

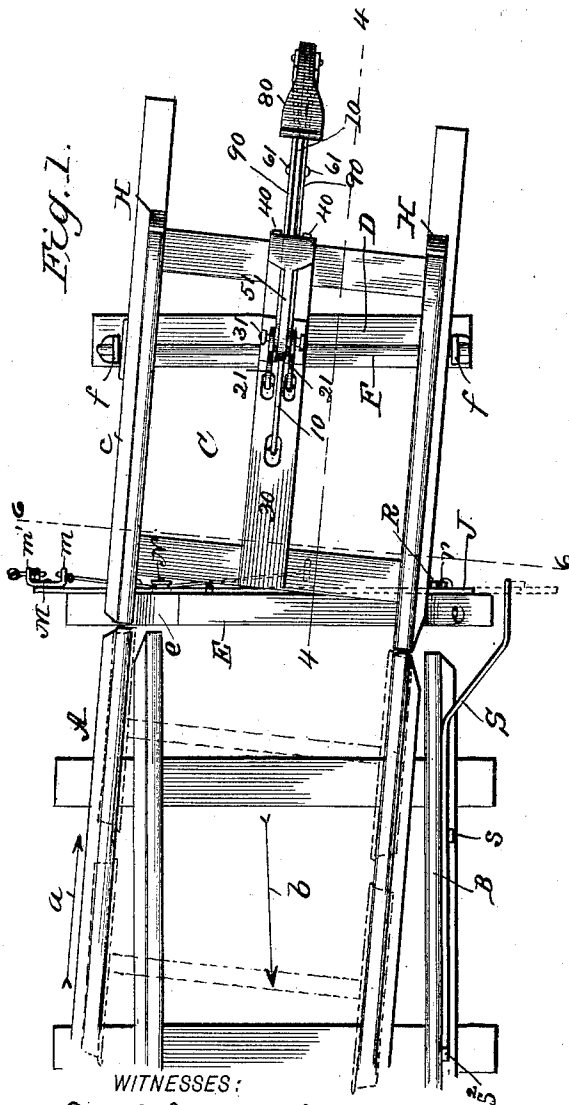
(No Model.)

3 Sheets—Sheet 1.

J. STORY.
AUTOMATIC CAR DUMP.

No. 463,006.

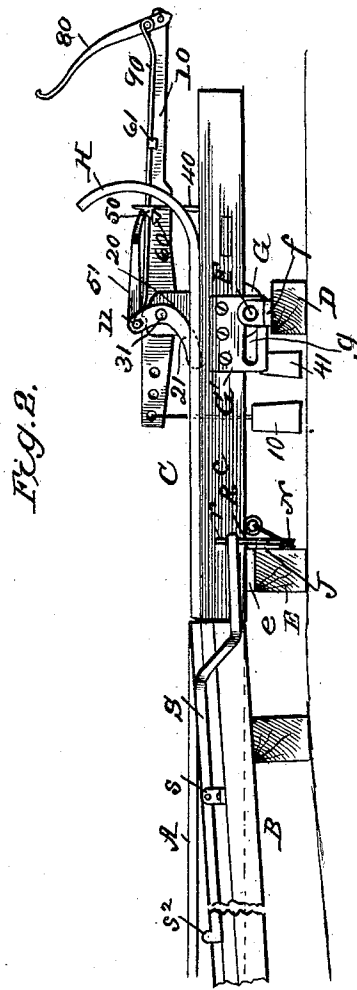
Patented Nov. 10, 1891.



WITNESSES:

