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1,698,312

N. M. LOWER

COAL MOISTENER FOR STOKERS

Original Filed June 4, 1926

Fig. 1

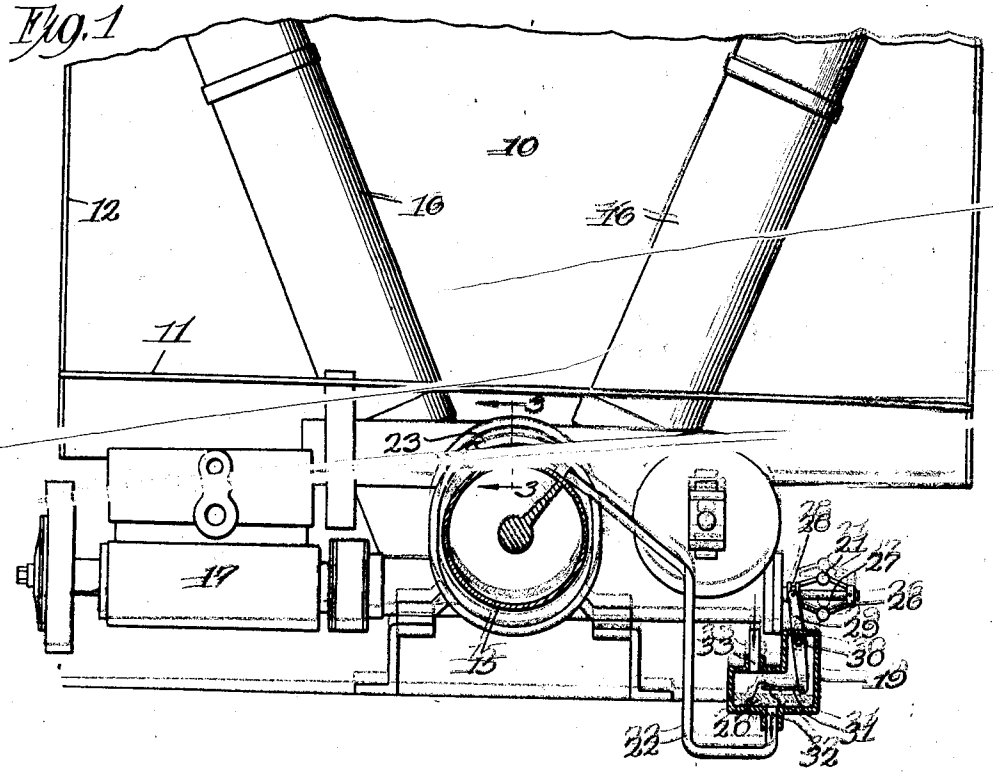
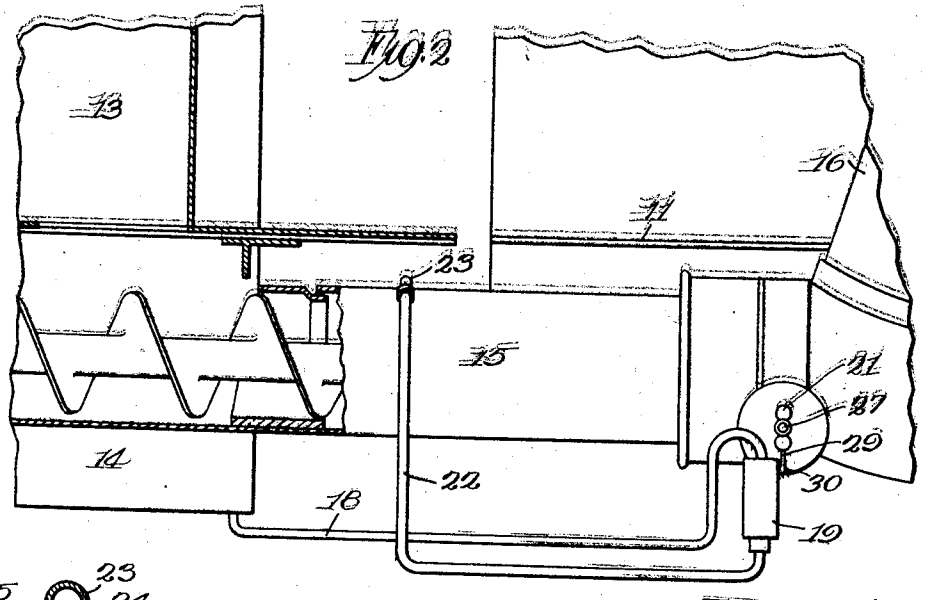


Fig. 2



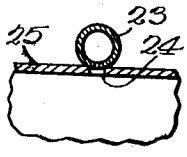


Fig. 3

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UNITED STATES PATENT OFFICE.

