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1,960,778

FUEL AGITATOR

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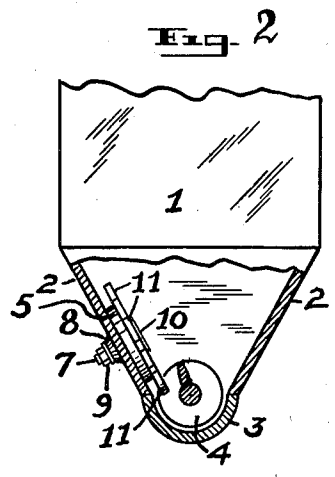
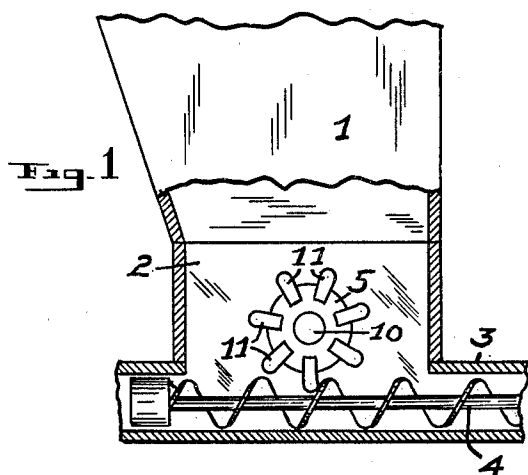


Fig. 3

Fig. 5

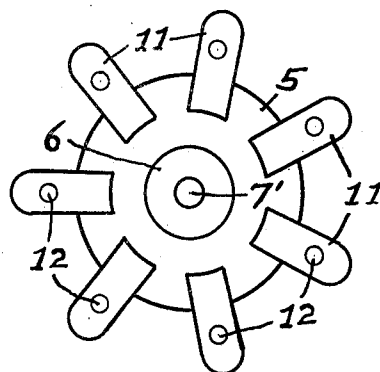
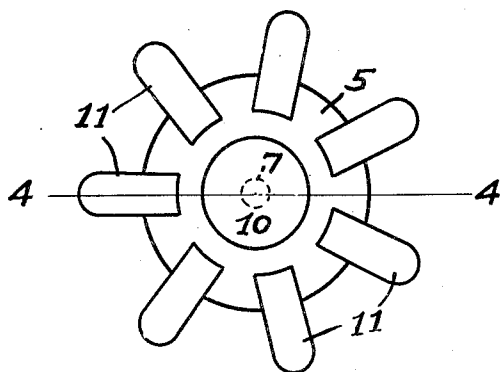
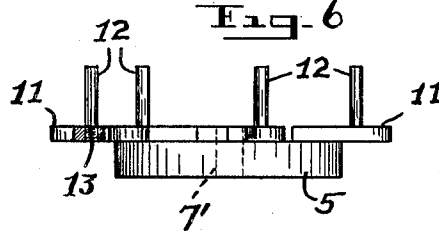
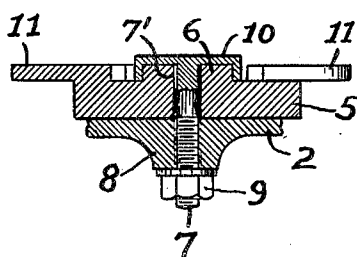


Fig. 4

Fig. 6



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FUEL AGITATOR

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1 Claim. (Cl. 259—39)

Our invention relates to a fuel agitator adapted for use in connection with furnace stokers in which fuel is fed from a hopper to the combustion chamber by a conveyer.

5 Important objects of the invention are to provide an agitator of the character described, which will prevent the fuel from sticking and arching over the conveyer, which will assure a regular flow of fuel from the hopper to the conveyer, which is actuated by the operation of the conveyer itself, and which may be readily installed in a furnace structure already erected as well as form a component part of a new structure.

15 Further objects of the invention are to provide a device of the class stated, which is simple in its construction and arrangement, strong, durable and efficient in its use, positive in its action, and comparatively inexpensive to manufacture and install.

20 To the accomplishment of these and such other objects as may hereinafter appear, the invention consists of the novel construction, combination and arrangements of parts herein specifically described and illustrated in the accompanying drawing, but it is to be understood that changes, variations and modifications in the detail of construction may be resorted to, that come within the scope of the claim hereunto appended.

25 In the drawing wherein like numerals of reference designate corresponding parts throughout the several views:—

30 Figures 1 and 2 are, respectively, fragmentary side and end views of fuel conveyer structures, partly in cross section, embodying the present invention.