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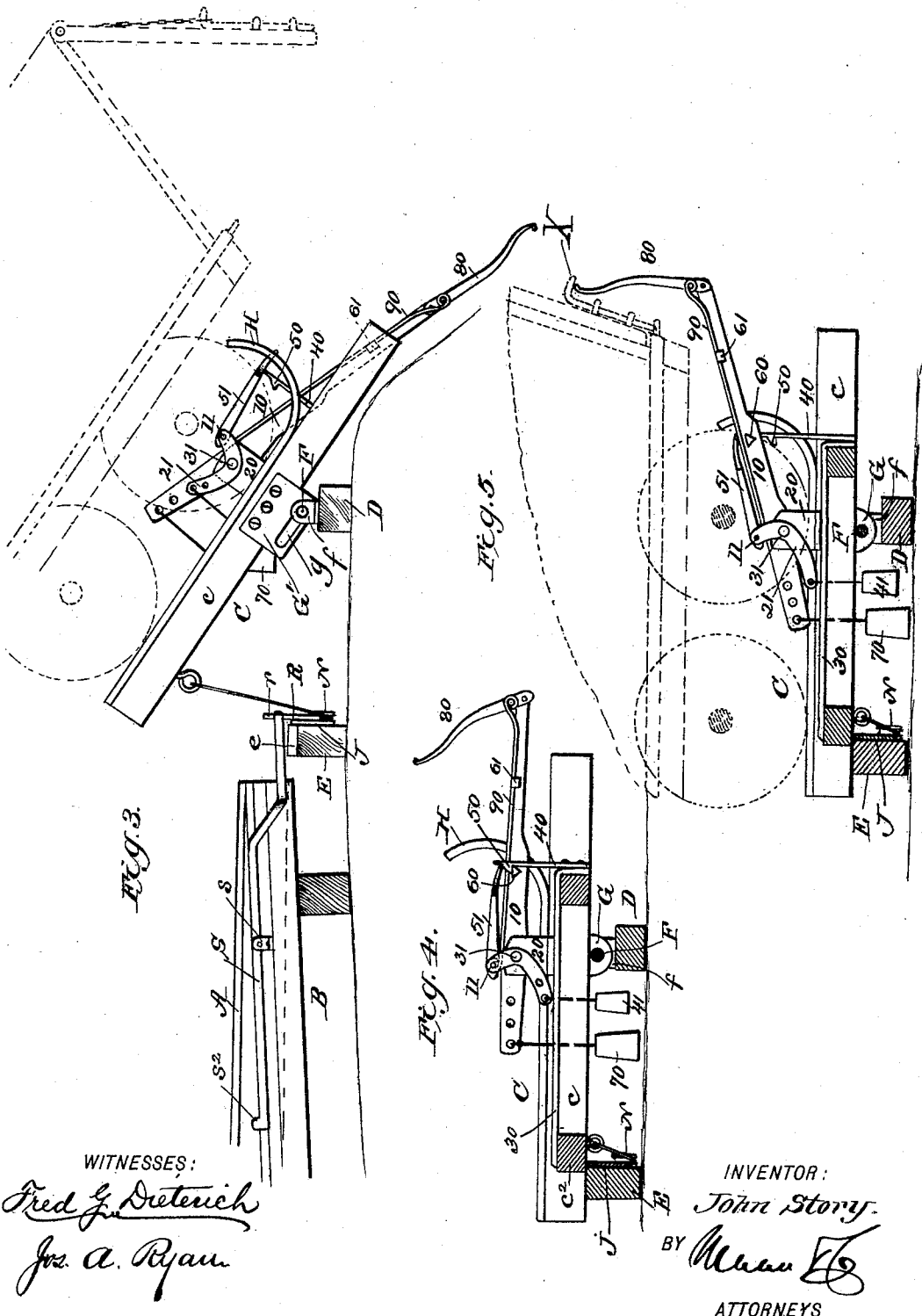
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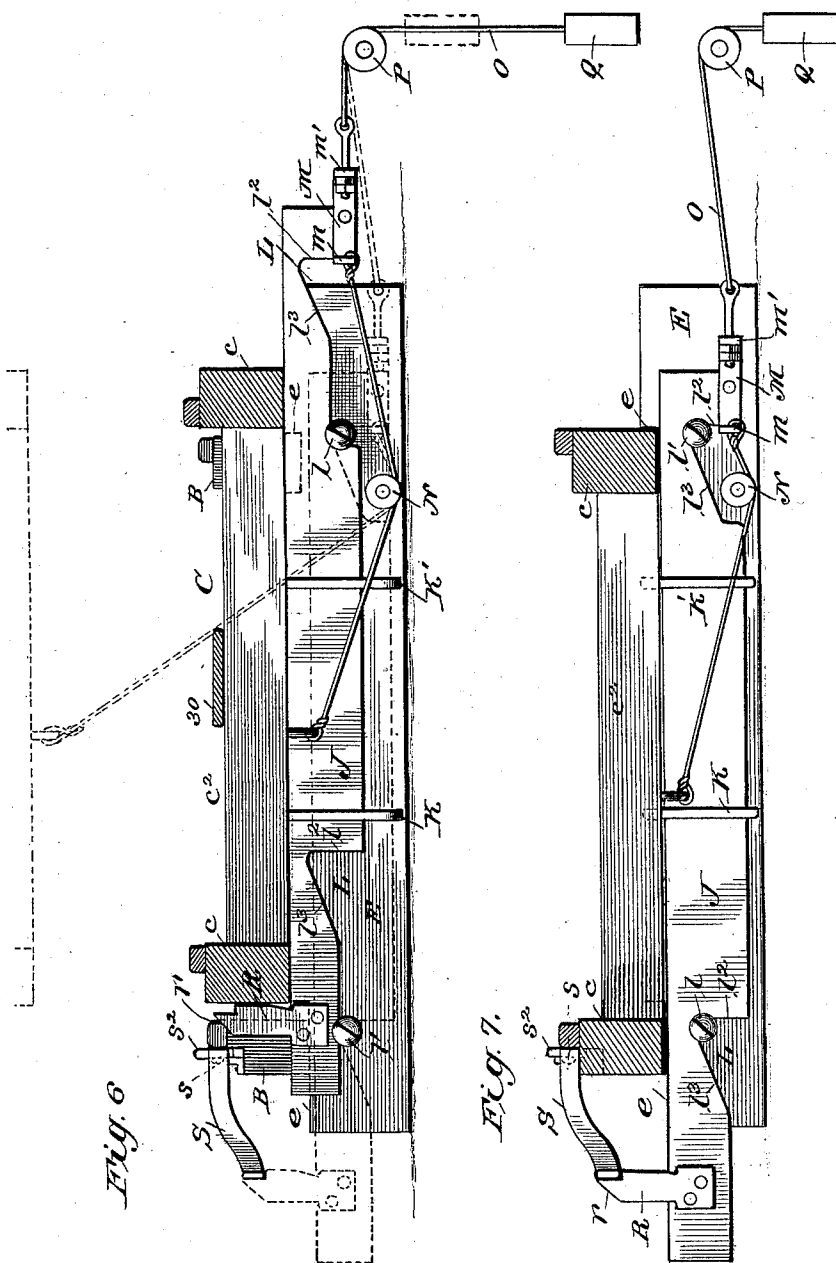
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UNITED STATES PATENT OFFICE.

