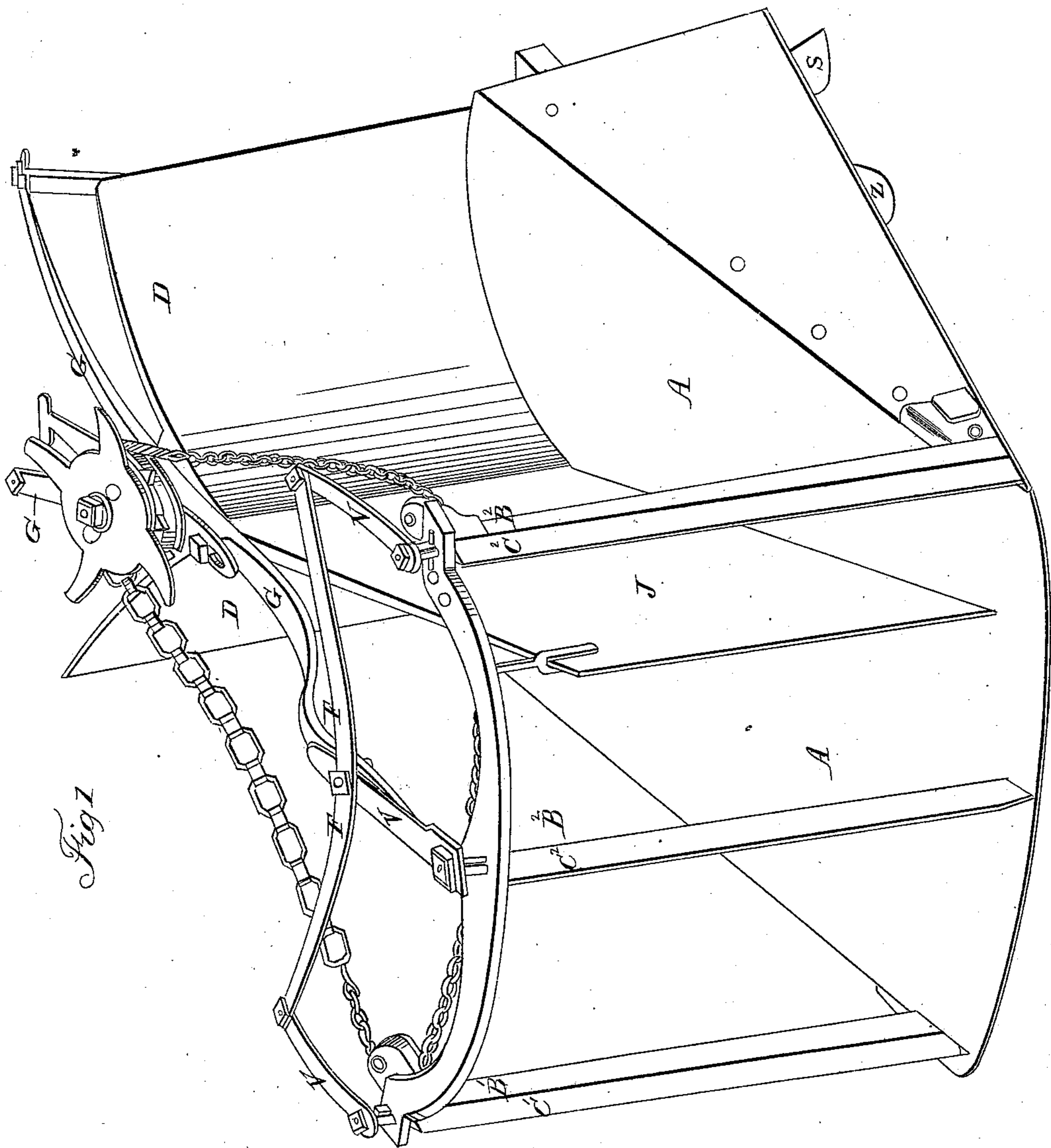


J. H. PAWLING.  
Car-Track Clearer.

3 Sheets—Sheet 1.

No. 19,577.

Patented Mar. 9, 1858.



