

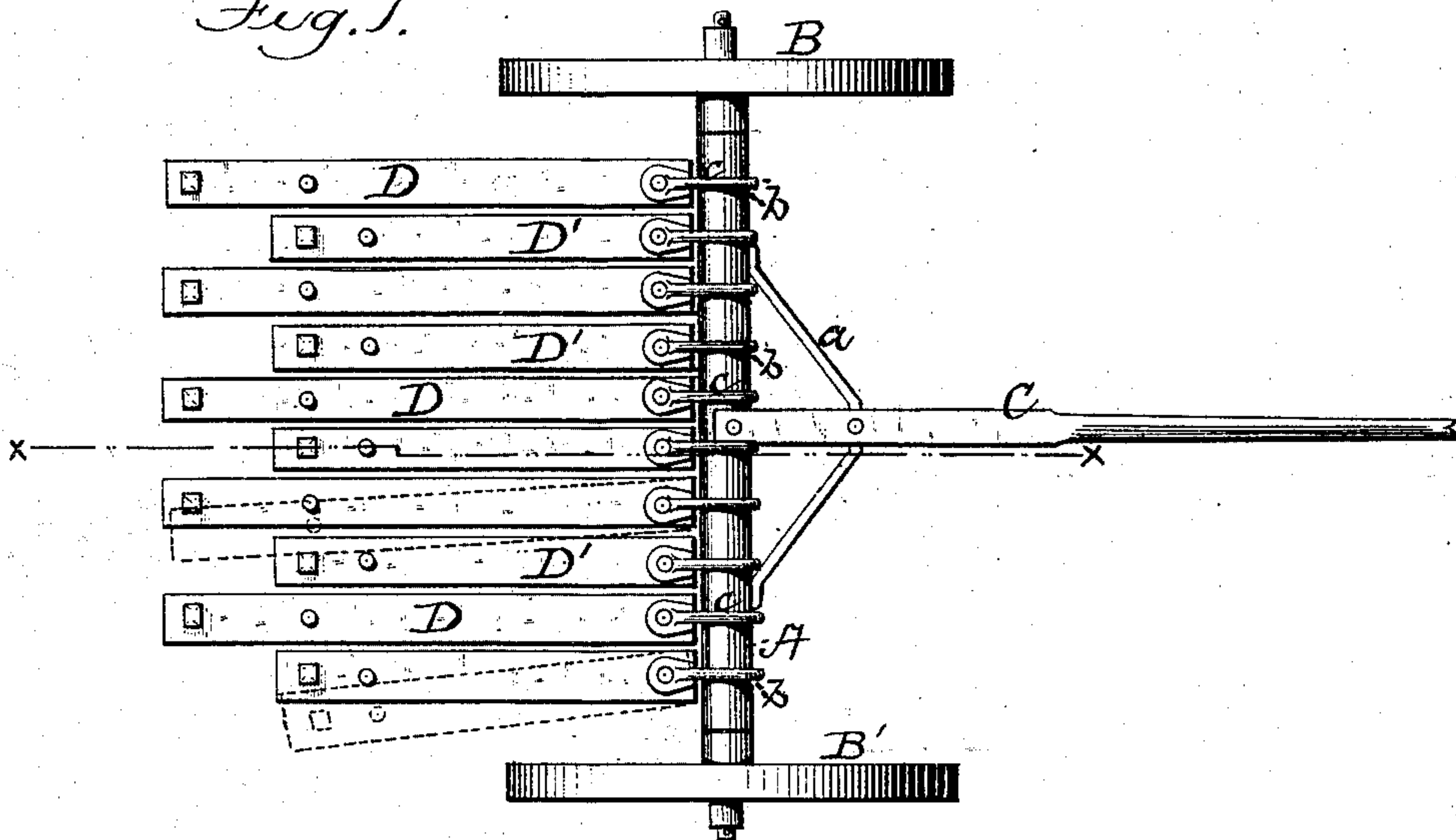
(No Model.)

