

July 24, 1934.

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1,967,693

FUEL FEED MECHANISM FOR UNDERFEED STOKERS

Filed April 12, 1932

FIG. 1

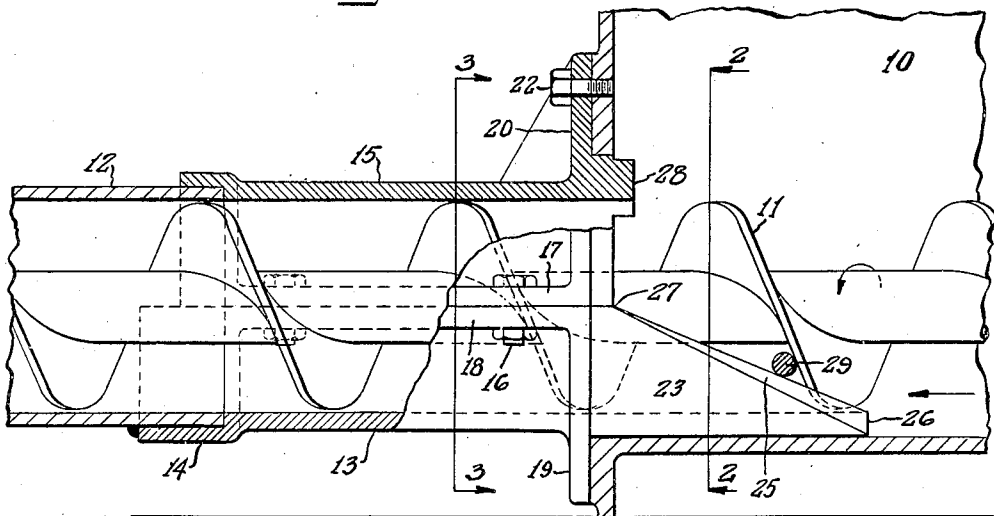


FIG. 3.

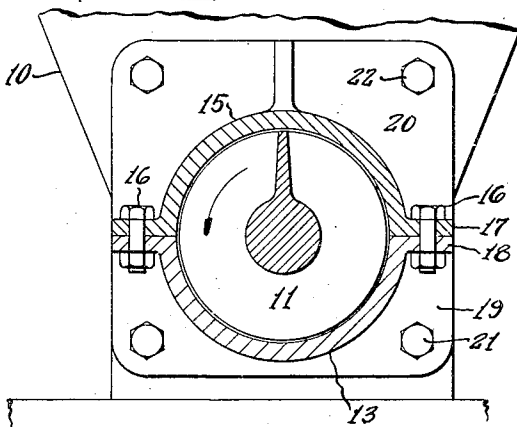


FIG. 2.

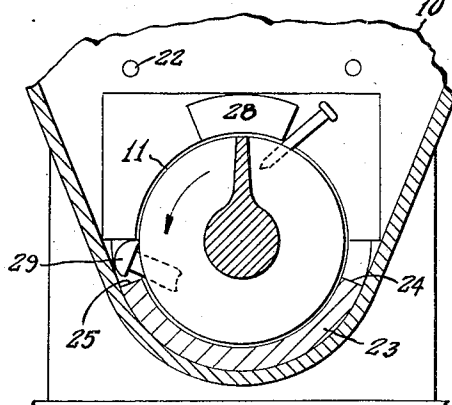


FIG. 5.

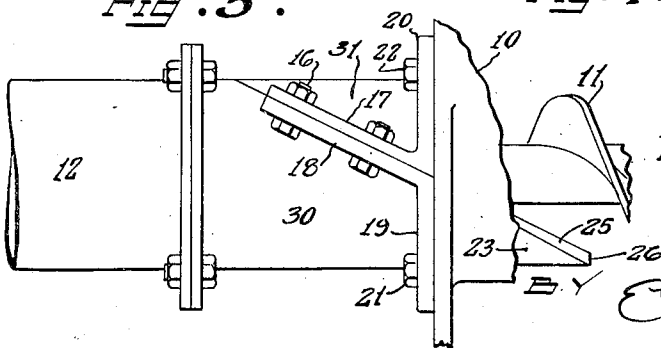
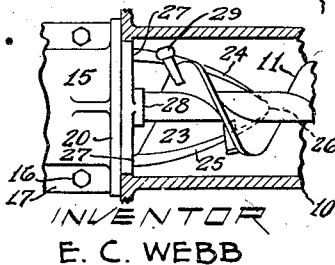


FIG. 4.



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1,967,693

FUEL FEED MECHANISM FOR UNDERFEED STOKERS

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Application April 12, 1932, Serial No. 604,704

7 Claims. (Cl. 198—64)

This invention relates generally to underfeed stokers, and particularly to that type of stokers employing a worm for conveying fuel from the magazine to the retort.

5 The main object of this invention is to so construct the parts of the fuel feed mechanism that accumulations of objectionable objects can be readily removed without emptying the hopper and without the expenditure of any appreciable amount of effort or labor.

10 The second object is to so construct the device that the foreign substances will be guided and urged toward the upper portion of the fuel, passing through the fuel duct instead of permitting same to settle naturally toward the lowermost portion where the fuel is most congested and where the tendency of the foreign substances to become wedged between the moving parts is the greatest.

