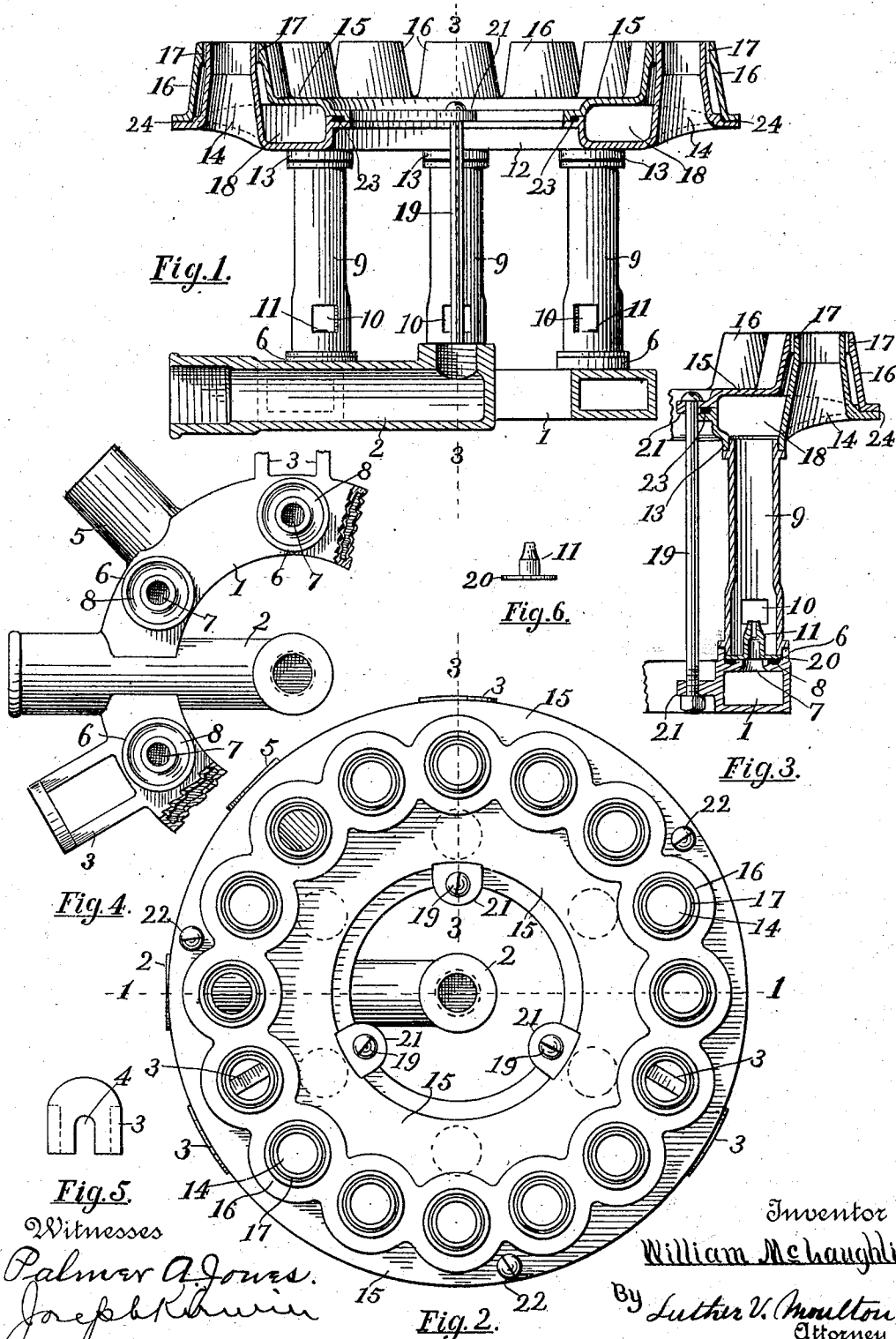


No. 800,316.

PATENTED SEPT. 26, 1905.

W. McLAUGHLIN.
GAS BURNER.

APPLICATION FILED JUNE 21, 1904.



Witnesses
Palmer A. Jones.
Joseph K. Kuhn

Inventor
William McLaughlin
By Luther V. Moulton
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM McLAUGHLIN, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO
RAPID HEATER COMPANY, LIMITED, OF GRAND RAPIDS, MICHIGAN,
A CORPORATION OF MICHIGAN.

GAS-BURNER.

