drum I, and causes it to revolve, and in so doing gives motion to the axis *c* and the drum or pulley *d*. This drum or pulley, by a strap, *e*, acting on the drum or pulley *g*, which is for the time fixed to its axis *f* by its ratchet-wheel and clicks or ratchets, drives the drum J. The

drum or pulley *g* being of less diameter than the drum or pulley *d*, the drum J is caused to revolve so much faster than the drum I that the slack of the rope H will be quickly taken up, when the attendant will put on the brake so as to stop the axis of the drum I from turning farther round. When the plow or tilling-instrument has arrived at the headland B the attendant takes his seat on the end P, and on the engine's being started in the reverse direction the draft will bring the rope H to act first on the drum J, and its brake *a* (if any slack rope requires to be taken up) being free of its wheel on the axis *f*, that axis will be caused to revolve, and it will give motion to the drum or pulley *d'* on the axis *f*, which by the strap *e*, acting on the drum or pulley *g* on the axis *c*, in connection with the drum I, will give motion thereto at a faster rate than that at which the drum J is caused to revolve by the rope H. The slack rope will consequently be wound on the drum I.

And although I have above described and represented the mode of application of my said invention which I have worked with success, I do not wish to be limited thereto, as other and equivalent modes of application may be substituted without deviating from the principle of my said invention.

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

Mounting on plows or other tilling-instruments an apparatus for taking up the slack rope by the pull of the rope drawing the plows or other tilling-instruments, substantially as herein described.

JOHN FOWLER, JR.

Witnesses:

ROBT. WM. EDDISON,

ALEXR. THOMSON.