Dec. 5, 1939. G. M. PELTZ 2,182,093

ASH DISPOSAL MEANS

Filed June 3, 1936

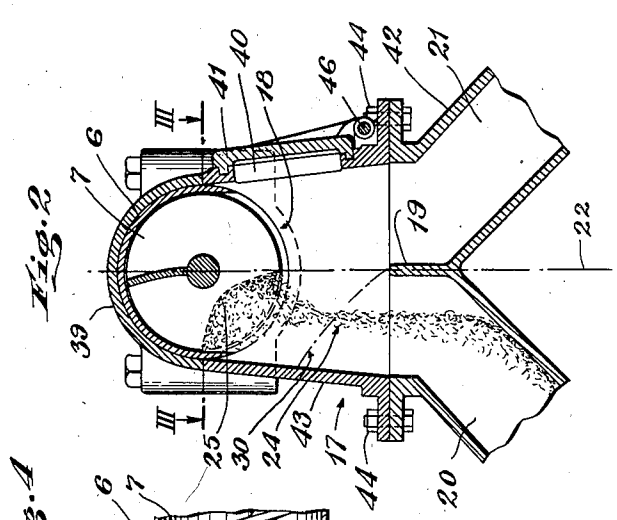


Fig. 2

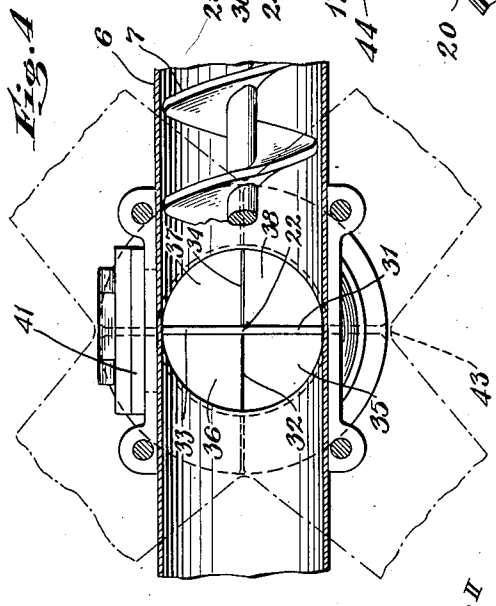


Fig. 4

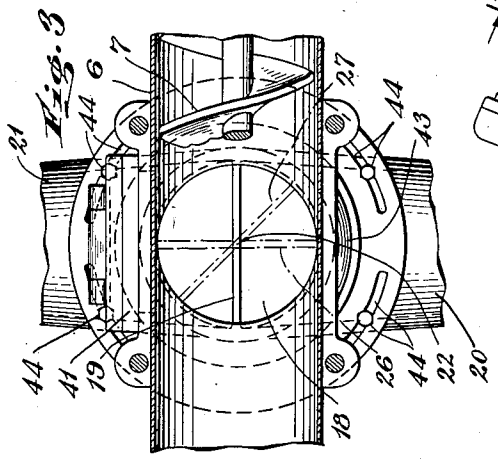


Fig. 3

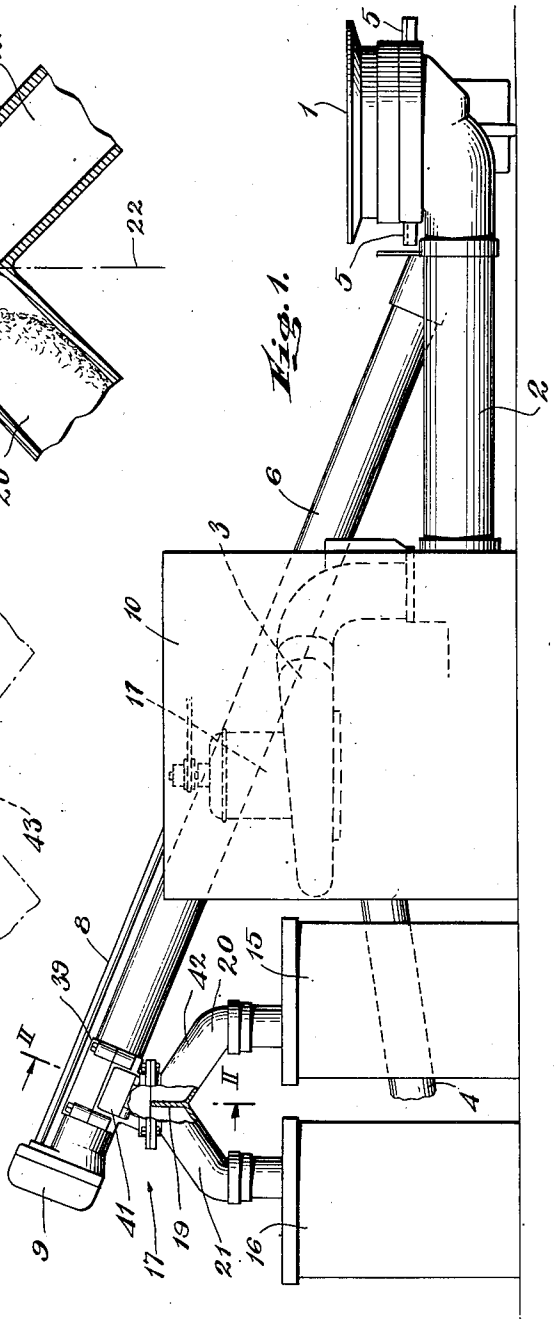


Fig. 1

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ASH DISPOSAL MEANS

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Application June 3, 1936, Serial No. 83,297

7 Claims. (Cl. 110—165)

My invention relates to the disposal of ashes removed mechanically from a furnace burning solid fuel.

It provides a novel arrangement for delivering the ashes to one or more cans in those instances where the ash remover or an elevator therefrom is of such a nature that the ash travels at one side of the centerline of the bottom of the conduit of the ash remover or elevator from the ash remover, and an arrangement for delivering the ashes to one or more cans that is particularly adapted for use with screw type ash conveyors.

Also it provides an arrangement for delivering the ashes that is of such a nature that the ash can or cans can be placed in any one of a number of positions as may be necessary or desirable.

Certain matter herein claimed was formerly claimed in my co-pending application, Ser. No. 17,954, filed April 24, 1935, in which division was required as to said matter.

The accompanying drawing illustrates preferred forms of my invention more or less diagrammatically. Fig. 1 is a side elevation of a coal stoker to which my invention is applied. Fig. 2 is a section thereof substantially on the line II—II of Fig. 1, but with the distributor shown rotated about 90°. Fig. 3 is a section substantially on the line III—III of Fig. 2. Fig. 4 is a section similar to that of Fig. 3, but illustrating a modification.

In Fig. 1, which illustrates one of the known forms of household coal stokers, the burner will be recognized at 1, this being fed through the conduit or conduits 2 with air under pressure supplied by the blower 3 and fuel taken from, say, the local coal bin through the conduit 4. The electric motor 11 provides the power for the machinery. The ashes falling over the outer edge of the burner 1 are swept around the burner by paddles 5 and into an intake in the ash remover which consists of the tubular conduit 6 and a screw conveyor 7 therein, the latter driven by shaft 8 and suitable gearing in the head 9 on the end of the conduit 6. For the most part the driving mechanism of the stoker is enclosed within the casing 10, and its details forming no part of the present invention, need not be described.

