

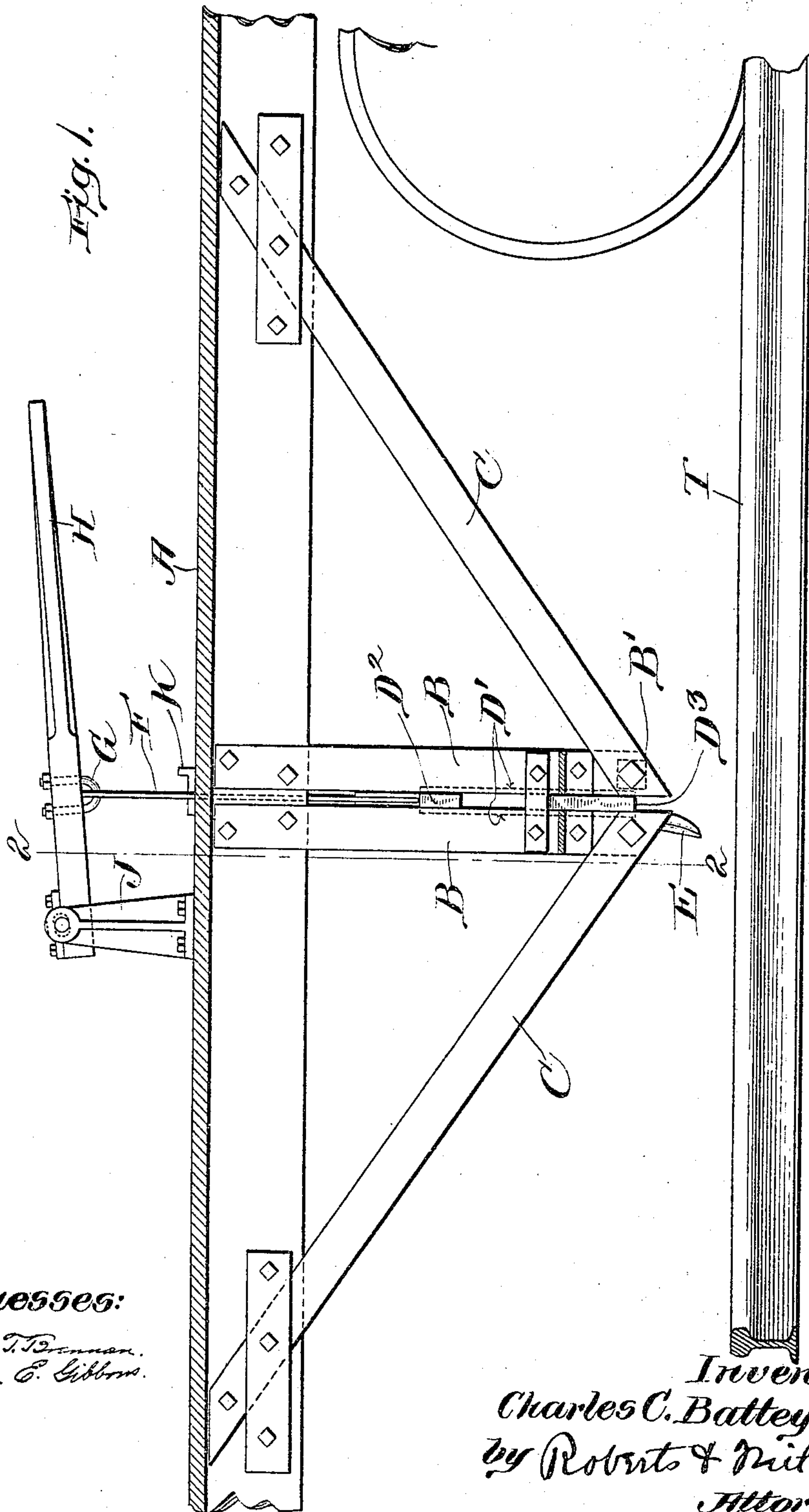
No. 816,208.

PATENTED MAR. 27, 1906.

C. C. BATTEY.  
TRACK CLEARING DEVICE.

APPLICATION FILED MAY 27, 1905.

