

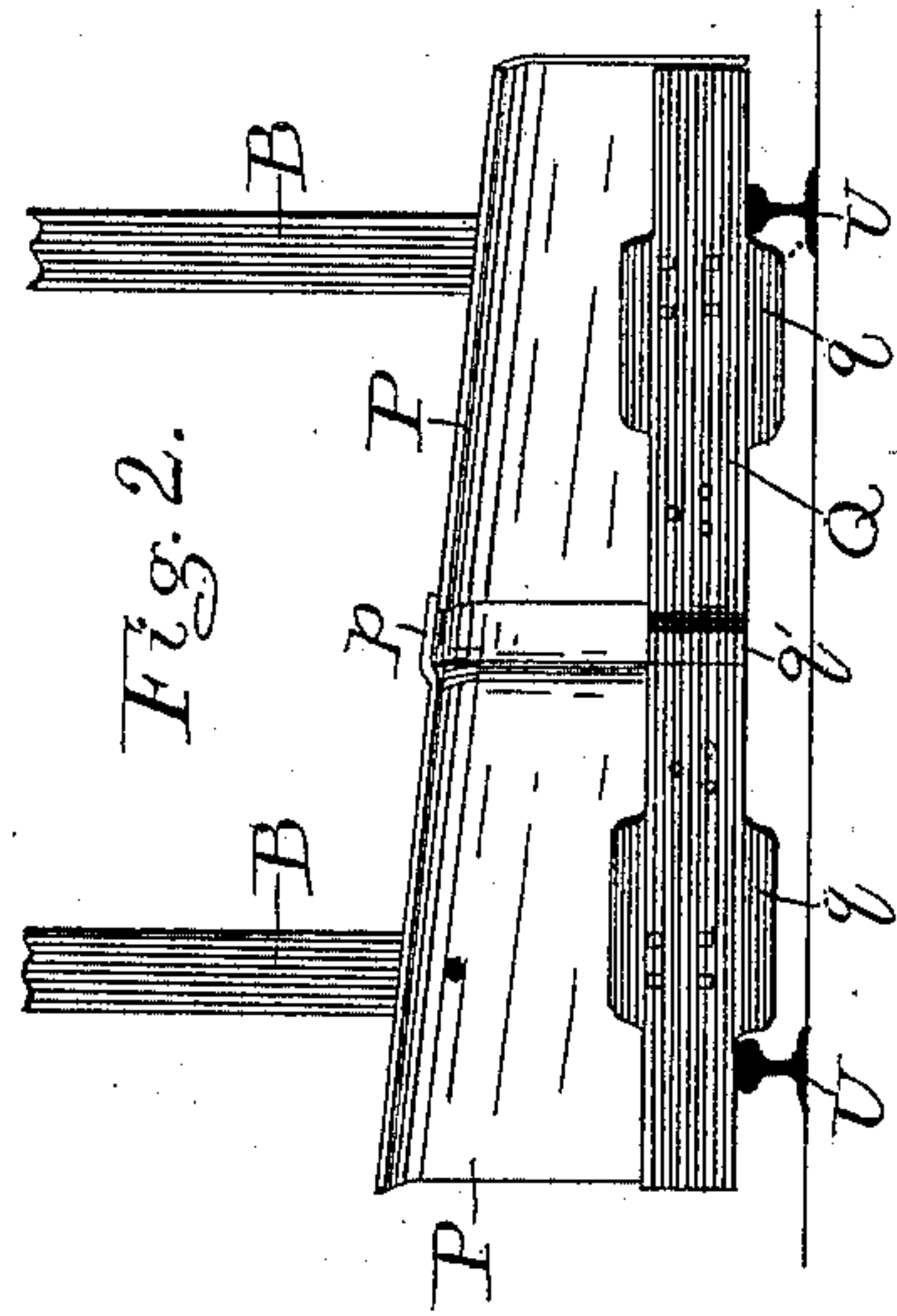
