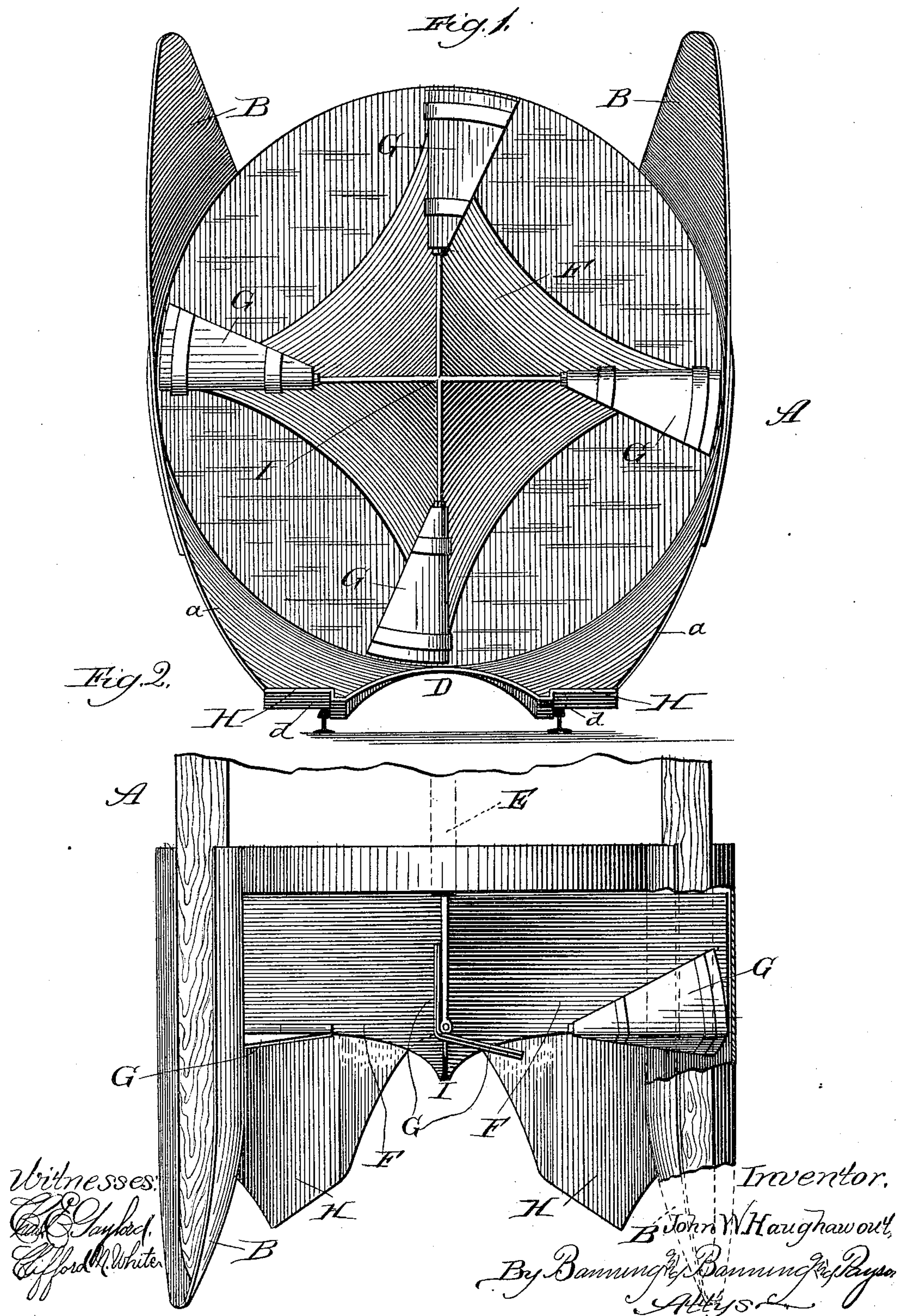


2 Sheets—Sheet 1.

No. 403,665.

Patented May 21, 1889.



(No Model.)

2 Sheets—Sheet 2.

J. W. HAUGHAWOUT.  
SNOW PLOW.

No. 403,665.

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Fig. 3.

