

E. RYAN.
LOCOMOTIVE TENDER.
APPLICATION FILED JUNE 17, 1916.

1,233,710.

Patented July 17, 1917.
3 SHEETS—SHEET 1.

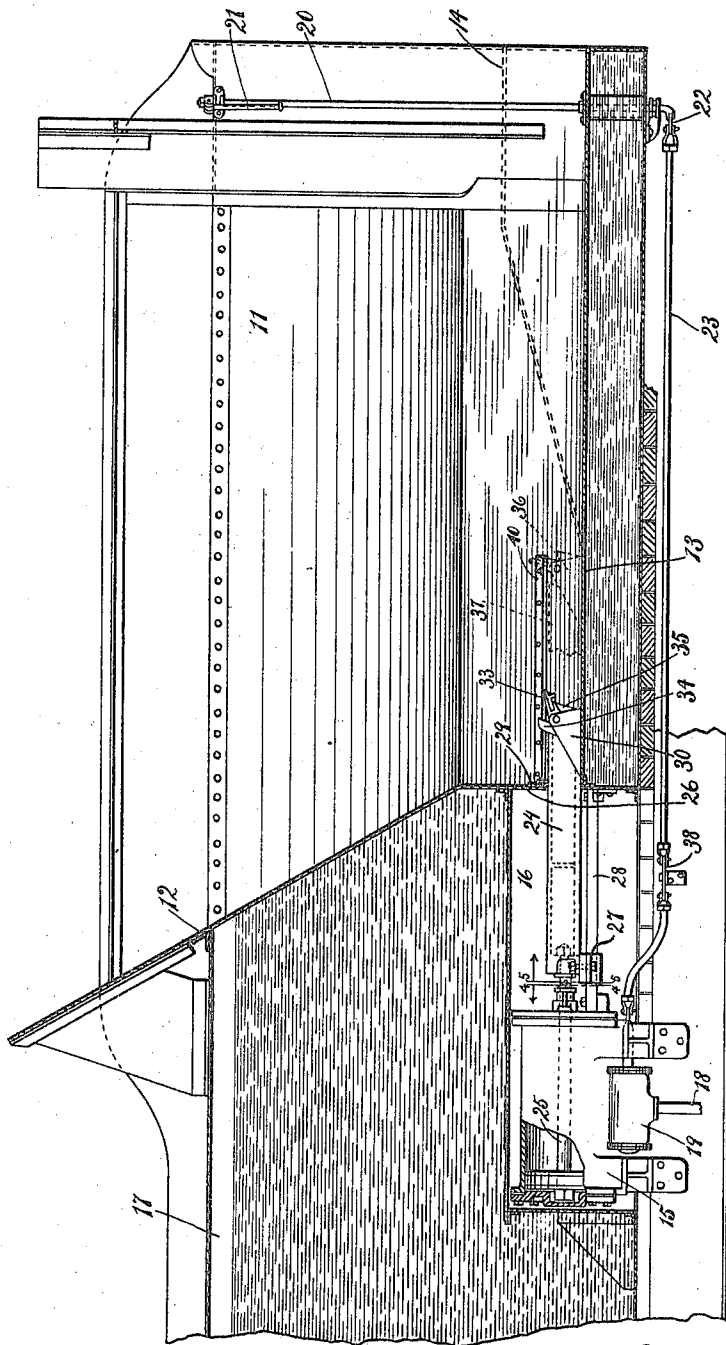


Fig. 1.

Inventor:
By Edward Ryan
Silliman Lee
Attys.

E. RYAN.
LOCOMOTIVE TENDER.
APPLICATION FILED JUNE 17, 1916.

1,233,710.

Patented July 17, 1917.
3 SHEETS—SHEET 2.