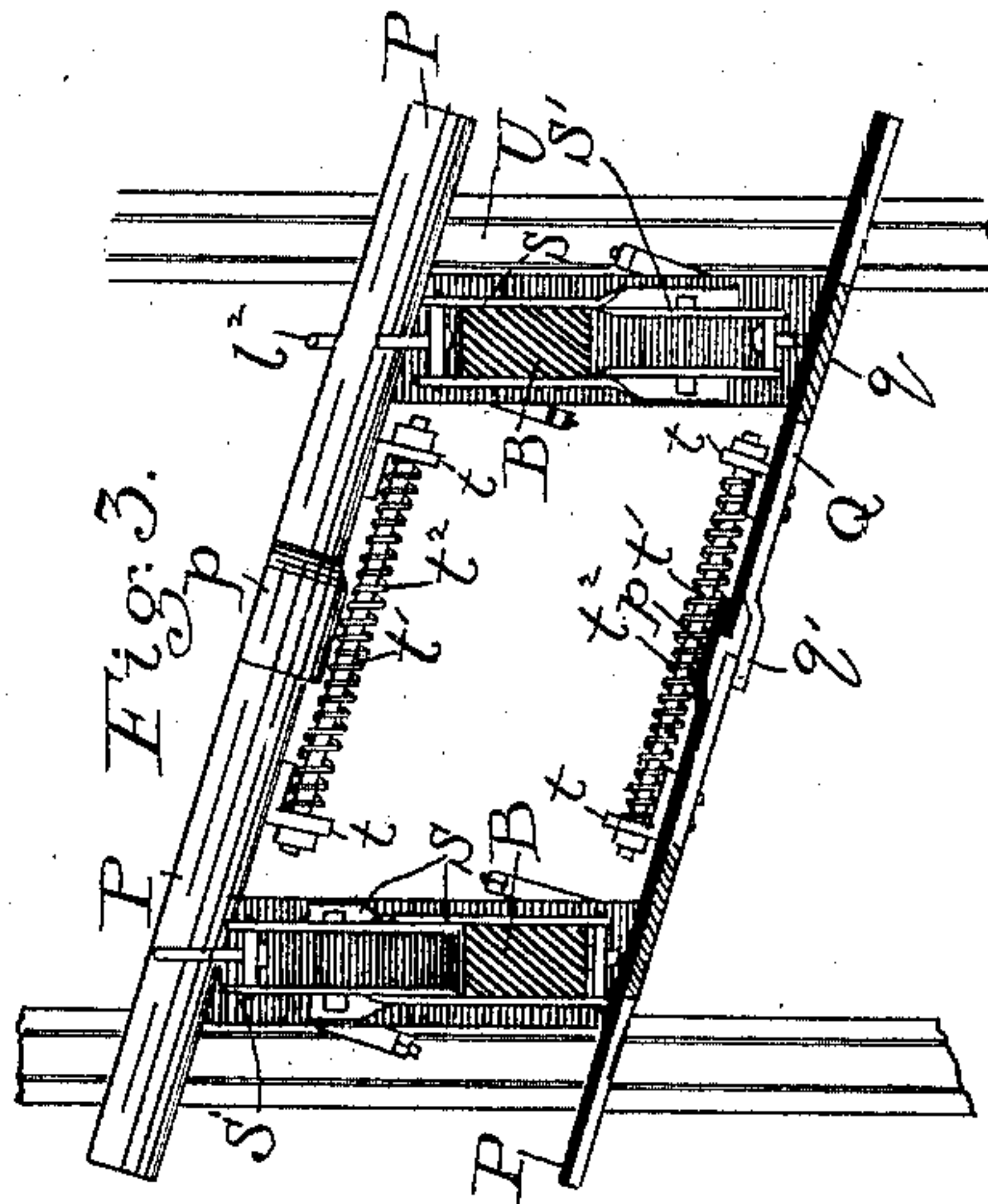
