

No. 766,110.

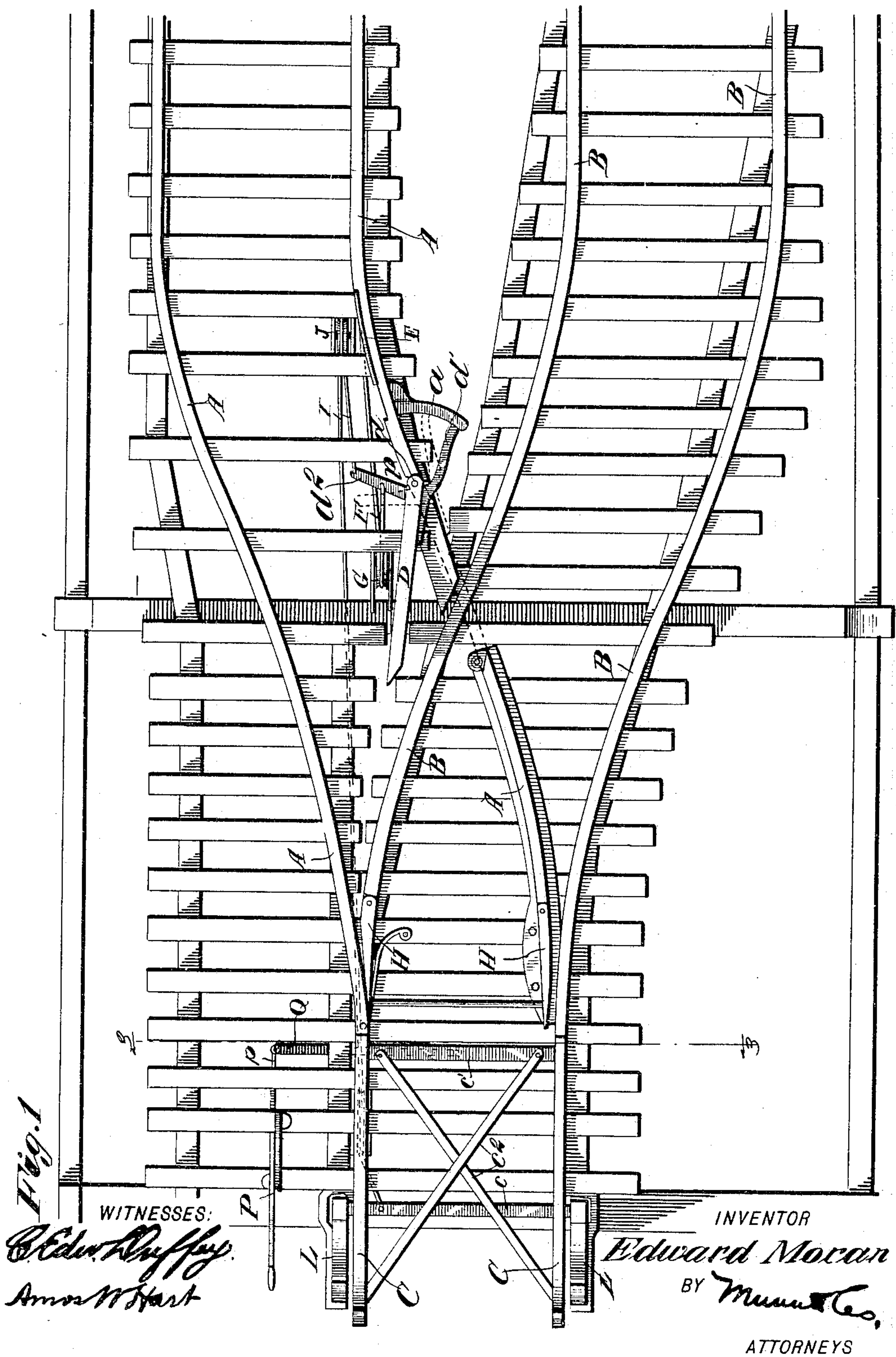
PATENTED JULY 26, 1904.