J. M. WAKEMAN.  
Sulky Drag.

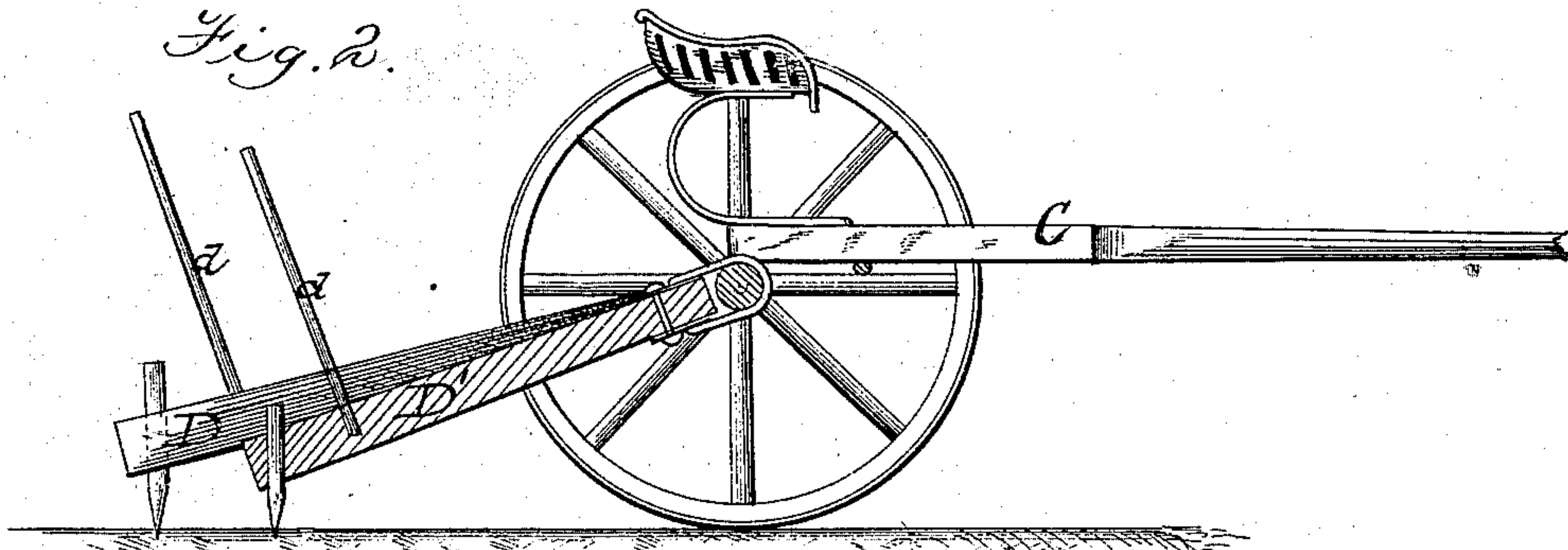
No. 235,832.

Patented Dec. 21, 1880.