3 SHEETS—SHEET 1.



*Witnesses:*

*Joseph T. Brennan.*  
*Grace E. Gibbons.*

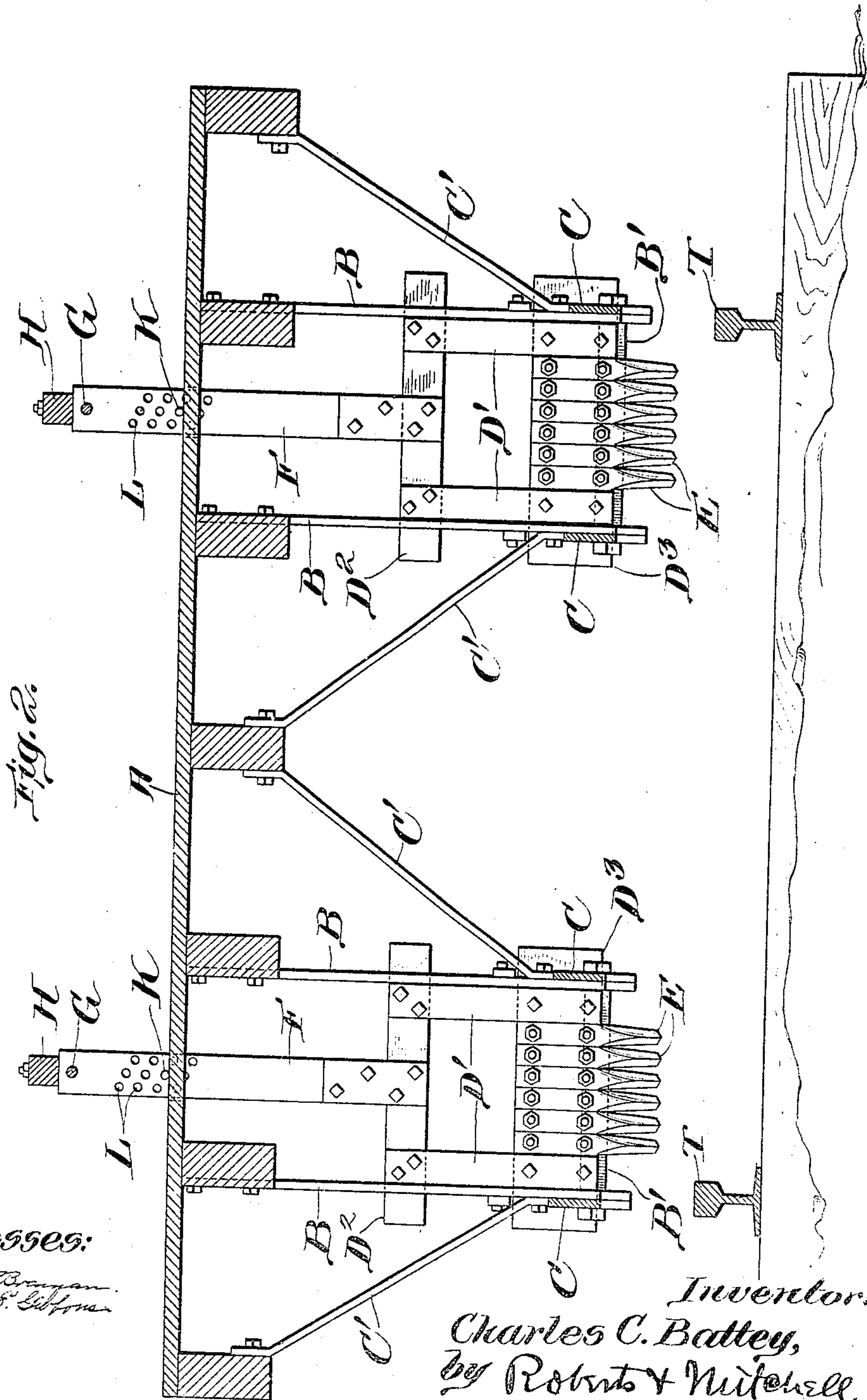
*Inventor:*  
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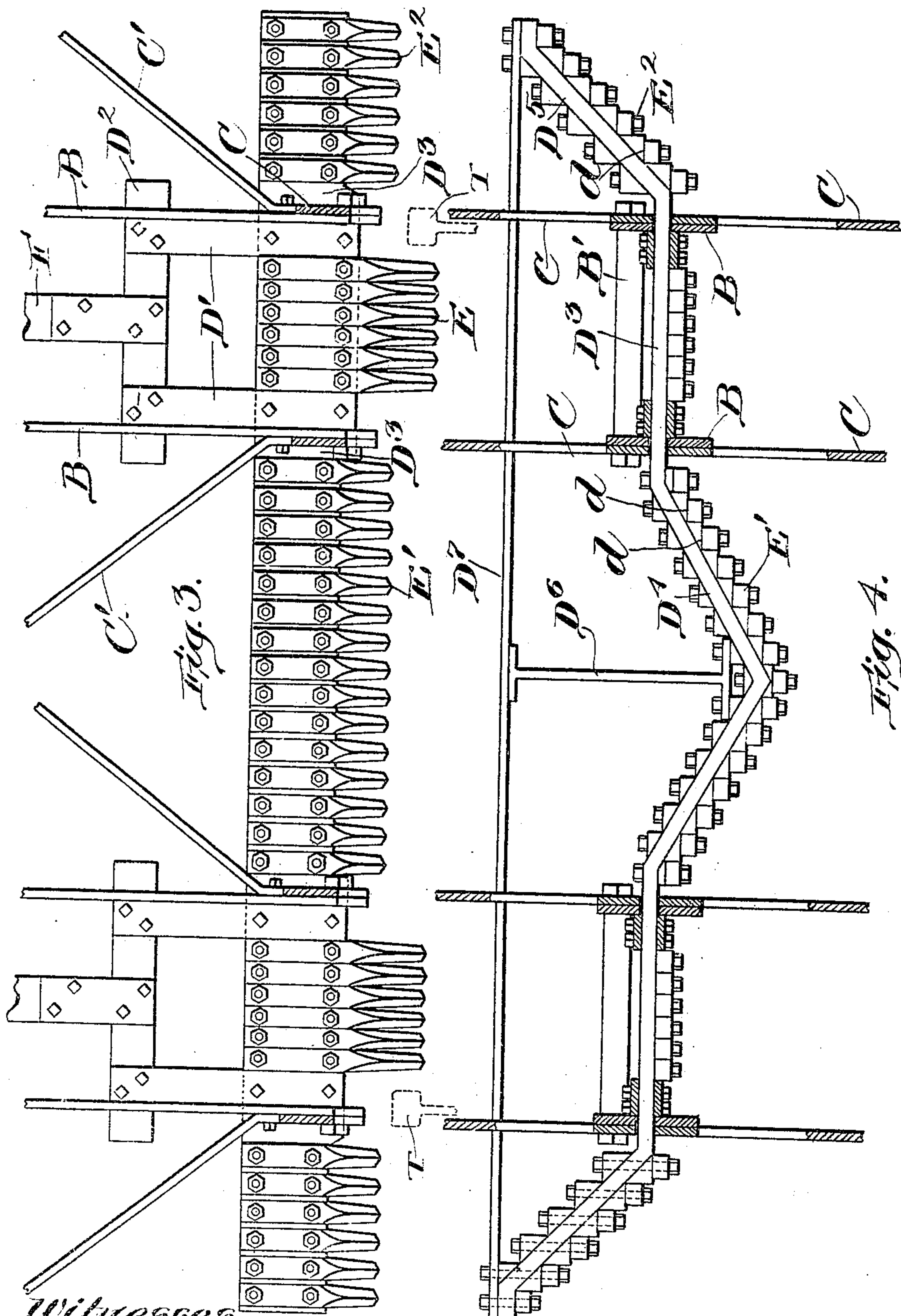
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3 SHEETS—SHEET 3.



