Sept. 23, 1924. 1,509,374

J. A. NOLAN

FEEDER FOR KICKBACK DUMPS

Filed Aug. 4. 1923 2 Sheets-Sheet 1

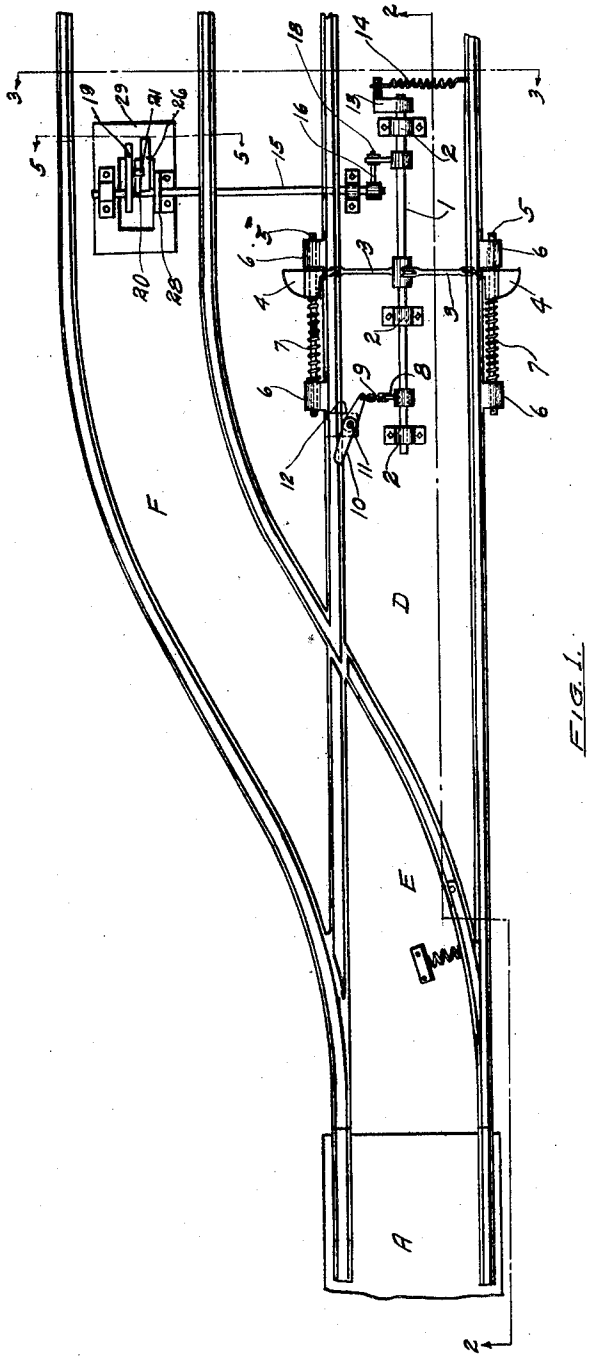


FIG. 1.

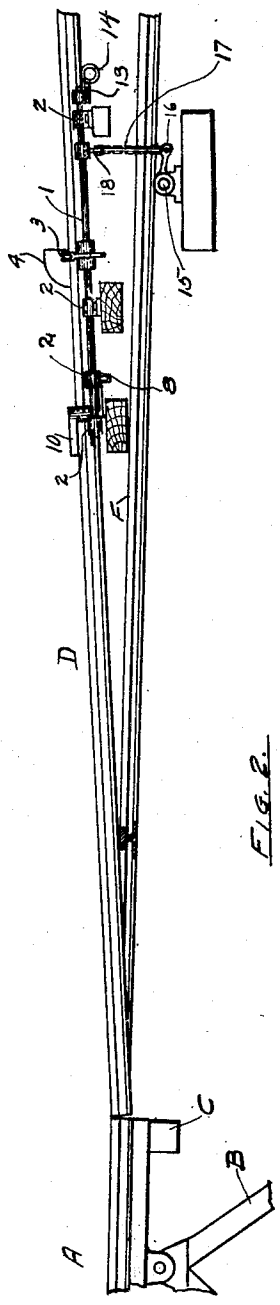


FIG. 2.

