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E. RYAN ET AL

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LOCOMOTIVE TENDER

Original Filed Nov. 24, 1928

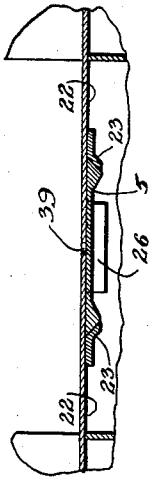


Fig. 3.

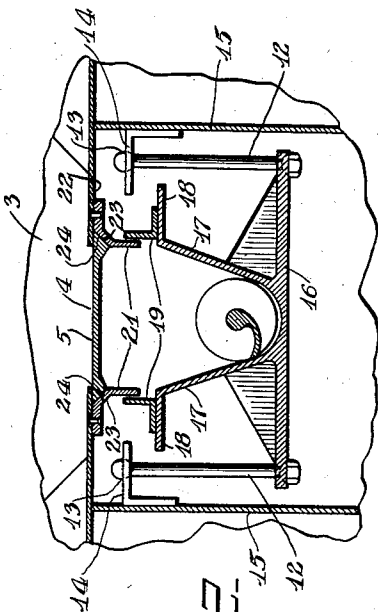


Fig. 2.

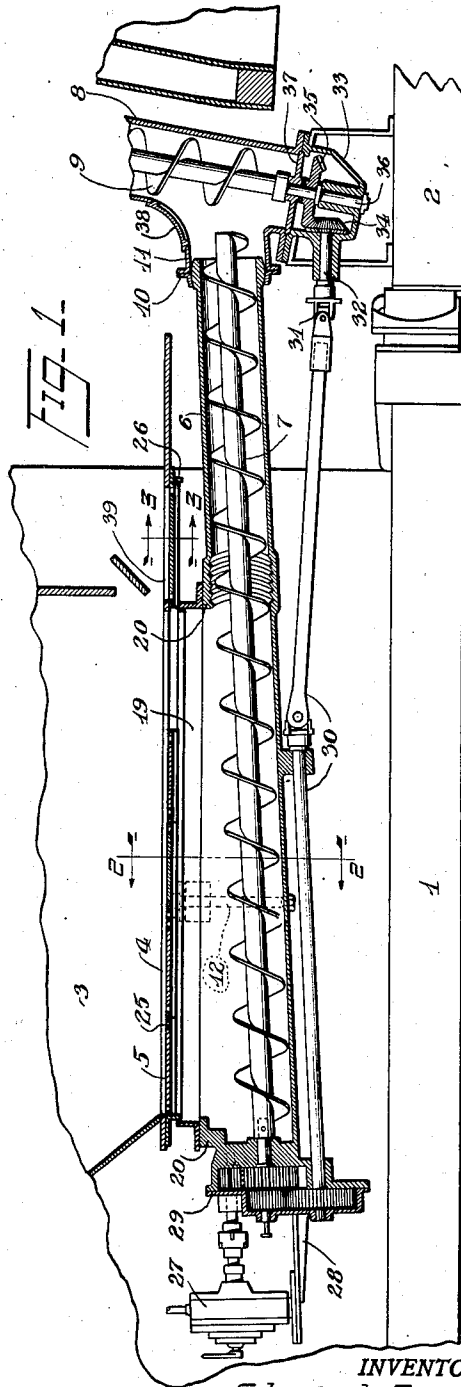


Fig. 1.

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LOCOMOTIVE TENDER

Original application filed November 24, 1928, Serial No. 321,541. Divided and this application filed
January 7, 1930. Serial No. 419,099.

This invention relates generally to railway rolling stock and more particularly to new and improved construction in locomotive tender slide plates.

5 The main object of the invention is the provision of non-clogging slide plates in the floor of the tender so as to permit easy manipulation and make possible the continuous withdrawal of fuel from the fuel bin in controlled amounts through the floor of the tender, or from any other like supply bin.

Other objects and advantages will become apparent from the description and the drawing, wherein

15 Fig. 1 is a longitudinal vertical section through a conveying mechanism embodying the invention in its preferred form;

Fig. 2 is a fragmentary vertical section taken on the line 2—2 of Fig. 1; and

20 Fig. 3 is a fragmentary vertical section taken on the line 3—3 of Fig. 1.

This is a division of our application Serial No. 321,541, filed November 24, 1928.

While we have shown in the drawings and 25 will herein describe in detail the preferred embodiment of the invention, it is to be understood that we do not intend thereby to limit the invention to the specific form disclosed, but that we aim to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

As illustrated in the drawings and particularly in Fig. 1, a tender 1 is shown coupled 35 to a locomotive frame 2. A fuel bin 3 suitably mounted upon the tender is provided with a bottom having an elongated discharge opening 4 therein adapted to be closed by a plurality of slidable plates 5. A substantially horizontal casing 6 enclosing a feed screw 7 is positioned beneath the bin and is arranged to receive fuel from the bin and to convey it forwardly, this casing at its forward end being connected to an upwardly

inclined substantially vertical casing 8 enclosing a second feed screw 9.

In the exemplary embodiment of the invention as illustrated in the drawings, the horizontal conveyor casing 6 has a ball and socket connection 10 with a rearwardly extending portion 11 of the vertical casing 8, and at its rear end the casing 6 is suspended from the bin structure by means of a pair of rods 12 (Fig. 2) having ball and socket connections 13 at one end with brackets 14 50 mounted on the bin supporting walls 15 and at the other end with a cross bar 16 formed integrally with the casing 6. That portion of the casing 6 which is beneath the bin opening 4 is open above as shown in Fig. 2 and is provided with upwardly inclined sidewalls 17 having horizontally extending flanges 18 along their upper edge. A sealing ring 19 is in constant engagement with the side flanges 18 and end walls 20 (Fig. 1) and has a telescopic connection with a downwardly extending rim 21 secured to the bottom 22 of the bin and surrounding the opening 4. As shown most clearly in Fig. 2 the rim 21 has a beveled surface 23 underlying the bin bottom 22 adjacent the opening 4 and the plates 5 having their side edges formed to a corresponding bevel 24. By this arrangement the bin bottom and the rim cooperate to form 75 V-shaped guideways for the plates 5 and there is no tendency for the fuel to collect on the supporting surfaces 23 for the plates.

