

Sept. 10, 1935.

J. W. WEST

2,013,816

EQUIPMENT FOR FUEL OIL BURNERS

Filed Aug. 28, 1933

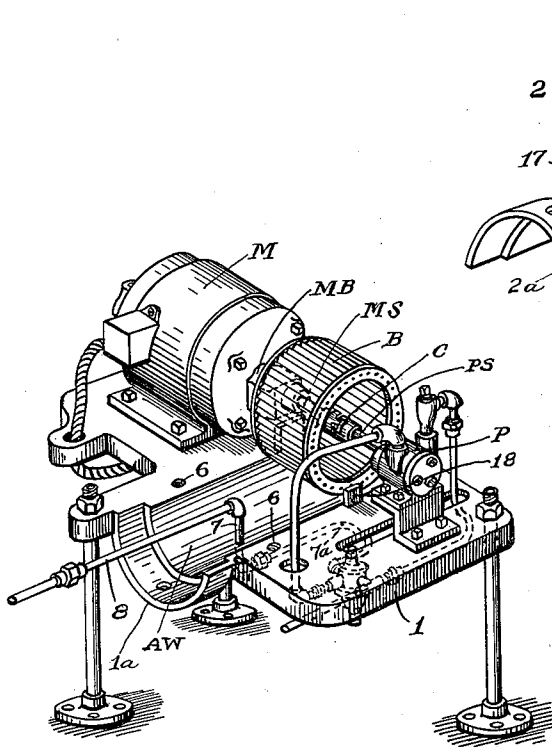


Fig. 1

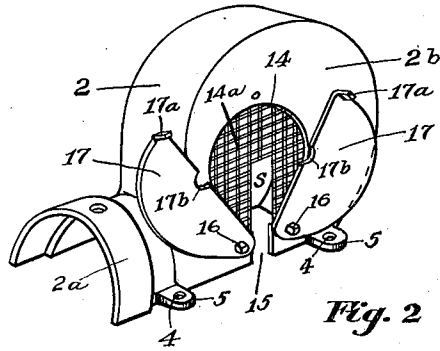


Fig. 2

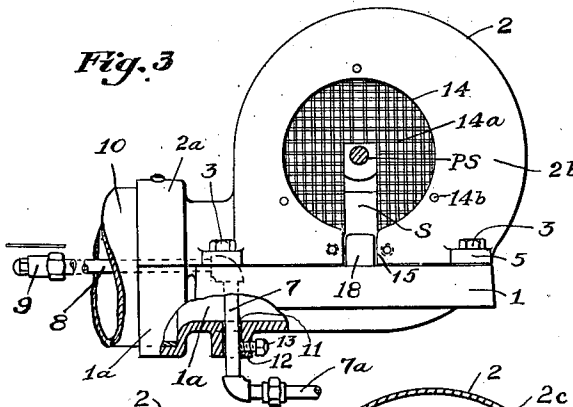


Fig. 3

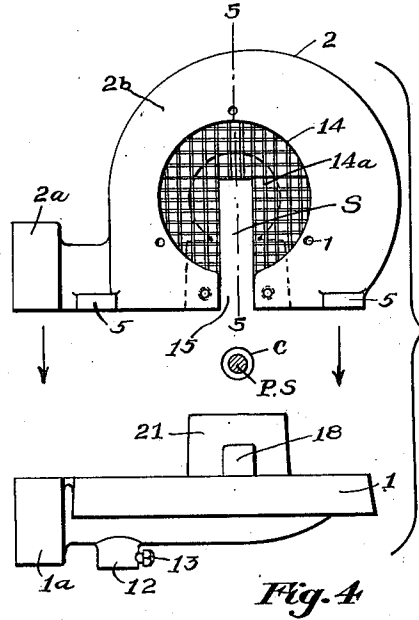


Fig. 4

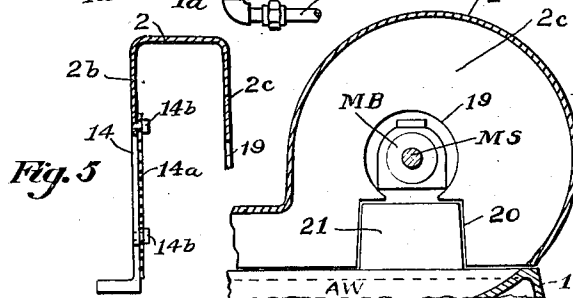


Fig. 5

Fig. 6

INVENTOR

John W. West.

