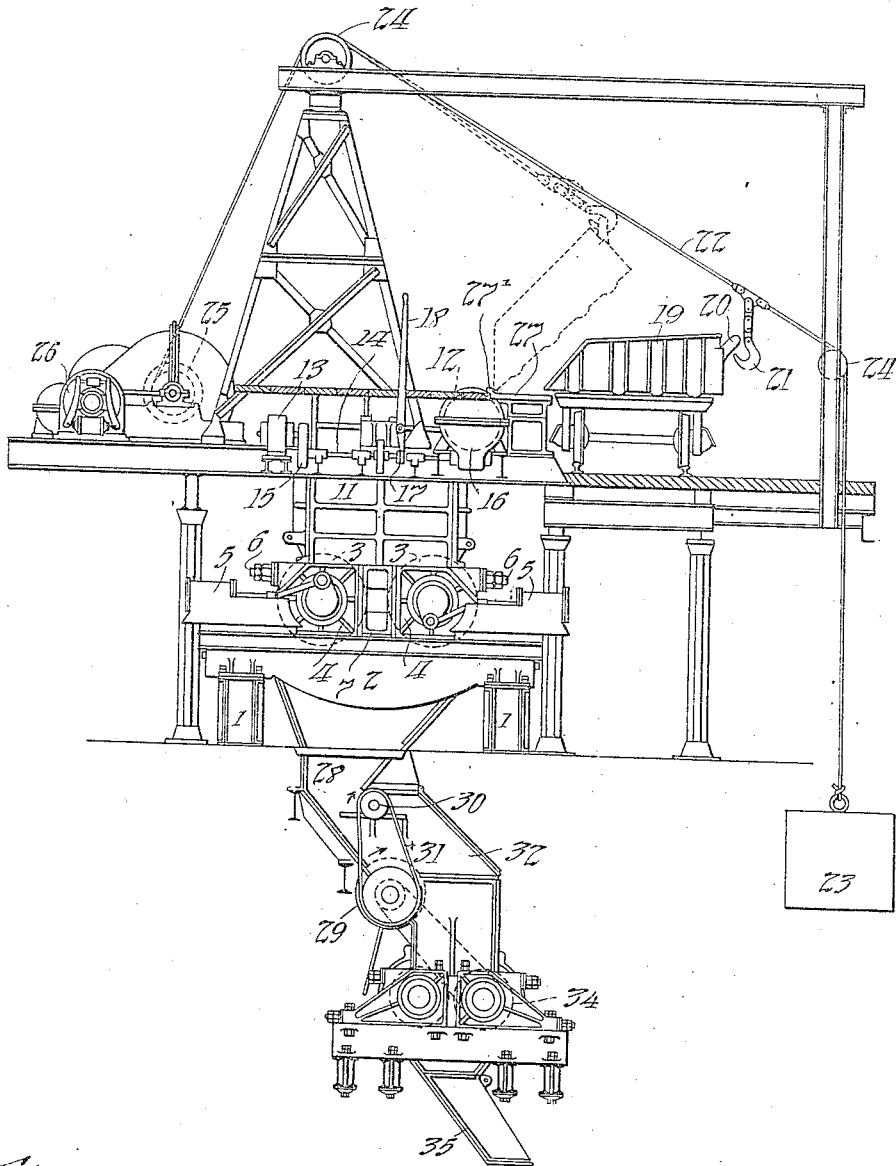


T. A. EDISON.  
DUMPING MECHANISM.  
APPLICATION FILED DEC. 1, 1911.

1,055,524.

Patented Mar. 11, 1913.



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# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF WEST ORANGE, NEW JERSEY.

## DUMPING MECHANISM.

1,055,524.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Original application filed January 13, 1903, Serial No. 138,813. Divided and this application filed December 1, 1911. Serial No. 663,399.

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, and a resident of West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Dumping Mechanism, of which the following is a specification.

This application is a division of my application Serial No. 138,813, filed January 13, 1903 for giant rolls. My application Serial No. 138,813 relates to improvements in giant rolls of the type covered by my patents of April 23, 1901, numbered 672,616 and 672,617 respectively, in which two rolls of great weight are employed, driven independently in opposite directions, with means for feeding charges of rock periodically to the gap between the rolls, whereby the rock is broken by kinetic energy, and the object of the invention disclosed in the said application is to improve the construction and increase the efficiency of apparatus of this type. In apparatus of the type disclosed in my aforesaid application and patents, the rock or other materials to be broken are fed intermittently to the rock crushing rolls through a hopper.

The invention of my present application relates to mechanism for dumping the materials into the hopper, and more particularly to improvements in the mechanism for effectively handling the skips containing the rock to be broken, and for presenting the rock to the action of the breaking rolls.

My invention consists also in the details of construction and combinations of parts more fully hereinafter described and claimed.

In order that the invention may be better understood, attention is directed to the accompanying drawing forming a part of this specification, and in which the figure shows rock breaking apparatus provided with one embodiment of my improved dumping mechanism.