35 Figure 3 is a top plan view of our improved fuel agitator.

Figure 4 is a sectional view on line 4—4, Figure 3.

40 Figures 5 and 6 are, respectively, top plan and side views of a modified form of the device.

Referring in detail to the drawing 1 denotes a vertically disposed hopper for storing coal. The hopper 1 is provided with sloping bottom side walls 2, which converge toward their lower ends, and are connected to and establish communication with the conveyer tube 3. A screw conveyer 4 is mounted in the conveyer tube 3, and its rotation in the latter conveys the fuel from the hopper 1 to the combustion chamber of the furnace in the usual, well known manner.

It is known, that fuel in the form of granulated coal not infrequently sticks together and arches over the conveyer, and when this occurs the feed of fuel from the hopper to the furnace is irregu-

lar, or its is suspended entirely. Our invention provides a simple and effective means for assuring a constant flow of fuel from the hopper to the furnace by preventing the sticking or arching of the fuel within the hopper.

60 The present invention comprises a disk 5 provided with a centrally disposed hub 6 on the upper side thereof. The disk 5 is positioned flatly on the inner side of one of the sloping bottom side walls 2. The disk 5 is revolubly mounted to the wall 65 2 by means of a pivoting bolt 7. The latter extends through a centrally disposed aperture 7' provided therefor in the disk 5 and its hub 6. The bolt 7 extends through and is threadedly engaged in a boss 8 formed on the outer side of the wall 2, 70 and is locked in its adjusted position by a lock nut 9 mounted on the outer end thereof.

The pivoting bolt 7 is provided with a fixed cap-shaped head 10, which overlaps and completely encloses the disk hub 6. The bolt 7 is fixed in the 75 boss 8 and is preferably adjusted in the latter to permit the rotation of the disk 5 thereon with a slight friction between the adjoining faces of the disk 5 and wall 2, and between the adjoining surfaces of the hub 6 and the cap-shaped head 10. 80 Such adjustment of the pivoting bolt 7 provides an efficient pivotal connection for the disk 5 and prevents the entrance of fuel or any other extraneous matter to any parts of the device where such foreign matter would impede or interfere 85 with the proper functioning of the agitator.

The disk 5 carries a plurality of radially disposed agitating members or fingers 11, which are preferably formed integral with the upper side of the former. The fingers 11 are regularly spaced 90 relatively to each other, and the inner ends thereof are spaced from the periphery of the disk hub 6. The outer ends of the fingers 11 project beyond the periphery of the disk 5 and are spaced from the bottom side wall 2 a distance commensurate 95 to the thickness of the disk 5.

The disk 5 is so positioned on the bottom side wall 2, that the projecting ends of the fingers 11 carried thereby will be engaged by the spiral flange of the screw conveyer 4 in the sequence of their arrangement, whereby continuous rotation is imparted to the agitator during the operation of the screw conveyer 4.

The arrangement of the fingers 11, in the manner described, is particularly adapted for agitating the fuel to provide a constant flow thereof 105 and to prevent its sticking or arching on the bottom of the hopper 1.

The modification of the device illustrated in Figures 5 and 6, differs from the preferred form, 110

hereinbefore described, only in that each of the fingers 11 is provided with a raking pin 12. The latter are disposed adjacent to the projecting ends of the fingers 11 and extend forwardly at right angles with respect to the top faces of the latter. The raking pins 12 preferably have a screw thread connection, as indicated at 13, with respective fingers 11 to allow their change or replacement, or may be fixed to the latter in any other suitable manner.

It is, of course, obvious that both bottom side walls 2, of the hopper 1, may be provided with our improved fuel agitators, although extensive experimentation has conclusively proven that such dual installation is not essential.

The present invention provides a most durable and efficient device of its kind, which may be cheaply manufactured and installed, and which will effectively prevent any tendency of the

fuel clog or arch in the hopper, thereby assuring a constant, regular flow of fuel from the hopper to the conveyer.

What we claim is:

In combination, a fuel agitator comprising a revoluble disk provided with a centrally disposed hub on the upper side thereof, a plurality of radially extending agitating members secured to the upper side of said disk, the outer ends of said members projecting beyond the periphery of said disk and the inner ends thereof being spaced from said hub, a pivoting pin for said disk having a cap-shaped head inclosing said hub, and a raking pin fixed adjacent to the outer free end of each of said members and projecting upwardly from the latter, substantially as described and for the purpose set forth.

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