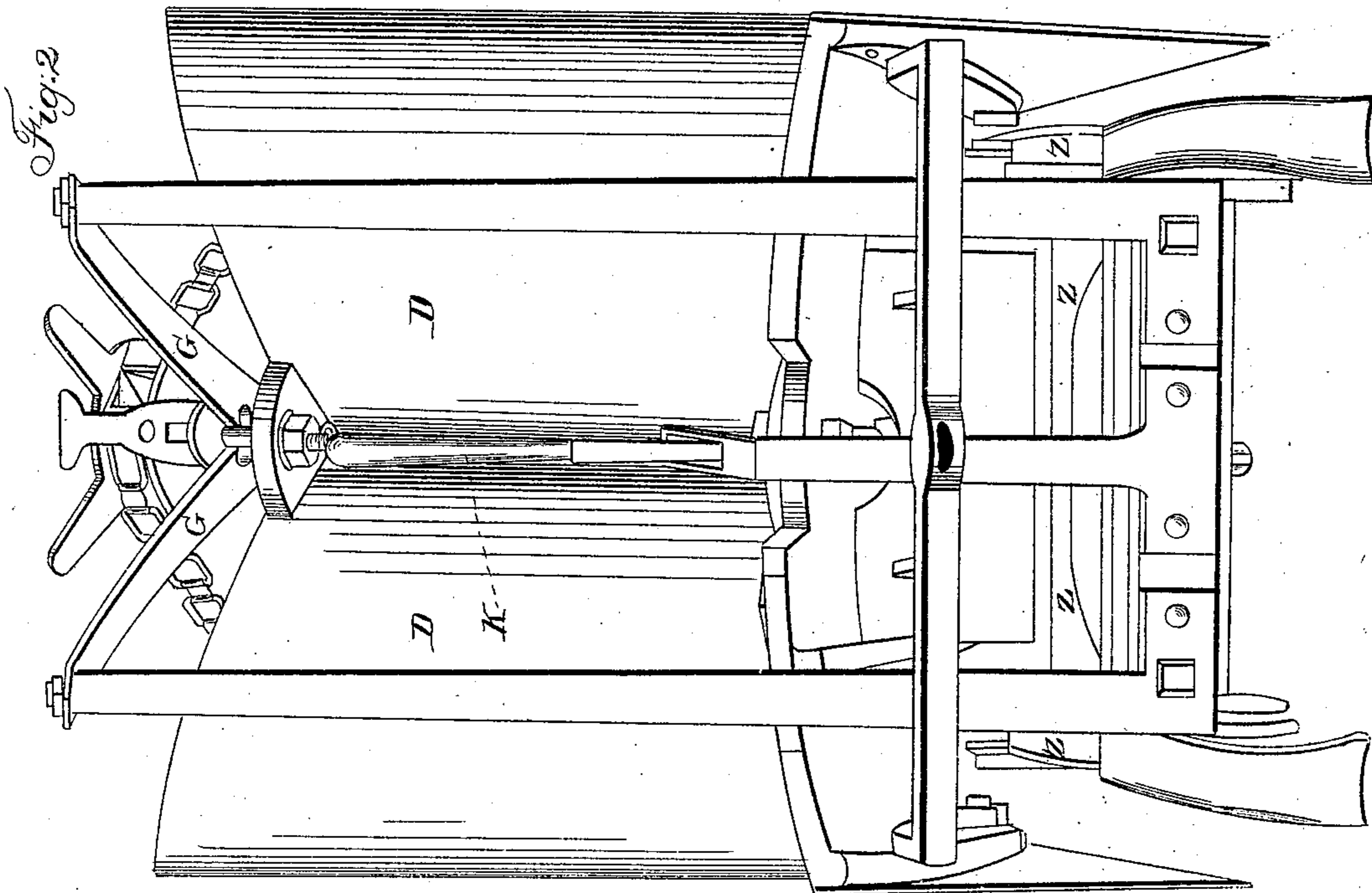
Witnesses;  
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William E. Littleton

