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W. P. SCHENCK
OIL BURNING APPARATUS

1,966,524

Filed Nov. 16, 1932

2 Sheets-Sheet 1

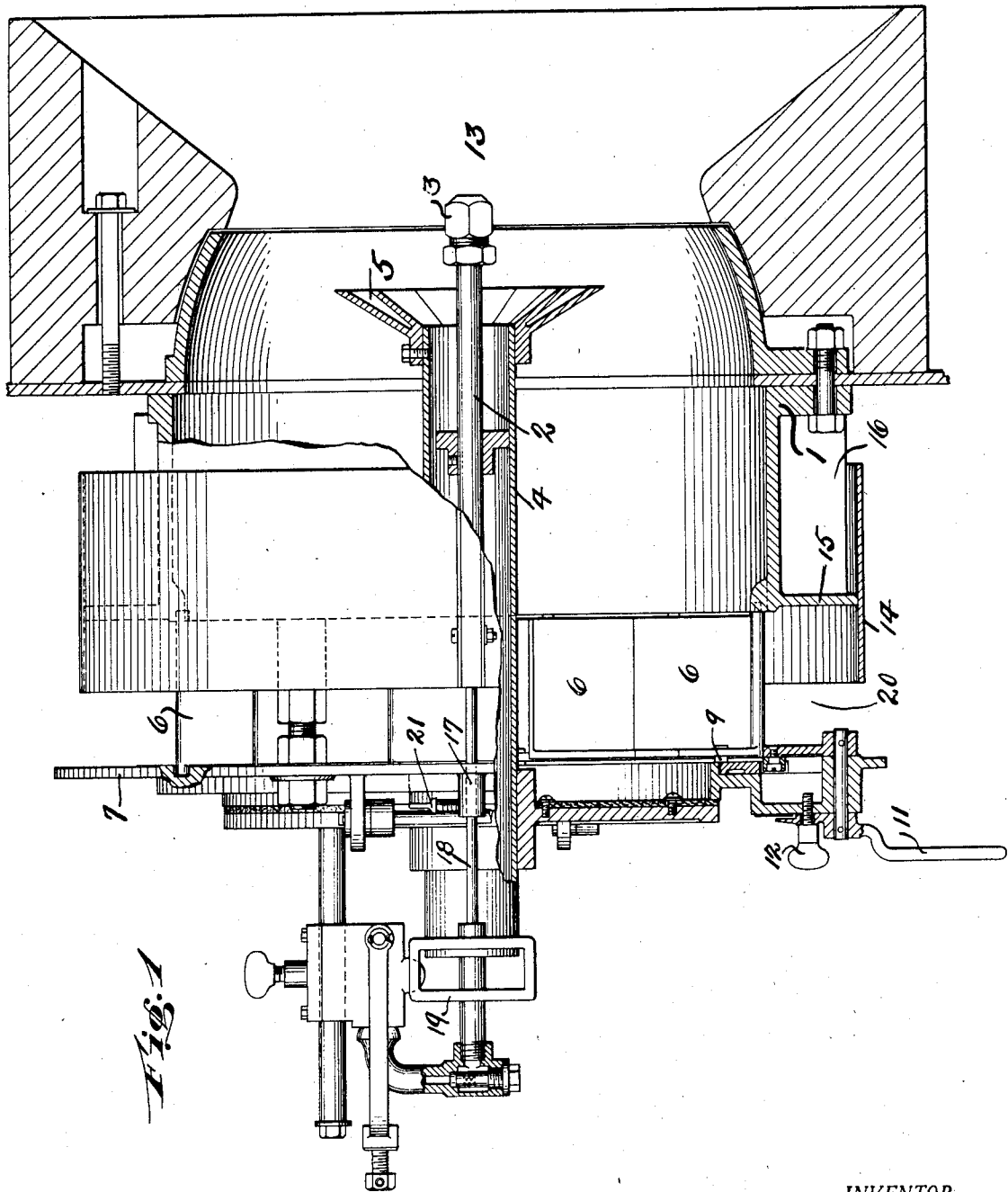


Fig. 1

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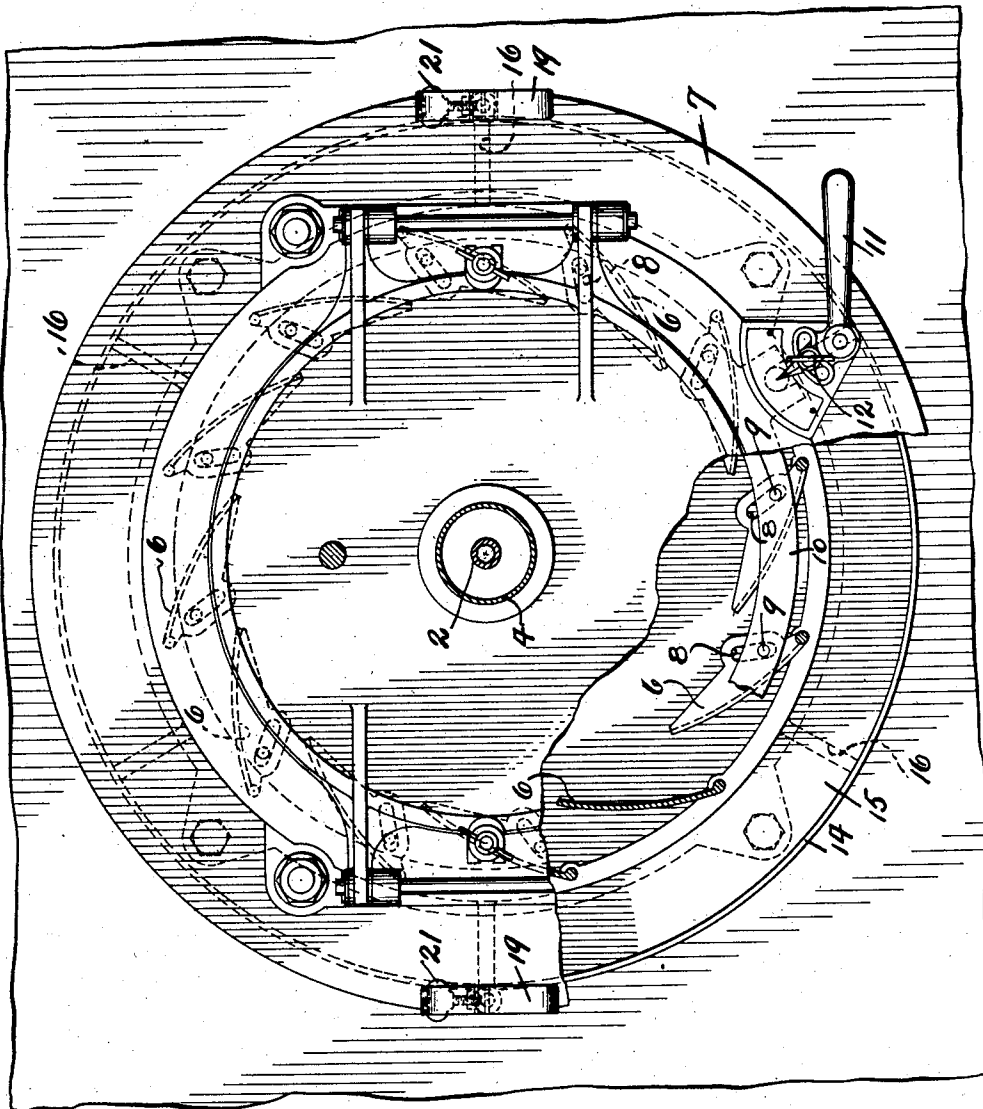


Fig. 2

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UNITED STATES PATENT OFFICE

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OIL BURNING APPARATUS

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3 Claims. (Cl. 158—1.5)

This invention is directed to an improvement in oil burning apparatus and more particularly to mechanical oil burners for industrial use.

Still more specifically the invention is directed to controlling the secondary air supplied to the burner for supporting combustion.

In oil burners of the type to which this invention is primarily directed the flame, the characteristics of which depend to a considerable extent upon the size and type of boiler to which the apparatus is applied, is adjusted and set when installing the apparatus. For this purpose it is usual for the apparatus to be provided with an air register comprising adjustable vanes or deflectors adapted to control not only the volume of secondary air taken into the apparatus but to control its motion as well, the setting of these vanes or deflectors determining to a large degree the shape of the flame or fire produced. As mentioned above, these deflectors or vanes are adjusted as to their angularity, when the apparatus is installed, by a skilled operator, and usually after once being adjusted are left in adjusted position.

It is desirable, however, to be able to vary the amount of secondary air admitted to the burner and while this result can be accomplished by adjusting the angularity of the register vanes, this throws the apparatus out of adjustment, and accordingly the present invention provides for varying the volume of secondary air taken into the apparatus without varying the setting of the register deflectors or vanes.

In the drawings:

Fig. 1 is a part sectional elevational view through a burner embodying my invention; and Fig. 2 is a part sectional end elevation of the burner or oil burning apparatus of Fig. 1.