E. MORAN.  
CAR DUMP.

APPLICATION FILED DEC. 30, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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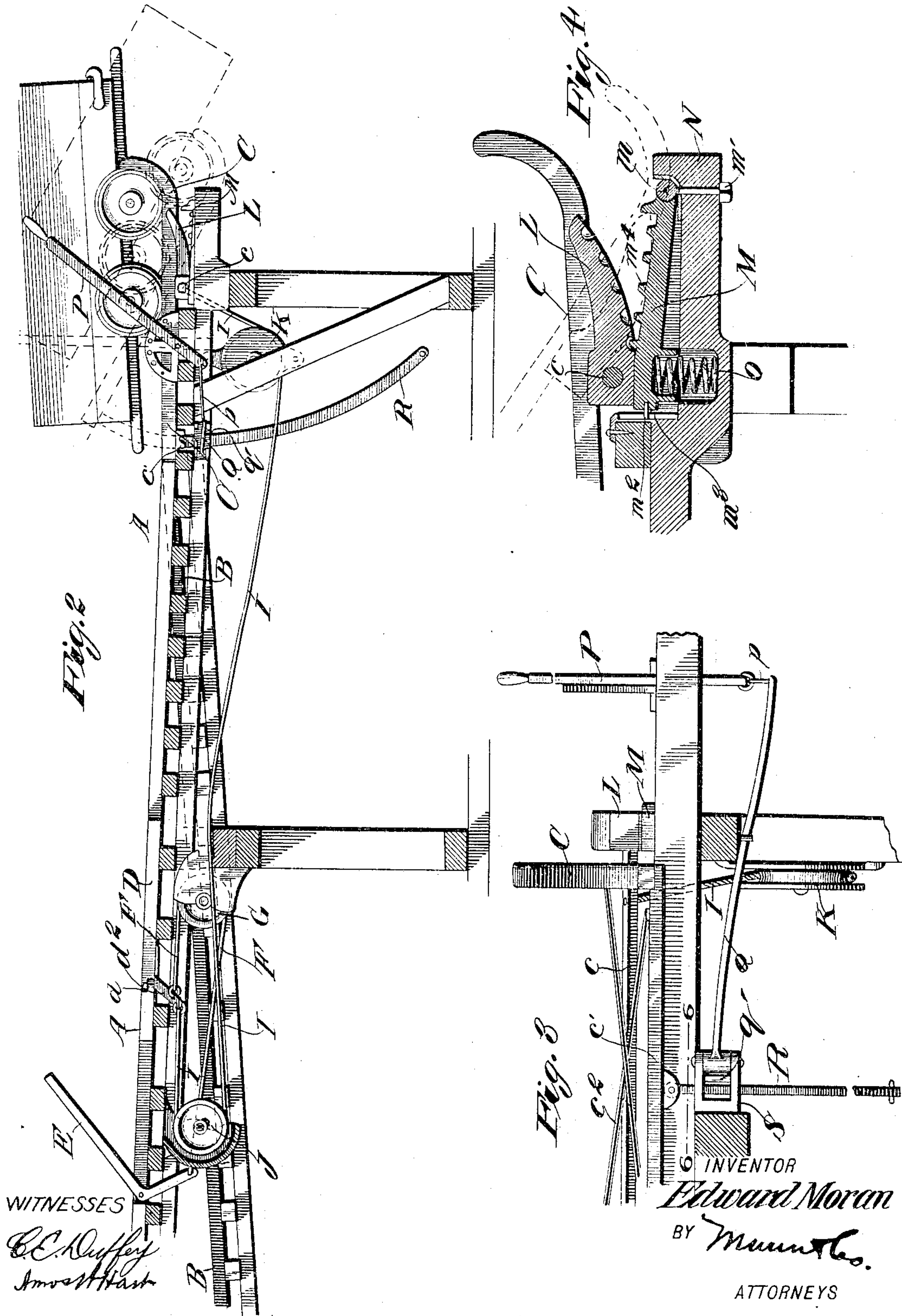