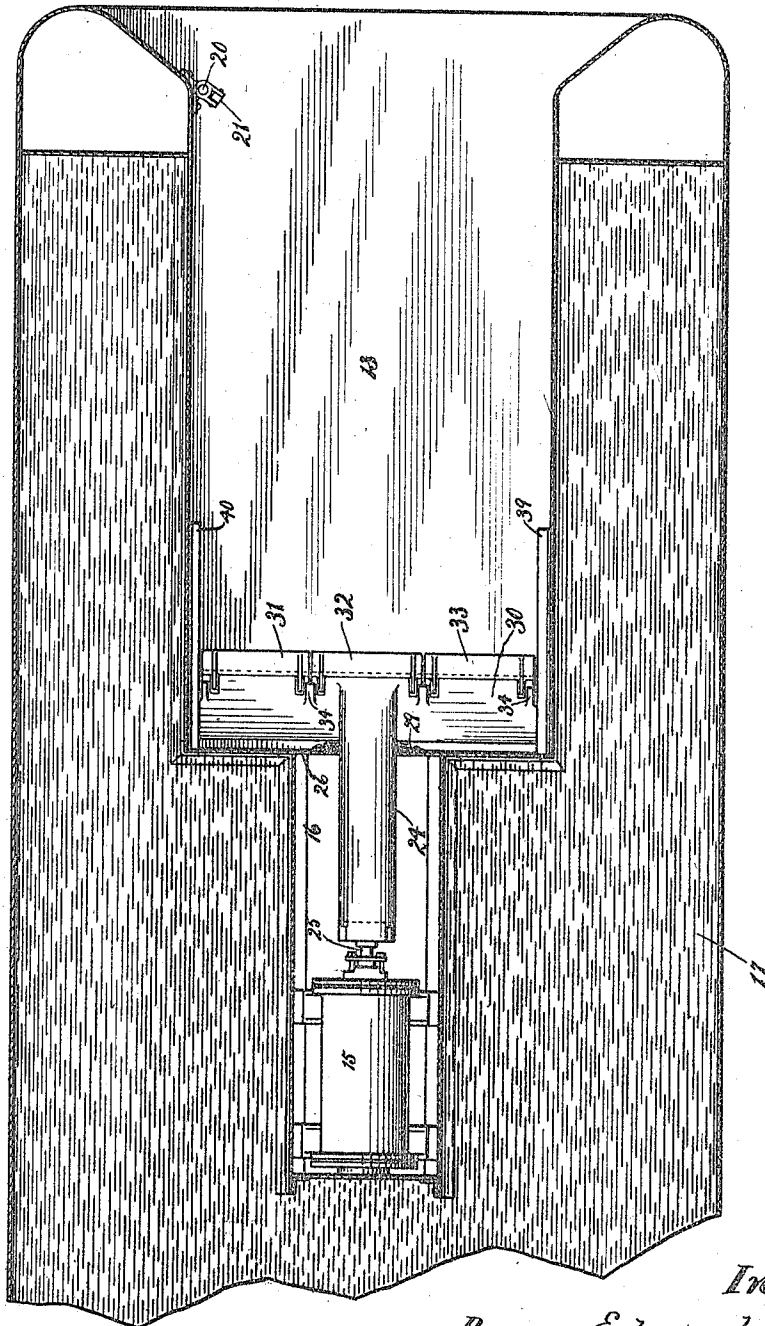


Fig. 2.

Inventor:
By Edward Ryan
Gilem & Gilem
Attys

E. RYAN.
LOCOMOTIVE TENDER.
APPLICATION FILED JUNE 17, 1916.

1,233,710.

Patented July 17, 1917.

