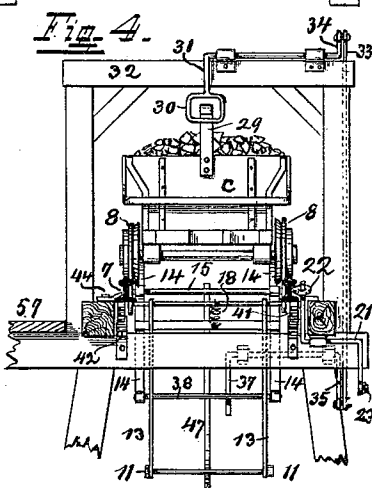
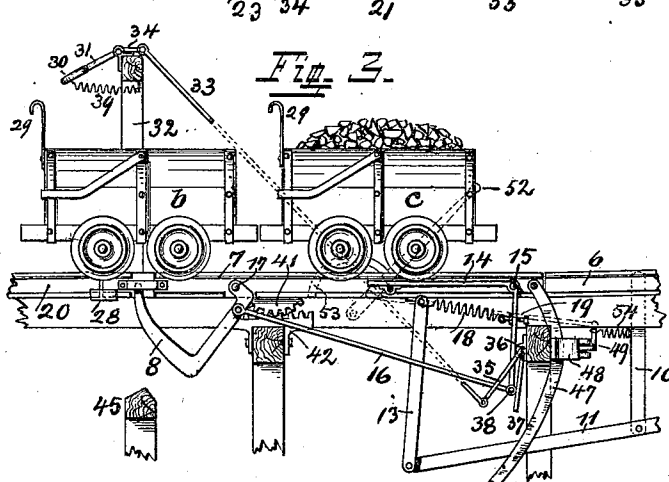
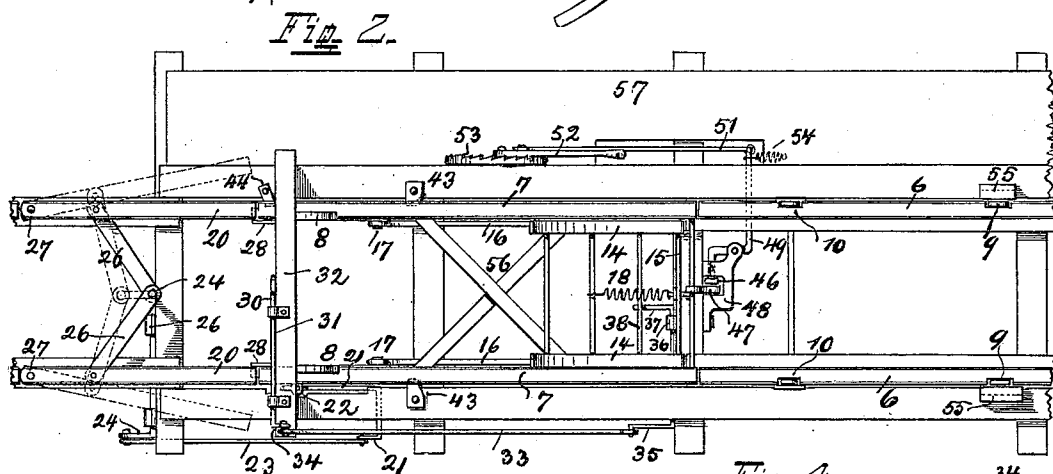
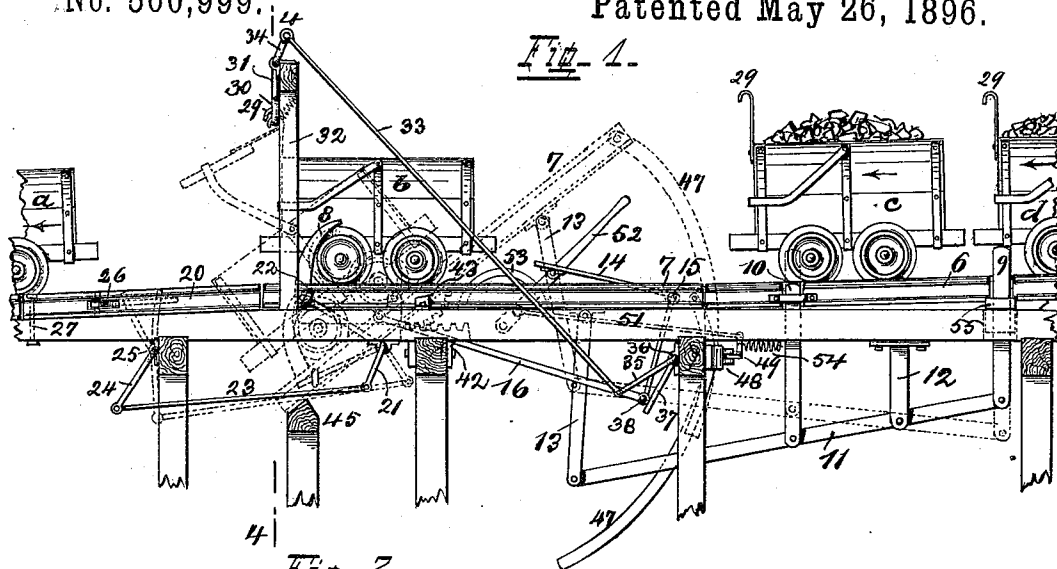


