J. T. VOORHEIS.

AIR REGULATING DEVICE FOR OIL BURNERS.

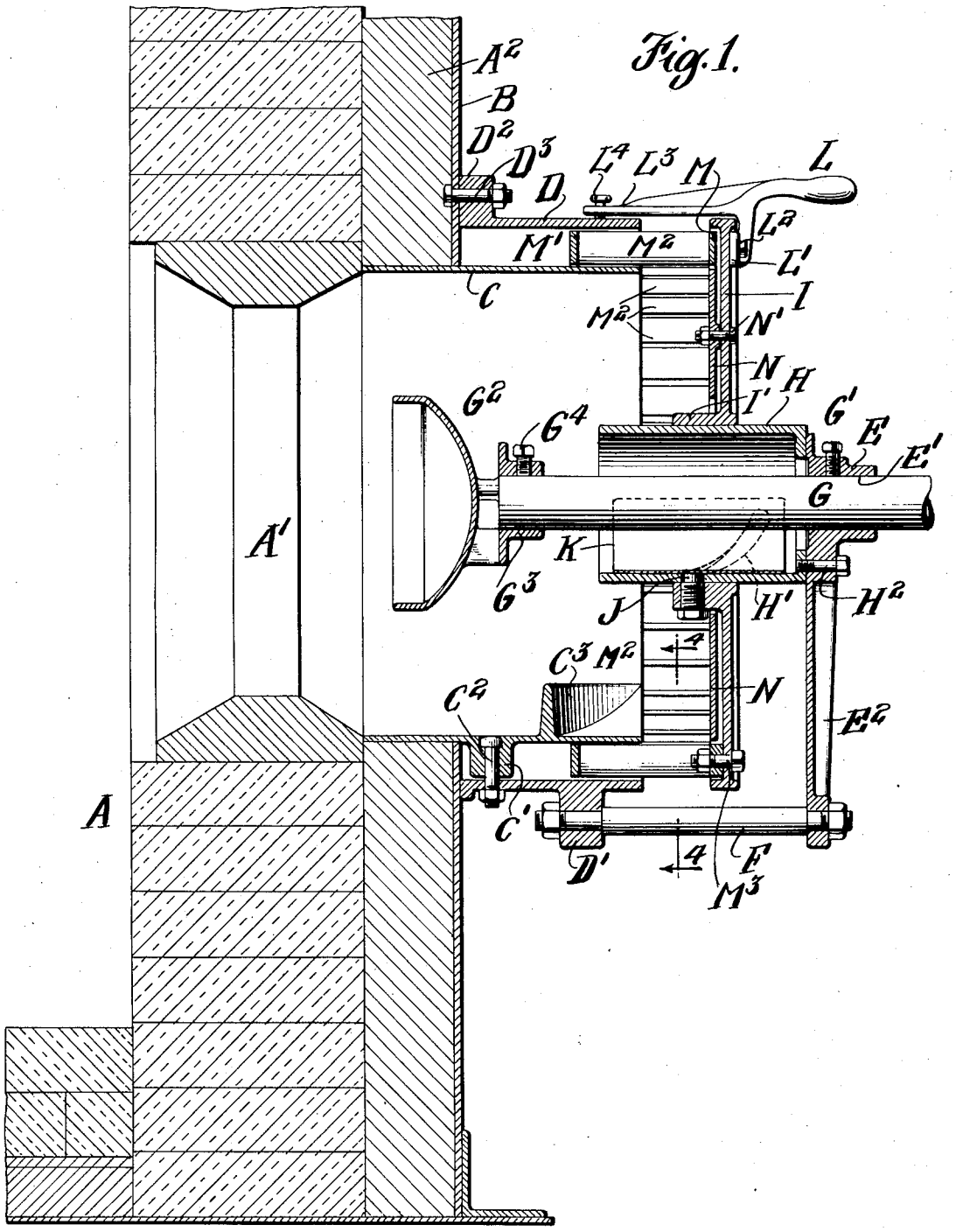
APPLICATION FILED OCT. 9, 1919.

1,329,279.

Patented Jan. 27, 1920.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESS:

Gustav Genzlinger.

INVENTOR

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2 SHEETS—SHEET 2.

Fig. 2.