NATHAN M. LOWER, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE STANDARD STOKER COMPANY INC., OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

COAL MOISTENER FOR STOKERS.

Application filed June 4, 1926, Serial No. 113,799. Renewed November 26, 1928.

This invention relates to locomotive stokers and has for its principal objects to supply water, steam, or the like, to the coal in a different relationship to the rate of firing; to supply the moistening fluid at suitable head, or pressure, and permit it to flow to the coal in proportion to the amount of coal being consumed; and to provide speed sensitive mechanism that will cut off the flow when the stoker is idle and automatically adjust the flow to the speed of the stoker. Further objects and advantages of the invention will become apparent as the disclosure proceeds and the description is read in connection with the accompanying drawings, in which

Fig. 1 is a partial rear elevation of a locomotive equipped with a stoking and moistening device arranged according to the invention;

Fig. 2 is a side elevation of a portion of the rear end of a locomotive, a portion of the front end of the tender equipped with the stoker, and moistening apparatus of Fig. 1;

Fig. 3 is a longitudinal section view taken on the line 3—3 of Fig. 1;

Referring to these drawings, 10 indicates the back head of a locomotive of which 11 is the deck and 12 is the side of the cab. Trailing behind the locomotive is a tender including a coal bin 13 and a tank 14.

The stoker includes a substantially horizontal screw conveyor 15 bringing the coal from the tender to the locomotive and a plurality of screw elevators 16 raising the coal to an elevation suitable for firing. These devices are driven by a multi-cylinder steam engine 17 through suitable gearing, which is unimportant in the present invention.

The coal moistening apparatus is diagrammatically illustrated by a pipe 18 leading from the tank 14 to a valve chamber 19, a valve 20, a speed responsive device 21 for controlling the valve, and a pipe 22 leading from the valve chamber to a spray 23, arranged over a slot 24 in the casing 25 of the transfer conveyor 15. The speed responsive device is represented by the familiar ball mechanism having a collar 26, fixed to shaft 27 and a collar 28 slidably mounted on the shaft 27. The latter is swiveled to the forked end of a lever 29 fulcrumed at 30 and connected at its opposite end with the valve 20 by a link 31. The shaft 27 may be driven directly, or indirectly, by the engine.

When the stoker is idle the speed responsive device 21 will assume the position shown in Fig. 1 in which the valve 20 is made to close the port 32, leading to the pipe 22, the port 33 leading from the pipe 18 into the valve chamber being always open.

Upon starting the stoker the rotation of the shaft 27 will cause the pawls to swing outwardly and the collar 28 to move to the right in Fig. 1. This motion will be communicated through the lever 29 to the valve 12, which will move to the left, opening the port 32 in proportion to the speed of the shaft 27, and, hence, in proportion to the rate at which the conveyors handle the coal.

The moistening fluid may be of any kind desired and may be supplied in any suitable manner and delivered to the coal in any part of the mechanism. The present disclosure is diagrammatical and the various parts of the organization may be selected from suitable known devices.

I claim as my invention:

1. In a locomotive stoker, a conveyor for fuel, an engine driving the conveyor and means for moistening the fuel including a valve, and speed responsive means separate from and operatively connected with the engine for operating the valve.

2. In a locomotive stoker, a conveyor for fuel, an engine driving the conveyor and means for moistening the fuel including a valve, and centrifugal means driven by the engine for operating the valve.

3. In a locomotive stoker, a conveyor for fuel, an engine driving the conveyor and means for moistening the fuel including a valve separate from and controlled by the engine.

4. A device of the class described, the combination of a locomotive, a tender having a bin for fuel and a tank for water, a stoker including fuel conveying means and apparatus for dampening the fuel with water from the tank including a valve, and means responsive to the speed of the conveying means for operating the valve.

5. A device of the class described, the combination of a locomotive, a tender having a bin for fuel and a tank for water, a stoker including fuel conveying means, an

engine for driving the same, a passage connecting the tank with the conveying means and speed responsive means operatively connected with the engine and controlling the passage.

6. In a device of the class described, the combination of a locomotive and tender, stoking mechanism for firing the locomotive with coal carried by the tender, means for suppyling a moistening fluid under pressure, and means separate from the stoking mechanism and responsive to the speed of the stoking mechanism for controlling the flow of said fluid to the stoker.

7. In combination, a locomotive, stoker mechanism for supplying fuel to said locomotive, means for moistening said fuel and means separate from the stoking mechanism for automatically rendering said means inoperative during the inoperation of said mechanism.

8. In combination, a locomotive, stoker mechanism for supplying fuel to said mechanism, means separate from the stoking mechanism for moistening said fuel and means controlled by the speed of said mechanism for regulating the amount of moisture supplied to said fuel.

In testimony whereof I affix my signature hereto.

NATHAN M. LOWER.