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BY Victor J. Evans

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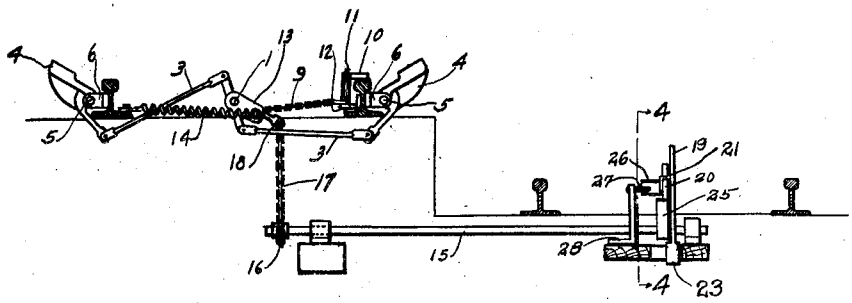


FIG. 3.

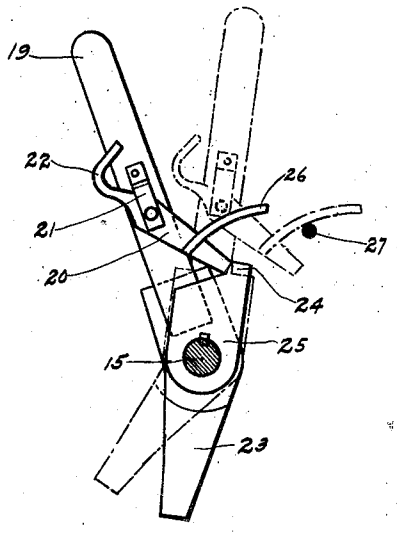


FIG. 4

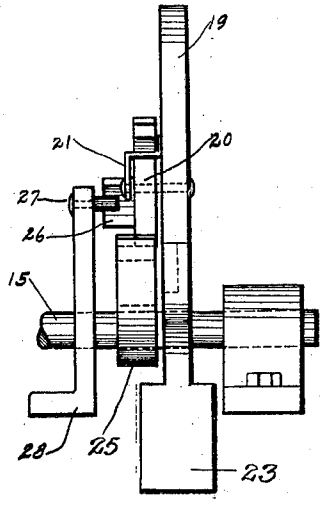


FIG. 5.

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Patented Sept. 23, 1924. 1,509,374

UNITED STATES PATENT OFFICE.

JAMES A. NOLAN, OF BOWERSTON, OHIO.

FEEDER FOR KICKBACK DUMPS.

Application filed August 4, 1923. Serial No. 655,600.

To all whom it may concern:

Be it known that I, JAMES A. NOLAN, a citizen of the United States, residing at Bowerston, in the county of Harrison and State of Ohio, have invented new and useful Improvements in Feeders for Kickback Dumps, of which the following is a specification.

This invention relates to feeding means for feeding mine cars onto and off of cages and dumps, and more particularly to a feeder for a kickback dump.

One of the main objects of the invention is to provide a feeder of the character stated of simple construction and operation which may be readily produced at small cost. A further object is to provide a feeder having trip means so arranged and constructed that the feeder will operate when the trip lever is held depressed by an empty car. Further objects will appear from the detail description.

In the drawings:—

Figure 1 is a top plan view of a feeder constructed in accordance with my invention;

Figure 2 is a section taken substantially on line 2—2 of Fig. 1;

Figure 3 is a section taken substantially on line 3—3 of Fig. 1;

Figure 4 is a section taken substantially on line 4—4 of Fig. 3;

Figure 5 is a section taken substantially on line 5—5 of Fig. 1.

This feeder is intended more particularly to be used in connection with a kickback dump A of a known type, this dump being rockably mounted on a suitable support B and provided with stops of a known type (not shown) for stopping and holding the car during the dumping operation. After the car has been dumped the dump A is returned to normal position by means of a weight C attached to the dump, or in any other well-known or preferred manner. When the dump is in normal position it has a slight downward inclination toward approach track D, as illustrated in Fig. 2, so that the empty car will be returned by gravity toward track D. This empty car is directed by a switch point E of a known type onto empty track F which is inclined downwardly away from the dump, the car being returned by this empty track to the loading station. The dump and the approach or loading track D together with the switch point E and the return or empty track F are all of well-known construction and use in this art and need not be further described in detail.