3 SHEETS—SHEET 3.

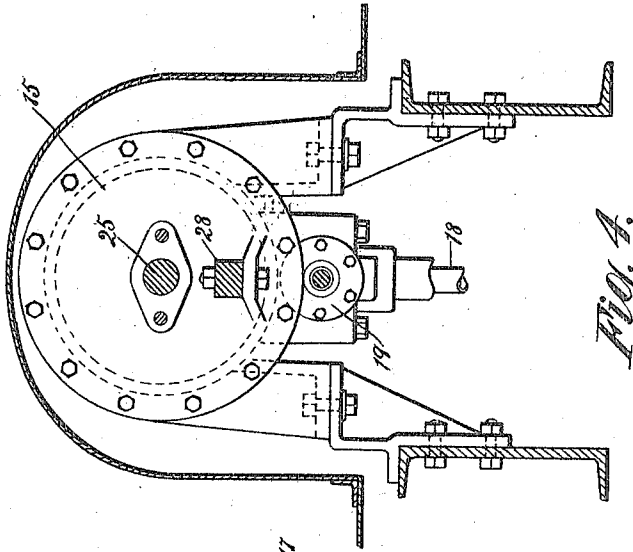
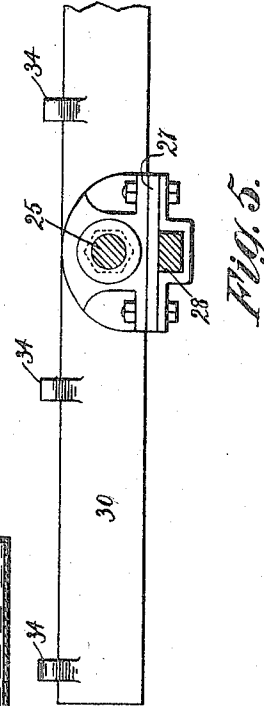
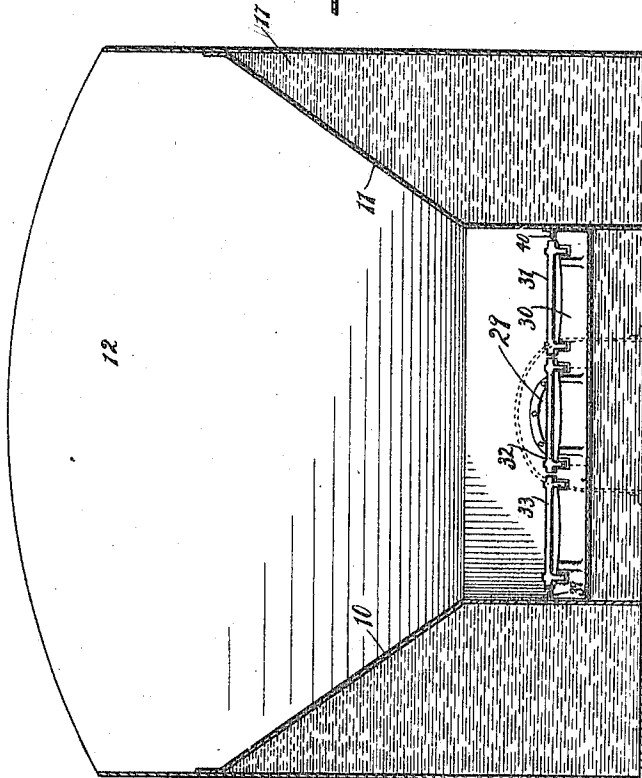


Fig. 3.

Inventor:
Edward Ryan
By *Lee* & *Lee*
Attys.

UNITED STATES PATENT OFFICE.

EDWARD RYAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO LOCOMOTIVE STOKER COMPANY,
OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LOCOMOTIVE-TENDER.

1,233,710.

Specification of Letters Patent.

Patented July 17, 1917.

Application filed June 17, 1916. Serial No. 104,142.

To all whom it may concern:

Be it known that I, EDWARD RYAN, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Locomotive-Tenders, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to locomotive tenders which are provided with a fuel bin, and appertains particularly to mechanism for advancing fuel to the shovel platform of the bin, and is an improvement on the type of device shown in the Galloway Patent No. 989,595, of April 18th, 1911.

The objects of the invention are to simplify the coal pushing mechanism, to increase its efficiency, and to render it more easily adaptable to tenders of various sizes.

The invention consists in a structure such as is hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a detail central vertical sectional view of the tender;

Fig. 2 is a detail plan view thereof;

Fig. 3 is a front elevation of the tender; and

Figs. 4 and 5 are detail sectional views on the lines 4—4 and 5—5, respectively, of Fig. 1, looking in the direction indicated by the arrow in each instance.

The side walls of the fuel bin of the tender are shown at 10, 11, the back wall or so-called slope sheet thereof at 12, and the floor at 13. The floor may be horizontal throughout, as indicated in solid lines in Fig. 1, in which case its forward end constitutes the shoveling platform, or there may be provided a raised shoveling platform 14, as indicated by dotted lines in Fig. 1, the rear end of this platform sloping downwardly to the floor 13.

