Aug. 18, 1936. L. J. BAYER 2,051,069

BOILER CLEANER SUPPORT

Filed Jan. 12, 1935

Fig. 1.

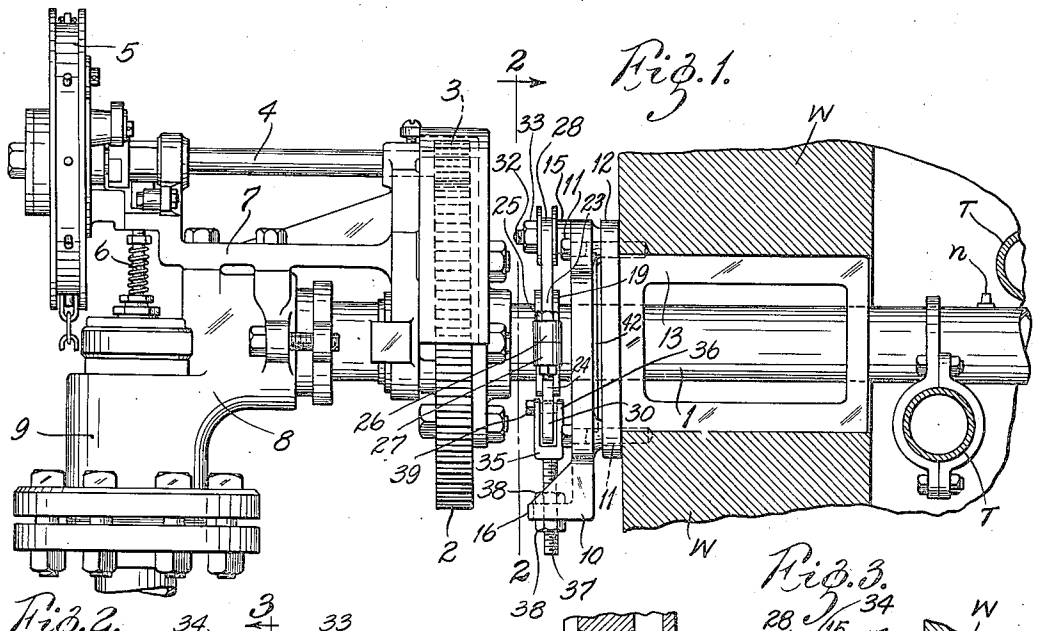


Fig. 2.

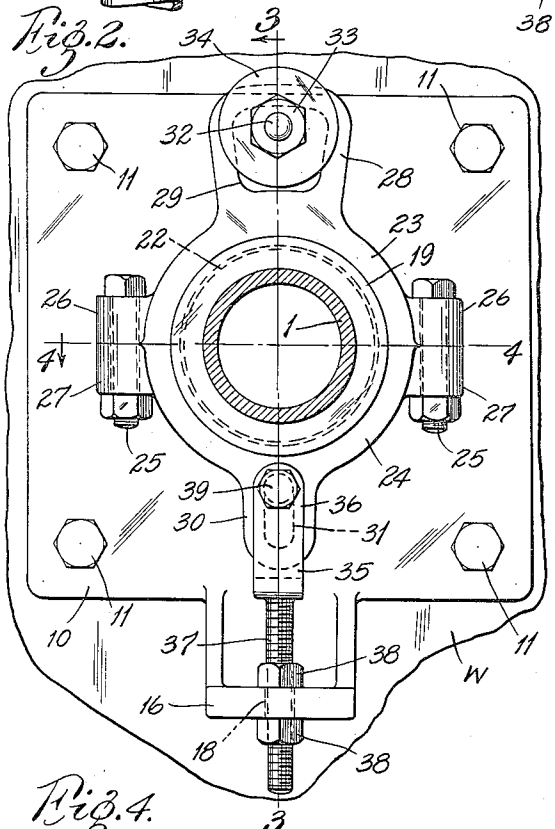


Fig. 3.