Witnesses.

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# UNITED STATES PATENT OFFICE.

CHARLES C. BATTEY, OF CONCORD, NEW HAMPSHIRE.

## TRACK-CLEARING DEVICE.

No. 816,208.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed May 27, 1905. Serial No. 262,684.

*To all whom it may concern:*

Be it known that I, CHARLES C. BATTEY, a citizen of the United States, and a resident of Concord, in the county of Merrimack and State of New Hampshire, have invented new and useful Improvements in Track-Clearing Devices, of which the following is a specification.

My invention relates to track-clearing devices for railways; and it consists in particular of improvements whereby packed ice and snow may be effectually removed from that portion of the road-bed lying immediately inside the rails and in the path of the wheel-flanges.

The operation of the ordinary snow-plow, while effectual to clear the road-bed as a whole of snow, is liable in practice to involve an accumulation of packed snow around and inside the rails. Indeed, the action of the snow-plow tends to aggravate this accumulation by packing snow down and around the rails, and very often, therefore, an alternation of thawing and freezing weather causes this packed snow to turn to a solid bed of ice, and not infrequently the flanges of the vehicle-wheels ride up on this ice formation and cause derailment of the vehicle. My improvements are contrived so as effectually to obviate this difficulty and to remove from the track the accumulations of ice and snow which the ordinary snow-plow does not only not touch, but rather assists in collecting and compacting.