(No Model.)

E. JOSEPH.
TIPPLE.

No. 560,999.

Patented May 26, 1896.



Attest
My hand
Arthur R. Rine.

Inventor
Edward Joseph
by C. Spengel Atty.

UNITED STATES PATENT OFFICE.

EDWARD JOSEPH, OF POMEROY, OHIO.

TIPPLE.

SPECIFICATION forming part of Letters Patent No. 560,999, dated May 26, 1896.

Application filed September 21, 1895. Serial No. 563,229. (No model.)

To all whom it may concern:

Be it known that I, EDWARD JOSEPH, a citizen of the United States, and a resident of Pomeroy, Meigs county, State of Ohio, have invented certain new and useful Improvements in Tipples; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals marked thereon, which form a part of this specification.

This invention relates to improvements in tipples, which are appliances used for the purpose of dumping or discharging the contents from loaded cars, particularly such employed in the operation of mining, where they carry out the product mined, (coal or ore,) which from them is dumped into other carriers, usually railroad-cars or vessels, stationed below the tipple. They usually work more or less automatic, and consist, substantially, of a section of track pivotally supported and adapted to be tilted by the weight of the loaded car to an angle sufficient to cause the load to slide out. Stops prevent the car from leaving or rolling off of the track while so inclined until the latter drops back into alinement with the stationary-track portions, when the empty car is released and pushed off of the tipple by the loaded car next entering the tipple to be dumped.

My improvements relate particularly to the provision of certain automatically-operating stops whereby the train approaching the tipple may be controlled and its cars admitted one by one to the latter, thereby avoiding crowding and accidents.

They also relate to certain details of construction whereby the car while dumping is held on the track while the latter is tipping and whereby it is released at the proper time.

They further relate to means whereby the door or gate in the end of the car is raised to permit the contents to pass out.

They still further relate to a construction whereby the stationary track immediately back of the tipping section is spread apart to provide ample room for the dumping-car and prevent interference of the rails with any parts projecting therefrom while descending.

They finally relate to certain details of construction of the different parts, which will be explained at the proper place.

In the following specification and particularly pointed out in the claims is found a full description of my invention, its operation, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the tipple with adjoining track-sections, showing the tipple just returned to its normal position with the car then emptied in place yet, while the previously-emptied car is seen passing off to the left and a loaded car next to be dumped is approaching from the right. The dumping position of the parts is shown in dotted lines. Fig. 2 is a top view of the tipple. Fig. 3 is a view similar to Fig. 1. Parts, however, are shown in section and the rail nearest the spectator is removed. In position the cars are shown in one they assume following the position in which they are shown in Fig. 1—that is, the loaded car previously shown approaching has now fully entered upon the tipple and is pushing the empty car in front of it off therefrom. Fig. 4 is a vertical section on line 4 4 of Fig. 1, and shows a loaded car in position on the tipple a moment before it is dumping.