A motor, shown at 15 as a steam engine, is housed within a chamber 16 formed within the water tank 17 back of the slope sheet 12. The chamber 16 opens through the bottom of the tank, thereby giving easy access to the motor, which is suitably supported upon the beams or sills of the tender. The motor is supplied with steam, or other fluid under pressure, through a suitable pipe, as 18, and its distributing valve, inclosed within a casing 19, is controlled by a shaft 20 which is preferably journaled in suitable

bearings at the forward end of the fuel bin and provided with a drop handle 21,—the shaft 20 extending downwardly through the tender and being provided at its lower end with a crank arm 22, which is connected by means of a link rod 23 with the stem of the valve through the means of an oscillating lever 38. By this arrangement each impulse of the motor in either direction is controllable by the operator.

A pusher rod 24 is connected to the outer end of the piston rod 25 of the motor, and reciprocates through an aperture in the lower portion of the rear wall of the fuel bin, such portion being shown in the drawings at 26 as vertical. A saddle block 27, connected to the rod 24, rides upon a guide-rod 28, relieving the piston rod of lateral strains. An apertured plate 29, surrounding the aperture in the wall 26, retains a suitable packing material, which may consist of steel wool for preventing the finer particles of fuel from working back into the chamber 16.

To the forward end of the plunger rods 24 there is attached a pusher head 30, the length of which is substantially equal to the width of the floor 13. A series of oscillating plates, as 31, 32 and 33, are hinged to the upper portion of the head 30, and are free to move between the back limiting stops 34 and the forward limiting stops 35. On the forward movement of the pusher head these plates swing upwardly and backwardly, by reason of the resistance of the fuel, thus increasing the vertical width of the head, and on backward movement of the head they swing forwardly and downwardly to permit the head to more freely recede beneath the mass of fuel.

Guide flanges or rails 39, 40, are preferably attached to the side walls of the fuel bin and overhang the ends of the pusher head, preventing the head from being crowded upward by particles of fuel under it, and thus relieving the motor stem from lateral strain.

In adapting the mechanism to fuel bins of different widths, it is necessary only to build a pusher head of suitable length, and when the fuel bin is of considerable length a supplemental forward pusher head 36 may be suitably connected by means of pivoted links 37, or otherwise, with the head 30.

The bottom of the chamber 16 being open,

or, if desired, made openable, access thereto is readily obtained not only for the purpose of installing the motor but for its proper care. The front wall of the chamber being closed except as to the small opening necessary for the passage therethrough of the plunger rod, which constitutes a part of the stem of the piston, it becomes a simple matter to so pack the joint as to prevent the entrance of fuel into the chamber.

The fuel pusher head may be of such length as to adapt it to sweep the entire floor of the fuel bin, and the mechanism is readily adapted for use in bins of various widths by mere substitution of the pusher head, without disturbing other parts of the device. The single stroke motor gives the operator full and easy control of the fuel-advancing mechanism, enabling him to utilize the full stroke, or only a partial stroke, as may be necessary, to supply the adequate amount of fuel upon the shoveling platform. The pusher head may be integral with the pusher stem, as shown, or attached thereto in any suitable manner.

While the motor is shown as having its axis horizontally disposed, it may be given

any desired inclination, as, for example, to better adapt it to cooperate with an inclined bin floor.

I claim as my invention—

1. A locomotive tender having a fuel bin and a water tank, a chamber within the tank and accessible through the bottom thereof, a reciprocating motor within the chamber and having a piston stem projecting into the fuel bin, and a pusher head attached to the stem.

2. A locomotive tender having a fuel bin and a water tank separated by a partition, a chamber within the tank, the front end of such chamber being closed by the named partition, a reciprocating motor within the chamber and having a piston stem projecting through the named partition, and a fuel pusher head attached to the stem.

3. A locomotive tender having a fuel bin and a water tank separated by a partition, a single stroke reciprocating motor housed within the tank and having a piston stem projecting through the named partition, and a fuel pusher head attached to the stem and movable over the floor of the bin.

EDWARD RYAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."