In the drawings hereto annexed, which illustrate an embodiment of my invention and improvements, Figure 1 is a longitudinal section of a vehicle, such as a platform-car, with my track-clearing device attached; and Fig. 2 is a cross-section of Fig. 1 at the line 2-2. Fig. 3 is a front elevation of the working parts of a preferred form of track-clearing device, and Fig. 4 is a plan view of the parts shown in Fig. 3.

In the drawings, A represents the platform of the vehicle-body, and B depending upright bars arranged in pairs which are slightly spaced apart, so as to serve as the guides for the cross-head or cutter-head, presently to be described. These uprights are braced longitudinally by the bars C and laterally by the bars C', these bars extending upward at suitable angles and being secured to convenient points on the frame of the vehicle-body. The uprights B and braces C C' constitute a frame in which the cutter-head

is held and moved. The cutter-head is composed of upright pieces D' and cross-bars D<sup>2</sup> D<sup>3</sup>, the lower cross-bar D<sup>3</sup> being sufficiently broad to serve as a proper base of attachment of the cutters or gouges E. The cutters E are preferably separately attached to the cross-bar D<sup>3</sup> and extend below this cross-bar, the outer cutter-blade being so located in the cutter-head that when the cutter-head is depressed it will descend to a position near the inside of the rail T, Fig. 2. These cutters or gouges are, moreover, inclined at their lower or cutting end, as shown in Fig. 1, so as the better to engage and remove ice which has accumulated inside the rails T. The bend or inclination of the gouge E is preferably in the direction in which the vehicle A is propelled. By this means the grip of the cutters on the frozen material tends to hold them and the cutter-head depressed. The cutters E are mounted in the cutter-head so that their working points or ends are slightly spaced apart. These working points, as shown in Figs. 1 and 3, are beveled at both sides with substantial symmetry from front to rear, and, as shown in Fig. 3, each cutter-blade or gouge is beveled at the rear side from the point upward, so as to afford a proper clearance when the gouge is in action. The mode of address of the active working point of the cutter E is in operation much like that of a diamond-pointed planer-tool. These gouges by reason of their rear and front bevels present the lowermost and most advanced point to the ice formed around and near the rails in such manner that the lowest point itself does substantially all the work, concentrating the action of the tool and confining it almost exclusively to the advanced point itself. The result of this construction of the cutters or gouges and their consequent mode of operation is to shiver the ice by splitting it into many small fragments rather than by an operation of shaving or plowing, which is much less effective than the splitting action.

The ends of the cross-bars D<sup>2</sup> D<sup>3</sup> extend laterally, so as to slide between the uprights B, and the cross-brace B' serves as a resistant rear bearing for the cutter-head when the latter is lowered to its working position. The bar F, secured to the upper cross-bar D<sup>2</sup> of the cutter-head, extends through a suitable slot in the vehicle-platform and is controlled by a lever H, pivoted upon the standard J, to which lever the bar F is loosely secured, as by



a staple G. In order to hold the cutter-head in its elevated and inoperative position, a number of holes L are provided, through any one of which a key K can be passed in order  
5 to support the weight of the cutter-head.

In operation as the vehicle is propelled along the track, the key K having been removed by depressing the lever H, the cutter-head and cutters E are lowered to operative  
10 position. If it is desired to support the cutters at a greater elevation than would be the case if the lever H is merely allowed to rest upon the vehicle-platform, the key K may be inserted in one of the upper holes L. The  
15 action of the cutters or gouges E is to split and break up the ice inside the rails, and thus to render it harmless, the mode shown of spacing the working ends of the cutters a short distance apart enabling each cutter to  
20 coöperate with its neighboring cutters to break up the ice.

Figs. 3 and 4 represent a more elaborately and completely organized track-clearing device in the form which, on the whole, I prefer  
25 for its adaptability to all conditions. In this form the bar D<sup>3</sup> extends from a point outside the rail T at one side to a point outside the other rail, being prolonged by the extensions D<sup>5</sup> at the wings and the middle span D<sup>4</sup>. The  
30 portions D<sup>4</sup> and D<sup>5</sup> are inclined, so as to form an apex over the middle of the track and trailing outside wings outside the track. A tie-bar D<sup>7</sup> is secured to the extreme rearward ends of the wing-pieces D<sup>5</sup>, and a strut D<sup>6</sup> is  
35 secured to the middle of the tie-bar D<sup>7</sup> and is bolted at the back of the apex formed by the juncture of the forwardly-extending middle portions of the cutter-bar sections D<sup>4</sup>. In  
40 order that the cutters E', which occupy the middle space underneath the car, shall be set square with the direction of movement of a car, I provide beveled blocks d, to which the middle cutters E' are bolted, the bolts extending through the beveled blocks d and bar D<sup>4</sup>.  
45 The outside cutters E<sup>2</sup> are similarly secured to the wing-bar D<sup>5</sup> with angle-blocks d.

