(No Model.)

L. MORGAN.

SNOW PLOW.

No. 303,311. Patented Aug. 12, 1884.

Fig. 1.

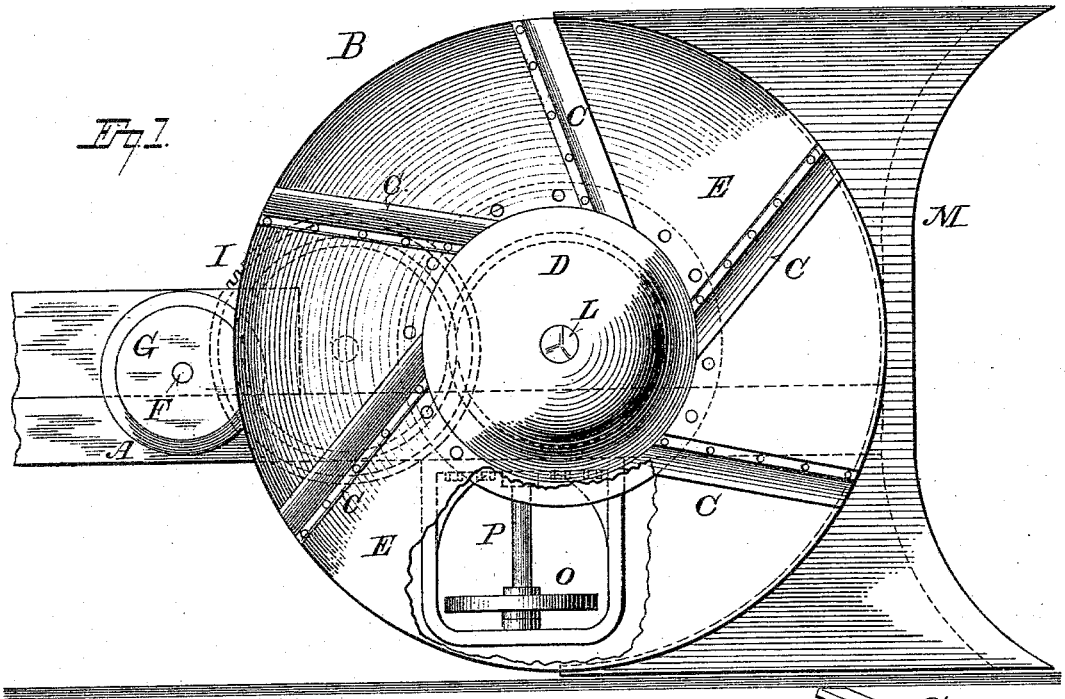

Fig. 2.