BY Henry L. Chunery.

Attorney.

UNITED STATES PATENT OFFICE

2,013,816

EQUIPMENT FOR FUEL OIL BURNERS

John W. West, Portland, Maine

Application August 28, 1933, Serial No. 687,176

2 Claims. (Cl. 230-133)

In the construction of fuel oil burners for household or other heating plants it is of great advantage, both in assembling the parts for a new installation or subsequently in disassembling them for the purpose of inspection or making repairs, to so design and arrange the elements in a manner calculated to conserve time and avoid unnecessary labor.

Especially is this true when repairs require to be made in extremely cold weather as at this time, of all others, it is most essential that the work be done expeditiously in order that the inoperative period of the heating apparatus be not unduly prolonged.

In many of the commercial types of oil burners the outer element which houses portions of the actuating mechanisms can be removed only after disassembling more or less of the working parts. This arrangement consumes much time and involves considerable labor and is apparent both at the manufacturing plant where the parts must be assembled and tested, and in the building in which the burner installation is undergoing an overhauling.

In my present invention I have constructed the hood which houses the rotating elements so that, by simply removing four screws, it may be raised from the base member, thereby exposing to view the complete operating assembly of the burner. This is of untold advantage to the service man as he can often locate and remedy any trouble with the actuating mechanism without resort to disassembling any of the moving parts.

Another object of my invention relates to the means employed to regulate and control the admission of air into the burner, consisting of two semi-circular shutters disposed on one side of the blower hood and conveniently operable to admit the required amount of air for any condition of fire demanded.

And a still further advantage resides in the protective means provided to eliminate all possible danger to the operator of the heating plant by carelessly coming in contact with the blower fan and injuring his hand when working about the apparatus. This feature will also prevent any object, as clothing, being drawn into the blower space by suction and causing disruption in heating service.

The character of the invention may best be understood by reference to the description found in the following specification when taken in connection with the accompanying drawing in which is disclosed a preferred embodiment thereof.

In the drawing:—

Fig. 1 is a perspective view of an oil burner constructed in accordance with my invention, the blower fan hood being removed;

Fig. 2 is a perspective view of the blower fan hood showing the shutters and protective guard;

Fig. 3 is a side elevation of the burner complete, the blower fan hood being in position thereon;

Fig. 4 is a composite view of the burner base and hood, the latter being shown as it would be lowered over the motor shaft on to the base;

Fig. 5 is a transverse section taken on line 5-5, Fig. 4, and

Fig. 6 is a fragmentary, longitudinal sectional elevation of the base and hood showing the side of the hood opposite to that on which are mounted the air admission control shutters.

Similar reference characters are employed to identify like parts in all views of the drawing.

Referring to the drawing, 1 represents the burner base member and 2 the blower fan wheel hood which is secured to the base by bolts 3 operating through holes 4 in the ears 5, the bolts having threaded engagement with the tapped holes 6 in the base member.

Secured on the base is a motor M, on the shaft MS of which is secured the blower fan wheel B. A coupling C connects the shaft MS with the shaft PS, which latter operates the oil pump P.

Various oil pipes and connections are shown in the burner unit illustrated in Fig. 1, but as these, mostly, have to do with conventional construction and form no specific part of the present invention a detailed description thereof is thought to be unnecessary.

An exception with respect to the foregoing statement, however, is made in the case of the pipe 7 which passes upwardly through the base member into the air-way AW where it makes connection with the pipe 8 which extends forwardly to the burner nozzle 9, the oil being conveyed by these two pipes to the furnace of the heating apparatus.

The usual practice is to screw-thread the pipe 7 into the base member, thereby permanently locating it, as well also as the pipe 8, in a fixed position, vertically.

I have found that frequently it is desirable to adjust the nozzle, vertically speaking, in the draft tube 10, and to accomplish this I arrange the pipe 7 so that a sliding fit is procured in the hole 11 within the boss 12, securing it therein by means of the set screw 13. This construction provides not only vertical adjustability of the pipes 7 and 8 and nozzle 9, but constitutes a

simpler and more convenient method of assembling the parts than the conventional method referred to. As the pipe 1a extending from the pipe 7 rearwardly, under the burner base is a small sized pipe or tube, and is formed in a U shape, there are ample facilities for raising or lowering the pipe 7 by the flexibility provided in this particular shape or form of the pipe (7a).