JOHN STORY, OF LONACONING, MARYLAND.

AUTOMATIC CAR-DUMP.

SPECIFICATION forming part of Letters Patent No. 433,006, dated November 10, 1891.

Application filed March 19, 1891. Serial No. 385,705. (No model.)

To all whom it may concern:

Be it known that I, JOHN STORY, residing at Lonaconing, in the county of Allegany and State of Maryland, have invented certain new and useful Improvements in Automatic Car-Dumps, of which the following is a specification.

My invention relates more particularly to automatic car-dumps for mines; and it has for its object to provide suitably-arranged devices whereby as the loaded cars travel down to the dump they will be engaged thereby and have their gates first automatically unlocked, the car then dumped, and then by gravity switched off onto another track, so as to allow of their return to the mine for filling.

My invention consists in providing a switch or tippie section of track which is arranged at the intersection of two track-sections, both arranged on a downgrade, but running in reverse directions, and pivotally supported in such a manner that as the loaded car passes down from one track it will engage said switch-section, tilting same, and at the same time shifting such switch-section, so that it will come in line with the other track-section as the car falls back in position after discharging its load, so as to admit of its return to the place of filling.

It also consists in providing suitably-arranged automatic locking devices which serve to hold the said switch-section in its last-named position until the car passes from it, said car serving as it passes down the track away from the switch to unlock said locking devices to permit the switch-section to resume its normal position.