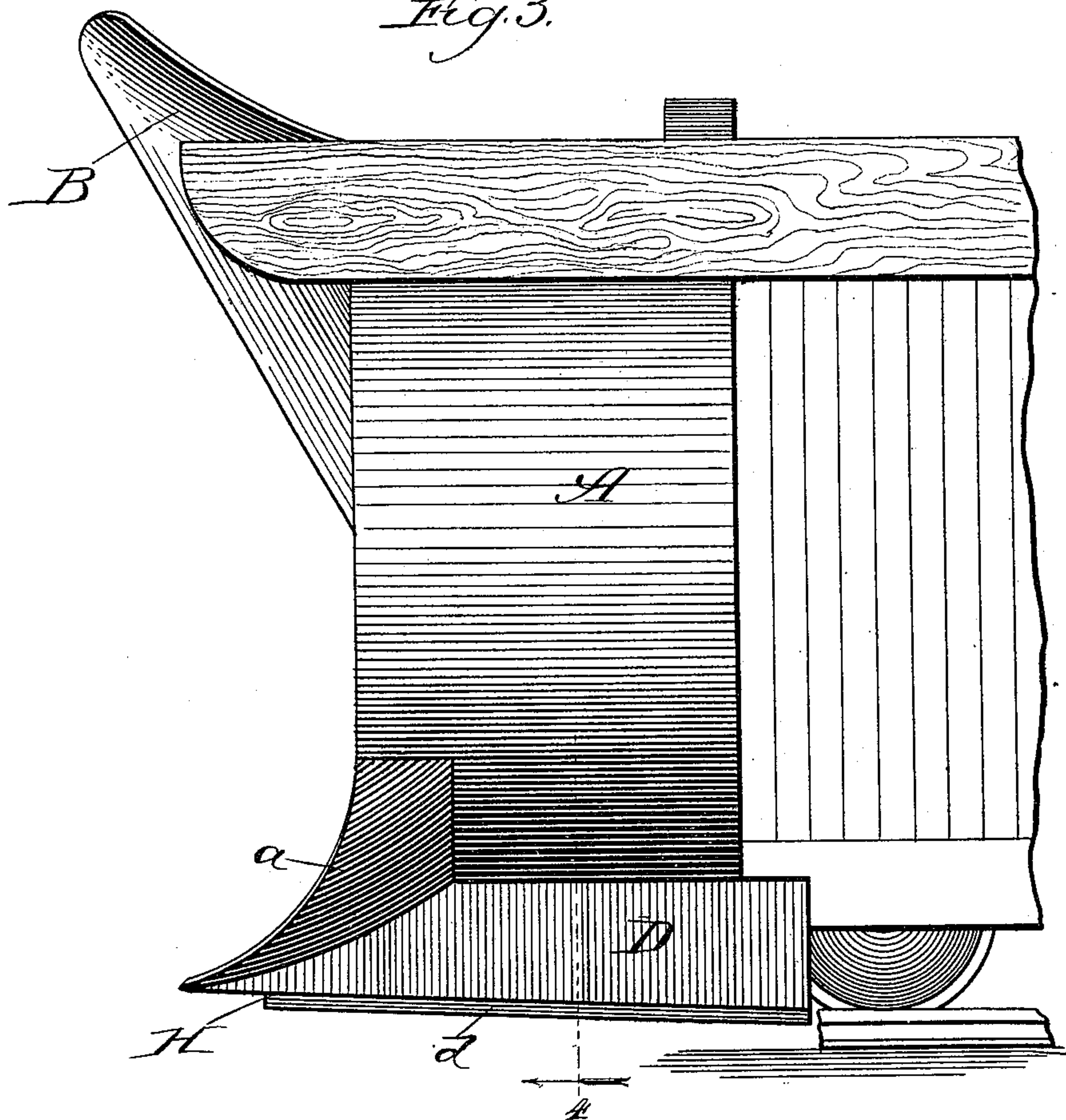
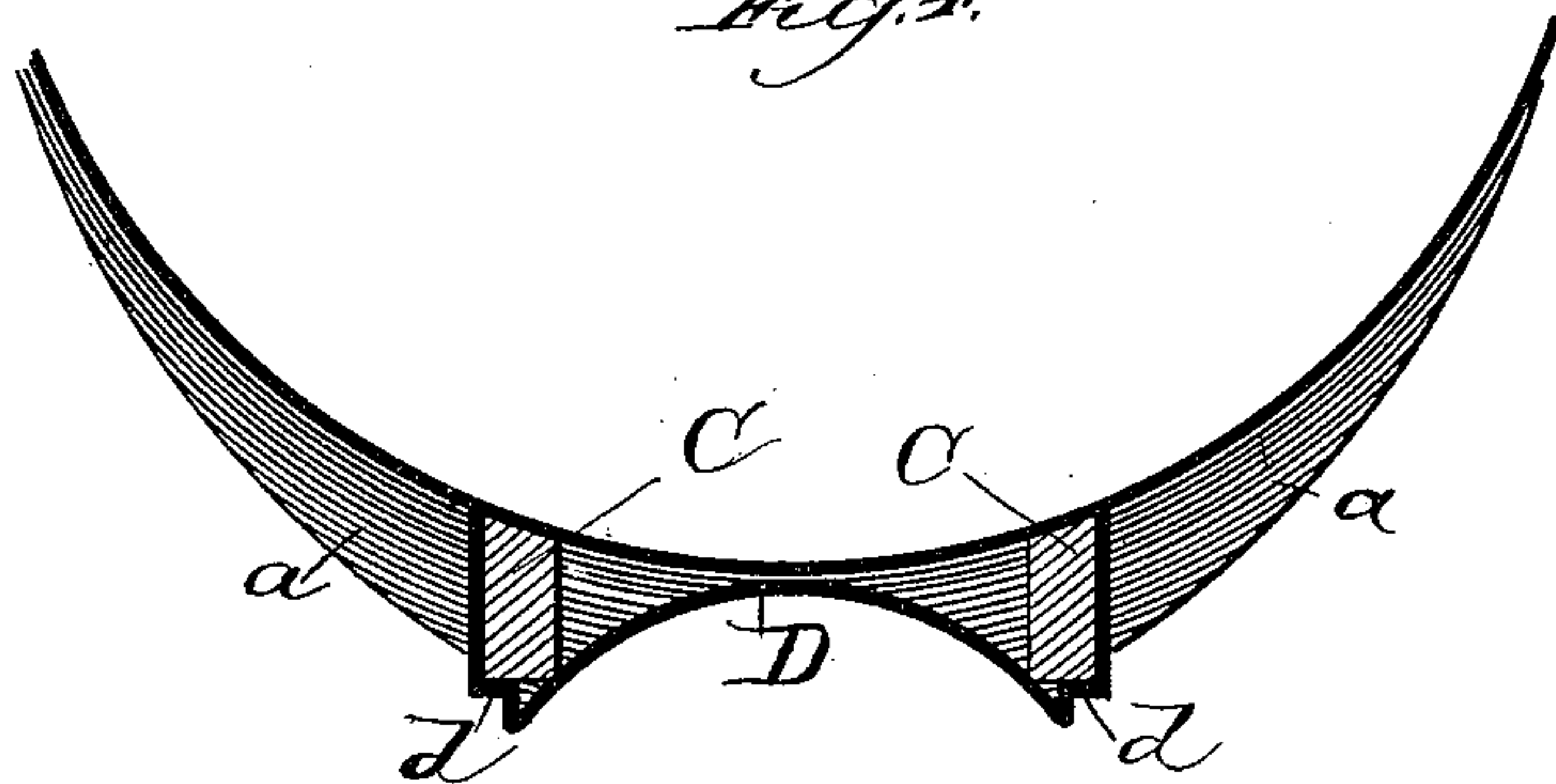