Inventor,  
Joseph H. Pawling

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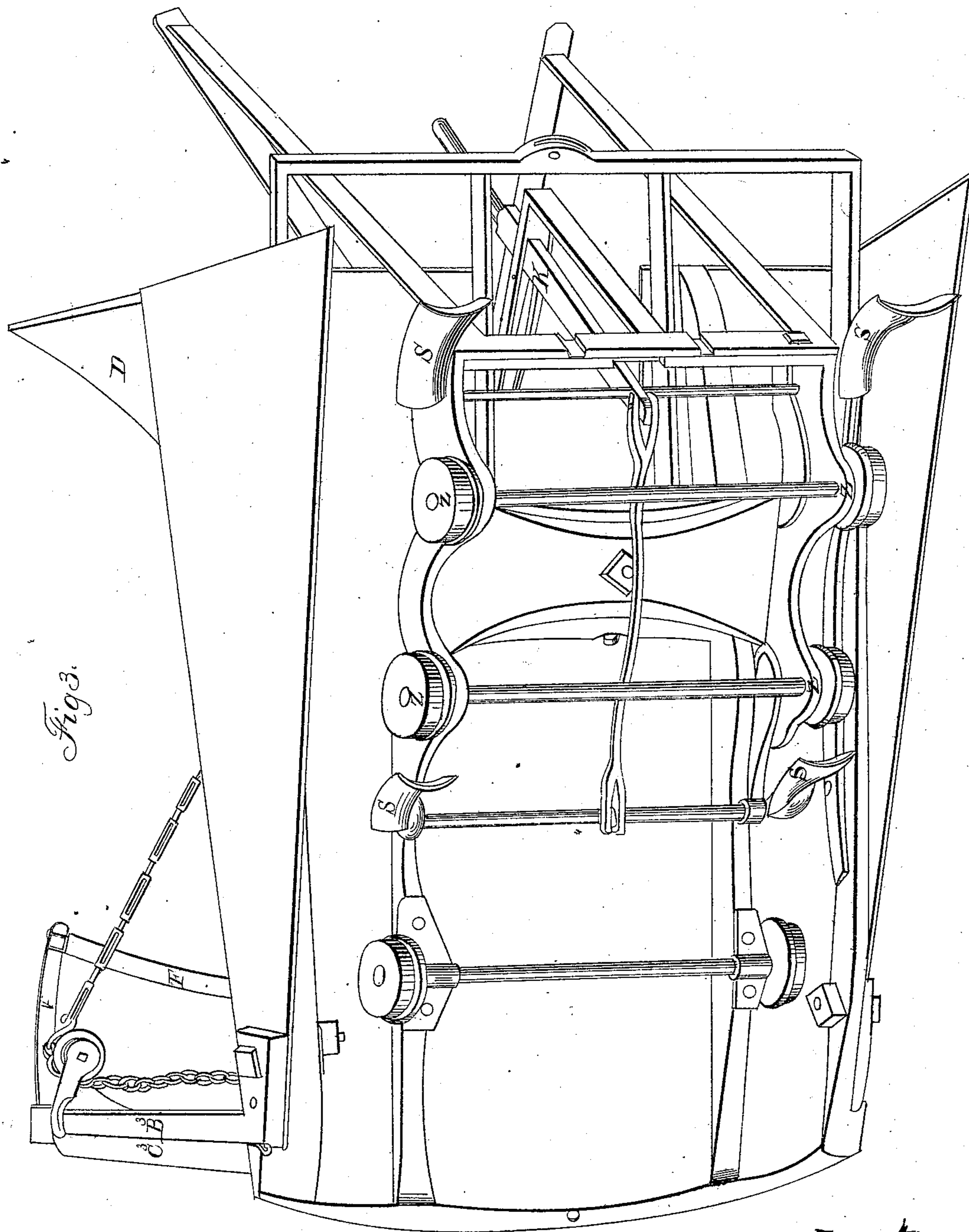
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*Fig. 3.*

Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOSEPH H. PAWLING, OF PHILADELPHIA, PENNSYLVANIA.

## SNOW-PLOW.

Specification of Letters Patent No. 19,577, dated March 9, 1858.

*To all whom it may concern:*

Be it known that I, JOSEPH H. PAWLING, of the city of Philadelphia, in the Commonwealth of Pennsylvania, have invented  
5 certain new and useful Improvements in Snow-Plows for Cleaning the Tracks of Railroads from Snow; and I do hereby declare that the following is a full, clear, and exact description of the construction and  
10 operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a view from the front. Fig. 2 is a view from the rear and Fig. 3 is a view  
15 from beneath.

The disadvantage hitherto obtained in the snowplows in general use, is, that they are generally if not invariably constructed upon the principle of forcing or bursting  
20 out the snow to be removed and wedging it off the track. The power of the engine is therefore, in endeavoring to overcome the resistance offered by a large bank of snow, exerted against itself, and the greater the  
25 power brought to bear, the greater is the tendency to impede the progress of the plow, and to throw the engine off the track. These disadvantages are peculiarly manifest in places where the snow has been  
30 banked up by the wind or other causes, and particularly upon the curves of the track. In order to obviate these disadvantages I propose to cut up and slice out the snow in a direction according with that of the  
35 track, before the plowing action by which it is lifted up and cast off of the track, is brought to bear upon it; and also to change the action or rather the direction of the action of the plow, so that the snow may be  
40 thrown toward either one side or the other or equally toward both, as the position of the track may render most advisable.

I construct the plow in the following manner. I use an inclined plane or platform A, A, Fig. 1, the forward edge of which I cause to run as closely to the track or rail as may be safe. Upon the forward part of this inclined plane, I erect three or more posts B<sup>1</sup>, B<sup>2</sup>, B<sup>3</sup>, Fig. 2, which serve  
50 not only to support the superior machinery hereinafter mentioned, but also to support the cutters C<sup>1</sup>, C<sup>2</sup>, C<sup>3</sup>. These cutters are intended to carve and shape out the snow preparatory to bringing the lifting and  
55 throwing action of the plow to bear upon it. The object is to cut up and subdivide the

snow, so as to offer less resistance and cause it more readily to be lifted and scattered by the other parts of the plow. The cutters incline forward, by means of this arrangement their edges act first upon the upper  
60 crust of the snow which is from congelation harder than the under portion. To give greater effect to the action of these cutters I arrange them on the front of the platform  
65 in the arc of a circle, so as to bring the center cutter in advance of the others. The inclination of the cutters causes them to act upon the snow in the manner of a drawing knife, and they cut or slice the upper  
70 crust, before the softer portion of the snow is exposed to their action. The snow thus cut, carved or sliced is lifted up by the inclined plane or platform, and thrown off to the sides by the movable wing J, C, and  
75 moldboard or lateral wings D, D.