20 These, and other objects, will become more apparent from the specification following as illustrated in the accompanying drawing, in which:

Fig. 1 is a vertical longitudinal section through the device showing a portion of the parts in elevation.

Fig. 2 is a section taken along the line 2—2 in Fig. 1.

Fig. 3 is a section taken along the line 3—3 in Fig. 1.

30 Fig. 4 is a plan showing a portion broken away in horizontal section.

Fig. 5 is a fragmentary side elevation showing an alternative form of cover.

Similar numbers of reference refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown the usual form of fuel magazine 10 from which fuel is delivered by means of a worm or fuel feed screw 11 through a fuel feed duct 12 to a retort (not shown).

Referring particularly to the invention, the same will be seen to consist of an intermediate clean-out section 13 which, in this instance, is provided with a bell end 14 for connection with the fuel feed duct 12. The section 13 is provided with a removable cover 15 which is secured to the lower portion by means of the bolts 16 which pass through the flanges 17 and 18.

50 The section 13 and the cover are provided with the flanges 19 and 20, the former of which is secured to the magazine 10 by means of the bolts 21 and the latter of which is removably secured to the magazine ends by means of the bolts 22.

55 There extends from the section 13 a projection

23 which will be referred to as a ramp whose sloping edges 24 and 25 extend from the lower end 26 to the upper corners 27 of the member 13, which is approximately at the level of the worm axis. The cover 15 has projecting therefrom a lug 28, the purpose of which will be explained later.

The operation of this form of the device is as follows: Assuming that the worm 11 is being rotated in the direction indicated in Fig. 1 and fuel (not shown) is being moved from the magazine 10 outwardly through the feed duct 12, it follows that any foreign substances 29 which might have gravitated to the bottom of the magazine 10 will be moved along with the fuel and, instead of becoming wedged between the worm and the magazine sides, the foreign substances will be urged upwardly along the ramp edges 24 and 25 to an elevated position, giving them an opportunity to either pass through with the fuel, or, if they become wedged to the extent of stopping the feed worm, they will remain in an accessible position from which they can be withdrawn after the simple removal of the cover 15.

In the form of the device shown in Figs. 4 and 5 instead of splitting the clean-out section horizontally, a somewhat modified type of section 30 is employed in which the cover 31 is inclined similar to the incline of the ramp edge 24.

The operation of the last described form of the device is of course practically the same as the one first described, the chief difference being in the matter of construction. It will be noted that the flanges 19 and 20 also serve to reinforce the surrounding portions of the magazine 10 at the point where the crowding action is greatest.

The purpose of the stop lug 28 is illustrated in Fig. 2, in which it can be seen that it serves to prevent the carrying over of objects and reduces the tendency of same to jam and ultimately stop the stoker.

While a double ramp has been shown, it is clear that good results can be obtained by the use of a single ramp on one side only, which may be a separate part or incorporated in the bottom of the hopper 10.

I claim:

1. In an underfeed stoker, the combination of a magazine having an outlet in the lower portion thereof, a section of fuel feed duct communicating with said outlet, said section having a removable top portion and an elongated lower portion extending into the magazine, said extended portion having inclined edges extending from the bottom of the magazine to the horizon-

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tal diameter of the section at its point of union with the magazine.

2. A device of the class described having in combination a fuel magazine, a fuel feed duct communicating with said magazine, a worm for moving fuel from said magazine into said duct, and a ramp within said magazine having its upper end near the junction of said magazine and duct and having its lower end underneath said worm.

3. A device of the class described having in combination a fuel magazine, a fuel feed duct forming an outlet for said magazine, a worm for moving fuel from said magazine into said duct, a removable cover for the top side of said duct at its junction with the hopper, and an inclined runway between said worm and magazine extending from the under side of said worm upwardly to one side thereof adjacent to said cover for the purpose of moving foreign substances into the zone directly beneath said cover.

4. A device of the class described having in combination a fuel magazine, a fuel feed duct forming an outlet at the bottom thereof, a worm for propelling fuel from said magazine through said duct, a ramp comprising an inclined runway having its upper end at the horizontal center line of said worm at the junction of said magazine and duct and extending to a point underneath said worm within said magazine, and a removable cover for said duct giving access to accumula-

tions of foreign substances at the upper end of said ramp.

5. The substance of claim 4, and a lug projecting into said magazine at the top portion of its fuel outlet.

6. An underfeed stoker having in combination a fuel magazine, a horizontal fuel feed duct forming an outlet near the lower portion of said magazine, a screw for moving fuel from said magazine into said duct, said screw being spaced from the bottom of said magazine, and a ramp in the form of an extension projecting into said magazine on the under side of said feed screw, said extension having sloping side edges whose uppermost ends terminate at approximately the horizontal center line of said screw.

7. A device of the class described having in combination a fuel magazine, a fuel feed duct communicating with said magazine, a worm for moving fuel from said magazine into said duct, an inclined runway between said worm and the bottom of said magazine extending from the under side of said worm upwardly to the side thereof at approximately the horizontal center line of the worm, a stop projecting into said magazine at the top of its fuel outlet against which foreign substances will be carried by said worm after leaving the uppermost portion of said inclined runway.

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