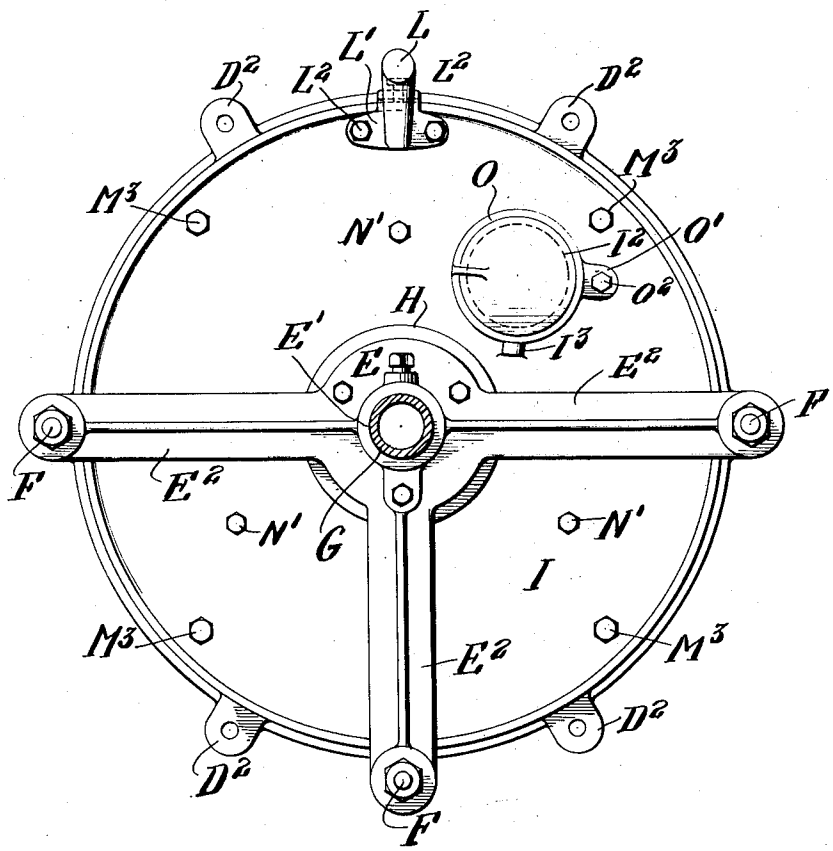


Fig. 4.

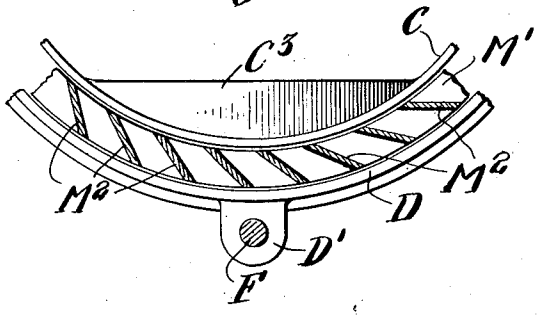
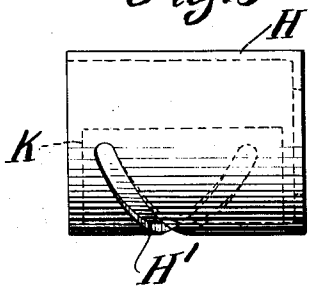


Fig. 3



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JOSEPH T. VOORHEIS, OF PHILADELPHIA, PENNSYLVANIA.

AIR-REGULATING DEVICE FOR OIL-BURNERS.

1,329,279. Specification of Letters Patent. Patented Jan. 27, 1920.

Application filed October 9, 1919. Serial No. 329,573.

To all whom it may concern:

Be it known that I, JOSEPH T. VOORHEIS, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Air-Regulating Devices for Oil-Burners, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to oil burning apparatus for furnaces, and particularly to the means for regulating the air supply to the oil burners, the object of my invention being to provide means by which the amount of air admitted to any particular burner can be regulated and with the least possible derangement of such circular motion as it may be deemed advisable to give to the air supply.

The nature of my improvements will be best understood as described in connection with the drawings in which they are illustrated and in which—

Figure 1 is a vertical sectional elevation taken through an oil admission port in a furnace wall and through the air regulating mechanism connected therewith.

Fig. 2 is an end view of the burner appliance shown in Fig. 1.

Fig. 3 is a side elevation of the pivotal support for the regulating head and vanes, and

Fig. 4 a fragmentary view of the section line 4—4 of Fig. 1.