In the present instance, the ash conduit 6 and its conveyor screw 7 are inclined upwardly so that their outer ends are at a higher level than the ash cans 15 and 16. A distributor 17 delivers ashes from the ash remover solely to the can 15 until this can is filled, and thereafter delivers ashes to the can 16. To this end, the ash conduit 6 is provided with an opening 18 immediately above the distributor 17, for the escape of ash from the ash conduit. At and below this opening 18, a dividing wall 19 extends crosswise of the distributor as it were, to provide two passages 20 and 21 leading to the ash cans 15 and 16 respectively. This dividing wall is so placed that a vertical line from (usually the center of) the top thereof, as determined by the direction of the ash passages of the distributor (e. g., passages 20 and 21), that is to say, in the present instance, the vertical centerline 22, Fig. 2, is at one side of the line of flow 24 of the ash through the escape opening 18 from the conduit. With a screw conveyor, I have found that the ash does not travel along the exact bottom of the ash conduit 6, as it were, but along a part of the side wall of the conduit (the particular side depending upon the direction of rotation of the screw) substantially as illustrated by the ashes at 25 in Fig. 2. Accordingly, where the ash escape opening 18 from the conduit is at the underside of the conduit for the escape of ashes therefrom more or less by gravity, and the conveyor is of the screw type 7, I so place the dividing wall 19 that its vertical centerline 22 is located in or substantially at the vertical plane containing the axis of the screw 7, as illustrated in Figs. 2 and 3. The dividing wall 19 may be located transversely to the axis of the screw as illustrated in Fig. 1 and by the dotted line position 26 in Fig. 3 for example, or parallel to the axis of the screw as illustrated by full lines in Figs. 2 and 3, or in some mid-position as indicated by the dotted line position 27 in Fig. 3.

While the exact mode of operation depends somewhat on the position of the dividing wall 19, the operation in general is that illustrated in Fig. 2. Specifically, so long as the ash can 15 at the end of the passageway 20 is not completely filled, the ashes coming up the conduit 6 at about the position 25, fall through the opening 18 and entirely at one side of the dividing wall 19, that is to say, into the passage 20. As the can 15, and ultimately the passage 20, are filled with ashes up to say the position indicated by the broken line 30 in Fig. 2, further ashes coming from the ash screw 7 slide off to the right of the dividing wall 19 in Fig. 2, and thence into the passage 21, and the can 16 at the end of this passage. As a result ashes are

delivered first to one can, and not until this can is filled are ashes delivered to the other.

If desired, the dividing wall or walls may provide more than two passages for ash, to the end that the ashes may be delivered to more than two cans successively. Thus for example, in Fig. 4, four dividing walls in effect, 31, 32, 33 and 34, joining each other substantially at the vertical centerline 22, located as before described, provide four separate passages 35, 36, 37 and 38, which may lead to an equal number of ash cans substantially in the manner of the passages 20 and 21 in Fig. 1. As indicated in Fig. 2, the tops of the dividing walls (19, or, 31 to 34 for example) are located at a material distance below the opening 18 from the conduit 6; specifically, usually I locate them so far below the opening 18 in the conduit 6 that the surface 30 reached by the ash filling one of the passages is substantially below the reach of the screw 7. In such multiple-wall arrangements as Fig. 4 for example, certain of the dividing walls may be lower than others so as to conduce to selective filling of the cans in a desired order; for example, the tops of the diametrically opposite walls 31 and 33 may be at say the same height as the wall 19 in Fig. 2 while the tops of the intermediate walls 32 and 34 are placed somewhat lower down; what I have termed the dividing wall 34 may indeed be only the dividing line between the two ash passages 37 and 38 and likewise the wall 32 the dividing line between the ends of the passages 35 and 36. Accordingly, in Fig. 4, assuming that the ash passes first to passage 37, then when the corresponding can and the passage 37 are filled, ash will next pass to the passage 38, and thereafter ash will pass to the passage 36, and finally to the passage 35; the lower placement of the tops of the walls 34 and 32, as compared to the height of 31 and 33, conduces to the ash flowing to these passages in this order.