Finally, my invention consists in the peculiar combination and novel arrangement of parts, all of which will be hereinafter fully described in the annexed specification and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved car-dump, showing the switch or tippie in position to receive the loaded car, the dotted lines showing the position of the tippie and the unloaded car about to leave it. Fig. 2 is a side view of the tippie or switch section in position to receive the loaded car. Fig. 3 is

a similar view showing the car as dumping and the switch-section tilted. Fig. 4 is a central longitudinal section on the line 4 4, Fig. 1, showing the parts in their locked position. Fig. 5 is a similar view illustrating the same tripped by the car and operating to knock out the gate-pin. Fig. 6 is a transverse section on the line 6 6, Fig. 1, showing the tippie in its first or normal position, the dotted lines indicating the rear ends thereof tilted, thereby bringing the shifting devices to the dotted position. Fig. 7 is a similar view showing the tippie in its second position.

In the accompanying drawings I have shown two track-sections A and B, which run in reverse directions and are inclined in the directions indicated by the arrows *a* and *b*, one of such tracks A being arranged to guide the loaded cars, while the other B serves as the track for carrying off the unloaded cars. At the junction of the tracks A and B, I arrange my improved dumping device, which is commonly called the "tippie," and which is in the nature of a tilting switch, the outer end of which operates above the dump.

The tippie C consists of a short track-section supported upon the cross-ties D and E and pivotally held to the forward cross-tie by means of the rod F, held in bearings *ff* on the tie D, which rod passes through bearings G and G', secured to beams *cc* of the section C. By reference to Fig. 2 it will be observed that the bearings G G' are located at a point forward of the center of the said section, it being so balanced that the weight of the car after the load has been dumped will serve to bring the said section back to its horizontal position in a manner as will presently be described. It will also be observed by reference to said figure and Fig. 4 of the drawings that the bearing G is formed of a size just large enough to allow a slight free play upon the rod F, while the bearing G' is provided with an elongated slot *g*, whereby to allow of a free movement on said bar F, such construction allowing the rear end of the tippie to be swung laterally from one track to the other, the bearing G serving as a pivot from which the tippie is swung. It will further be noticed in Figs. 2 and 4 that the ends of the tracks are continued on the beams *cc* beyond

the bearings G G' and are then turned up to form stops H H, against which the wheels of the cars abut as they run onto the tippie. By this construction it will be observed that when the loaded car passes onto the tippie it will be stopped by the stops H H, and, its weight overbalancing the tippie, will allow its front end to dump the load, and in doing so the tippie will, as it is elevated, swing on its pivot, so that when it drops back to its horizontal position it will be in line with the discharge-track, thus allowing the empty car to automatically leave the tippie and return to the place of filling.

For temporarily holding the tippie to the discharge-track and to automatically reset it to the loaded track, I provide the means most clearly shown in Figs. 6 and 7 of the drawings, by reference to which it will be seen that on the cross-tie E is disposed a shifting bar J, held in guide-loops K K' and formed with notches or cut-away portions L L', which rest and slide upon pins or studs l l', said notches being formed with a vertical portion l² and an inclined face l³, as shown. Adjacent the notch L' is arranged a lug M, formed with projecting fingers m m', to one of which m is attached a wire cord or chain, which passes under a pulley N on the tie E and is connected with the cross-piece e² of the tippie-frame, while the other m' is connected to a wire cord or chain O, which passes over a pulley P and has attached to its end a weight Q, as shown. Upon the outer end of the bar J is a vertical finger R, formed with a beveled upper edge r, whereby it can readily be slipped under a gravity locking-lever S, which is pivoted at s to one of the ties of the track-section B, and which is provided with a finger S², which projects up to the side of the track for engagement with the wheels of the car as it passes it.

As the ends of the tracks A and B are disposed at different planes, I form the cross-tie E with cut-away portions e e, in which the ends of the track-beams of the tippie seat when they are turned for alignment with the track B.

By the aforesaid construction it will be observed that when the parts are in the position shown in Fig. 6 and the rear end of the tippie is then elevated it will draw on the cord and shift the bar J to the position shown in Fig. 7. Its finger R, slipping under the lever S, will serve to hold it in such position even after the tippie is lowered into the recessed portions of the tie E. It will also be noticed that the bar is so arranged that when in its outer position its upper edge will be flush with the recessed parts e of the tie E. Now when the car, after having been dumped, passes from the tippie its wheels will engage the ends s² of the lever S and lift it from engagement with finger R, which, becoming thus disengaged, will be drawn inward by the weight Q. Its inclined faces engaging the studs elevate it slightly and lift the rear end of the tippie from the recesses e e. The fin-

ger R then pulling against the outer timber c pulls the tippie over to its normal position in line with the track A.