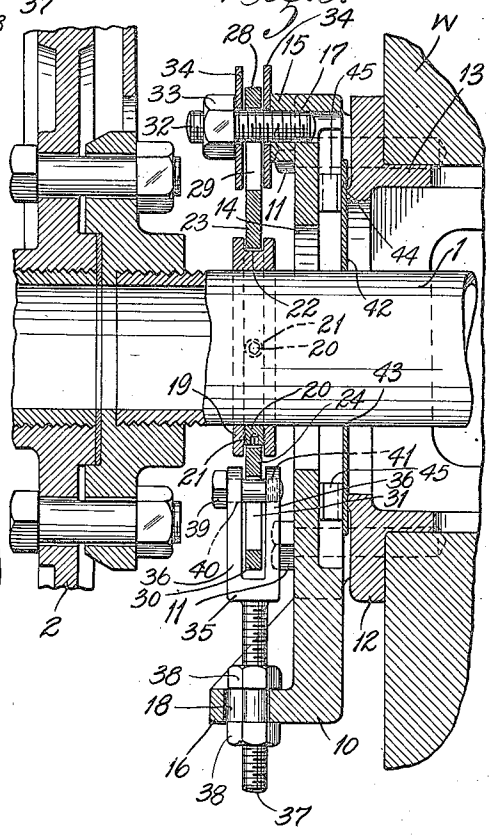
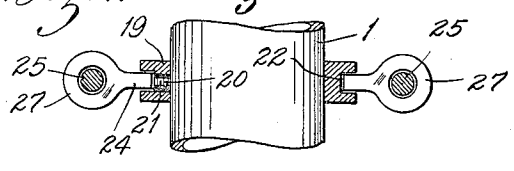


Fig. 4.



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BOILER CLEANER SUPPORT

Leo J. Bayer, St. Louis, Mo.

Application January 12, 1935, Serial No. 1,528

4 Claims. (Cl. 122—392)

My invention has relation to improvements in boiler tube cleaner supports, and it consists in the novel features of construction more fully set forth in the specification and pointed out in the claims.

In boiler tube cleaners, or soot blowers as they are sometimes called, the operating head for the boiler tube cleaner is mounted on the outside of the boiler wall while the blower tube for discharging the steam which cleans the boiler tubes is mounted on the boiler tubes. Therefore, provision must be made for relative movement between the boiler wall and boiler tubes on account of the expansion or "growth" of the boiler when the same is put into operation. Heretofore various types of flexible and resilient connections have been used for supporting the head from the boiler wall. I have found that resilient connections commonly employing cushioning springs are not necessary in the supporting means for the operating head of the boiler cleaner, and it is the principal object of the present invention to provide a support for said operating head that solidly carries the head but has flexibility built into it by providing clearances between the parts fixed to the boiler wall and the parts fixed to the operating head. By dispensing with the spring mounting as heretofore employed I have considerably simplified the construction for the boiler cleaner support and have at the same time provided a support that may be easily and simply adjusted to obtain the proper mounting of the boiler cleaner.

The manner of accomplishing these objects, as well as other advantages inherent in the invention will be better apparent from a detailed description of the same in connection with the accompanying drawing, in which:

Figure 1 is a side elevation of the operating head of a boiler tube cleaner with its associated operating mechanism mounted on a boiler wall (shown in section) by my improved support; Fig. 2 is an enlarged vertical cross-section taken on the line 2—2 of Fig. 1 and showing the boiler support in front elevation; Fig. 3 is a vertical longitudinal section taken on the line 3—3 of Fig. 2 showing a portion of the boiler cleaner and boiler wall and my improved support fixed to said boiler wall; and Fig. 4 is a horizontal sectional detail taken on the line 4—4 of Fig. 2.

Referring to the drawing, W represents the wall of a boiler, the tubes T of which are adapted to be cleaned by steam issuing from nozzles *n* of the blower tube 1. Said blower tube is operatively connected to a gear 2 meshing with pinion 3 mounted on shaft 4 which carries a chain wheel 5 on its outer end. These parts, together with the parts for actuating valve stem 6, are carried by a bracket 7, which in turn is mounted on blower head 8, the part 9 of which is the valve casing. The present invention is not concerned with the construction of the boiler cleaner head or operating mechanism just briefly described, but relates solely to the support whereby said head and mechanism is carried by the boiler wall W.

This support comprises a wall plate 10 secured by bolts 11 passing through the corners thereof to flange 12 of a casting 13 set into the boiler wall W, which casting is generally referred to as a wall sleeve. The wall plate 10 is provided with a central opening 14 to accommodate the blower tube 1 and has a centrally disposed boss 15 adjacent its upper edge, and a centrally disposed bracket 16 depending from its lower edge. The boss 15 is provided with a tapped opening 17, and the bracket 16 is provided with a slot 18 elongated in line with the blower tube 1. A collar 19 is slidingly fitted over the blower tube 1, and is fixed in any desired location along the length thereof by means of a series of set-screws 20, 20 screwed into tapped openings 21, 21 extending radially through the collar from the bottom of a peripheral groove 22 formed entirely around the circumference of said collar.

