

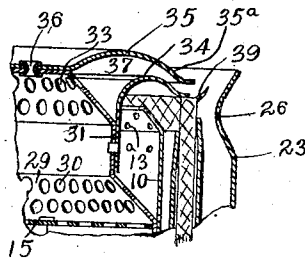
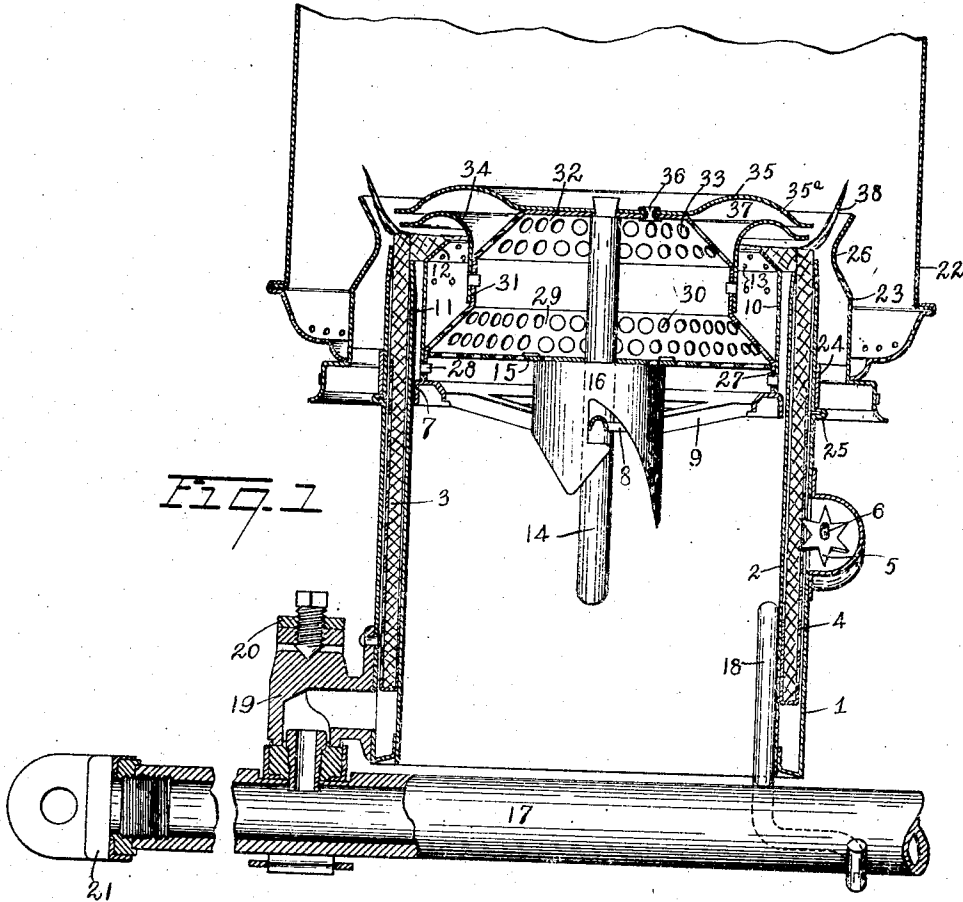
W. R. JEA VONS.

OIL BURNER.

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951,612.

Patented Mar. 8, 1910.



Witnesses:
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Fig. 2
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UNITED STATES PATENT OFFICE.

WILLIAM R. JEAVONS, OF CLEVELAND, OHIO.

OIL-BURNER.

951,612.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed December 12, 1908. Serial No. 467,205.

To all whom it may concern:

Be it known that I, WILLIAM R. JEAVONS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Oil-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 This invention relates to burners for oil stoves, and more particularly to burners of the type wherein a blue flame is produced from a wick without the provision of perforated commingling tubes.

15 The general object of the invention is to promote the safety and efficiency of burners of the above type in particulars to be described hereinafter.

20 Generally speaking, the invention may be defined as consisting of the combinations of elements embodied in the claims hereto annexed and illustrated, in one exemplification, in the drawings forming part hereof, wherein—

25 Figure 1 represents a vertical sectional view taken through a burner constructed in accordance with my invention, certain parts being shown in elevation; and Fig. 2 represents a detail of the upper end of the burner showing the conditions which exist when the wick is in its most elevated position.

30 Describing the parts by reference numerals, 1 represents the outer and 2 the inner wick tube of an oil burner; 3 denotes the wick within said tubes, said wick being provided with a carrier 4 adapted to be engaged by the star wheel 5 on an inclined shaft 6. Within the inner wick tube there is located a centering device for the spreader 40 comprising an outer ring 7, an inner ring 8, and spider arms 9 connecting said rings.