The above-described track-clearing device is mounted in its frame so that the inclined series of cutters E' and E<sup>2</sup> act to push the accumulating ice-chips outward and finally to  
50 deliver them outside the rails after the manner of a plow. The splitting up and disintegration of the ice formed around and between the rails by means of the cutters E E' E<sup>2</sup> is a  
55 necessary preliminary to the final disposition of it by the plow action of the cutter-head, for where a simple plow-blade might serve in the case of light and unpacked snow when such a plow-blade comes in contact with  
60 heavily-packed snow or solidly-frozen ice it is wholly inadequate, and if any clearing of such material is attempted the liability of damaging the plow is almost certain; but with my track-clearing device above de-  
65 scribed as the working points of the cutters

E E' E<sup>2</sup> are spaced slightly apart, so that the local action of each point cracks and breaks the ice up into a multitude of loose chips, these chips can be disposed of very easily by the plowing action of the inclined cutter-bars  
70 with the cutters mounted thereon.

In Fig. 3 the preferred arrangement and adjustment of cutters is shown. The cutters E are of such length that their working points extend to a level just below that of the  
75 tops of the rails T. The points of the cutter E which hang over the middle of the road-bed are higher, standing at a level a little higher than that of the tops of the rails, while the points of the cutters E<sup>2</sup> outside the rails are  
80 preferably a little higher even than the points of the cutter E'. Thus the track-clearing device may operate with a maximum of economy. The cutters E clear away the ice ob-  
85 structions immediately inside the rails T and make a free passage for the flanges of the vehicle-wheels, while the cutters E' and E<sup>2</sup> clear away the ice and snow in the middle of the track and just outside of it to a level which is  
90 sufficient for all practical purposes.

I claim as my invention—

1. In a track-clearing device for railways, the combination of a vehicle-body, a frame secured thereto, a cutter-head mounted in the frame and a cutter secured to the cutter-  
95 head and consisting of a number of gouges placed side by side, each of said gouges inclined downwardly and forwardly, beveled with substantial symmetry on each side from front to rear to form a point, and beveled  
100 from the point upwardly on the rear side of the gouge to afford clearance, the points of said gouges being spaced apart.

2. In a track-clearing device, the combination of a vehicle-body, a frame secured  
105 thereto, a cutter-head mounted in the frame and the cutter consisting of a number of gouges secured to the cutter-head and placed side by side, each of said gouges being inclined downwardly and forwardly and provided with  
110 a clearance from the front upward on the rear side.

3. In a track-clearing device for railways, the combination of a vehicle-body, a frame depending therefrom, said frame consisting  
115 of the pairs of uprights, braced longitudinally and laterally, and spaced apart to admit a cutter-head, the cutter-head sliding between the pairs of uprights, cutters secured to the cutter-head, and means, operated from the  
120 vehicle, to adjust the elevation of the cutters with relation to the vehicle-body.

4. In a track-clearing device, the combination of a vehicle-body, a frame, a cutter-head sliding in the frame, portions of the cut-  
125 ter-head outside the rail-space and at the middle of said space being inclined, and intermediate portions next the rails being square to the direction of movement of the vehicle, cutters, consisting of gouges, secured  
130



to the cutter-head with their working ends spaced apart, and stepped cutter-seats on the inclined portions of the cutter-head.

5 In a track-clearing device, the combination of a vehicle-body, a frame, a cutter-head sliding in the frame, and comprising a cutter-bar portions of which are inclined to the direction of movement of the vehicle, cutter-seats upon said cutter-bar which are  
10 square to the direction of movement of the vehicle and cutters secured upon said seats with their working ends spaced apart.

6. In a track-clearing device, the combination of a vehicle-body, a frame, a cutter-

head sliding in the frame, and comprising a 15 cutter-bar whereof portions are inclined to the direction of movement of the vehicle, beveled blocks secured to the inclined portions of the cutter-bar and constituting seats for the cutters and the cutters seated upon 20 said blocks with their ends spaced apart.

Signed by me at Concord, New Hampshire, this 13th day of May, 1905.

CHARLES C. BATTEY. [L. S.]

Witnesses:

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