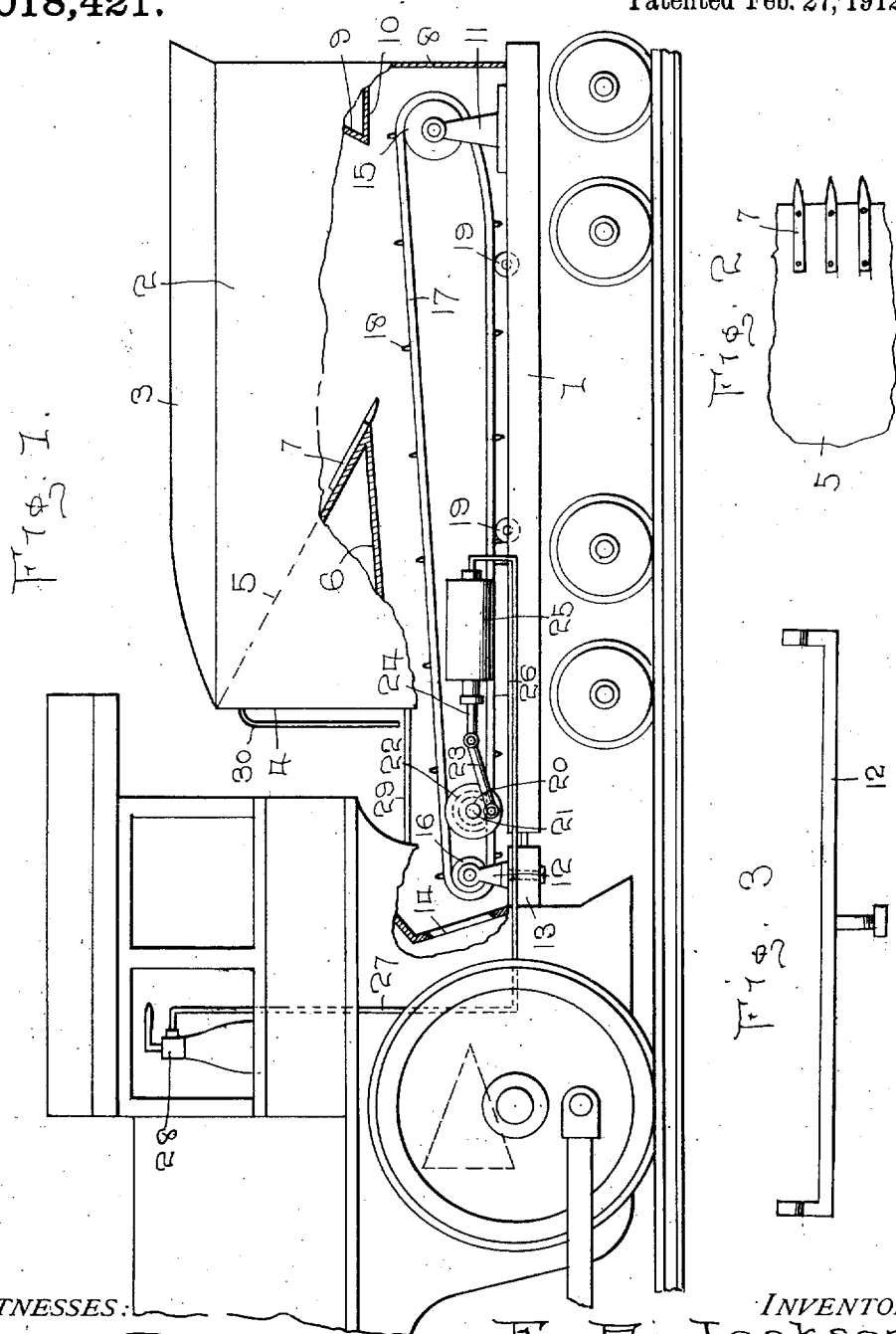


F. A. JACKSON.
 AUTOMATIC COAL FEEDING MECHANISM FOR LOCOMOTIVE AND OTHER FIRE BOXES.
 APPLICATION FILED MAR. 15, 1911.

1,018,421.

Patented Feb. 27, 1912.



WITNESSES:

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FRANK A. JACKSON, OF GARLAND, ARKANSAS, ASSIGNOR OF ONE-HALF TO
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AUTOMATIC COAL-FEEDING MECHANISM FOR LOCOMOTIVE AND OTHER FIRE-BOXES.

1,018,421.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed March 15, 1911. Serial No. 614,670.

To all whom it may concern:

Be it known that I, FRANK A. JACKSON, a citizen of the United States, residing at Garland city, in the county of Miller and State of Arkansas, have invented certain new and useful Improvements in Automatic Coal-Feeding Mechanism for Locomotive and other Fire-Boxes; and I do hereby 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.

This invention relates to locomotives and more particularly to means for automatically feeding the coal from the tank or coal car to the fire box.

An object of the invention is to provide means for automatically feeding the coal to the door of the fire box while the train is in motion.

Another object is to provide means for feeding the coal to the fire box and means operated by the locomotive for controlling said feeding means, and, another object is to provide operating and controlling means for automatically feeding coal to a locomotive while in motion and means for controlling said operating and controlling means to be operated at will by the trainmen.

Other objects and advantages will be hereinafter set forth and pointed out in the specification.

In the drawing Figure 1 represents a fragmentary view of the cab or rear end of a locomotive with the coal car equipped with the improved endless feeder attached thereto, the locomotive and coal car being shown partly in section, Fig. 2 is a fragmentary detail view showing the sloping bottom portion with the teeth secured to the lower edge thereof, and Fig. 3 is a detail perspective view of the forward bracket.

