(No Model.)

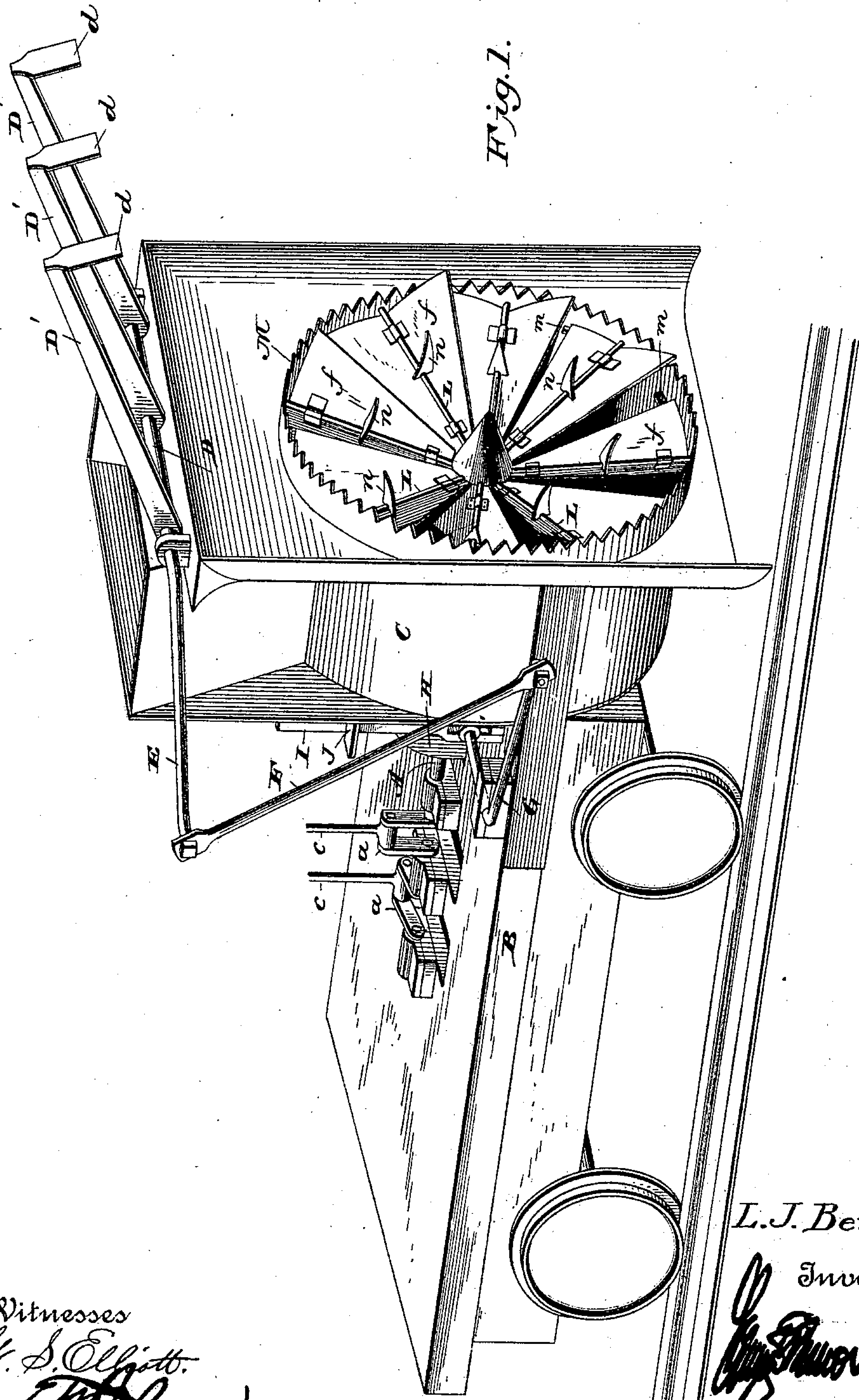
2 Sheets—Sheet 1.

L. J. BERGENDAHL.

SNOW PLOW.

No. 436,204. Patented Sept. 9, 1890.

Fig. 1.



Witnesses
G. S. Elliott.
C. M. Johnson

L. J. Bergendahl
Inventor

Attorney

(No Model.) 2 Sheets—Sheet 2.