Carried on suitable foundation beams 1, are the side frames 2 of the giant rolls 3, 3, the shafts of the latter being mounted in heavy pillow blocks 4 secured to but longitudinally adjustable on the side frames. Each of the giant rolls is driven by a small auxiliary motor 5, 5, a steam engine being shown as the preferred example, whose connecting rod is connected directly with the

crank on the shaft of each roll. The pillow blocks 4, 4 are rigidly connected by tie bolts 6, and the gap between the rolls is regulated by a spacing block 7 placed between the pillow blocks. The motors 5, 5 are connected and are adjustable longitudinally with the pillow blocks, so that the relation between the motors and the rolls remains unchanged irrespective of the adjustment of the rolls to vary the width of the gap. Mounted above the giant rolls is a heavy casing or hopper 11, through which falls the material to be operated upon. At the top of this casing at one side is a roller feed 12 operated by a motor 13 illustrated as an electric motor. The motor drives a countershaft 14 through gearing 15, and the countershaft drives the roller feed 12 through suitable gearing 16. The countershaft 14 is provided with a clutch 17 operated by a lever 18 of any approved form, and by means of which the roller feed 12 may be stopped and started at will. The rock to be broken is contained in skips 19 carried on flat cars running on suitable tracks. Each skip is formed with an eye 20 at its rear end with which a hook 21 is adapted to engage, the hook being flexibly connected to a cable 22 carrying a weight 23 at its lower end, running over pulleys, 24, 24, and extending around a winding drum 25. This winding drum is operated by suitable gearing from a motor 26, shown as an electric motor. The run of the cable 22 between the pulleys 24, 24, is so disposed that when the winding drum is operated, the hook will automatically engage the eye 20 of the skip, sliding the skip off of the car along the platform 27, until its forward end engages a projection 27' immediately behind the roller feed 12 and tilting the skip to the position shown in dotted lines in the figure, so as to discharge its contents onto the roller feed. The table 27 is made preferably of polished chilled iron, so that the skip will slide freely over the same in the unloading operation. Below the giant rolls, I form a hopper 28 having a roller feed 29 operated in any suitable manner and movable in the direction of the arrow. This roller feed is located at the bottom of the discharge from the hopper 28, and at the other side of the discharge therefrom I mount a roller 30 whose function is to prevent the material from clogging or bridging within the hop-

per. The roller 30 turns in the same direction as the roller feed 29 and may be operated from the latter by a belt 31. A casing 32 is arranged beyond the roller feed 29.

5 Below the casing I show a pair of crushing or grinding rolls 34 of any suitable type, discharging into a hopper or chute 35.

In operation the motors 5 independently drive the giant rolls at a high surface velocity so that the rolls act practically as enormously heavy fly-wheels. The crushing rolls 34 are operated from any suitable source of power. The roller feed 29 and roller 30 are also continuously operated, and the roller feed 12 is operated from the motor 13. A loaded car is now moved up on the track opposite the roller feed 12 and the motor 26 is started, winding the cables 22 upward, engaging the hook 21 with the eye 20 on the skip, sliding the skip sidewise until its forward end engages the projection 27 at the front of the table 27, and then tilting the skip upward so that its contents are discharged onto the roller feed. By means of the latter, the material is projected into the casing 11 and falls into the gap between the giant rolls. When the skip has been emptied, the motor 26 is reversed, or if the weight 23 is of sufficient mass, power is simply cut off from the motor 26 so that the descent of the weight will reverse the motor, returning the skip to its original position and automatically disengaging the hook from the eye, so that a loaded car can be moved in place and the unloading operations repeated. The broken material from the giant rolls is discharged in the hopper 28 and from the latter is continuously fed from the roller feed 29 to the crushing or grinding rolls 34, by which a further reduction of the material is effected.

My improved dumping mechanism is particularly adapted for use with rock crushing apparatus, such as is described and claimed in the application and patents hereinafore mentioned, but is not limited to use with such apparatus.

Having now described my invention, what I claim as new therein and desire to protect by Letters Patent is as follows:—

1. In apparatus of the class described,

the combination of a skip, a cable provided with means to engage and move the skip in the forward movement of the cable, means to move the cable forward, means adapted to cooperate with the skip in its movement to tilt and dump the same, and means for automatically disengaging the skip and returning the cable to its initial position, substantially as described. 55

2. In apparatus of the class described, the combination with a skip, of a cable carrying a hook intermediate its ends adapted to engage the skip in the forward movement of the hook, driving means applied to the forward end of the cable, and a weight applied to the other end of the cable, substantially as set forth. 60

3. In apparatus for feeding material to rock-breaking rolls, the combination with a skip, of a cable positioned obliquely in a vertical plane crossing the position of the rolls and ascending as it approaches said position, pulleys over which said cable runs, driving means applied to said cable, a hook connected to the cable and adapted to engage the rear of the skip in the forward ascending movement of the hook and to disengage the skip in the backward descending movement of the hook, a platform over which the skip is adapted to slide in its forward movement, and means for stopping the forward end of the skip in dumping position whereby the skip is tilted and dumped, substantially as set forth. 75

4. In apparatus for unloading and dumping skips, a hopper, a platform adjacent thereto and having means thereon for stopping the forward movement of the skip to dump the contents thereof into the hopper, means for engaging the skip and moving it forward and into dumping position, and means for automatically disengaging the last mentioned means from the skip and returning said last mentioned means to its initial position, substantially as described. 85

This specification signed and witnessed this 28th day of November, 1911.

THOMAS A. EDISON.

Witnesses:

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