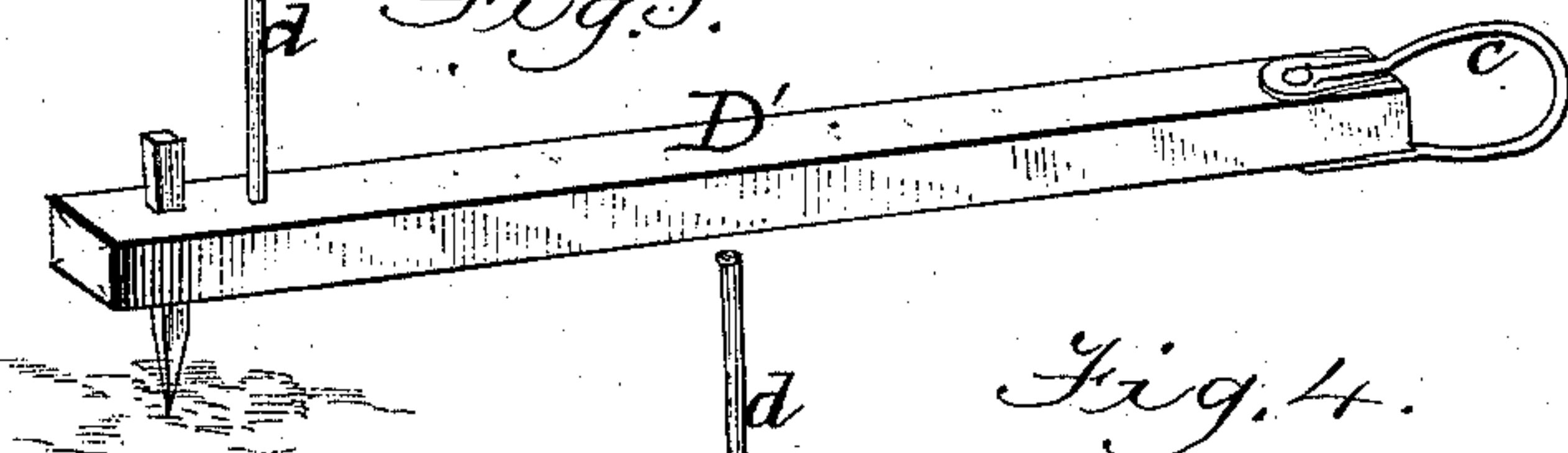
*Fig. 1.*



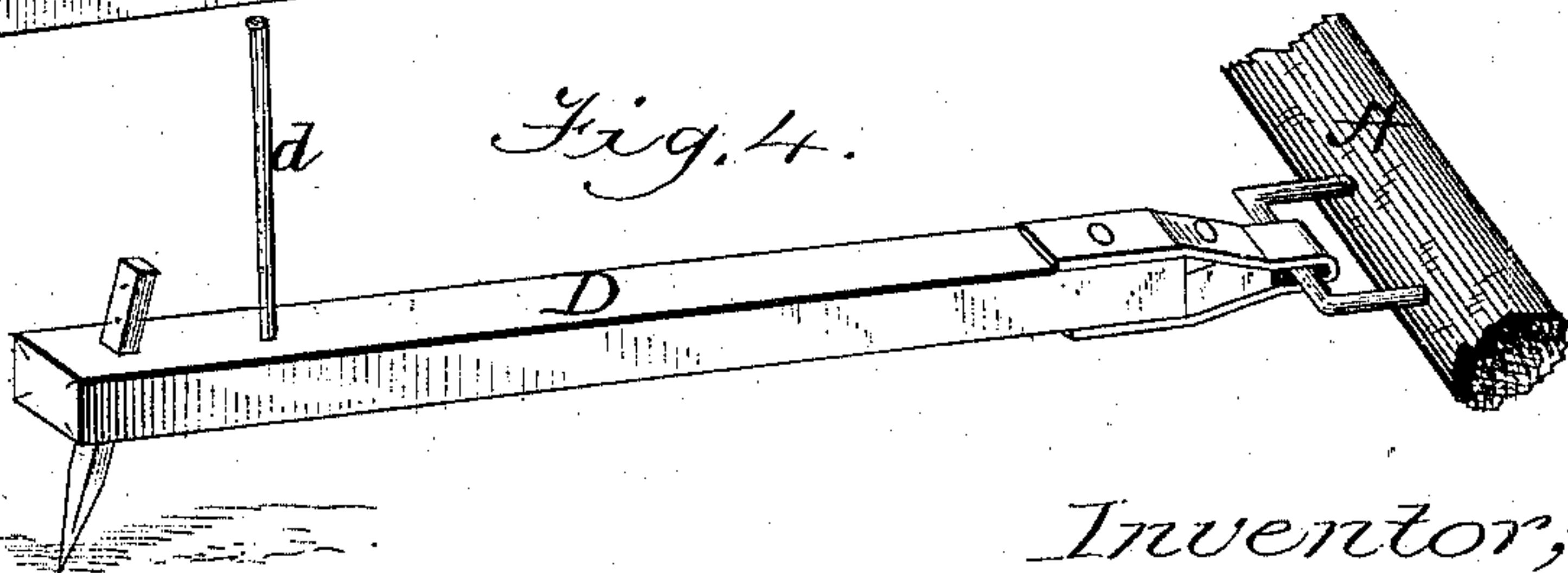
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

JOHN M. WAKEMAN, OF WATKINS, NEW YORK.