In the drawing is shown a coal car having the usual bottom 1, the sides 2 and coal guards 3. Extending inwardly and downwardly from the upper edge of the front 4 of the car is the sloping bottom portion 5, meeting the coal leveler 6 and having upon its lower edge a plurality of teeth 7 adapted to crush or break the large chunks of coal passing therebetween, as will be later described.

Extending from the upper edge of the back 8 of the car 1 is the downwardly and

slightly inwardly slanting coal guide 9 and terminating in the rearwardly directed horizontal portion 10 secured to the back 8. Extending upwardly and secured to the bottom 1 is the rearward bracket 11. The forward bracket 12 may, if desired, be secured to the platform or extension 13 of an engine to which the coal car is to be connected. The extension 13 extends toward the coal car and is positioned slightly below the door opening 14 of the fire box of the locomotive. The bracket 12 may be connected to the extension 13 in such a manner as to allow the former to swing in either direction, the purpose of which will later appear.

Within the upper ends of the brackets 11 and 12 are rotatably secured the rollers or cog wheels 15 and 16, respectively, the roller 16 being decidedly smaller in diameter than the roller 15. Passing over and around the rollers 15 and 16 is the endless belt or feeder 17 having the teeth 18 extending upwardly therefrom, while one portion of the belt 17 rests near the bottom 1 of the coal car and is held a spaced distance thereabove by means of the rollers 19 at the bottom of the car. The opposite portion of said belt rests in a position slightly below the opening between the slanting portions or coal slides 7 and 9 and beneath the horizontal portion 10 and the coal leveling portion 6 on said car. Thus, it will be seen that the coal placed within the car will rest upon the belt or feeder 17, and as the belt travels (as will be later described) the coal resting thereupon will be carried to the fire box door and there will slide off of the belt 17 and into the fire box, the partition or coal leveler 6 leveling the coal upon the feeder 17 as it travels therebeneath and the teeth 7 preventing the coal from passing when in pieces of too great size to enter the door opening 14 and serving to break said chunks into smaller pieces to be fed through the door opening 14.

Positioned adjacent the roller 16 is the belt operating roller or wheel 20 mounted upon the shaft 21, which carries the fly-wheel 22. Connected to the fly-wheel 22 is the piston arm 23, which has its opposite end connected to the piston 24 working within the cylinder 25.

Connected to the cylinder 25 is a steam or air conveying pipe 26 connected by flexible connections to the pipe 27 leading from the steam or air throttle 28 by means of

which the piston may be operated by the air or steam from the locomotive. The supply, as will be understood, may be controlled by the throttle valve to operate the piston 5 24 within the cylinder 25 at the speed desired by the engineer or fireman. The fireman may stand upon the platform 29, and when necessary grasp the hand hold 30.

As will be understood the above described 10 coal feeding mechanism is specially adapted for feeding coal to fire boxes of locomotives running at high speed and will be highly satisfactory in operation, automatically feeding the coal to the fire box door at 15 which point it rolls into the fire box, insuring the proper amount of coal being fed to said fire box. It will also be noted that this invention can be applied to locomotives and coal cars of the ordinary construction now 20 in use and will therefore not require any change or alteration whatever in the construction of the expensive rolling stock. It will also be understood that the fireman's toil will be made much easier and that the 25 steady and regular operation of the automatic feeder will not in any way cause the fireman and engineer to become suddenly frightened by irregular and excessively loud and annoying rumbling or other noises occasioned by coal feeding mechanisms for loco- 30 motives heretofore invented. This feeding mechanism will also insure an even and steady fire within the fire box, as it may be regulated to feed any predetermined quantity regularly to the fire box. 35

What I claim is:

1. The combination with a coal car having a sloping bottom portion extending inwardly and downwardly from the upper 40 edge of the front of the car, a coal leveling portion extending horizontally from the lower edge of the sloping bottom portion to the front of the car, a plurality of coal breaking teeth secured along the lower edge 45 of the sloping bottom portion and projecting downwardly and rearwardly therefrom,

and a coal guiding portion extending downwardly and slightly inwardly from the bottom of the car; of an endless belt working in the bottom of the car to receive the coal 50 guided thereupon by the coal guide and the sloping bottom and convey the same to the fire box of a locomotive connected with the coal car, teeth on the outer surface of the endless belt for moving the coal into en- 55 gagement with the teeth on the sloping bottom portion, the sloping bottom and the coal guide serving to guide coal onto the endless belt, the coal leveling bottom serving to level the coal upon the conveyer and the coal 60 breaking teeth serving to break the large lumps of coal as they are carried by the belt to the fire box.

2. The combination with a coal car having sloping guide bottom portions and a coal 65 leveling portion, the edges of one of the sloping bottom portions and of the coal leveling portion meeting and coal breaking teeth secured upon the sloping bottom portion at the junction thereof with the coal 70 leveling portion; of an endless feeding belt working within the bottom of the coal car beneath the sloping and leveling bottom portions thereof, teeth on the outer surface of the endless belt for moving the coal into 75 engagement with the teeth on the sloping bottom portion, means for supporting the belt to operate and carry the coal in a horizontal direction to be fed to the fire box of a locomotive connected to the coal car, the 80 endless feeder supporting means being mounted to allow the engine and coal car to turn without affecting the operation of the endless feeder, and means for operating and controlling the endless feeder. 85

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK A. JACKSON.

Witnesses:

C. L. HOUGH,
W. V. RUSHING.