Feb. 25, 1936. H. P. ANDERSON 2,032,338

STOKER CONVEYER

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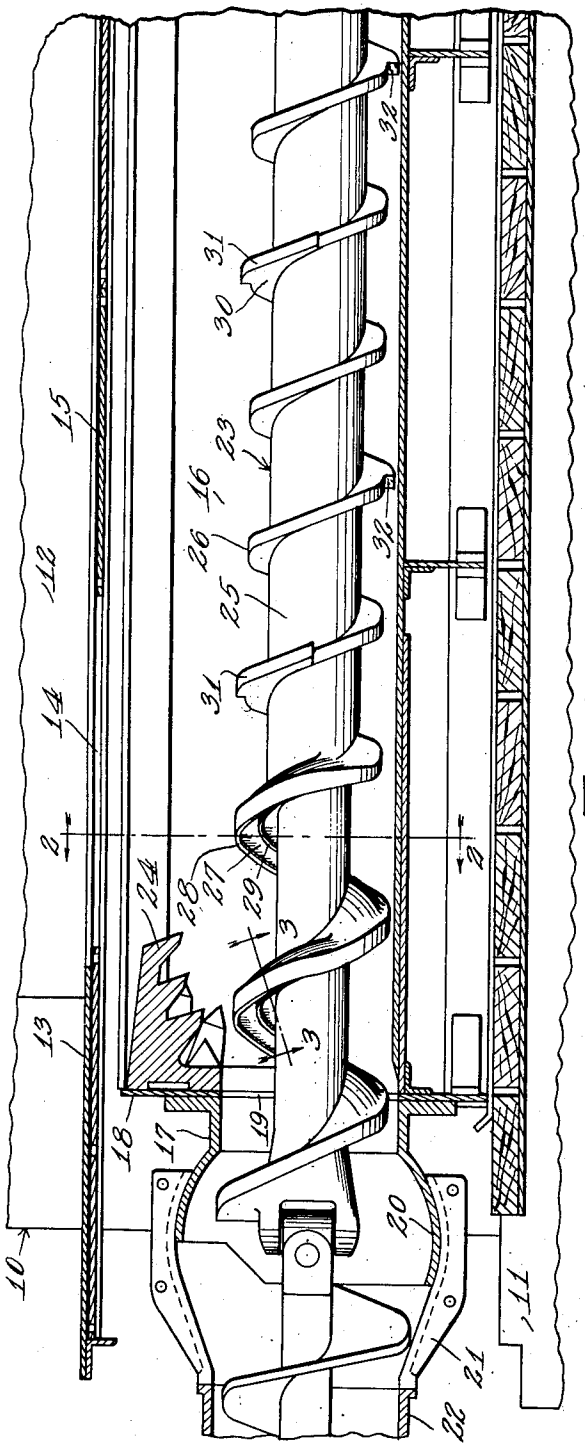


Fig. 1

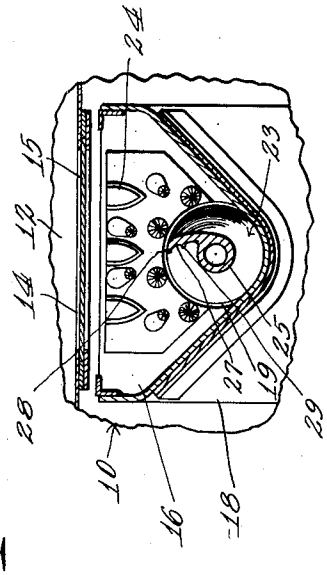


Fig. 2

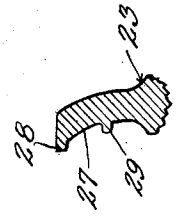


Fig. 3

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## STOKER CONVEYER

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4 Claims. (Cl. 83—52)

This invention relates generally to stokers and more particularly to the rear portion thereof including a trough, a screw conveyer mounted therein and a crusher mounted in the forward end thereof over the screw conveyer.

In devices of the type described it has been customary to employ a screw conveyer having a flat impelling face. In such constructions, when conveying fuel containing large lumps, there is a tendency for the large lumps to ride on top of the screw adjacent the crusher instead of being engaged by the crusher and broken down into lumps of a size suitable for firing. An accumulation of such large lumps adjacent the crusher restricts the free flow of the fuel through the trough causing at times an insufficient delivery of fuel to the locomotive firebox.

It is, therefore, the primary object of this invention to provide a stoker construction which will insure an adequate supply of fuel to the firebox regardless of the size of the fuel in the tender.