A indicates the furnace, A′ the port through the furnace wall through which the oil and air enters A^2 the facing wall for the furnace and B an iron sheathing furnace facing wall. C is the casing, preferably cylindrical in form, set into the facing wall of the furnace, as shown, and extending inward therein. The casing is preferably formed with a number of spacing lugs extending radially from it as indicated at C′, and is also preferably formed with a dam C^3 extending across its lower portion, and, by preference, obliquely inclined, as shown, so as to interfere as little as possible with the air current admitted to the end of the casing. D is an outer casing cylindrically arranged about the casing C, so as to form an annular chamber between the two casings. This casing is formed with a series of radially extending lugs indicated at D′ and another set of lugs indicated at D^2, which, as shown, abut against the face plate B and give passage to the bolts D^3, which hold the casing D in place. The casing D is further held in place by bolts C^2 passing through the spacing lugs C′, which serve not only to support the casing D but to center it with respect to the casing C. E is a hub having a central perforation indicated at E′ and a series of radially extending arms E^2, the ends of which are attached to bolts F secured to the lugs D′, as shown, so as to hold the hub centrally disposed with reference to the casings. G is the oil burner pipe passing through the perforation E′ in the hub and held in place by a set screw as indicated at G′. At the end of this pipe is secured the baffle G^2, held in place at the end of the pipe G by hub G^3 and set screw G^4. H is a pivotal support made in the form of a cylinder and secured to the hub E by screws as indicated at H^2. The cylinder H is formed with a cam groove H′ which is most conveniently cut entirely through its wall and covered on the inside by a plate as indicated at K. I is a head plate extending from a cylindrical hub I′ which fits on the pivot cylinder H. J is a finger extending from the cylindrical hub I′ into the cam groove H′. L is a handle attached to the head plate I by means of a bracket L′ and bolts L^2, said handle being formed with an inwardly projecting extension L^3, which laps over the outer casing D and is provided with a thumb screw L^4. M and M′ are annular rings between which extend air directing vanes M^2. The ring M is applied to the head plate I as by bolts M^3, and the ring M′ and inward portion of the vanes M^2 extend into the annular space between the casing C and D, as shown. N is a facing plate secured on the inside of the head I as by bolts N′.

I^2, indicated in dotted lines in Fig. 2, is a sight hole or torch door formed through the head I and facing plate N, and normally covered by a pivot door O, pivotally secured to a bolt O^2 by a lug O′ and normally resting on a stop I^3.

The parts of the apparatus are essentially as shown in the drawings, and it will be obvious that by rotating the head plate I on the pivot cylinder H the engagement of the finger J with the cam groove H′ will cause the face plate and its attached vanes to move toward or away from the ends of the casings C and D, in accordance with the direc-

tion of rotation. This motion of the end plate will shorten or eliminate the exposed portion of the vanes M^2 affording a known means for regulating the admission of air and without affecting the rotary motion given to the entering air by the vanes. The end plate is located in any desired position by means of the thumb screw L^4.

It will be seen that the dam C^3 will prevent the escape of oil accumulating in the bottom of the casing C outwardly and by giving this dam the oblique setting indicated in the drawings it will not interfere with the radial motion of the air in the casing.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. Air regulating means for oil burners consisting of a casing surrounding the burner, in combination with an end closing head for said casing, a series of air directing vanes secured to said head and extending from it so as to overlap the casing, and means for moving the head and attached vanes toward and away from the casing.

2. Air regulating means for oil burners consisting of a cylindrical casing surrounding the burner, in combination with an end closing head for said casing, a series of air directing vanes secured to said head and extending from it so as to overlap the casing, a pivotal support for the head and means acting to advance and retract the head as it is rotated in one direction or the other.

3. Air regulating means for oil burners consisting of a casing surrounding the burners, in combination with an outer casing inclosing the first and forming therewith a chamber open at its outer end, an end closing head for the casing, a series of air directing vanes attached to said head and extending into the chamber formed between the two casings, and means for moving the head and attached vanes toward and away from the end of the casing.

4. Air regulating means for oil burners consisting of a cylindrical casing surrounding the burners, in combination with an outer cylindrical casing inclosing the first and forming therewith an annular chamber open at its outer end, an end closing head for the casing, a series of air directing vanes attached to said head and extending into the chamber formed between the two casings, a pivotal support for the head and means acting to advance and retract the head as it is rotated in one direction or the other.

5. Air regulating means for oil burners consisting of a cylindrical casing surrounding the burners, in combination with an outer cylindrical casing inclosing the first and forming therewith an annular chamber open at its outer end, an end closing head for the casing, a series of air directing vanes attached to said head and extending into the chamber formed between the two casings, a cam grooved pivotal support for the head on which said head can move rotatively and laterally, and a cam engaging finger extending from the head into the cam groove whereby the head is caused to move laterally when rotated on said support.

6. Air regulating means for oil burners consisting of a cylindrical casing surrounding the burners, in combination with an outer cylindrical casing inclosing the first and forming therewith an annular chamber open at its outer end, an end closing head for the casing, a series of air directing vanes attached to said head and extending into the chamber formed between the two casings, a cam grooved pivotal support for the head on which said head can move rotatively and laterally, a cam engaging finger extending from the head into the cam groove whereby the head is caused to move laterally when rotated on said support, and means for locking the head in any desired position.

7. Air regulating means for oil burners consisting of a casing surrounding the burner and formed with an obliquely set dam at its bottom, in combination with an end closing head for said casing, a series of air directing vanes secured to said head and extending from it so as to overlap the casing, and means for moving the head and attached vanes toward and away from the casing.

JOSEPH T. VOORHEIS.