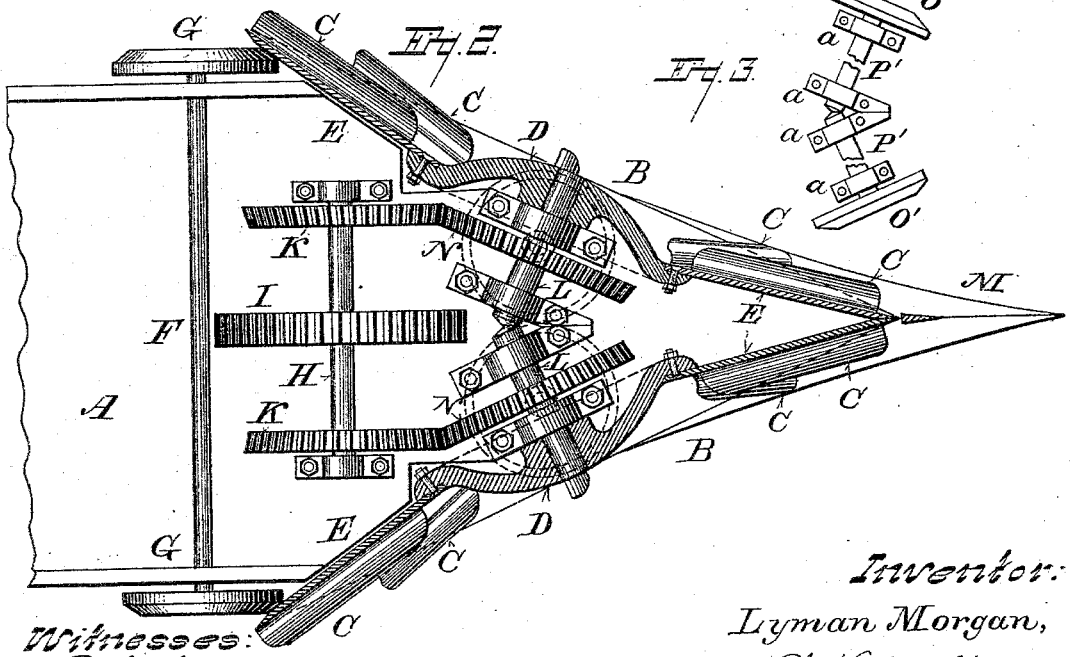

Fig. 3.

Witnesses:
E. G. Annis
Chas. L. Goss.

Inventor:
Lyman Morgan,
per E. H. Bottum
Attorney.

UNITED STATES PATENT OFFICE.

LYMAN MORGAN, OF PORT WASHINGTON, WISCONSIN.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 303,311, dated August 12, 1884.

Application filed December 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, LYMAN MORGAN, of Port Washington, in the county of Ozaukee and State of Wisconsin, have invented certain new and useful Improvements in Snow-Plows; 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 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to plows for clearing snow from railroad-tracks; and it consists of certain improvements in the devices for which I have obtained Letters Patent of the United States No. 244,398, dated July 19, 1881, and No. 283,011, dated August 14, 1883. Its objects are, first, to brace and strengthen the rotary disks, and, second, to cause the wings or scoops attached to the faces of said disks to clear themselves more readily of snow.

In the accompanying drawings, like letters refer to the same parts in the several figures.

Figure 1 is a side elevation of my improved snow-plow with a portion of the front disk broken away to show more clearly the bracing device underneath and depending from the frame of the machine. Fig. 2 is a medial horizontal section of the disks, showing a plan view of the actuating-gearing and the bracing devices; and Fig. 3 represents a modification of the bracing device underneath the frame of the machine.

A is the frame-work of the machine, to which is secured, at the front end, the strong prow or beak M.

B B are concave rotary disks fixed to the outer ends of shafts L L, which have strong bearings secured to frame A. The disks B B meet at their front edges a little to the rear of the tip of the beak M, and diverge toward the rear, so as to form in effect the main portion of the mold-boards of the plow. The shafts L L are beveled at their inner ends, which bear against each other, thereby bracing the centers of said disks against the powerful lateral pressure of snow to which they are subjected, Fig. 2.

G G are friction-wheels fixed upon the transverse shaft F, journaled in frame A, so that the beveled edges of said friction-wheels shall bear in front against the rear inner faces of said disks B B, thereby bracing them at that point against the lateral pressure of snow against their outer faces. The front edges of said disks B, rolling together, are braced by each other. To brace said disks laterally underneath, I provide the friction-wheels O, which roll together horizontally at the center and bear at their outer edges against the inner faces of disks B, Fig. 2. The wheels O are fixed upon shafts P, supported in bearings depending from frame A.

In place of the friction-wheels O, I may substitute the perpendicular friction-wheels O′ O′, secured upon the shafts P′ P′, which are journaled in depending boxes *a a*, and are located directly underneath and parallel to shafts L L of disks B, and, like said shafts L, they have their inner ends beveled to bear against each other for the purpose of bracing said friction-wheels O′ against the lateral or inward pressure of disks B. Like the friction-wheels G G, the wheels O′ O′ have their edges which bear against disks B beveled, so as to present to the faces of said disks sufficient bearing-surface. The disks B B are formed with the strong cast-iron hubs D D, and the rims E E of boiler iron firmly bolted or riveted thereto, as shown in Fig. 2.