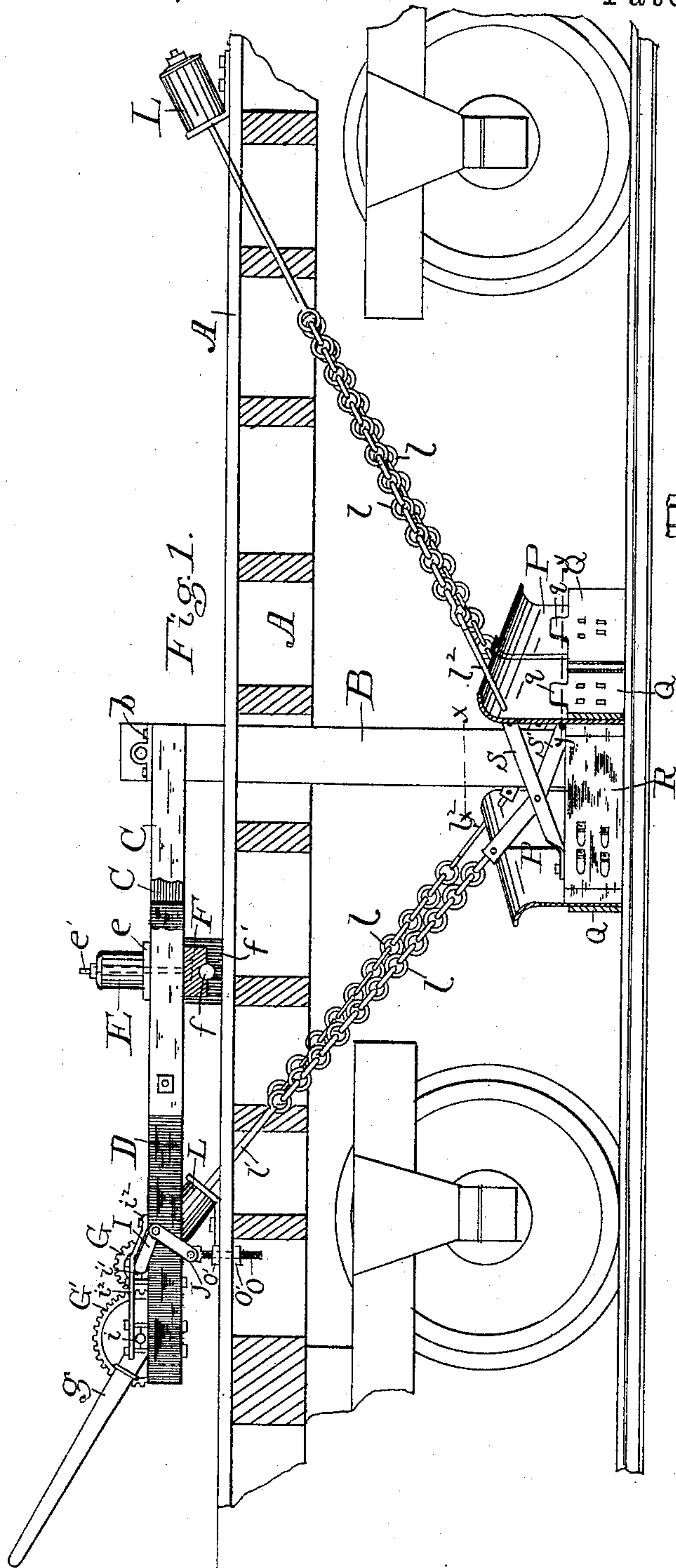
(No Model.)