A hanger comprising an upper semi-circular section 23 and a lower semi-circular section 24 is seated in the groove 22 of collar 19, the upper and lower sections 23 and 24 thereof being secured together by bolts 25 traversing oppositely disposed perforate lugs 26, 26 on the upper section 23, and lugs 27, 27 on the lower section 24. Obviously, the hanger 23, 24 is formed in sections so that it may be disposed within the groove 22 of the collar 19. Projecting upwardly from section 23 of the hanger is a lug 28 having a substantially rectangular opening 29 rounded at the corners, and projecting downwardly from section 24 is a lug 30 having a slot 31 formed in it. The hanger 23, 24 is carried by the wall sleeve plate 10 through the medium of a stud 32 traversing opening 29 in the lug 28 and screwed in the tapped opening 17 of boss 15, the lug 28 being held in proper relation to the boss 15 by a nut 33 and spacing washers 34, 34 disposed on both sides of said lug 28.

The hanger 23, 24 is also connected to the bracket 16 of plate 10 by a connecting link 35 having its inner end bifurcated to provide spaced fingers 36, 36 from which there is a downwardly

extending stud 37 which traverses slot 18 in bracket 16 and is held in properly adjusted vertical position by means of nuts 38, 38 screw-threaded over the stud 37 on both sides of the bracket 16. Connection of the lug 30 with fingers 36, 36 is made by means of a bolt 39 passed through an opening 40 in one of the fingers 36 and screwed into the tapped opening 41 of the opposite finger 36, the bolt, of course, traversing the slot 31 in the lug 30.

In mounting the boiler cleaner in my improved support, longitudinal adjustment of the support on the blower tube 1 is easily accomplished through the collar 19. The set-screws 21 are of course loosened before the collar 19 is properly lined up, and after correct longitudinal positioning is obtained the set-screws are securely fastened to maintain such position. Vertical alinement is obtained by temporarily alining the head with the blower tube 1 and then fixing this alinement by means of the stud 32 and nut 33. After this is accomplished the connecting link 35 is vertically adjusted by means of the nuts 38, 38 until the bolt 39 is in contact with the upper end of slot 31. The weight of the head is now taken on both the stud 32 and bolt 39. If the boiler is now put into operation the heat thereof will cause the blower tube 1 to rise on account of the expansion of the boiler, which movement of the blower tube is permitted by the vertical clearance provided in opening 29 and slot 31. Should there be relative lateral movement between the boiler and the boiler cleaner it will be permitted by the lateral clearance between the sides of the opening 29 and the stud 32.

In order to prevent the outside cold air from entering into the furnace of the boiler through the wall sleeve 13 a sealing plate 42 having a central opening 43 is mounted on the blower tube 1, said plate being held in contact with the inner margin 44 of flange 12 by means of several flat springs 45. This sealing plate construction is old and forms no part of the present invention, but is merely referred to to enable one to completely understand the entire device.

Having described my invention, I claim:

1. A boiler cleaner support comprising a plate, a hanger carried by said plate, said hanger having a central opening and slots disposed on both sides of said opening, a connecting link between the lower side of the hanger and the plate, means traversing the slots and securing the hanger to the plate and to the connecting link, and a collar rotatably mounted in the central opening of the hanger.

2. A boiler cleaner support comprising a plate, a hanger carried by said plate, said hanger having a central opening and slots disposed on both sides of said opening, an adjustable link between the lower side of the hanger and the plate, means traversing the slots and securing the hanger to the plate and to the adjustable link, and a collar rotatably mounted in the central opening of the hanger.

3. A boiler cleaner support comprising a plate, a hanger carried by said plate, said hanger having a central opening and slots disposed on both sides of said opening, a connecting link between the lower side of the hanger and the plate, a bolt traversing the upper slot and having clearance therein, a bolt traversing the lower slot and having vertical clearance therein, said upper bolt being secured in the plate and said lower bolt being secured in the connecting link whereby both bolts carry the hanger.

4. A boiler cleaner support comprising a plate, a hanger carried by said plate, said hanger having a central opening and slots disposed on both sides of said opening, a connecting link between the lower side of the hanger and the plate, a bolt traversing the upper slot and having clearance therein, a bolt traversing the lower slot and having vertical clearance therein, said upper bolt being secured in the plate and said lower bolt being secured in the connecting link whereby both bolts carry the hanger, and a collar rotatably mounted in the central opening of the hanger.

LEO JNO. BAYER.