10 denotes an upwardly projecting ring which is secured at its lower end to a portion of the air deflector and forms within 45 the inner wick tube an annular chamber 11. At its upper end, ring 10 is provided with an inwardly-bent portion 12, forming an air barrier which extends above the inner wick tube, and said ring may be provided with perforations 13 in the body portion thereof as well as in the flared portion 12. A spindle 14 is provided to which the upper 50 ends of the spreader and air deflector are secured, said spindle extending through the inner ring 8 of the centering device.

15 denotes a freely-perforated plate which extends across the bottom of the air deflector and carries the automatic locking device 16 which is adapted to engage the arms 8 in the manner shown and described in my Patent No. 875,913, issued November 19, 1907.

17 denotes the burner supply pipe to which the burner is connected by means of a hook 18 and an outwardly projecting connection 19 to which there is applied a strap 20, in the manner shown, described and claimed in my application No. 462,775 filed November 10, 1908. At its ends the burner supply pipe is provided with a plug 21 70 which forms with the pipe a tight joint in the manner described and claimed in my aforesaid application.

22 denotes a drum which is carried by the lower end portion of a collar 23, which collar surrounds the upper end of the outer wick tube and is conveniently supported therefrom by means of projections 24 carried by the collar and engaging a ledge 25 formed on the outer wick tube. It will be 80 observed that the collar 23 is contracted between the ends thereof, as shown at 26, and that it flares outwardly above and below such contracted portion, for the purpose of supplying air to the flame in an efficient 85 manner and particularly to prevent such vibrations of the flame as will cause a disagreeable humming, as set forth in my application No. 430,432 filed May 2nd, 1908. It will be observed also that the upper end of 90 the outer wick tube terminates a short distance below the most contracted portion of collar 26 and that the upper end of the inner wick tube is considerably lower than the upper end of the outer wick tube. It will 95 also be observed from Fig. 1, wherein the parts are shown in the positions which they occupy during the normal operation of my burner, with a full, blue flame, that the upper end of the wick normally projects to 100 about the height of the most contracted portion of the collar 23.

It frequently happens that persons operating stoves of the character shown herein will, while intending to turn the wick down, 105 turn it up until it engages the spreader, further movement of the wick being prevented by the fact that the spreader is locked or anchored by the engagement of member 16 with the arms 9. When the wick is 110

lighted prior to bringing the same in contact with the spreader, there is a tendency for the flame ascending from the outer top edge of the wick to curl over on top of the spreader and heat the same, and this heat, being conducted downwardly to the wick tubes, increases the vaporization from the wick. The provision of apertures within the outer periphery of the spreader tends to prevent this action, but is not always adequate for the purpose, especially as vaporization is occurring on the inner exposed surface of the wick to supply the flame below the spreader and within the inner wick tube. This interior flame also increases the vaporization from the wick, and it sometimes happens that the vaporization of oil proceeds so vigorously that an excessive flame is produced which endangers the house or apartment within which the stove may be located. By the particular construction of air distributor disclosed herein I am enabled to prevent this extremely undesirable occurrence.

Referring now to the drawings, the air distributor, to which I have referred above, comprises a perforated support connected at its lower end to the ring 10 and serving as a support for two spreaders. The lower end of the support is provided with a vertical flange 27 which is connected to the said ring 10 by fastenings 28. Above the vertical flange, the support is provided with a frusto-conical portion 29 provided with perforations 30 for the free admission of air to the interior of the ring 10 and the interior of the upper portion of the inner wick tube.

Above the portion 29, the support is provided with a vertical extension 31 and above such vertical extension 31 it is provided with another frusto-conical portion 32 provided with perforations 33. In the ring 10 and the top of the inner wick tube there is located an air deflector. The upper portion of this deflector comprises a spreader 34, having its outer edge or periphery extending above the top of the wick 3. The lower portion of this deflector projects downwardly below the air barrier formed at the top of the ring 10 and is connected with the vertical portion 31 of the support, as shown in the drawings. The outer edge of spreader 34 is preferably between the inner and the outer periphery of the wick 3.

35 denotes an upper spreader which is secured to the top of the air distributor by means of hollow rivets or eyelets 36 and is provided within its outer periphery with perforations 35^a. The spreader 35 is spaced from spreader 34 and preferably projects outwardly a short distance beyond the edge of the spreader 34, forming therewith a chamber 37 communicating at its inner end with the interior of the burner through the perforations 33 and adapted to discharge

air from the interior of the burner into the flame produced at the wick. This chamber is of greater width at the inner or inlet end thereof than at the outer end.