A rock shaft 1 is rockably mounted in bearing blocks 2 centrally of track D beyond the empty track F. This shaft is connected by links 3 to horns or stops 4 which are rockably and slidably mounted on rods 5 secured through bearing blocks 6 secured to the outer faces of the rails of track D, movement of the horns being cushioned by springs 7 mounted about the rods. An arm 8 is secured to shaft 1 in advance of horns 4 and is connected by a chain 9 to a trigger lever 10 rockably mounted at 11 on a bracket 12 secured to one of the rails, this lever serving to rock shaft 1 in a predetermined direction when displaced by the wheels of a car traveling toward dump A on track D. An arm 13 is secured on the outer end of shaft 1 and is connected by a tension spring 14 to one rail of track D, the arm and the spring being so disposed that, when the shaft has been rocked a predetermined distance in either direction, the spring completes the throw of the shaft and holds the shaft in rocked adjustment. This construction is illustrated and described in detail in my patent for mine car cager 1,337,944 issued to me April 20th, 1920 and need not be further described in detail here.

A counter-shaft 15 is rockably mounted beneath tracks D and F and an arm 16 is rigidly secured on this shaft beneath track D. This arm is connected by a chain 17 to an arm 18 rigidly secured on shaft 1. A trip lever 19 is loosely mounted on shaft 15 and is normally in a substantially vertical position. This lever carries a pawl 20 which is rockably mounted between the lever and a bracket 21 carried by lever 19, movement of the pawl in one direction being limited by a hook element 22 provided at the upper end of the pawl and positioned to contact with bracket 21. A weight 23 depends from lever 19 and serves to normally hold it in upright or operative position as in Figs. 4 and 5. Pawl 20 is positioned to normally contact with tooth 24 of a ratchet block 25 keyed on shaft 15 adjacent to lever 19. The pawl is further provided with an outwardly projecting arcuate trip finger 26 which, when lever 19 is depressed to a predetermined extent contacts with a trip pin 27 carried by a bracket 28 secured on a

suitable base plate 29 and positioned adjacent to ratchet block 25.

In the operation of the apparatus, a trip of loaded cars is positioned upon track D above horns 4, these horns being normally closed at which time shaft 1 is in position to hold trip lever 10 against the adjacent rail of the track. A loaded car which has been cut out of the trip travels down track D and displaces switch point E, this loaded car then passing onto dump A which is tilted by the weight of the car into position to discharge or dump the car. When the car has been dumped the dump A is returned to normal position so that the car travels by gravity toward the approach or loading track D and is then directed by switch point E onto the receiving or empty track F. The empty car traveling down track F strikes trip lever 19 so as to rock the same in a clockwise direction as considered in Fig. 4 thus rocking shaft 1, by means of arms 16 and 18 and chain 17 in stop-opening direction, the rocking of this shaft in this direction being completed by spring 14 in the manner previously described. As the empty car passes beyond lever 19 this lever is returned to its normal upright position illustrated in Figs. 4 and 5. When lever 19 is depressed by the empty car it is rocked into substantially the position indicated in Fig. 4 so that finger 26 contacts with pin 27 so as to raise pawl 20 out of the path of travel of tooth 24 of ratchet block 25 after shaft 15 has been turned to a sufficient extent to cause shaft 1 to be thrown by spring 14 into stop-opening direction. In the event that the empty car hangs on lever 19 the lever will be held depressed and pawl 20 will be held raised so as to permit return of block 25 to its normal position. When the horns 4 are open the trip of cars moves up, the front car of the trip traveling down track D so as to operate the trigger lever 10 rocking shaft 1 in stop-closing direction thus closing horns 4 so as to hold back the rest of the trip. This rocking of shaft 1 in stop-closing direction serves to rock shaft 15 so as to return ratchet block 25 to its upright or normal position. In the event that trip lever 19 is held depressed by the empty car on track F, the block 25 can nevertheless be returned to its upright or operative position since pawl 20 is held by pin 27 and finger 26 out of the path of movement of tooth 24, as previously described. After the second car has been dumped it will travel downwardly on track F in the manner described and the impact of this second car will be sufficient to dislodge a previous empty car which may be caught on lever 19, which will be returned to normal position by weight 23. When the lever 19 is returned to normal position, assuming that the ratchet block 25 has been previously returned to normal position, pawl 20 will be raised by tooth 24 and will then drop into position in front of this tooth so that when the lever 19 is again depressed by the second empty car shaft 15 will be rocked in stop-opening direction in the manner previously described. The operation described is repeated so that the cars are automatically and continuously fed onto and off of dump A, and all possibility of the apparatus being rendered inoperative due to an empty car becoming caught on the trip lever, as occasionally happens, is eliminated.