I arrange the cutters so as to revolve from left to right and from right to left, upon pivots or axles. The lower ends of these are inserted in the platform or inclined  
80 plane and their upper ends are inserted in the frame work E, E, which is supported by the posts B, B. Each cutter is moved by a lever V, V, V. These levers are connected by a transverse bar F. They thus  
85 act simultaneously and together and also in the same direction. The edge of each cutter will always act parallel with those of the others. A forked lever G, G, G, is connected by each end with the transverse bar F and  
90 by the forks with perpendicular rods or posts H, H, which are inserted into the hinder end of the truck Z, Z, Z, Z, upon which the plow runs, so that the truck  
95 moving on the line of the rails, accommodates itself to the various curves of the track, and this accommodative motion is transmitted to the cutters, by the arrangement hereinbefore set forth or any other  
substantially the same. The edges of the  
100 cutters are thus always following and cutting in accordance with the curve of the track, and are thus brought to bear upon the snow in the direction of the curve. I do not  
confine myself however to this communi-  
105 cated motion. The cutters may if preferred be fixed, or moved by hand.

The main wing J is movable at pleasure. It works upon an axis inserted at the outside angle formed by the lateral wings of  
110 the mold board D, D. Its edge fits into and can rest against each of the posts support-

ing the cutters, and thus forms a continuous edge and blade with any one of them. This wing is moved by any ordinary windlass and tackle in the same manner as the rudder of a ship is moved. It can thus be moved and controlled by any person stationed on a platform in the rear of the lateral wings, who can thus regulate, change and alter the direction of the action of the plow according to circumstances (for instance the position of the track in relation to embankments.) Should it be desired to cast the snow to the right, the wing is shifted to the left hand post B' and then forms a continuous edge or blade with the left-hand cutter and the lateral action of the plow is thus most favorably exerted and in the proper direction. The snow divided by the action of the cutters, is lifted up in the progress of the plow, upon the platform or inclined plane and will thus be thrown to the right. Should it be desired to cast the snow to the left the wing can be rapidly shifted to the right hand post B<sup>3</sup>. If the track be upon a plain, or if the snow bank be of equal height upon each side, the wing can be shifted so as to form a continuous edge or blade with the center cutter and the snow will then be thrown equally to the right and left.

For the purpose of cleaning the rails of whatever snow may remain after the passage of the plow, I use a series of scrapers S, S S S one behind and following each wheel of the truck Z, Z, Z, Z. These scrapers are convex, the convexity being in front, they curve also backward so as offer less resistance to the snow. They are fixed in such a manner as to admit of being simultaneously raised or depressed by the action of the lever K, Fig. 2. When the plow is in action the lever K is pushed back, and the scrapers brought in immediate contact with the surface of the rails, and the lever is then secured by a pin or bolt. The entire arrangement is thus within the control of any person stationed upon the platform. When the motion of the train is reversed,

the lever K is unpinned or unbolted and pushed so as to raise the scrapers from the surface of the rails, and keep them from catching in the joints.

Firstly, by making these knives or cutters movable and so connecting them with the truck upon which the plow runs, that the motion of the truck is communicated to them, and their edges thereby made to follow the course of the rails of the track.

Secondly, by making use of a series of scrapers, one behind each wheel of the truck, so as to scrape and clean the rails of the track from any snow left by the plow, which scrapers are to be raised or depressed at pleasure.

I disclaim the invention of the inclined plane A, A, the lateral wings D, D, the movable wing J, the cutters C, C, C, simply as such, the scrapers S, S, S S simply as such and every part and arrangement not hereinafter specifically claimed by me. But

What I do claim and desire may be secured by Letters Patent is—

1. The arrangement set forth in the said specification, or any other substantially the same, by which the cutters C, C, C, are made to revolve upon their axes, and by which the movement of the truck in following the direction and curves of the rails is communicated to the cutters, and brings their edges and causes them to act always in the direction in which the plow is moving.

2. The arrangement of the scrapers as hereinbefore specified or any other substantially the same by which they can be elevated and depressed at pleasure so as to be kept clear of the rails when the train is backing, and thus prevented from catching in the joints of the rails, and can be pressed against the rails when the train is moving forward, at the will of the operator.

JOSEPH H. PAWLING.

Witnesses:

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