Referring to Fig. 3 it will be observed that the draft tube collar portions 1a and 2a, of the base and blower hood, respectively, are each semi-circular, and form when the parts are assembled a cylindrical structure within which the draft tube is secured.

On the side 2b of the hood 2 is a circular aperture 14 the bottom side of which opens through to the base line of the hood, providing a slot 15.

On each side of this slot is pivoted, by means of the bolt 16, a substantially semi-circular shaped shutter 17 having an outstanding lug 17a by which the shutter may be swung in either direction to regulate the amount of air admitted into the interior of the hood. Portions of the adjacent edges of the two shutters are cut away at 17b permitting the shutters to enclose the pump shaft when they are brought together.

When the blower fan wheel B is rotating at high speed a suctional pressure of considerable force is created sufficient to draw articles of light weight, such for instance, as clothing, paper or the like, into the interior of the wheel, a circumstance which might easily cause interruption of burner service.

To prevent this thing happening I cover the aperture 14 with screen cloth 14a, preferably of coarse mesh, securing it to the inside face of the side 2b by screws or rivets 14b, as shown in Fig. 5.

A portion of the screen cloth is cut out, leaving a space S directly above the slot 15 through which the pump shaft PS may pass as the hood is lowered on to the base member.

An upstanding post 18 extends upwardly into and substantially fills the slot 15 when the hood is in place and serves to all intents and purposes as a key to locate the hood on the base, transversely of the pump shaft. In the side 2a of the hood there is an aperture (see Fig. 6), including the circular portion 19 which partially surrounds the motor bearing MB, and the rectangular opening 20 within which is disposed the upstanding post 21 forming a part of the burner base.

In summarizing, the present invention contemplates among other things, a substantially flat top base member upon which is mounted and operable all the working elements. The top of this base member has a transversely disposed, substantially semi-circular depression forming the lower half of the air discharge passageway from the apparatus.

Mounted on and rising directly from the flat top surface of the base member is the hood ele-

ment, made in one piece and having a semi-circular, hollow portion matching the correspondingly shaped part of the base member, the two parts, when assembled providing a cylindrical formation constituting the air outlet to the burner. It further contemplates structural features to permit of its being lowered on to or raised from the base without disturbing or disassembling any part or piece of the actuating mechanism of the burner.

It will, it is believed, be apparent to those versed in mechanical matters that the simplified construction herein set forth, particularly the one-piece hood the base line of which lies in a horizontal plane cutting centrally the air discharge outlet, is possessed of characteristics which will appeal to the manufacturer of this class of apparatus by reason of the fact that production costs can be lowered both in molding the parts and their subsequent assembling, and that it will, further, be commended by the ultimate user because servicing charges will be reduced.

What I claim is:

1. An equipment for oil burners comprising a base member, a semi-circular depression in the top surface of said base member, an enlarged half-collar portion extending therefrom, a fan-wheel hood superimposed on said base member, a half-collar portion of said fan-wheel hood adapted, in conjunction with the half-collar portion on the base member, to form a passageway for air, and a circular, eccentrically positioned aperture in one side of said hood, constituting means to admit air to the interior of said hood, said aperture continuing in the form of a narrow slot to the base line of said hood.

2. An equipment for fuel oil burners, a base member having a generally flat top, an air passageway disposed in and transversely of said base member, a fan-wheel hood mounted on said base member and having an air passageway through one end thereof, the two said passageways being each semi-circular in form and when mounted together providing a circular, hollow structure, a circular, eccentrically disposed air-receiving aperture in the side of said hood, said aperture opening into a narrow, shaft-receiving slot extending to the base line of said hood, a protective, perforate element covering said circular aperture, except for a narrow, vertical, shaft-receiving slot therein, an upstanding post on said base member extending upwardly into the slotted portion of said base member, and two semi-circular shutters pivotally attached to the side of said hood, on each side, respectively, of said slotted portion, adapted when swung together to close the said circular aperture in the side of said hood.

JOHN W. WEST.