2 Sheets—Sheet 1.

G. NEVENS.
TRACK CLEARER.

No. 370,555.

Patented Sept. 27, 1887.



Witnesses:

Elgin B. Verrill
Edward F. Hill

Inventor:
George Nevens
by S. M. Bates
his atty.

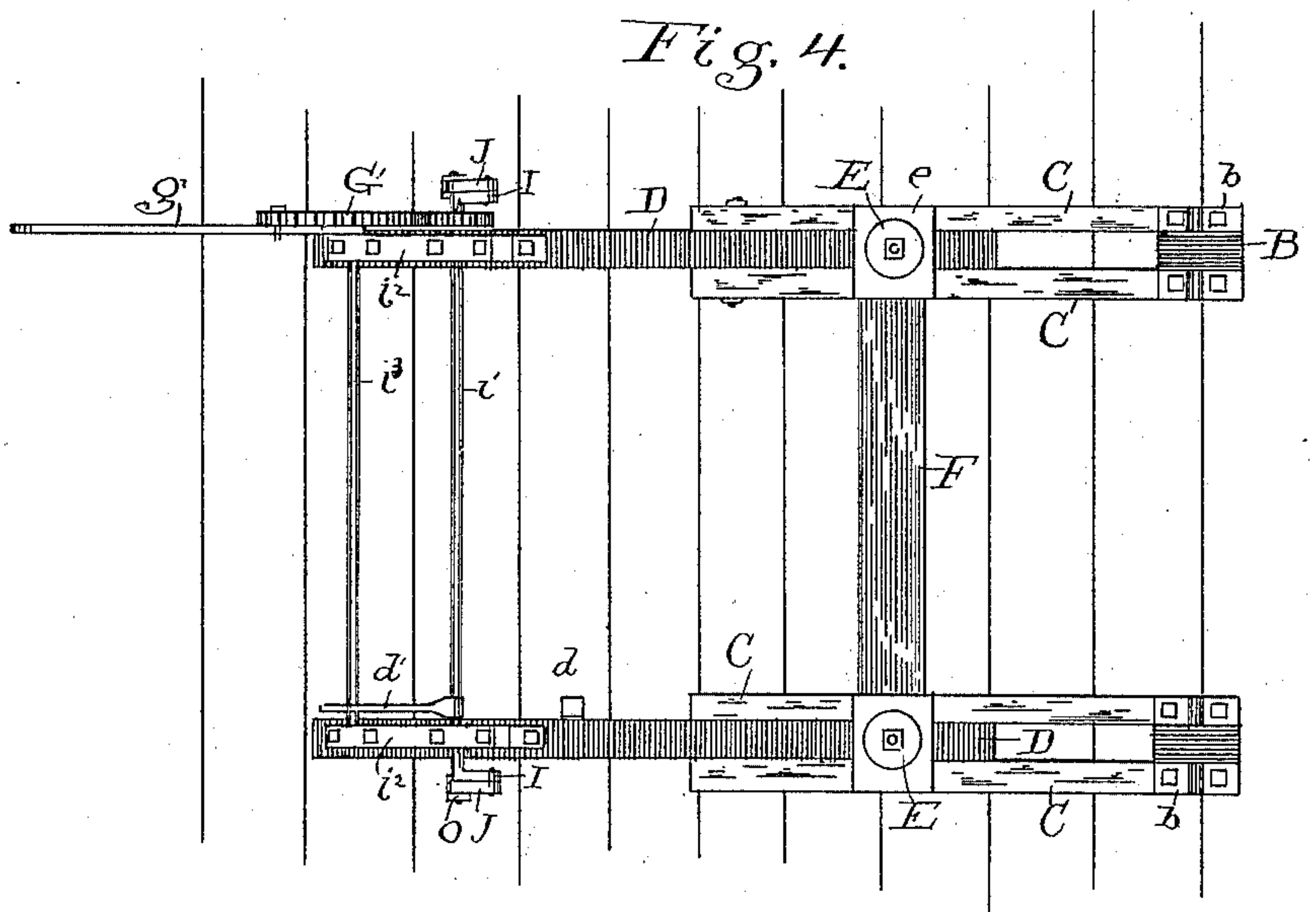
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2 Sheets—Sheet 2.

G. NEVENS.
TRACK CLEARER.

No. 370,555.

Patented Sept. 27, 1887.



Witnesses:

Elgin B. Merrill
Edward F. Hill

Inventor:
George Nevens
by A. W. Bates
his atty.

UNITED STATES PATENT OFFICE.

GEORGE NEVENS, OF BRUNSWICK, MAINE.

TRACK-CLEARER.

SPECIFICATION forming part of Letters Patent No. 370,555, dated September 27, 1887.

Application filed April 8, 1887. Serial No. 234,107. (No model.)

To all whom it may concern:

Be it known that I, GEORGE NEVENS, of Brunswick, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Track-Clearers; 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 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 flange-clearers for railroad-tracks; and it has for its object the construction of a flange-clearer which shall remove the ice and snow from the inside of each rail, depositing the material so removed on one side only of the track, thus adapting it for use on double tracks as well as single. Single-track flange-clearers have hitherto been made which took the snow and ice from the inside of each rail, throwing it from each side directly outward. These flange-clearers were not adapted to be used on double-track roads, from the fact that in running the clearer over one track the material from one side would be thrown directly on the other track.

My device is adapted to be used as both a single and a double track clearer, and by its use the entire material taken from both rails of each track may be cast in either direction.

My invention consists of one, or preferably two, mold-boards extending diagonally across the track and resting, when in position, on the tops of the rails, the two ends of the mold-board being of unequal height and their upper edges bent or curved outward in the direction to be traveled, a portion of the lower or cutting edges projecting downward inside each rail, with legs for suspending said mold board or boards from the car, and means for raising and lowering the same.

It further consists in constructing the mold-boards in sections, which are adapted to shut by each other when a pressure is exerted on either end of the mold-board.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a side elevation with part section through the car. Fig. 2 is a front elevation of mold-board and adjoining parts. Fig.