More specifically it is an object of the invention to provide in a stoker trough, a screw conveyer of novel construction which will promote engagement of the large lumps of fuel with the crushing mechanism.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing, in which

Fig. 1 is a longitudinal vertical central section through the forward portion of a locomotive tender with a stoker trough applied thereto and shown in similar section and the novel screw conveyer mounted in the trough and shown in elevation;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1; and

Fig. 3 is a fragmentary sectional view of the screw flight taken on the line 3—3 of Fig. 1.

On the drawing, the tender is indicated as a whole by the numeral 10 and comprises a frame 11, a fuel bin 12 and the floor 13. The floor 13 is provided with the central longitudinal opening 14, and slide plates 15 are arranged to cover or uncover desired portions of the opening 14.

Beneath the opening 14 is mounted an open mouth trough 16, which is provided at its forward end with the tubular extension 17 detachably secured to the front wall 18 of the trough 16. An opening 19 in the front wall 18 provides communication between the trough 16 and the tubular extension 17. Formed with the extension 17 is a spherical flange 20 adapted to be received in a spherical portion of the vertically split coupling member 21 carried by the tubular conveyer section 22.

A screw conveyer 23 is disposed in the trough 16 and extends forwardly through the opening 19 in the front wall thereof into the tubular extension 17. A crusher member 24 is mounted in the trough 16 from the front wall 18 and arches over the screw conveyer 23. Coal is carried forwardly through the trough 16 by the screw conveyer 23 and the lumps that are too large to pass beneath the crusher member 24 are forced against the latter by the screw 23 and crushed to a suitable size for firing.

In order to insure engagement of the coal with the crusher member 24, the screw conveyer 23 is constructed in a novel manner, hereinafter described in detail. The screw conveyer 23 comprises a hub 25 and a helicoid thread 26. Approximately two complete turns of the helicoid thread 26 adjacent the crusher member 24 are formed with a concave impelling face 27 having a peripherical bead or thickened portion 28 on its outer edge. The concave impelling face 27 is provided with another bead or thickened portion 29 intermedate the peripherical bead 28 and the hub 25 and substantially coextensive with the bead 28. The remainder of the helicoid thread 26 may be of any desirable construction, that shown in Figure 1 being the preferred form. It comprises a helicoid thread having a straight impelling face 30, the thread of the screw being cut away so as to leave series of radially extending segments or projections 31 and 32 which are axially spaced from one another by a distance greater than the pitch of the screw. As shown, the series of projections 31 are in alinement with one another, each projection being spaced two turns from an adjacent projection, and the second series of segments or projections 32 are similarly spaced with reference to one another and angularly displaced from the projections of the first series by 180°.

In operation, coal is carried forwardly through the trough 16 by the screw conveyer 23 and upon reaching the forward end of the trough the large lumps are caught between the conveyer screw 23 and the crusher member 24 and crushed. However, if a conveyer screw having a flat impelling face is employed there is a tendency for the large lumps of coal to slip from between the crusher member and the conveyer screw instead of being caught therebetween and will ride on

the conveyer screw in front of the crusher member. In my construction, the irregular projections on the large lumps of coal are engaged by the beads or thickened portions 28 and 29, preventing the lumps of coal from slipping and causing them to be crushed against the crusher member 24.

I claim:

1. In a stoking mechanism, the combination of a trough having a fuel receiving opening, a crusher member in said trough at the forward end thereof, a conveyer screw mounted in said trough for advancing fuel therethrough, said conveyer screw adjacent said crusher member having a bead formed on its impelling face extending outwardly from its peripheral edge and a bead formed on its impelling face radially inward of said peripheral bead.

2. In a stoking mechanism, the combination of a trough having a fuel receiving opening, a crusher member in said trough at the forward end thereof, a conveyer screw mounted in said trough for advancing fuel therethrough, said conveyer screw adjacent said crusher member having a bead formed on its impelling face extending outwardly from its peripheral edge and a bead formed on its impelling face radially inward of and concentric with said peripheral bead.

3. In a stoking mechanism, the combination of a trough having a fuel receiving opening, a crusher member in said trough at the forward end thereof, a conveyer screw mounted in said trough for advancing fuel therethrough, said conveyer screw adjacent said crusher member having a concave impelling face and a bead formed on its impelling face extending outwardly from its peripheral edge and a bead formed on its impelling face radially inward of said peripheral bead.

4. In a stoking mechanism, the combination of a trough having a fuel receiving opening, a crusher member in said trough at the forward end thereof, a conveyer screw mounted in said trough for advancing fuel therethrough, said conveyer screw adjacent said crusher member having a concave impelling face and a bead formed on its impelling face extending outwardly from its peripheral edge and a bead formed on its impelling face radially inward of and concentric with said peripheral bead.

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