Thus far I have described the means for dumping the car and shifting it from one track to the other. I shall now proceed to describe the means for automatically unlocking the end-gate of the car as it passes onto the tippie, the construction of such devices being most particularly shown in Figs. 4 and 5 of the drawings, by referring to which it will be seen that I provide a long lever-arm 10, pivoted near its rear end between ears 20, projected up from a longitudinal brace-bar 30, arranged centrally of the tippie and for vertical play between the spring-fingers 40 40, formed with the lugs 50 50, which serve, when the spring-fingers 40 are in their normal position, to limit the upper movement of the said lever 10, it being formed with lateral lugs 60 60, which engage the lugs 50 50 for the purpose stated. A weight 70, hung from the rear end of the lever, serves to normally hold it in its upper position.

Upon the outer end of the lever 10 is hinged, at its lower end, a lifting or knocker arm 80, preferably of the form shown, which is normally held upward by means of the rods 90 90, which are pivotally connected with a transverse rod 11, which serves to connect the upper ends of bent arms 21, which are pivoted upon the pin 31, which also serves as the pivot of the lever 10, said pivot 31 being disposed in advance of the rod 11, as shown, and upon the lower ends of the arms 21 are secured the weights 41, (or springs, if desired,) which serve to normally pull the upper ends of the arms 21 rearward.

Upon the rod 11 is hinged the rear end of a locking-latch 51, which has a broad front end, which, when the parts are in their locked position, bears against the inner upper ends of the spring-fingers 40 and 40, as shown. The rods 90 90 also have a pivoted connection with the knocker-arm 80 and are guided and bear against lugs 61 61 near their outer ends. (See Fig. 4.)

The manner in which my improved unlocking devices operate is as follows: Assuming the parts to be in the position shown in Fig. 4, the car before the wheels strike the stops H will strike against the knocker-arm 80 and press it outward, which causes the rods 90 to pull the upper ends of the arms 21 forward and forces the locking-latch 51 to force the spring-fingers outward until the lugs 50 and 60 become disengaged, which allows the weight on the end of the lever 10 to quickly throw the knocker-arm 80 upward, which in its movement striking the pin X, which holds the gate closed, releases it and allows the gate to fly open, and the car at this moment tilting will dump the load. When the car tilts down and the load is discharged, it causes the gate and coal to bear against the arm 80 and presses it down to a horizontal position, and in doing so turns the rods 90 90 into spring tension-

bars, owing to their peculiar arrangement and their engagement with the lugs 61, so that the moment the car tilts back to its horizontal position the tension created by the pressure on the outer ends of the rods 90 will serve to throw the said arm up to its vertical position, the weight on the arms 21 21 assisting to bring the parts back to their locked positions.

10 Having thus described my invention, what I claim as new is—

1. The combination, with the oppositely-inclined track-sections A B, of a tippie or switch section disposed at the junction of said track-sections, and means whereby said tippie is adapted to receive the loaded car from the section A, be tilted, and swung laterally thereby to switch said car from the section A to the section B, substantially as and for the purpose described.

2. The combination, with the oppositely-inclined track-sections A and B, of the switch-section C, disposed at the junction of the sections A and B and mounted to be vertically tilted and swung laterally as the loaded car engages same, and devices for automatically returning said switch-section to its normal position after the car leaves it, substantially as and for the purpose described.

30 3. The combination, with the oppositely-inclined track-sections A and B and a switch-section disposed at the junction of said track-sections and mounted to be vertically tilted and swung laterally by the loaded car as it runs on same, of automatically-operated locking devices which serve to temporarily hold the switch-section C in line with the track-section B and which are released by the car as it passes down the section B, whereby the said switch-section C will be swung back to the track A, substantially as and for the purpose described.

4. The combination, with the oppositely-inclined track-sections A and B, of the tippie or switch section C, arranged at the junction of the sections A and B, said section horizontally pivoted at a point forward of its center and arranged to swing laterally on such pivot, substantially as and for the purpose described.