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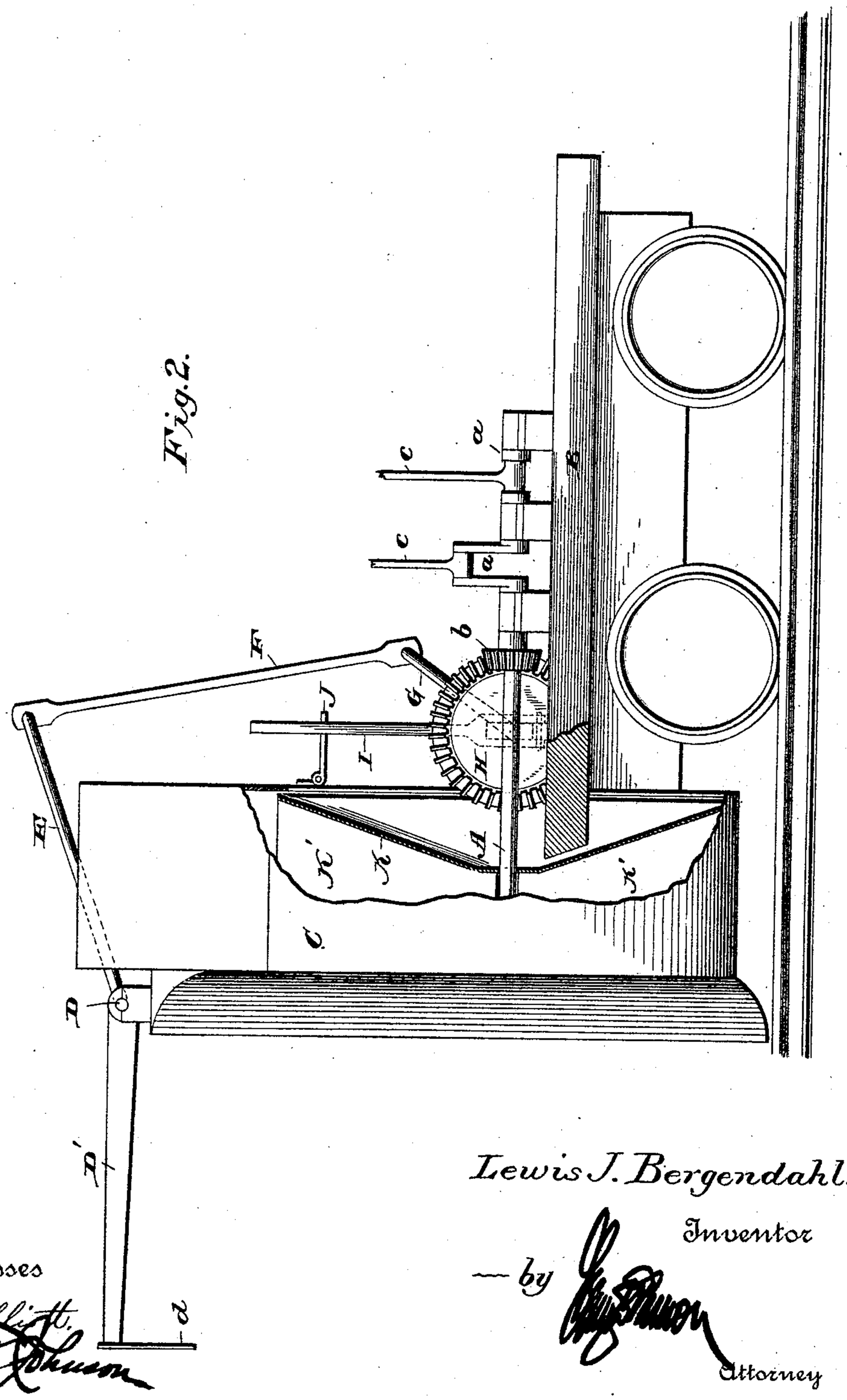
SNOW PLOW.

No. 436,204. Patented Sept. 9, 1890.

Fig. 2.



Witnesses
L. S. Elliott.
E. W. Johnson

Lewis J. Bergendahl.
Inventor
by E. W. Johnson
Attorney

UNITED STATES PATENT OFFICE.

LEWIS J. BERGENDAHL, OF PENDLETON, OREGON, ASSIGNOR OF TWO-THIRDS TO THOMAS C. TAYLOR, OF SAME PLACE, AND JOHN GAGEN, OF PORT TOWNSEND, WASHINGTON.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 436,204, dated September 9, 1890.

Application filed April 24, 1890. Serial No. 349,343. (No model.)

To all whom it may concern:

Be it known that I, LEWIS J. BERGENDAHL, a citizen of the United States of America, residing at Pendleton, in the county of Umatilla and State of Oregon, have invented certain new and useful Improvements in Snow-Plows; 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 of reference marked thereon, which form a part of this specification.

My invention relates to certain new and useful improvements in snow-excavators, the object being to provide an excavator of the class shown in my prior Patents dated May 26, 1886, No. 342,566, and March 13, 1888, No. 379,441, with hoes or cutters located above the rotary excavating-wheel, so as to loosen the snow above the same; also, in providing an improved construction whereby the snow will be more readily loosened and carried into the compartments formed in the rotary wheel, from which it is discharged by centrifugal force; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a rotary snow-plow or track-clearer constructed in accordance with my invention, and Fig. 2 is a side view partly in section.

A refers to the main shaft mounted in bearings which are attached to a suitable truck-frame. This shaft has rigidly attached at its forward end the rotary cutter, and it is provided with cranks *a a* and a pinion *b*. The crank is rotated by suitable pitmen *c c*, which are connected in the usual manner to the motor for driving the rotary cutter.

