April 5, 1938. C. J. SURDY 2,113,258

STOKER CONVEYER

Filed Aug. 10, 1934

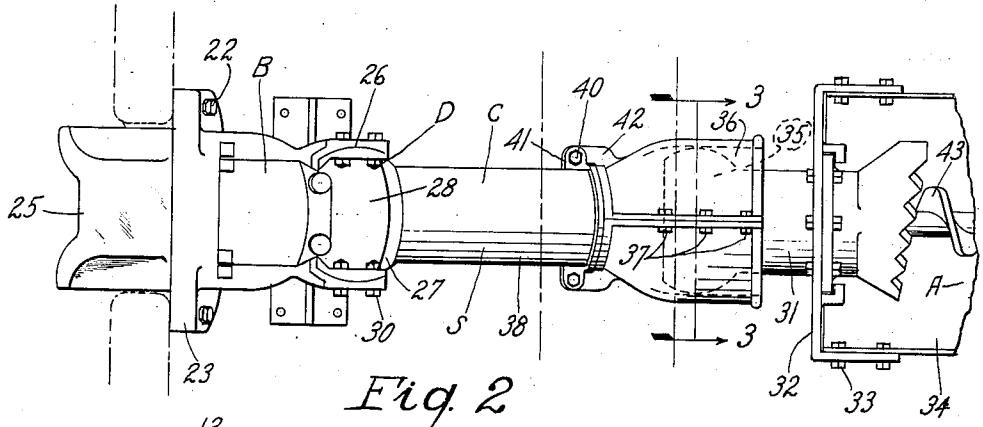


Fig. 2

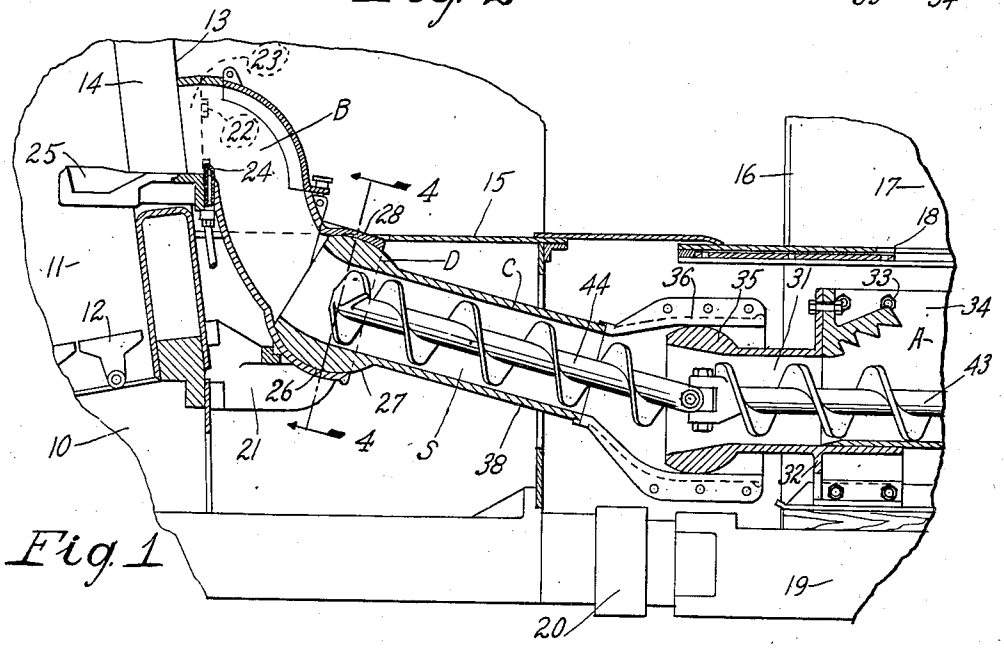


Fig. 1

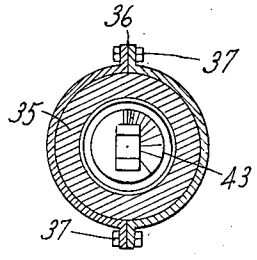


Fig. 3

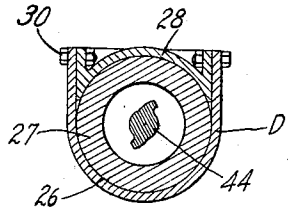


Fig. 4

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STOKER CONVEYER

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Application August 10, 1934, Serial No. 739,330

1 Claim. (Cl. 198—15)

My present invention relates generally to stokers for locomotives and the like and appertains more particularly to an embodiment of the stoker conveyer as disclosed in the dominating United States Letters Patent No. 1,925,988, granted September 5, 1933, to N. M. Lower. Accordingly, this invention contemplates the provision of a stoker conveyer including end conduit sections and an intermediate conduit section, the latter at one end being universally connected to one of the end sections and at its opposite end formed with a sleeve arranged to slidably fit over a spherical ball member fixed on the other end section to permit longitudinal as well as universal movement.