## SULKY-DRAG.

SPECIFICATION forming part of Letters Patent No. 235,832, dated December 21, 1880.

Application filed September 28, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MORRIS WAKEMAN, a citizen of the United States, residing at Watkins, in the county of Schuyler and State of New York, have invented certain new and useful Improvements in Sulky-Drags; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in sulky drags or harrows; and the novelty consists in the novel construction and combination of parts, as will be hereinafter more fully set forth, and pointed out in the claims.

Figure 1 of the drawings is a plan view of the improved sulky-drag. Fig. 2 is a side sectional view of the same, taken through the line *x x* of Fig. 1. Fig. 3 is a perspective view of one of the bars with its tooth, upright pin, and strap-collar. Fig. 4 is another perspective view of one of the bars, showing the tooth at an incline, and a modification of the staple or strap coupling.

In the annexed drawings, forming a part of this specification, the letter A represents the axle; B B', the wheels, and C the tongue or pole with the diagonal brace-rods *a*, securing a firm connection between said tongue and axle.

The letters D D' are a series of drag-bars, the bars D being longer than the bars D'. Each drag-bar, at or near its rear end, is provided with a harrow-tooth, the teeth being set at an incline, as seen in Figs. 2 and 4 of the drawings. By this difference in length in the drag-bars I am enabled to arrange them alternately in series of long and short drag-bars, as shown in Fig. 1 of the drawings.

The axle A is provided with a series of grooves or recesses, *b*, to receive the straps or staples or clevis *c*, pivotally attached at the forward ends of the drag-bars. These straps or staples fit loosely in the grooves or recesses in the axle, so as to allow an upward movement and a sidewise or lateral motion of the

drag-bars, which movements of the bars are caused by the unevenness of the ground surface and small obstructions in the nature of clods and sticks, also stumps. These straps or staples or clevis *c*, pivoted to the drag-bars, serve a twofold purpose—first, to allow the drag-bars, in the harrowing process, to rise and fall, conforming with uneven surface of the soil; and, second, to permit a side motion, either right or left, to the bars. This compound motion allows the drag-bars to readily yield vertically or laterally when coming in contact with an obstacle or obstruction, thereby saving the teeth from injury and clogging and resistance to draft.

The upper rear end surface of each drag-bar is provided with a vertical pin or upright rod, *d*, in front of the tooth, as seen in the drawings, to prevent riding or crossing of the drag-bars upon each other while the drag is in operation or in turning in the field. Whenever a drag-bar is thrown upward and sidewise its tendency is to cross and ride the adjacent bar; but the employment of a vertical rod on each bar obviates this difficulty by guiding the bar off and causing it to resume its normal position for duty.

Fig. 4 of the drawings represents a modification of the coupling means in making the connection between the bar and axle, which consists in a strap and a staple for producing substantially the same result.

The operation and advantages of the drag-bars, with the two rows of teeth arranged in different planes, are obvious and need no further description.

I claim the right to vary the construction and the coupling means without departing from the spirit of the invention.

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

1. A drag-bar having a metallic loop pivotally attached thereto, in combination with an axle having a cylindrical bearing, whereby a compound motion is secured to the drag-bar, substantially as set forth.

2. In a drag, the combination of a plurality of drag-bars of different lengths having a compound motion—to wit, vertical and lateral—and provided at their rear upper surface with vertical pins or rods to prevent crossing or

riding of the adjacent drag-bars, substantially as described.

3. In a drag, the combination of an axle having a series of journal-bearings and a series of drag-bars having at their forward ends swivel-loops and at their rear ends harrow-teeth and vertical rods or pins, for the purposes hereinbefore set forth.

4. In a drag, a drag-bar having a compound movement, vertical and lateral, substantially as described.

5. A drag mounted on wheels, consisting of the axle A, formed with a series of bearings,

the drag-bars D, of different lengths, alternately arranged, and provided at their upper ends with pivoted loops *c*, and the vertical rods *d* at the upper surface of the rear end of the drag-bars, substantially as shown and described.

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

JOHN M. WAKEMAN.

Witnesses:

MADISON FREMAN,  
ALMON S. WAKEMAN.