The bin bottom 22 forms with the bin supporting walls 15 an enclosed passage for the conveyor trough and compartments on either side providing additional water space. The cover sections 5, preferably, are provided with holes 25 at their ends to receive a hook whereby they may be drawn forward or removed. In the extension of the bin bottom 22 which forms the floor of the tender a longitudinal slot 39 is provided to receive a hook for drawing the foremost slide plate forwardly, permitting coal to be fed through the 90

opening thus formed in the bin floor into the conveyor trough. A stop member 26 is provided underlying the bin floor 22 adjacent the forward end of the slot 39 to arrest the forward movement of the cover sections 5. As the body of coal continues to be depleted the cover sections 5 are successively removed, so that only a part of the body of coal at a time is imposed upon the screw, the remainder being held up out of reach thereof, so as not to obstruct its rotation. Our invention entirely eliminates clogging of the conveyor slides and a constant feed or advance of the fuel may be maintained by drawing a cover section forward when the part of the coal body previously exposed to the action of the screw has become exhausted. The guideways are through our invention maintained free and clear of foreign material and prevent wedging of the slide plates, particularly in cold weather when such foreign material if permitted to collect in the guideways, freezes and forms an obstruction which is removable only with great difficulty.

With the casing 6 suspended at its rear end from the bin structure the invention provides a prime mover 27 mounted on a bracket 28 secured to the rear end of the casing, together with suitable reduction gearing in a housing 29 intermediate the prime mover and the feed screw 7 so that the rear end of the casing 6 supports the prime mover and intermediate connections. Preferably, the upwardly extending feed screw 9 is driven from the same prime mover as by means of a flexible telescoping shaft 30 driven at its rear end by the gearing in housing 29 and connected at its forward end by means of a universal connection 31, positioned adjacent the ball and socket connection 10, to a short shaft 32 rotatably mounted in a gear casing 33 secured to the lower end of the conveyor casing 8.

The forward end of the shaft 32 carries a bevel gear 34 which meshes with a gear 35 secured to the drive shaft 36 of the feed screw 9. Thus the casing 6 has a floating connection with the tender. A baffle plate 37 surrounding the shaft 36 at the lower end of the casing 8 has its peripheral edge mounted between the casing 8 and the gear casing 33 and is adapted to prevent the passage of any fuel into the gear casing 33 from the casing 8, and a door 38 is provided for access to the lower end of casing 8. It will be apparent with the prime mover 27 operating and with a plate 5 slid forwardly from the opening 4, fuel will pass downwardly through the uncovered portion of the opening and will be conveyed forwardly in the casing 6 to the casing 8 and thence upwardly in said casing from where it may be discharged by suitable means into a firebox.

While we have shown and described our new and improved non-clogging slide plates

as being applied to a locomotive tender fuel bin it will be obvious that our invention finds application as well in hoppers and bin structures of varied types and descriptions.

We claim:

1. In a tender, the combination of a fuel bin having a floor with an opening therein, a pair of members positioned beneath said floor and extending along the opposite sides of said opening and having inclined upper surfaces providing a pair of parallel supporting guideways, and a plurality of plates having angularly formed edges slidable on said guideways to control the supply of fuel through said opening.

2. In a tender, the combination of a fuel bin having an elongated rectangular opening in the floor thereof, a pair of members positioned beneath said floor and extending along the opposite sides of said elongated rectangular opening and having inclined surfaces cooperating with the floor of the bin to provide a pair of acute angle guideways, and a plurality of plates slidable on said guideways adapted to control the supply of fuel through said opening.

3. In a tender, the combination of a fuel bin having an opening extending longitudinally through the central portion of the floor thereof, a pair of downwardly extending rims secured to said floor and extending along the opposite sides of said opening, said rims having a beveled surface underlying the bin floor adjacent said opening, and plates adapted to close said opening and having their side edges formed to correspond with the beveled surface of said rims.

4. The combination of a fuel bin having an opening in the floor thereof, a conveyor trough communicating with said opening, a pair of members positioned beneath said floor and extending along the opposite sides of said opening and having inclined upper surfaces providing a pair of parallel supporting guideways and a plurality of plates having angularly formed edges slidable on said guideways constituting means for controlling the flow of fuel from said bin to said conveyor trough.

5. As a new article of manufacture, a slide plate adapted to form an adjustable opening in the floor of a fuel bin comprising a plate having a substantially flat surface, inwardly and downwardly sloping side edges, and holes disposed in the forward and rearward end of said plate for receiving means for moving said plate.

6. In a tender, the combination of a fuel bin having an elongated rectangular opening in the floor thereof, a plurality of plates having inwardly and downwardly sloping side edges so positioned as to form a closure for said opening and slidably mounted in a pair of parallel guideways, said guideways underlying the bin floor adjacent said opening and

having their lower surface inclined to correspond with the side edges of said plates.

7. In a tender, the combination of a fuel bin having a floor with a longitudinally extending opening therein, a pair of parallel
5 guideways beneath the marginal side edges of the floor adjacent said opening formed with downwardly and inwardly sloping seats, and a plurality of plates having angularly
10 formed edges supported in said seats and slidable in said guideways.

In testimony whereof we affix our signatures.

EDWARD RYAN.
ERNEST R. FUNK.

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