3 is a section through $x x$ and $y y$ of Fig. 1. Fig. 4 is a top view of the hoisting apparatus.

A represents an ordinary car, to which my device is to be applied.

B B are two vertical legs, one on each side of the car and directly opposite each other, and to the lower ends of these legs are attached foot-pieces R R. Two mold-boards, P P, are bolted or otherwise secured to the ends of the foot-pieces R R. The legs B B are secured to opposite ends of the foot-pieces R R, and as a result of this construction the mold-boards extend diagonally across the track. The two mold-boards face in opposite directions, and they are constructed with ends of unequal height, and their upper edges are curved or turned outward in the direction in which they are to act. Each mold-board is made in two sections, one section being provided with a flanged end, p , within which the straight portion of the other section fits, and which allows of a certain amount of longitudinal adjustment. On the back of each section of the mold-board is an angle-iron, t , the two angle-irons being connected by a rod or bolt, t' , having at one or both ends adjusting-nuts. A stiff spiral spring, t'' , surrounds the bolt and extends from one angle-iron to the other, its pressure being exerted to hold the sections apart. It is designed to allow sufficient distance between the adjacent ends of the two sections of the mold-board to correspond to the distance between the diagonal and the rectangular distance between the rails.

A cutter, Q, is riveted or otherwise secured to the lower edge of the mold-board, and is made in two sections similar to the sections of the mold-board. The cutter is constructed with a double edge, so that when one edge wears out it may be inverted and the other edge used. That portion, q , which comes immediately within the rails projects below the tops of the rails and forms the cutting-edge proper.

Two sets of straps or draw-bars, S and S', are bolted and otherwise fastened to the foot-pieces and the lower ends of the legs, and they connect on each side of the track with guy-chains l , extending diagonally upward to the floor of the car, where they are provided with elastic buffers L. These chains, and in fact all

the parts of my device, are made of great strength to resist the exceedingly rough usage to which it is put. The upper ends of the legs B B are pivoted to a horizontal hoisting-frame made up of two levers in several parts or pieces. Each of these levers is made up of two side pieces or arms, C C, pivoted at one end to the end of the leg, the other end being bolted to the arm D, which lies between the arms C C and extends backward to a considerable distance. The two levers rest on the ends of a cross-piece, F, and underneath this is the tie-rod *f*, passing through blocks *f'* on each side. The rod *f* thus forms a pivot, on which the hoisting-levers tilt or turn. An elastic buffer, E, is bolted to the arm D, and a washer extending across the three arms of the lever is interposed between them. The two shafts *i'* and *i''* are hung in suitable boxes and extend across the ends of the two hoisting-levers. The shaft *i'* has on each end a crank, I, connecting with a link, J, and this latter is pivoted to the upper end of a screw-threaded bolt which passes through the floor of the car, and is provided with check-nuts, whereby its height may be regulated. The shaft *i'* also has a small gear, G, which engages a larger gear, G', on the end of shaft *i''*. To the gear G' is connected the handle-lever *g*, by which the hoisting mechanism is operated. An arm, *d'*, is secured to the shaft *i'*, and a stop, *d*, is bolted to the arm D.

Having thus described the construction of my device, I now proceed to explain its mode of operation.

When the track or flange clearer is to be used, it is lowered by means of the lever *g*, so that the edge of the cutters rests on the tops of the rails. In lowering and raising the clearer the lever *g* is pressed forward or backward, as the case may be, thus revolving the gear G', which in turn revolves the gear G and the crank I. The rotation of crank I raises and lowers the hoisting-frame, since the lower end of the link J remains stationary. The arm *d'*, as it rotates with the shaft *i'*, is stopped on one side by resting on the shaft *i''*, and on the other by the rest *d*, and it thus serves to arrest the forward and back motion of the lever *g*. The buffers E receive and ease any vertical shock. As the car moves forward, the projecting edge *q* of the cutter takes the ice and snow from the inside of the rail, carrying it diagonally up until it strikes the curved edge of the mold-board; thence it is thrown off at one side of the track. The rear end of the mold-board being wider or higher than the forward end gives to the material as it travels along the mold-board and is thrown from it an upward inclination, which throws it free and clear of any ordinary snow-bank which may be at the side of the track. This upward motion of the material is very important where banks of snow occur alongside the track, as is usually the case in the winter.