Other objects and advantages of the invention will be apparent from the following description when read in connection with the accompanying drawing, in which,

Fig. 1 is a central longitudinal section through a portion of a locomotive and tender with the device of the invention applied thereto;

Fig. 2 is a plan view of Fig. 1 with the outline of the locomotive and tender conventionally shown and with portions of the fuel conduit broken away;

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 2; and

Fig. 4 is a vertical section on the line 4—4 of Fig. 1.

The locomotive selected to illustrate the invention is shown at 10, having a firebox 11 provided with a grate 12 and a backwall 13 having a firing opening 14 therein at or above the cab deck 15. A tender 16 rearward of the locomotive is of the usual construction having a fuel bin 17 with an apertured floor 18 spaced above the frame 19. The locomotive and its tender are coupled together at 20 by any suitable coupler and drawbar connection that will permit articulation between them.

Fuel is conveyed from the fuel bin 17 to the firebox 11 by a stoker indicated as a whole at S. This stoker embodies the conveyer organization of my invention comprising the rearward or trough conduit section A, the forward or riser conduit section B, and the intermediate conduit section C. The riser section B communicates with and discharges fuel into the firing opening 14. This section is rigidly fixed to the firebox backwall 13 by the bracket 21 and by the studs 22 engaging the lateral flange 23. Any suitable means, such as the distributor head or jet 24 and the distributor plate 25, may be positioned in the mouth of the riser section to receive the fuel and propel and spread it over the grate 12.

A spherical seat 26 is formed at the lower end of the riser section B to receive the spherical ball member 27 integrally formed at the forward end of the intermediate conduit section C. The upper half or cover portion 28 of the seat 26 is removably mounted as by the bolts 30. It will be understood, as is well known in the art, that the ball member 27 and the seat 26 constitute a universal joint connection indicated as a whole at D between the riser and the intermediate conduit sections. This connection D does not, of course, permit longitudinal movement between the conduit sections B and C.

The trough section A may be rigidly mounted on the tender frame 19 in any suitable manner to prevent longitudinal movement of the section with respect to the locomotive and tender. A tubular or cylindrical extension 31 is formed at the forward end of the trough section A and constitutes the delivery end thereof. The extension carries the transverse flange 32 for attachment by means of the fastening members or bolts 33 to the trough 34. At its forward end, a spherical ball 35 is formed integrally with or may be otherwise fixedly associated with the extension 31.

A tubular sleeve 36 of cylindrical form at the rearward end of the intermediate conduit C slidably fits over the spherical ball 35. The sleeve 36 is split vertically and the halves are secured together by the bolts 37. Preferably the sleeve is separable from the smaller tubular portion 38 of the intermediate conduit section. For this purpose bolts 40 engage lugs 41 on the tubular portion 28 with the lugs 42 of the sleeve 36.

Fuel is conveyed through the conduit sections by the conveyer screw comprising the universally connected sections 43 and 44.

From the foregoing it will be seen that the forward end of the trough section A slidably supports the rearward end of the intermediate section C in a manner to permit longitudinal and universal movement therebetween. This relation of the adjacent ends of the trough section and of the intermediate conduit section, together with the universal joint connection at D, provides the necessary universal and longitudinal movement between the conveyer sections required by the articulated relation of the locomotive and its tender.

I claim:

In an intercoupled locomotive and tender, a fuel conveying system comprising a conduit sec-

tion mounted on the locomotive with an unvarying longitudinal relation thereto, and provided at its rearward end with a spherical seat, a second conduit section disposed horizontally on the tender and having an unvarying longitudinal relation therewith, said second conduit section being provided at its forward end with a horizontal extension having a spherical ball member formed therewith, the horizontal extension of the second named conduit section being below the level of the rearward end of said first named conduit section, a conveyer screw mounted in said second conduit section and having an unvarying longitudinal relation therewith, an intermediate conduit section between the first and second conduit sections arranged to couple said sections together and forming therewith a continuous conduit, said intermediate conduit section being declined rearwardly from the rearward end of the first named conduit section and being non-extensible and non-contractible throughout its length, the forward end of said intermediate conduit section having a ball member rigidly formed therewith and a cylindrical sleeve rigidly formed at its rearward end, the axis of said cylindrical portion being angularly related with the main axis of said intermediate conduit, said ball member arranged to fit within the spherical seat of the first conduit section to form a universal connection between said intermediate conduit section and the first conduit section, said cylindrical sleeve slidably fitting horizontally over the ball member of the second conduit section to provide universal and relative longitudinal movement between said intermediate conduit section and the second conduit section as relative movement between the locomotive and tender occurs, a conveyer screw in said intermediate conduit section universally connected to the conveyer screw in the second conduit section and having an unvarying longitudinal relation with the conveyer screw in the second named conduit section, the axis of articulation of the universal connection between said conveyer screws being approximately at the center of the ball member of the second conduit section, the conveyer screw in the intermediate conduit section arranged to convey the fuel through such conduit section and to force the fuel through the first conduit section.

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