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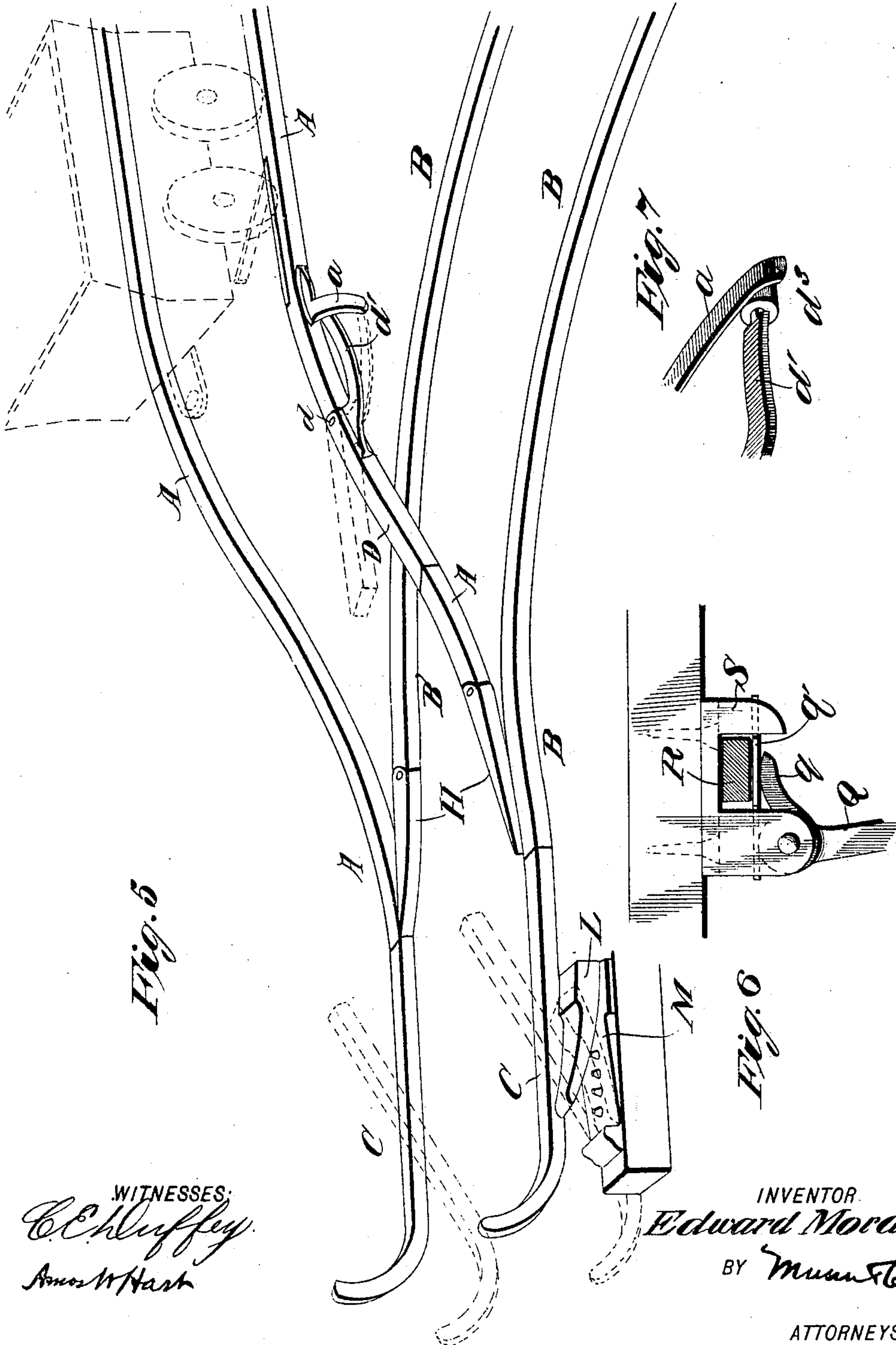
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3 SHEETS—SHEET 3.