The loaded cars or a train of them leaving the mine approach the tipple on a track 6, usually more or less inclined, whereby gravitation is utilized as the moving force. From the end of this track they are admitted one by one to the tipping track-section 7, forming the tipple proper, and for such purpose resting on a pivotal support. The weight of the loaded car after passing beyond the latter causes this section to tilt, whereupon the car dumps its contents, which pass out of the previously-opened front end thereof. While so discharging, the car is held in position on the inclined track by stops 8, which hold it until the tipple returns to its normal position and into alinement with the adjoining track ends, when the next loaded car while entering upon the tipple renders these stops inoperative and pushing the empty car off of the tipple assumes the position the latter occupied. The empty car next enters a return-track, usually down-grade, to clear the tipple and in due time is

returned to be reloaded. At the approach to the tippie there are two stops 9 and 10, preferably arranged in sets, with one on each side, properly guided in cut-outs in the sides of rails 6, each stop connecting at its lower end to a rocker-bar 11, pivoted at 12 to a bracket and connected to the rails of the tippie by links 13. This connection may be in any suitable way. In this case it is made by a tie-rod passing from rail to rail. The length and connection of the stops are such that only one set of them is elevated at the time, in which latter position they are right in the path of the wheels of the approaching mining-cars and then prevent their progress. Their object and function are as follows: While the tipping track-section is in its normal position, as shown in Fig. 1, stops 10 are below the top of the rails and permit only the first car of the loaded train to enter upon the tippie, (see position of car *c* in Figs. 1 and 3,) while stops 9 are elevated and prevent the next car, (marked *d* in Fig. 1,) respectively, of the whole train from also crowding onto the tippie, which would not only interfere with the operation of the latter, but might, by reason of the increased weight bearing against stops 8, cause them to give way, permitting the whole train to shoot through the open track. While dumping, the elevating part of the tipping track-section, to which these stops are connected, as described, reverses their position, (see dotted lines in Fig. 1,) stops 9 becoming inoperative, whereupon the whole train is permitted to advance the length of a car, bringing the first loaded one against stops 10, to be ready to enter the tippie as soon as the latter's return reverses the stops again to their first position. This condition as it appears immediately after this change has taken place is shown in Fig. 1, where the descending stops 10 have just released the previously-advanced car *c* to admit it to the tippie, as shown in Fig. 3, while stops 9 rise in proper time to check the further advance of the next car *d* with the train behind it. Stops 8 are normally always elevated and reach within the path of the wheels of the approaching loaded car, so that the same cannot roll off of the tippie when having, by reason of its weight having passed beyond the supporting center of the former, caused the same to tip. When, therefore, after dumping, the preponderating weight of the upwardly-tilted track portion returns the tippie again to its normal position, the now-empty car still retains its place thereon and returns with it. Its release is effected by the approach of the next loaded car, which, after having been released by the lowering of stops 10 and in passing upon the tippie, encounters with the flanges of its wheels the upper members of angle-levers 14, pivotally supported preferably to a rod 15, passing from rail to rail, and thus serving at the same time as a tie-rod for the latter. The lower ends of the lower members of angle-levers 14 connect by means of links 16 to stops 8, which latter are

also angle-shaped, their upright and curved branches, which form the stop proper, moving in and being guided by covered cut-out portions in the sides of the rails, while the again upwardly-turned ends of the lower branches are pivoted to the sides of the rails at 17. Links 16 connect to this lower branch, so that while the upper branches of levers 14 are held depressed while the loaded car is passing over them stops 8 are caused to be lowered, thereby permitting the advancing loaded car to push the empty one in front of it off of the tippie in order to take its place. In due time—that is, when the rear wheels of the departing empty car have left the tippie and before the front wheels of the advancing loaded car have had time to reach or pass over the depressed stops 8—the rear wheels of this latter car have cleared angle-levers 14, which thus released are returned to their normal position by a weight or a spiral spring 18, the tension of which is regulated by means of an adjusting-screw 19, suitably connected. The motion of the angle-levers 14 while so released elevates stops 8 in proper time to check the further progress of the loaded car, which thus arrested lowers by its weight the tippie and dumps its contents. After emptied it is released from the returning tippie by the next following loaded car in the same manner as before described, which operation is then constantly repeated, the loaded cars while entering the tippie always releasing the empty ones ahead of them and the motion of the tippie separating the next car to be dumped from the train and permitting it to advance to a position ready to enter the tippie.