Fig. 4.



Witnesses:

Wm. Lloyd Garrison.  
Clifford H. White.

*Inventor,*

John W. Haughawort,  
By Banning & Banning, Esqrs.  
Att'ys.



# UNITED STATES PATENT OFFICE.

JOHN W. HAUGHAWOUT, OF OMAHA, NEBRASKA.

## SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 403,665, dated May 21, 1889.

Application filed October 12, 1888. Serial No. 287,960. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. HAUGHAWOUT, a citizen of the United States, residing at Omaha, Nebraska, have invented certain new and useful Improvements in Snow-Plows, of which the following is a specification.

The object of my invention is to make a new form of rotary snow-plow for use on railroads which shall avoid the objections that have been found to exist in the use of such plows; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a front elevation of my improved snow-plow. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of my snow-plow, and Fig. 4 is a vertical section taken on the line 4 of Fig. 3, looking in the direction of the arrow.

In making my improved rotary snow-plow I use a car to be placed at the head of a train and provided with means for operating the plow. These means consist, in general terms, of an engine located in the snow-plow car, with proper connections with the snow-plow, so that it operates the same. The front end of the car is provided with an extending case, A, open at the top and forming the apron of the snow-plow at the bottom. This case is of greater diameter than the tracks of the railway, as shown in Fig. 1, and extends far enough forward to inclose the rotating blades of the plow and prevent their operation from being interfered with by the wind, and the snow from falling back, so that it could interfere with the wheels of the train. As before said, the top of this extended case is open, and is provided with wings B B, which, as shown in Figs. 1 and 3, extend upward beyond the top of the case and forward beyond its front edge. These wings are hollowed or concave in their under and forward sides, as shown in the drawings. The bottom of the case A rests on beams or supports C C, which extend forward from the car to the front edge of the plow. A supplemental piece, *a*, is carried from the sides of the case and fastened to the lower edge of the beams C C, so as to serve for a support or re-enforcement to the case.