C C are scoops or wings secured to the outer faces of the rims E tangential to the hubs D, so as to clear themselves more readily of the snow accumulated therein by the revolution of the disks, said wings having a sharp downward pitch as they begin to rise at the rear.

The disks B B are preferably constructed and arranged to rotate forward and downward at their top and front edges, so that the scoops C C will strike down into the snow at the front of the plow and throw the same outward and backward as they emerge from the cut in the latter half of their revolution, and thereby assist the forward movement of the plow.

The main features as well as the operation of my machine are fully described in the specifications of the patents hereinbefore referred to.

The shafts L L are provided with the bevel-

gears N N, with which similar bevel-gears, K K, keyed upon the transverse driving-shaft H, mesh. Between the gears K K a gear-wheel, I, is keyed upon said shaft H. To this gear I suitable power is applied, and motion communicated through bevel-gears K and N to the disks B B.

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

1. The combination, in a snow-plow, of the beak M, frame-work A, disks B B, formed substantially as described, and provided with wings or scoops C C, secured to the outer faces of said disks at an acute angle to their peripheries in the direction of their rotation, as set forth, together with suitable power and connections for rotating said disks.

2. In a snow-plow, the combination of the rotary disks B B, supported upon shafts L L, whose inner ends meet and bear against each other, forming a brace at the centers of said disks against lateral pressure upon their outer faces, together with mechanism, as described, for giving to said disks a rotary motion, substantially as and for the purposes set forth.

3. In a snow-plow, the combination of the rotary disks B B, so set that their forward edges roll together and brace each other outward, the beak M, beveled friction-wheels G G, mounted on the ends of the transverse shaft F, so as to bear against the rear inner faces of said disks and brace the same against lateral pressure, substantially as and for the purposes set forth.

4. The combination, in a snow-plow, of the rotary disks B B, formed as herein described, with the horizontal friction-wheels O, suspended from the frame of the machine in such manner as to bear against the inner faces of said disks underneath their centers, and to roll together at the center, whereby they brace each other and said disks against lateral pressure, substantially as and for the purposes set forth.

5. The combination, in a snow-plow, of the rotary disks B B with the friction-wheels O O, which bear against the inner faces of said disks and roll together at the center, stiffening said disks and bracing them outward, substantially as and for the purposes set forth.

6. In a snow-plow, the combination of the revolving disks B B, rolling together at their front edges and diverging toward the rear, and provided with arms or scoops C C, secured upon the exterior faces of said disks at oblique angles to their radii, substantially as and for the purposes set forth.

7. The combination, in a snow-plow, of the rotary disks B B with the friction wheels or rollers G G, mounted upon the ends of the transverse shaft F, so as to mutually brace said disks outward from side to side, substantially as and for the purposes set forth.

8. In a snow-plow, the combination of the disks B B with lateral-bracing wheels, which roll together and mutually brace each other and said disks near their lower edges, substantially as and for the purposes set forth.

9. The combination, in a snow-plow, of the disks B B, rotary braces bearing against said disks at the rear, and mutually supporting rotary braces bearing against said disks near their lower edges, substantially as described.

10. In a snow-plow, the disks B B, so mounted as to roll together at their front edges and form a mutual lateral support for each other at that point, rotary braces bearing against said disks at the rear and mutually supporting rotary braces bearing against said disks near their lower edges, substantially as and for the purposes set forth.

11. The combination of the disks B B, arranged and constructed to rotate at their top and front edges forward and downward, with wings or scoops attached to their exterior faces at an acute angle to the direction of their rotation, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LYMAN MORGAN.

Witnesses:
E. H. BOTTUM,
CHAS. L. GOSS.