WITNESSES:  
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## UNITED STATES PATENT OFFICE.

EDWARD MORAN, OF CHARLESTON, WEST VIRGINIA.

## CAR-DUMP.

SPECIFICATION forming part of Letters Patent No. 766,110, dated July 26, 1904.

Application filed December 30, 1903. Serial No. 187,184. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD MORAN, a citizen of the United States, residing at Charleston, in the county of Kanawha and State of West Virginia, have made certain new and useful Improvements in Car-Dumps, of which the following is a specification.

The object of my invention is to provide an improved dump for mining-cars, the same including a track running from the mine at downgrade to the dump proper and a return-track leading from the dump to the mine and also at downgrade. Thus a car leaving a mine runs by gravity to the dump, where its contents are discharged, and then returns by gravity to the mine. The dump proper is so constructed that it is held normally elevated or at a rearward inclination and is depressed by a loaded car, and when the contents of the latter have been discharged the dump is automatically raised, so that the car runs back off the same by gravity, and thus passes on to the return-track.

The details of construction, arrangement, and operation are as hereinafter described, reference being had to accompanying drawings, in which—

Figure 1 is a plan view of the dump, including the two tracks. Fig. 2 is an irregular longitudinal vertical section of the dump as shown in Fig. 1. Fig. 3 is a vertical cross-section on the line 3 3 of Fig. 1. Fig. 4 is an enlarged detail section of a portion of the dump proper. Fig. 5 is a diagrammatic view of certain main portions of the dump, including the tracks. Fig. 6 is a horizontal detail section on the line 6 6 of Fig. 3. Fig. 7 is a perspective view illustrating the means for supporting a swinging latch or rail-section constituting a movable part of the main track.

Referring in the first instance to Figs. 1 and 2, A indicates the main track, which runs at a downgrade from the mine to the dump proper at C, and B is the return-track, which also runs at a downgrade from the dump back to the mine. It will be seen that the two tracks converge to the dump C and that the adjacent rails cross each other, the inner rail of the return-track B lying below the ad-

jacent rail of the main track. At the point where this crossing occurs it is obviously necessary to provide a hinged section or latch D in the main track. The same is shown open in Fig. 1 and closed in the diagrammatic view, Fig. 5. It is pivoted at  $d$  and provided with two lateral rigid arms  $d'$  and  $d''$ . The arm  $d'$  is employed for the purpose of affording support for the free end of the latch or rail-section D when swung out or opened, as shown in Fig. 1. As illustrated in Fig. 7, the said arm is provided with a friction-roller  $d'''$ , which runs under a fixed arm  $a$ , that projects laterally from the adjacent rail of the track A. The free end of the latch or rail-section D is beveled, as shown, and when closed rests upon a shoulder or ledge, so that due support therefor is provided. To the arm  $d''$  of the latch D are connected wires or wire ropes for opening and closing the latch, as will now be described. Alongside the inner rail of the main track A is pivoted an elbow-lever E, (see especially Fig. 2,) and the lower arm of the same is connected by a rope F with the aforesaid arm  $d''$  of the latch D. As shown, the said rope passes over a pulley G, which is journaled forward of the pivot of the latch and beneath the main track. It will be apparent that when the longer arm of the lever E is depressed by the wheels of a passing car the rope F will draw the lever-arm  $d''$  forward, and thus swing the latch D into the closed position shown by full lines, Fig. 5, and dotted lines, Fig. 1, so that the car, continuing its progress, will pass over the latch and along the main track and on the dump proper, C. The latter having been tilted, as will be presently described, and the contents of the car thus discharged, the car passes backward by gravity on and along the return-track B. It is obviously necessary to provide pivoted and spring-actuated switch-points H (see Fig. 1) at the points of junction of the two tracks A and B. These open on one side and close on the other, as is well understood, when a car passes and then automatically resume the original position, which allows a car to pass from the dump C on to the side track B. It is also necessary that the latch or rail-section D shall be opened to allow the car to pass



along the track B. For this purpose the said latch is connected with the dump proper, C, so that when the latter tilts the latch is opened. The means of connection between the latch and the dump is a rope I, whose arrangement is illustrated in Fig. 2. It is connected with the lateral arm  $d^2$  of the latch D and passes rearward over a pulley J, thence forward and over a guide-pulley K near the front end of the trestle or frame support, and thence upward to a point where it is attached to the front cross-bar  $c$  of the dump proper, C. When the dump swings into the position shown by dotted lines, Figs. 2 and 5, the rope I is put under tension to such a degree that the latch D is always open and remains open until a loaded car again passes down the main track A, and thus depresses the elbow-lever E and closes the latch, as before described.