To the forward end of the truck B is attached a superstructure C, having at its upper portion above the casing for the rotary wheel an opening with inclined sides and vertical ends, through which the snow which is loosened and gathered in the compartments of the rotary plow is discharged by centrifugal force. To the upper forward end of the casing or superstructure C is journaled a transverse shaft D, carrying a series of arms D′, the ends of which are provided with cutters or hoes *d*, and one end of said shaft is turned downwardly or has secured thereto an arm E, connecting with a bar F, which is connected at its opposite end with a crank-shaft G, upon which is mounted a gear-wheel H. The shaft upon which the gear-wheel H is mounted is movable laterally in its bearings, so that it may be thrown out of mesh with the pinion *b*, and a lever I is pivoted to the upper side of the truck B and provided with a bifurcated end, which overlaps the shaft and abuts against collars rigidly secured to said shaft to effect the lateral movement thereof. The upper end of this lever is adapted to engage with a notched plate J, which will hold the lever so that the shaft will be either in or out of engagement, as may be desired. One side of this catch or plate J is rounded, while the other side has a straight edge, and it can be thrown up on its hinge when it is desired to adjust the bifurcated shifting-lever I.

The rotary wheel, which is fixed rigidly upon the shaft A, has a concave rear wall K and partition-plates K′, which radiate from the center hub to form pockets or compartments open at the front as well as at the outer ends, and in front of the walls K′ are secured a corresponding number of radiating shafts L, upon which are loosely mounted blades or cutters *f*, which are curved in cross-section, and the outer edges of these blades are sharpened or beveled. The outer ends of the blades abut against stops *m*, located on the inner side of the serrated ring M between the radiating partition-walls K′, and centrally the blades are provided with cutters or projecting fingers *n*, which are pointed and curved upwardly, as shown, the sides thereof being beveled. The outer ring or band, which projects beyond the forward casing or superstructure, is serrated or provided with saw-teeth, so that as the same is rotated it will better loosen the snow. It will be observed that the blades are pivoted so as to freely turn and present a series of corresponding cutting-edges, so that when the rotary excavator is turned in one direction it will throw

the snow by centrifugal force out of the opening in the top of the superstructure to one side of the track, and when turned in an opposite direction will deposit on the opposite side. The series of projecting blades *n* upon the cutters assist materially in loosening the snow in advance of the pivoted blades, and the snow is also loosened by the serrated band.

In previous devices there has been a liability of the rotary snow-plow tunneling and leaving an archway of snow, and this is entirely prevented by providing such a snow-plow with cutters above the same. When the snow is of a moderate depth and does not extend above the rotary plow, these hoes can be thrown out of engagement with the driving-shaft.

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

1. The combination, with a rotary snow-plow constructed substantially as shown, of vertically-vibrating pivoted hoes or cutters mounted on the same frame as the rotary plow and adapted to operate above and in front of said plow, substantially as set forth.

2. The combination, in a rotary snow-plow, of vertically-vibrating pivoted cutters or excavators mounted above the rotary plow and adapted to be operated from the driving-shaft thereof, substantially as set forth.

3. The combination, with a rotary snow-plow constructed substantially as shown, of a series of vibrating cutters or hoes mounted on a shaft and connected to the driving-shaft, and a lever for throwing the connecting means in and out of gear with the driving-shaft, substantially as set forth.

4. In a snow-plow or excavator, a series of pivoted blades provided with cutters *n*, located between the ends of said blades, substantially as set forth.

5. The combination, in a rotary snow-plow or excavator having a series of pivoted blades, of projecting fingers or cutters *n*, secured thereto, said fingers being curved and provided with beveled or sharpened edges, substantially as set forth.

6. The combination, in a rotary snow-plow, of an excavating-wheel having a concave back K, radiating partition-plates K′, pivoted blades or cutters *f* in front of said partition-plates, a rim or tire M, having a serrated front edge and stops for limiting the movement of the pivoted blades, substantially as set forth.

7. In a rotary snow-plow or excavator, a wheel-casing having an open-top delivery and side walls, within which the rotary excavator turns, said excavator consisting of a concave rear plate, radial partition-plates forming open front and end compartments, a central hub attached to the driving-shaft, a rim with a serrated front edge, and pivoted cutters *f*, adapted to engage with stops carried by the serrated rim or tire and located between the partition-plates, said cutters *f* having projecting fingers *n*, the blades being adapted to reverse automatically in accordance with the direction that the driving-shaft is turned, so as to deposit the snow on either side of the track, substantially as shown, and for the purpose set forth.

8. The combination, in a rotary snow-plow, of a wheel having a central hub, concave back plate, rim M, and radial bars secured to the hub in front of the partition-plates, a series of cutters pivoted upon the bars, a wheel-casing having open-top delivery and vibrating bars D, carrying hoes or cutters, and means, substantially as shown, for throwing the operating mechanism of the vibrating cutters in and out of engagement with the main driving-shaft, the parts being organized substantially as shown, and for the purpose set forth.

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

LEWIS J. BERGENDAHL.

Witnesses:

ROBERT FORSTER,

THOS. FITZ GERALD.