In each of the cases illustrated, say one ash passage may be provided in excess of the number required by the number of ash cans necessary to take care of the ashes under normal conditions. In such an instance, the extra passage (which will be the last one to receive ashes) acts as an emergency outlet for ashes as it were, taking ashes only when the circumstances are so extraordinary that all the ash cans have been filled. This supplemental or emergency outlet then acts to relieve the ash mechanism of a condition otherwise dangerous, due to the fact all of the ash cans have been filled. In the alternative, however, an emergency outlet 40 may be provided for this purpose in a side wall of the conduit fitting 43 at the ash outlet 18. Such an emergency outlet 40 may be kept closed normally, as by a metal plate 41, hinged at 46 to the fitting, and normally standing closed by its weight resting against the inclined side of the fitting (Fig. 2). Should all the ash cans be filled however, the continued supply of ashes to the fitting and space above the dividing wall 19 etc., will ultimately cause the force on the ashes to open the lightly closed cover 41 and the escape of ashes through the emergency port 40 as long as necessary.

In order that the ash cans may be located at any one of a number of different positions, as the location of the stoker or the desires of the householder may demand, I mount the dividing wall or walls (19, 31–34) in such a way that they may be fixed with respect to the conduit 6 in any one of a plurality of positions around the centerline 22. To this end, the branched member 42 providing the dividing wall or walls and the passages 20, 21, etc. may be fastened to the fitting 43 of the conduit by means, say, of bolts located in slots as at 44 in the flanges of member 42 and fitting 43. Thus by the use of bolts and slots (suitable slotting for adjustment purposes is well-known), the dividing wall 19, for example, can be located in any one of the various positions indicated in Fig. 3, and the ash cans 15 and 16 can occupy any one of corresponding positions. Obviously other arrangements for securing member 42 to fitting 43 in adjustable relation can be substituted for the bolts and slots; for example, a strap around and overlapping and underlapping the flanges of the member and fitting would serve.

It will be understood that my invention is not limited to the details of construction and operation described above and illustrated in the accompanying drawing except as appears hereafter in the claims.

I claim:

1. The combination with at least one ash can and means for burning solid fuel and delivering resulting ashes for said can, said means including a conduit and a screw conveyor in said conduit and said conduit being open for the escape of ash therefrom, of a dividing wall means at said opening providing more than two escape passages for ash at its sides, said can being located to receive ashes from one of said escape passages and said wall means being so located that a vertical line from the top thereof lies substantially in the vertical plane containing the axis of said screw, and the top of said wall means being at a lower level than the bottom of said conduit adjacent the escape opening.

2. The subject matter of claim 1, said dividing wall means including at least three walls providing at least three escape passages for ash, and said walls joining each other at substantially said vertical line.

3. The subject matter of claim 1, and means for fixing said dividing wall means with respect to said conduit with said dividing wall means located in any one of a plurality of positions around said vertical line.

4. The combination with means for burning solid fuel and delivering the resulting ashes, said means including a conduit and a conveyor therein and said conduit being open for the escape of ash therefrom, of a dividing wall means at said opening providing at least two escape passages for ash at its sides, said dividing wall means being so located that a vertical line from the top thereof lies substantially at one side of the line of flow of ash from said conduit through the escape opening therein, and means for fixing said dividing wall means with respect to said conduit with said dividing wall means located in any one of a plurality of positions around said vertical line.

5. The subject matter of claim 4, said dividing wall means providing more than two escape passages for ash at its sides.

6. The subject matter of claim 4, said dividing wall means having at least one wall the top of which is at a lower level than the bottom of said conduit adjacent the conduit opening leading thereto.

7. The combination with a plurality of ash cans and means for burning solid fuel and delivering resulting ashes for said cans, said means

including a conduit and a screw conveyor in said conduit and said conduit being open for the escape of ashes therefrom, of a dividing wall means at said opening providing at least two escape passages for ash at its sides and a dividing wall means subdividing at least one of said escape passages and providing at least two escape passages for ash at its sides, said cans being located to receive ashes from at least some of said escape passages individually, the first mentioned of said wall means being so located that a vertical line from the top thereof lies substantially in the vertical plane containing the axis of said screw, and the top of the second mentioned wall means being at a lower level than the top of the first mentioned wall means and at a lower level than the bottom of said conduit adjacent the escape opening.

GORDON M. PELTZ.