The dump proper, C, consists of two parallel rails which are curved upward at the front, having the same gage as the tracks A and B and connected by front and rear cross-bars  $c$  and  $c'$  and diagonal bars  $c^2$ . The front cross-bar  $c$  is rigidly connected with two rockers L, (see Fig. 4,) which are curved upon the arc of a circle and project forward, the same being adapted to rest and rock upon depressible supports M. The latter are practically levers and formed of castings which are pivoted at their outer ends  $m$  by means of bolts  $m'$ , passing through the brackets N, which are rigidly attached to and supported upon the trestle or framework. The rear ends of the levers M are free and supported upon spiral springs O, which are seated in a cavity in the brackets N and inclosed at the upper end by a flange which is pendent from the casting. Thus the levers M are held normally elevated at their rear ends, so that the rails of the dump proper, C, incline normally rearward or toward the tracks A and B, as shown in Fig. 4. When a loaded car runs on the dump C, the springs O are depressed, so that the dump sinks to the horizontal, as shown in Fig. 2; but the strength of the springs O is such that when the contents of the car have been discharged in the usual way by tilting the dump C, as illustrated by dotted lines in Figs. 2, 4, and 5, the dump C is elevated to the position indicated in Fig. 4 or at least high enough to cause the rails of the same to incline rearward, so that the empty car runs back off the same by gravity and thence on the track B, which, being at a downgrade, the car is returned to the mine. In brief, a car loaded in the mine runs to the dump and is there discharged of its contents and begins and continues its return trip to the mine solely by the effect of gravity and without the aid of mechanical or hand power. As before stated, the latch D is always open when the dump C swings into the position shown by dotted lines for discharging the contents of a car.

The spring supports or levers M are arranged in longitudinal channels or deep grooves formed in the brackets N, and their rear ends are further provided with pins  $m^2$ , (see Fig. 4,) which work in vertical slotted guides  $m^3$ , and thus the levers M are held in due position in their vertical movement, due to depression by the car and its load and the reaction of the springs O. To hold the rockers L in due position on the depressible-lever supports M and at the same time permit the required movement of the rockers thereon, the parts M are provided with a series of projections  $m^4$ , which are adapted to enter the sockets in the rockers L.

The fulcrum of the dump C is practically at the point where the rails and the rockers L of the same are connected by the front cross-bar  $c$ , and this bar is such distance in the rear of the curved or upturned ends of the dump that when a car runs on the latter the center of gravity of the same will be slightly forward of the fulcrum  $c$ , and thus unless restrained the dump will automatically tilt. This movement is controlled manually by means of a hand-lever P, (see Figs. 1, 2, and 3,) which is pivoted at one side of the dump C and whose lower arm is connected by a rope or link  $p$  with a lever Q, (see Fig. 3,) which extends horizontally beneath the rear portion of the dump C and whose shorter arm  $q$  (see Fig. 6) is adapted to press against a segmental bar R, which is attached to and pendent from the rear cross-bar  $c'$  of the dump C. The said bar is adapted to slide in a guide consisting of a notched or slotted bracket S, which forms a rigid attachment of the trestle upon which the dump and tracks are supported. It is obvious that by manipulation of the hand-lever P the lever Q may be drawn into such position as to apply any required degree of pressure upon the arc-bar R, so as to restrain or stop the tilting movement of the dump C. Thus safety is assured in the dumping operation, and when the contents of the car have been discharged the dump C is restored to its normal horizontal position. Then the dump is elevated by the springs O, as before described, so that the empty car runs back off the same, and thus begins its return trip.

A shoe or wear-plate  $q'$  (see Fig. 6) is interposed between the arc-bar R and the bearing-arm  $q$  of the lever Q, and the same is held in suitable slots or guideways provided in the brackets S.

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

1. The combination, with a dump and converging and crossing main and return tracks, both having a downgrade, but in opposite directions from the dump, a latch or section of the main track, which is adapted to open and



close at the intersection of the adjacent rails of the two tracks, means connecting such latch or rail section with the dump for opening the former when the dump is operated to discharge a car-load, substantially as described.

2. The combination, with two tracks having a downgrade in opposite directions and one crossing over the other, of a rail-section or latch forming, when in normal position, a continuation of the crossing-rail of the upper track, and means for opening and closing the same to allow cars to pass down one track and return on the other, substantially as described.