No. 800,316.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM McLAUGHLIN, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in gas-burners, and more particularly to heating-burners adapted for use in instantaneous water-heaters of the character shown in Patent No. 759,607 to myself and James G. Hallas and dated May 10, 1904; and its object is to provide a device that can be constructed at small expense, with but little machinery and readily assembled and to provide the device with various new and useful features herein-after more fully described, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of a device embodying my invention, taken on the line 1 1 of Fig. 2; Fig. 2, a plan view of the same; Fig. 3, a detail in section at right angles to Fig. 1, taken on the line 3 3 of Figs. 1 and 2; Fig. 4, a detail of a portion of the gas-ring and water-tube; Fig. 5, an end view of one of the lugs to support the gas-ring, and Fig. 6 a detail of one of the gas-nipples.

Like numerals refer to like parts in all of the figures.

1 represents a hollow ring to distribute gas to the various nipples and having means for attaching a gas-pipe, as at 5. This ring is provided with a radial passage 2 to admit water to a stand-pipe in the axis of the same and cast integral therewith. The ring is also provided with radial lugs 3, provided with recesses 4, whereby bolts can be inserted to support the ring in place within the case of the water-heater. In the upper side of the ring are a series of openings 7, surrounded by packing-grooves 8, which in turn are surrounded by suitable bosses 6, within which latter are inserted the lower ends of the mixing-tubes 9, beneath each of which is inserted the flange 20 of an upwardly-projecting nipple 11, through which nipple the gas is discharged into the axis of the mixing-tube. Any suitable packing is inserted in the groove 8 to

prevent escape of gas. 10 represents lateral openings in said tube to admit air, which becoming mixed with gas in the tube 9 is discharged into an annular chamber 18 in the burner-head of substantially the same radius as the gas-ring. This head is provided with openings opposite each mixing-tube and bosses 13 on its under side to surround and engage the upper ends of the mixing-tubes. This head also consists of two parts 12 and 15, forming the chamber 18, and extended radially therefrom is divided horizontally, as at 23 and 24, and the lower part in its radial extension is provided with upwardly-projecting tubes 14, through which air is supplied to the interior of the flames. The upper part 15 is provided with a corresponding series of upwardly-projecting tubes 16 of larger interior diameter than the outside of the tubes 14 and arranged concentric therewith, and these tubes 14 and 16 are so constructed at their upper ends that they present concentric parallel surfaces in close proximity to each other, leaving a narrow annular slit 17 therebetween and of sufficient vertical extent to prevent the fire from passing downward there-through.

In this device the gas-ring, the nipples, mixing-tubes, and portions 12 and 15 of the head are assembled as shown in the drawings and are secured in place by bolts 19, which extend through lugs 21, projecting inward on the respective ring 1 and upper plate 15, thus securely holding all the parts together by bolts that are easily and quickly removed or inserted, as occasion may require. The outer edges of the parts 12 and 15 are further secured to each other by means of suitable bolts 22 inserted therein. All of the openings for these bolts 19 and 22 can be molded in the castings without necessity for drilling of the same. Thus the only machining required is to tap the water-passage 2 and the pipe connection 5 and to manufacture the flanged nipples. The gas-ring and chamber 18 are of much less radius than the circle of burners, and thus require less material than if below the burners. The mixing-tubes being at one side of instead of beneath the burners and the flow from the chamber 18 to the burners being radial instead of vertical secures more equal distribution of the mixture to the burners. I am thus able to produce a very satis-

factory burner at a very small cost and at the same time one that is easily kept in order or repaired.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an article of manufacture a gas-burner comprising a gas-ring and an annular distributing-chamber of substantially equal radius, mixing-tubes connecting the ring and chamber, a radial extension on said chamber and concentric burner-tubes on said extension.

2. As an article of manufacture a gas-burner comprising a gas-ring having top openings surrounded by packing-grooves and bosses, a burner-head formed of two separable plates, and having an annular chamber of the same radius as the gas-ring, openings and bosses in the lower plate, mixing-tubes and flanged nipples between the gas-ring and head, radial extensions of said plates, inner tubes in the extension of the lower plate outer tubes in the extension of the upper plate, lugs on the up-

per plate and gas-ring, and bolts connecting the lugs.

3. As an article of manufacture, a gas-burner for water-heaters, comprising a gas-ring, radial lugs on the ring and having recesses for bolts, a radial water-pipe in said ring, top openings in said ring, packing-grooves and bosses surrounding said openings, flanged nipples above said openings, mixing-tubes above the nipples, a bottom plate having openings and bosses to receive the mixing-tubes, upwardly-extended air-tubes in the radial extensions of the said plate, a top plate, also radially extended and having tubes surrounding the air-tubes and spaced apart therefrom, lugs on the top plate and gas-ring, and bolts connecting the lugs.

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

WILLIAM McLAUGHLIN.

Witnesses:

PALMER A. JONES,
LUTHER V. MOULTON.