50 5. The combination, with the oppositely-inclined track-sections A and B, of the switch-section C, disposed at the junction of the sections A and B, the supports D and E, and the shaft or rod F on the support D, said section C having longitudinal timbers c c, provided with bearings at a point forward of their centers fitting on the rod F, one of such bearings formed with an elongated slot, whereby said section C is arranged to be swung laterally on the rod F, substantially as and for the purpose described.

6. The combination, with the track-sections A and B and the switch-section C, supported on the cross-ties D and E and mounted to tilt and swing laterally, as described, of the shifting bar formed with a vertical finger R, adapted to engage the switch C, arranged for

transverse movement on the tie E, a connection between the bar and the switch C, whereby it is pulled forward as the switch is tilted, and a weight for pulling the bar back to its normal position, as and for the purpose described.

7. The combination, with the track-sections A B, inclined in opposite directions, and the switch-section C, arranged at the junction of said sections A and B and mounted to tilt and swing laterally, of a shifting bar arranged for transverse movement on the cross-tie E and formed with a vertical finger R, adapted to engage the switch C, a connection between said bar and the switch, whereby it is shifted outward when the switch C is tilted, a trip-lever mounted on the track-section B, adapted to engage said bar when swung outward and hold it, and a weight adapted to pull said bar back when released from the trip-lever, said lever adapted to be disengaged from the bar by the car as it passes down the track B, all arranged substantially as and for the purpose described.

8. The combination, with the track-sections A and B, inclined in opposite directions, and the switch-section C, arranged as shown, of the cross-tie E, formed with recesses e e, the shifting bar J, provided with a finger R, adapted to engage the outer timber c of the switch, said bar arranged to normally have its upper edge flush with the top of the tie E and adapted to be moved outward as the switch is swung outward, the timbers c c of the switch, adapted to engage the recessed portions of the tie when in line with the track-section B, and means for normally drawing the bar back toward the track-section A, said bar adapted to first lift the timbers c c out of the recesses e e and then pull the switch over to said track-section A, substantially as and for the purpose described.

9. The combination, with the track-sections A and B, oppositely inclined, as shown, of the switch-section C, consisting of the side timbers c, the tracks having upturned ends forming stops H forward of the pivotal points of said switch, the cross-tie D, and the pivotal connection between said switch and tie, whereby the switch is tilted and swung laterally when the car runs thereon, substantially as and for the purpose described.

10. The combination, with the switch-section C, arranged as shown, of the pivoted lever 10, provided with a knocker-arm 80, pivoted on its outer end, and means for normally holding said arm 80 and the lever 10 in a locked position, said lever and arm arranged for engagement by the car-body, whereby the lever will first become released and it and the arm 80 then thrown upward, substantially as and for the purpose described.

11. The combination, with the switch-section C and the car and locking-latch on the car-gate, of the lever 10, pivoted near its rear end to the section C, the spring-arms 40 40, formed with stop-lugs 50 50, the means for

pulling ends of said lever 10 down and the forward end up against said lugs 50 50, a locking-latch for holding the parts in the aforesaid positions, the upwardly and inwardly projecting knocker-arm 80, hinged at its lower end on the outer end of lever 10, the bent arms 21, the rods 90, connecting the arm 80 with the locking-latch, and means for drawing said latch and rods rearward, as shown, all arranged whereby as the car engages with the arm 80 it will release the latch, thereby allowing the lever to become disengaged from the lugs 50 50 and fly up with the arm 80 and engage the latch-pin, substantially as and for the purpose described.

12. The combination, with the laterally-movable and tilting switch and the car formed with a gate normally held closed by a latch-pin, of an automatically-operated latch-lifting device consisting of the lever 10, pivoted and

weighted to throw its front end upward, spring-fingers 40 for holding the lever in a locked position, an arm 80, hinged on the end of the lever 10, said lever formed with lugs 61 near its outer end, the bent pivoted arms 21, a latch pivoted between the upper ends of said arms 21, its forward end arranged to engage the spring-fingers 40, and the rods 90, connecting the arm 80 with the pivot-pin 11 of the latch-arms 21, said rods arranged to bear upon the lugs 61 and adapted when the arm 80 is depressed to become spring-rods to throw the arm 80 upward when released from contact with the car, substantially as and for the purpose described.

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Witnesses:

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JOSEPH D. NICHOLS.