Referring to the drawings in detail, the oil burning apparatus of this invention comprises a burner casing or housing designated 1 bolted or otherwise secured to the front of a furnace as shown in Fig. 1. Within this housing is the burner oil tube 2, carrying the burner nozzle 3. The oil tube 2 extends through primary air tube 4 which is equipped at its end adjacent the nozzle 3 with air deflecting head 5. This apparatus is old so far as the present invention is concerned and hence will not be described in any further detail.

6 designates a plurality of air deflectors or vanes pivotally mounted in the open end of the housing 1 and in a plate 7 at the outer end of the burner, this plate being spaced longitudinally of the burner from the housing 1. The spacing of

the plate 7 from the housing 1 provides a space for the entry of air to the burner housing. Each of the vanes 6 is provided with a slot 8 for receiving a pin 9 carried by a ring 10 concentric with the burner housing. The ring 10 is rotatably adjustable by a handle 11 and when so rotated or adjusted will vary the setting or angularity of the air deflectors or vanes 6. A thumb screw 12 holds the ring 10 in adjusted position.

The air deflectors or vanes 6 constitute an air register, secondary air for supporting combustion being drawn through this register into the combustion chamber 13, and it will be apparent that the setting of the angularity of the vanes 6 will control not only the volume of secondary air taken in but by reason of their setting will impart somewhat of a whirling motion thereto; the secondary air finally discharging past the inner end of the tube 4 and head 5 to mix with the primary air passing through this tube and with the atomized oil issuing from the burner nozzle 3.

As above mentioned it is customary in this industry to have the vanes 6 set by a skilled operator on installing the apparatus so that the proper flame characteristics will be produced in the combustion chamber 13 depending upon the shape and size of this chamber, and that after once being adjusted the vanes are left in such position.

It is desirable, however, under certain conditions to be able to vary the amount of secondary air passing to the combustion chamber 13 without changing the setting or angularity of the register vanes or air deflectors 6. To this end, therefore, the present invention provides a sleeve 14 surrounding and concentric with the burner housing 1.

This sleeve is supported for movement longitudinally of the housing on a flange 15 integral with the housing 1, and by spaced ribs 16 provided on the exterior of the housing.

Guided in bearings 17 on the end plate 7 of the burner and at each side of the burner are rods 18 connected in any suitable fashion to the sleeve 14, the outer end of each of these rods being provided with a handle 19. By grasping these handles the sleeve 14 can be moved in or out, as the case may be, so as to vary the opening 20 between the plate 7 and housing 1 through which the secondary air passes into the register provided by the vanes 6. The sleeve is locked in position by a thumb screw 21 provided at each of the bearings 17.

From the foregoing, therefore, it will be seen that the present invention provides an oil burn-

ing apparatus equipped with adjustable vanes or deflectors constituting an air register for controlling admission of secondary air to the burner, the sleeve 14 which is adapted to be moved longitudinally of the burner being capable of varying the volume of air entering the register and hence the amount of secondary air admitted to the combustion chamber 13 without, however, necessitating alteration in the setting of the register vanes 6.

It is to be understood that changes may be made in details of construction above described within the purview of this invention.

What is claimed is:—

1. Oil burning apparatus comprising in combination an open ended burner housing provided with a peripheral outwardly extending annular flange, spaced ribs on the exterior of said housing, a burner within said housing, a sleeve surrounding the housing and supported by said flange and said ribs, a wall spaced outwardly from the open outer end of said housing, an air register comprising angularly disposed adjustable blades in said space, and rods connected to said sleeve and passing through said wall and having a bearing therein, said rods being adjustable from the outer side of said wall to move said sleeve relatively to said housing and burner to vary the volume of air admitted to said register without varying the setting of said register.

2. Oil burning apparatus comprising in com-

bination an open ended burner housing, a burner within said housing, a wall spaced from the open outer end of said housing, an air register comprising angularly disposed deflector blades in said space for controlling the admission of air to the outer end of the housing, means for varying the angularity of said blades to vary the movement and volume of air passing to said burner past said blades, a sleeve surrounding the register and supported by the housing, and means operative from the outer side of said wall for moving said sleeve lengthwise of said housing relatively to said register and burner to effect further variation in the volume of air passing through the register without varying the setting or angular disposition of the deflector blades.

3. Oil burning apparatus comprising in combination a burner housing, a burner mounted in fixed relation to said housing, an air register comprising angularly disposed air vanes mounted in axial alignment with said housing at the open rear end of the same, means for varying the angularity of said vanes to vary the movement and volume of air passing to said housing past said air vanes, and a sleeve surrounding said register and adjustable longitudinally of the housing and burner for effecting further variation in the volume of the air admitted to the burner housing through said register without varying the setting of said vanes.

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