What I claim is:—

1. In an apparatus of the character described, in combination with a dump, an approach track leading thereto, a receiving track leading from the approach track adjacent to the dump, means for deflecting an empty car leaving the dump from the approach track onto the receiving track, stop members mounted on the approach track beyond the receiving track, means actuated by a loaded car traveling on the approach track for closing said stop members, and positively operating means actuated by an empty car traveling on the receiving track for opening the stop members.

2. In an apparatus of the character described, in combination with a kickback dump and an approach track leading thereto and a receiving track leading from the dump, stops mounted on the approach track, means actuated by a loaded car traveling on the approach track for closing the stops, and means actuated by an empty car traveling on the receiving track and having positive connections with said stops for opening the stops.

3. In an apparatus of the character described, in combination with a dump and an approach track leading thereto and a receiving track leading from the dump, stops on the approach track, means actuated by a car traveling on the approach track for closing the stops, and means actuated by a car traveling on the receiving track and positively connected to said stops for opening the stops.

4. In an apparatus of the character described, in combination with a dump and an approach track leading to the dump and a receiving track leading from the dump, stops mounted on the approach track, means actuated by a car traveling on the approach track for closing said stops, a rockably mounted shaft on the receiving track, connections between said shaft and the stops for opening the stops when the shaft is rocked in one direction and for rocking the shaft in the other direction when the stops are closed, a trip lever on the receiving track positioned to be rocked in stop-opening direction by a car traveling on said receiving track, and means for operatively connecting

said lever to said shaft for turning the same in stop-opening direction, said means permitting return of the shaft to its initial position independently of the lever.

5. In an apparatus of the character described, in combination with a dump and an approach track leading thereto and a receiving track leading from the dump, stops on the approach track, means actuated by a car traveling on the approach track for closing said stops, a shaft rockably mounted on the receiving track, a trip lever mounted to turn about said shaft and positioned to be depressed by an empty car traveling on the receiving track, means for normally holding said lever in upright position, a ratchet block secured on the shaft and provided with a tooth, a pawl mounted on the lever and positioned to contact with said tooth for rocking the shaft with the lever when the lever is depressed or rocked in one direction, means for disengaging said pawl from the tooth of the block when the lever has been rocked a predetermined distance in said direction and for holding said pawl out of the path of movement of the tooth when the lever is in its extreme position in said direction, connections between said shaft and the stops for opening the stops when the shaft is turned in said direction and for turning the shaft into its initial position when the stops are closed.

6. In an apparatus of the character described, in combination with a dump and an approach track leading to the dump and a receiving track leading from the dump, stops on the approach track, car actuated means on the approach track for closing said stops, a shaft rockably mounted on the receiving track, connections between said shaft and the stops for opening the stops when the shaft is rocked in one direction and for rocking the shaft in the other direction when the stops are closed, car actuated means on the receiving track for rocking the shaft in stop opening direction, and means for releasing the shaft from said car actuated means after the shaft has been turned a predetermined distance in stop opening direction and permit independent turning of the shaft in the other direction when the stops are closed.

7. In an apparatus of the character described, in combination with a dump and an approach track leading to the dump and a receiving track leading from the dump, stops on the approach track, car actuated means on the approach track for closing said stops, car actuated means on the receiving track and connected to the stops for opening the same, means for disconnecting said receiving track car actuated means from the stops after the car actuated means has been moved a predetermined distance in stop opening direction and permitting closing of said stops independently of said receiving track car actuated means, and means for returning the receiving track car actuated means to operative position.

In testimony whereof I affix my signature.

JAMES A. NOLAN.