As the upper part of the car—that is, its body—projects in most of them more or less beyond the rails I have arranged a spreading track-section 20, adjoining the discharge end of the tippie, which section spreads apart at the same time when the ends of the rails of the tippie descend, thereby preventing any interference of the rails with any part of the car projecting sidewise therefrom. The mechanism which performs this function is as follows: 21 is an angle-lever pivotally supported on one of the track-timbers. Its upper branch occupies an eye-lug 22, projecting out sidewise from near one end of one of the rails of the tippie, while its lower end connects, by a link 23, to the lower end of a lever 24, pivotally supported at 25, and with its upper end connecting to the overlapping ends of two toggle-levers 26, the other ends of which each connect at opposite points to one of the rails of track-section 20, which rails are each pivotally secured at 27. As soon as the tippie starts to descend, these rails, the ends of which adjoin the former, commence to spread by reason of eye-lug 22 depressing the upper member of angle-lever 21, which is in engagement therewith and by link 23 and lever 24 acts upon the toggle-levers, as is readily understood. This engagement being constant, it follows that when the ascending tippie re-

sumes its normal position the spread track will close again to its normal width. Stop-plates 28, projecting from the ends of the rails 7 of the tipping section, receive the ends of the rails of the spreading section, and thus perfect the alinement. To permit the contents of a car to slide out, its front end must be removed. For such purpose this front end forms a gate or door, either sliding or with hinged or pivotal connection. In this case the latter form of connection is shown, and a hook 29 is provided at the upper edge of said gate. When a loaded car has come to a standstill against stops 8, then this hook 29 occupies and comes to be within the looped end 30 of an angle-lever 31, pivotally supported on a yoke 32, which for such purpose is erected in the exactly proper position upon the track-timbers. It will be seen now that when the car commences to go down its door cannot follow, by reason of hook 29 thereon being held back by the looped end of lever 31, as a consequence of which the front end of the car is opened and its contents permitted to slide out. (See dotted lines, Fig. 1.) When the car after being emptied rises, the door closes the front end thereof, and when stops 8 are depressed, in order to permit the same empty car to pass off, the same operation which accomplishes this—to wit, the depression of angle-levers 14 by the wheels of the next loaded car when entering upon the tippie—also swings the looped end of lever 31 out of the way of the departing empty car. The construction and operative connection for such purpose between angle-levers 14 and lever 31 are by means of a link 33, which connects the short end 34 of lever 31 with one branch or link 35 of another angle-lever, which at 36 is pivoted to one of the track-timbers and has its inner member 37 lying against a rod 38, which serves to connect the lower members of angle-levers 14 for the purpose of obtaining a uniform movement for them. When angle-levers 14 are depressed, rod 38 acts against member 37 of lever 35 37 and then by link 33 against lever 34 31 30 in the manner described. A weight or spring 39 carries the looped lever 30 31 34 and all parts connecting back to their original positions. The pivotal support of the dumping-section consists in this case of a segmental rack 41, suitably secured to the under side of rails 7 and working in a straight rack 42, supported on the tippie-frame. The two are kept in engagement by stops 43, secured to the track-timbers and reaching over the flanges of the rails immediately at a point above rack 42. They prevent the tippie from jumping its support without interfering with its movement, which at this point, being near the center of motion, is very limited when it returns to its normal position after dumping. Stops 44, also secured to the track-timbers near the descending end of the tippie, project partly over the rail-flanges, not sufficiently, how-

ever, to be in the way of the car-wheels and prevent the tippie from jumping.

45 is a support which receives the descending end of the tippie with the car when both are in their lowest position and forms an auxiliary support for them until the car has discharged its contents.

In order to regulate the motion of the tippie while dumping or returning, a suitable friction-brake is provided which prevents abrupt drops of the full dead-weight, which sooner or later prove injurious to the construction. This brake consists of a brake-block 46, adapted to be pressed against a brake-bar 47, which passes through a slotted bracket 48 and is secured to the tippie in any suitable way. For operation brake-block 46 is carried by a lever 49, which by a link 51 connects to the operating-lever 52, pivoted in a suitable position beside the track. A ratchet-frame 53 serves to hold said lever in any adjusted position, while a spiral spring 54 counteracts any action on it and serves to normally hold the brake-block off of the brake-bar.