Under normal conditions, the burner will operate with the parts in the positions shown in Fig. 1. The upper edge of the wick will be located below the outer edge of spreader 34 and air will be directed into the flame below the spreader 34. The flame will extend from the top and from the inner side of the wick, there being no flame at the outer surface of the wick, and a large proportion of the flame will pass below the spreader 34 and between the same and the wick. The combustion at the inner surface of the wick is maintained by the supply of air through perforations 30 into the space formed within the upper portion of the inner wick tube and below the spreader 34, the air barrier preventing the flame from being swept away from the inner surface of the wick.

When the wick is turned up to full height, as shown in Fig. 2, the upper and inner edge of the wick engages the outer edge of the spreader 34. The circulation of air into the chamber formed on the inside of the upper end of the wick is stopped, as the deflector including that portion of the spreader 34 which projects inwardly from the top of the wick is imperforate and no passageway is provided for the upward escape of air from said chamber. It is, therefore, impossible for combustion of the vapors at the upper inner end of the wick to exist for any appreciable length of time. Furthermore, as all the air from the interior of the burner now flows through the contracted passageway formed between the spreaders 34 and 35, this air impinges against the flame which extends from the outer top edge of the wick, and, if it does not blow out the flame, keeps it down to an extremely low height, as indicated at 39, in Fig. 2, the air flowing between the restricted portion of the collar 23 and the outer surface of the wick preventing the formation of flame at the outer surface of the wick at this time as well as during normal conditions. The height of the flame now is not only insufficient to produce any harmful result but, on the other hand, serves as a sort of pilot flame to light the burner when the operator turns the wick down to normal position.

With the construction and arrangement of parts as illustrated and described herein, it will be impossible for an operator, in attempting to extinguish the burner by turning the wick up instead of down, to endanger the stove or the apartment within which the same may be located. This result is secured in a construction which is exceedingly simple and which has proven to be of marked efficiency.

Having thus described my invention, what I claim is:

1. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, an air deflector, said deflector comprising a supporting member within the upper end of the inner wick tube, said supporting member having two vertically spaced perforated frusto-conical portions, a spreader secured to said support above one of such perforated portions and extending above the top of the wick and normally spaced therefrom, and a second spreader secured to said support above the upper perforated portion thereof and extending above the top of the wick and forming with the first mentioned spreader a passageway for air.

2. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, and an air deflector within the inner wick tube, said deflector comprising a supporting member having two frusto-conical perforated portions, one located above the other, with a vertical connecting portion therebetween, a spreader having its lower end secured to such connecting portion and extending outwardly above the top of the wick and normally spaced therefrom, and a second spreader secured to said support above the second frusto-conical portion thereof and extending above the wick and forming with the first-mentioned spreader a passageway for air from the interior of the burner.

3. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, an air barrier for said wick located within the inner wick tube and having its top extending above and spaced from the top of the inner wick tube, and a deflector having a portion extending outwardly over the wick and a portion extending downwardly within the air barrier and spaced from the air barrier to form an air passageway therebetween, the deflector being adapted, when engaged by the top of the wick, to form an unventilated space or chamber extending about the interior of the top of the wick.

4. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, an air barrier for said wick located within the inner wick tube and having its top extending above and spaced from the

top of the inner wick tube, a deflector having a portion extending outwardly over the wick and a portion extending downwardly within the air barrier and spaced from the air barrier to form an air passageway therebetween, and a second deflector above the first mentioned deflector and forming therewith a passageway through which air from the interior of the inner wick tube may be discharged laterally above the outer edge of the lower deflector.

5. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, an air barrier for said wick located within the inner wick tube and having its top extending above and spaced from the top of the inner wick tube, a deflector having a portion extending outwardly over the wick and a portion extending downwardly within the air barrier and spaced from the air barrier to form an air passageway therebetween, the deflector being adapted, when engaged by the top of the wick, to form an unventilated space or chamber extending about the interior of the top of the wick, and a second deflector above the first mentioned deflector and forming therewith a passageway through which air from the interior of the inner wick tube may be discharged laterally above the outer edge of the lower deflector.

6. In an oil burner, the combination of inner and outer wick tubes, a wick therebetween, an air barrier for said wick located within the inner wick tube and having its top extending above and spaced from the top of the inner wick tube, a deflector having a portion extending outwardly over the wick and a portion extending downwardly within the air barrier and spaced from the air barrier to form an air passageway therebetween, and a second deflector above the first mentioned deflector and forming therewith a passageway through which air from the interior of the inner wick tube may be discharged laterally above the outer edge of the lower deflector, the second deflector being provided with perforations.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

WILLIAM R. JEAUVONS.

Witnesses:

J. B. HULL,
BRENNAN B. WEST.