3. The combination, with a dump and converging and crossing main and return tracks, both having a downgrade in opposite directions, a pivoted latch or rail-section forming a part of the main track and crossing over the adjacent rail of the return-track, and means connecting the same with the dump, whereby, when the latter operates to allow discharge of the contents of a car, the said rail-section is opened preparatory to passage of the empty car back along the return-track, substantially as described.

4. The combination, with a dump and converging and crossing main and return tracks, both having downgrade in opposite directions, a pivoted latch or rail-section adapted, when in normal position, to form a part of the main track, and extended over the adjacent rail of the return-track, and means for closing such rail-section preparatory to the passage of a loaded car over the same, substantially as described.

5. The combination, with a dump consisting of rails having upturned outer ends and adapted to rock as described, and two tracks converging to the same and crossing each other, of a latch, or hinged section of one track which crosses the other, and means connecting such tilting dump with the said rail-section, for opening it when the contents of a car are discharged, substantially as described.

6. The combination, with a tilting dump proper and converging and crossing main and return tracks, having a downgrade in opposite directions, of a pivoted latch or rail-section forming a part of the main track and extending over the adjacent rail of the return-track, and a rope connected with such rail-section and extending to the dump, the same being arranged substantially as described, whereby, when the dump proper is tilted, traction is applied to said rope and the pivoted rail-section is thereby opened for passage of the empty car, substantially as described.

7. The combination, with a dump and converging and crossing main and return tracks having a downgrade in opposite directions, and a horizontal section of such main track adapted to swing and thus open and close the latter, and means arranged alongside the track

and adapted to be operated by a passing car for automatically closing the pivoted rail-section, substantially as described.

8. The combination, with a dump and converging and crossing main and return tracks, of a latch or rail-section constituting a part of the main track and adapted to open and close the same, the said latch having a lateral arm, a lever pivoted to the main track and adapted to be depressed by a passing car, and a rope connecting the arm of the latch with the lever substantially as described, whereby the rail-section is automatically closed as specified.

9. The combination, with a tilting dump proper, and converging and crossing main and return tracks, having a downgrade in opposite directions, a pivoted latch or rail-section forming part of the main track and adapted to swing over the adjacent rail of the return-track, means arranged in advance of the horizontal rail-section for closing the same upon the passage of a loaded car from the mine, and means connecting the dump proper with said rail-section for automatically opening it as the dump tilts, substantially as described.

10. The combination, with a dump and converging and crossing main and return tracks, both having a downgrade, a laterally-shiftable device for opening and closing the main track, and means connecting said device with the dump, whereby the return-track is opened when the dump is operated, substantially as described.

11. The combination, with the main and return tracks converging and crossing substantially as described, and a pivoted latch or rail-section forming part of the main track and adapted to open and close the latter, a rigid arm extending from the latch, and a rigid horizontal bracket or arm with which the arm of the latch works in contact for supporting the free end of the latter when swung open, and means for operating the latch, substantially as shown and described.

12. The combination, of the dump proper consisting of rails having upturned ends, and curved rockers which are rigidly connected therewith, of depressible supports upon which said rockers rest, the same serving to elevate a car after discharge of its contents, substantially as described.

13. The combination, of the dump proper, comprising rails having upturned ends and their curved rockers forming a rigid attachment of the same, of depressible supports upon which the said rockers rest, the same consisting of levers hinged at one end, and springs supporting them at the other, substantially as described.

14. The combination, with a suitable framework, of the dump comprising curved rails whose inner ends rest normally upon the framework, supports by which said rails are pivotally supported at a point nearer their

curved outer ends, and springs arranged beneath the pivots, as shown and described.

15. The combination, with a suitable rigid support, and levers pivoted thereon, and  
5 springs supporting their inner ends whereby they are held normally elevated, of a tilting dump comprising parallel bars having up-turned ends, and curved rockers adapted to rest upon the said levers, the springs having such

tension relative to the weight of the dump and to an empty car thereon that the rails will be supported at a rearward inclination so that the car will begin its return trip by the effect of gravity, substantially as described.

EDWARD MORAN.

Witnesses:

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AMOS W. HART.