I am aware that is not new to make a track-clearer having a mold-board extending diag-

onally across the track and suspended by legs from the car-truck, and having a forward curve extending from the bottom to the height of the car, the ends of said mold-board being of equal height, and I do not claim such construction.

In my track-clearer the curved upper edge catches the material as it rises and sends it in an oblique upward direction in a solid mass or stream when it leaves the mold-board. The force with which the material is thrown from the mold-board depends in a great measure on the fact that one particle strikes and drives the particle which is before it, and the effect of the contracted stream of material as collected under the edge of my mold-board and sent obliquely upward is far greater than where the material is spread out and diffused, as in the forms of mold-board hitherto used.

The material taken from the forward end of the mold-board, instead of being thrown directly away from the track, as in ordinary clearers, is carried completely across and thrown in the same direction as the material taken from the opposite side of the track. The inclination of the mold-board and the relative height of the ends determine the manner in which the material is thrown, and these proportions, as well as the curve of the upper edge, should be carefully adjusted to give the best results.

In actual practice I make one end of my mold-board eighteen and the other twenty-four inches, the forward end of the cutter being twenty-one inches ahead of the rear end. The guy-chains *ll* hold the clearer in place and receive the greatest strains which come on it, and the buffers with which these chains are connected ease the strain coming on the chains. It will be observed that the two mold-boards of the clearer work in opposite directions, so that when the car is running one way the snow and ice from both rails is thrown on one side, and when the car runs in the opposite direction the material is thrown on the other side. It will thus be seen that my clearer is adapted for both a single and a double-track clearer.

In case of a double track all the material from each track may be thrown away from the road-bed, a thing which cannot be accomplished on any other track-clearer, so far as I am aware. On single tracks it frequently happens that all the heavy drifts accumulate on one side of the track. In such a case it is very desirable to throw the material from the flanges on the opposite side of the track, because in passing by deep drifts the material is intercepted and falls back on the track.

My clearer enables me to throw the snow and ice in either direction by turning the car with the proper end ahead, or by using one side going up and the other coming back in any given case.

The cutters are made, preferably, of steel, and are very hard and tough. When the lower edge is worn out, it may be reversed and the other edge placed underneath. If de-

sired, the attached cutter may be dispensed with and the mold-board constructed so that its lower edge will act as a cutter. This construction is not desirable from the fact that
 5 the mold-board would have to be made much heavier than by the construction shown in the drawings.

If the chains which hold the forward end of the clearer give way, the projections *q* of the
 10 cutter will be forced toward each other as the cutter comes at right angles to the rail. In such a case the sections of the cutter and the mold-board will telescope and shut together sufficiently to allow the projection *q* to clear
 15 each rail, and thus prevent the derailment of the car.

The foot-pieces may be dispensed with and the mold-board attached to the legs directly; but in such case the legs would not come op-
 20 posite each other and the hoisting-levers could not be so conveniently arranged.

I claim—

1. In a flange-clearer for railroad-tracks, the combination of a mold-board extending diagonally across the track, the rear end of said
 25 mold-board being wider than the other, and its upper edge being curved or turned forward or in the direction of travel, foot-pieces attached to said mold-board, legs for suspending
 30 said foot-pieces to the car, and means for raising and lowering said mold-board and the parts thereto attached, substantially as described.

2. In a flange-clearer for railroad-tracks, the combination of a mold-board extending diagonally across the track, the rear end of said
 35

mold-board being wider than the other, and its upper edge being turned forward or in the direction of travel, legs for suspending said mold-board from the car, and means for raising and lowering said legs and said mold-board, substantially as described. 40

3. In a flange-clearer for railroad-tracks, the combination of a mold-board extending diagonally across the track, the rear end of said mold-board being wider than the forward end, 45 and its upper edge being curved or turned forward in the direction of travel, a cutter attached to the lower edge of said mold-board, and having a portion projecting downward on the inside of each rail, legs for suspending said mold-board 50 to the car, and means for raising and lowering said legs and said mold-board, substantially as described.

4. In a flange-clearer for railroad-tracks, a mold-board extending diagonally across the 55 track, and having a cutting-edge projecting downward on the inside of each rail, said mold-board being constructed in two overlapping and telescoping sections, said sections being joined by an elastic connection, whereby 60 they may be shut together when brought at right angles to the rails, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two 65 witnesses.

GEORGE NEVENS.

Witnesses:

A. A. WHITE,
 S. W. BATES.