As has been explained, the weight of the loaded car while entering upon and tilting the tippie performs also the operation of the same and the operation of stops 9 and 10 regulating the admission of the cars. At the beginning, however, when there is no car yet on the tippie to be available for its operation and for the operation of stops 9 and 10, it becomes necessary that stops 9 are operated independently—that is, caused to clear the track without the aid of the tippie, in order to admit the first car upon the latter and to start its operation. For such purpose wedges 55, which normally hold stops 9 in position within the cut-outs in rails 6 by occupying sockets in the track-timbers adjoining said stops 9 and closely resting against them and the rails, are removed, whereupon said stops may be moved out sidewise and into the sockets which the wedges had previously occupied. In this position they form no obstruction to the passage of the first car, which may now pass upon the tippie and start its operation. After the first car has passed, stops 9 are put back to their proper position within the cut-outs of the rails, in which they are held by the replaced wedges to be operated hereafter by the swinging motion of the tippie itself.

56 are cross-braces for the purpose of connecting and bracing the rails of the tippie, and 57 is the bridge for the tippie-tender to occupy.

Having described my invention, I claim as new—

1. In a tippie of the kind described, the combination with the tipping section thereof of reciprocating stops 9 and 10, a rocker-bar 11 to which they are connected in a manner to operate in a direction opposite to each other, said stops occupying recesses in the track-section adjoining to and in front of the tippie or tipping track-section and a link 13

connecting the latter to rocker-bar 11, whereby the tippie by its motion operates positively stops 9 and 10 in either direction.

2. In a tippie of the kind described, the combination of reciprocating stops 9 and 10, occupying recesses in the track-section adjoining and in front of the tipping track-section, a rocker-bar 11 to which they are connected in a manner to move each in a direction opposite to the other, operative connection between the rocker-bar and the tipping track-section and wedges 55 occupying sockets adjoining stops 9, for the purpose of retaining them in position and allowing upon withdrawal said stops to be moved sidewise for the purpose described.

3. In a tippie of the kind described, the combination of a tipping track-section, stops 8 having their lower branches and rear end formed into angle-levers whereby they are pivotally secured at 17 near the descending end of the tipping section and for guidance occupying covered recesses cut out of the sides of the rails forming said section, angle-levers 14 pivotally secured to the latter at the remote end from stops 8 and having their upper branches normally elevated within the path of the wheels of the passing cars, a link 16 connecting the lower parts of these angle-levers with the angle-lever branches of stops 8, and means like a spring to hold and return them to their normally-elevated position.

4. In a tippie of the kind described, the combination of a tipping track-section, stops 8 and angle-levers 14 pivotally secured to said tipping track-section and operatively connected to each other and reciprocating stops 9 and 10, operating in opposite directions within recesses in the track-section adjoining and in front of the tipping track-section and means whereby they are operatively connected to the latter.

5. In a tippie of the kind described, the combination of a tipping track-section, a looped lever 31, 34, supported above it and a yoke 32, by which it is carried, both located in proper position for the purposes and object

described and means whereby said looped lever is elevated to be out of the way of the passing car.

6. In a tippie of the kind described, the combination of a tipping track-section, a looped lever 31, 34 supported above it, a yoke 32 to which it is pivotally secured, angle-levers pivotally secured to the track-section and capable of being acted upon by the wheels of a car when entering the latter and operative connection between the angle-lever and looped lever 31, 34.

7. In combination with the tipping track-section of a tippie of the kind described, a spreading track-section the rails 20 of which are pivoted at 27, and with their free ends adjoin the descending ends of the rails of the tipping section, an angle-lever 21 secured to the latter, toggle-levers 26 secured between the rails of the spreading section and operative connection between the two.

8. In combination with the tipping section of a tippie of the kind described, a spreading track-section the rails 20 of which are pivoted at 27 and with their free ends adjoin the descending ends of the rails of the tipping section, stop-plates 28 projecting beyond the ends of the latter for the purpose of receiving the free ends of rails 20 to perfect the alinement and operative means connecting the two rail-sections in a manner and for the purpose of spreading the rails upon the descent of the tippie.

9. In combination with the pivotally-supported track-section of a tippie of the kind described, stops 43 and 44, secured to the adjoining track-timbers, the first near and above the pivotal support, to prevent the tippie from leaving the latter while dumping, the former near the end of the tippie to limit its return motion.

In testimony whereof I hereunto set my hand in presence of two witnesses.

EDWARD JOSEPH.

Witnesses:

THOS. MIDDLETON,
DONALD McDONALD.