A metal sheet, D, passes from the bottom

of the case along the outsides of the beams C to their bottoms, whence it turns, forming a shoulder, *d*, and passes across to the other beam. Between the beams this piece D is bent upward until in the middle it approaches or touches the bottom of the case. The piece D extends from the front of the plow back to the rear end of the case A, or as far back as may be deemed necessary. It is intended to rest at its rear end upon the rails, so as to entirely free them from sand, snow, &c., and to incline slightly upward to the front end, so that the front or cutting edge will be out of contact with the rails, thus clearing their joints, although immediately within the rails the cutting-edge may be lowered to a point below their tops. The object of having the plow bent upward, so as to form an arch between the beams C C, as shown in Fig. 4, is to enable it to clear the ground in those tracks where the space between the rails has been filled with sand or gravel, so as to be higher than the tops of the rails, as is often the case. This will enable the plow to clear the sand or gravel in the center of the track, while at the same time removing the snow entirely from the rails themselves.

A horizontal shaft, E, driven by the motive power in the snow-car, is mounted in suitable bearings and extended forward to afford means for rotating the blades of the snow-plow. The snow-plow itself consists of a series of rotating blades, F, (of which I prefer to use four,) arranged in the case A and mounted on the horizontal shaft E, so as to be rotated therewith. They may be rotated in either direction, according to the direction in which the shaft is rotated, so as to discharge the snow at one side of the track or the other, as may be desired. The blades of the snow-plow are provided with cutting-edges G, which are attached to their front edges and incline slightly outward, as shown in Fig. 2. This enables each blade as it rotates to take hold, as it were, of the snow and to work its way in with a boring motion or operation. Instead of pushing the snow-plow into a bank of snow by sheer force alone, as has heretofore been the case, I cause my plow to assist in working its way in by means of these inclined cutting-edges of the blades F. These cutting-edges are made, as shown in Fig. 2,



with two edges extending from each other at an obtuse angle, and are pivoted to the front edge of the blades F, so that they may turn and present one edge or the other as the blades are rotated in one direction or the other. In this way, no matter which way the blades are rotated, a cutting-edge will be provided to enter the snow, as described. Between the rotating blades F of the plow the space is inclined backward and outward from each blade and from the point of the hub so as to form a shape resembling a double mold-board of a plow. The object of this is to throw or force the snow up this incline and prevent the edges of the blade from becoming clogged against the interior of the case and facilitate the discharge of the snow.

The lower edge of the case extends forward in advance of its sides, forming entering-points H, which cut the snow at the bottom and facilitate its removal. The hub of the cutting-blades F is extended forward at I, so as to form a point to enable it the more readily to pierce a bank of snow.

In operation the snow is severed from the bank by the cutting-edges of the rotating blades and carried around into one of the wings B, whence it is discharged at the opposite side of the track and a sufficient distance therefrom to prevent its falling or blowing back. In fact it is often carried to a distance of from one to two hundred feet from the track.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a rotary snow-plow, the combination

of a series of blades rotated by a common shaft, sloping from their forward edges outward and backward in a double curve, substantially as described.

2. In a rotary snow-plow, a series of blades rotated by a common shaft, sloping from their forward edges outward and backward in a double curve, in combination with a series of reversible cutting-edges extended forward to enter the snow at an angle or with a boring movement, substantially as described.

3. In a rotary snow-plow, a series of blades rotated by a common shaft, in combination with wings hollowed out inwardly and rearwardly and forming an extension of the case upwardly and forwardly, whereby the snow is directed toward one side or the other of the track and discharged at a sufficient distance therefrom, substantially as described.

4. In a rotary snow-plow, a series of blades rotated by a common shaft and sloping from their forward edges outward and backward in a double curve, in combination with an inclosing cylindrical case, substantially as described.

5. In a rotary snow-plow, a series of blades rotated by a common shaft, in combination with a cutting-apron clearing the rails of the track at its front edge and resting thereon at its rear and arched on its under side between the rails, substantially as described.

JOHN W. HAUGHAWOUT.

Witnesses:

BEN B. WOOD,  
J. I. HAMILTON.