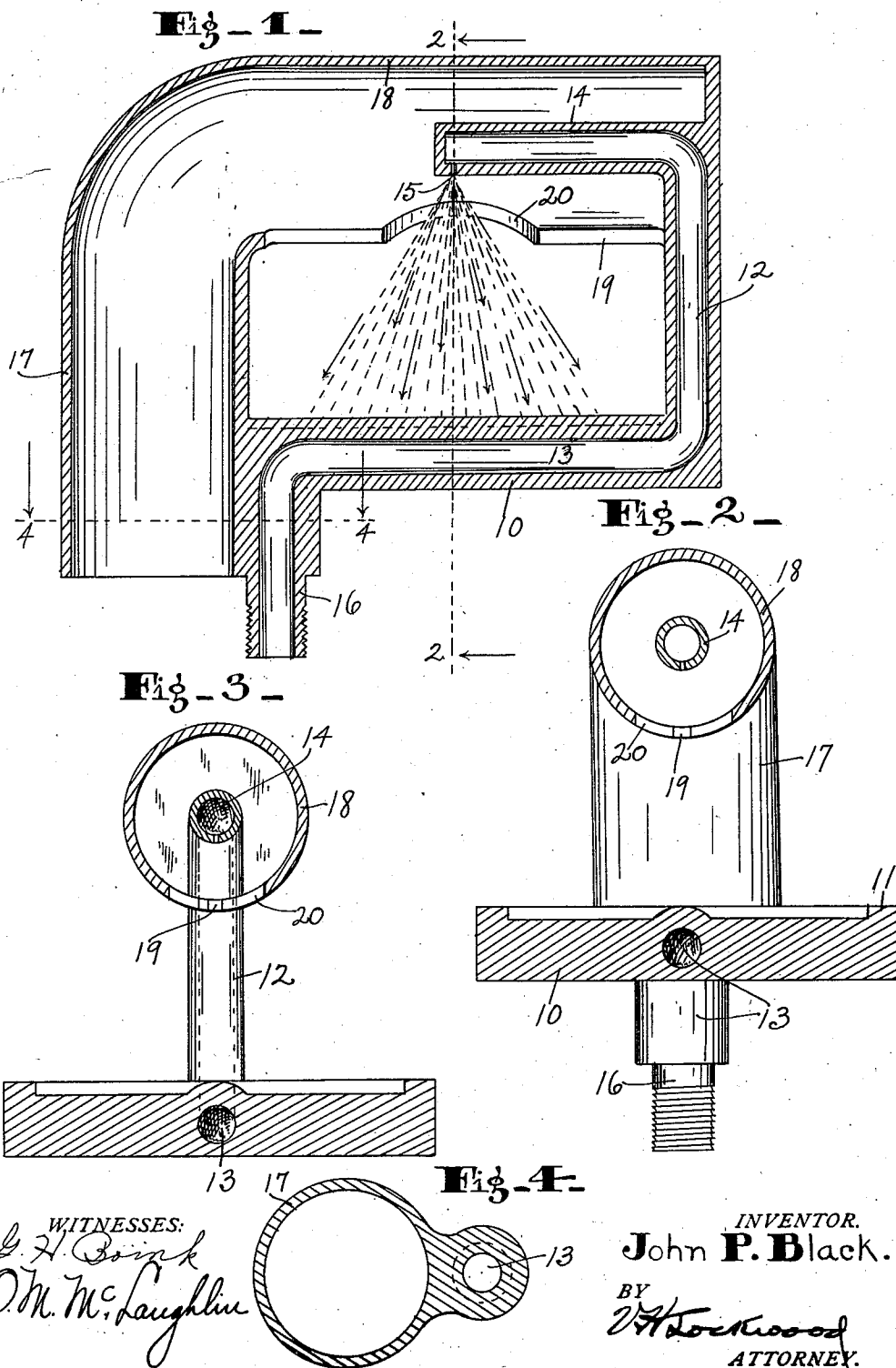


J. P. BLACK.
HYDROCARBON BURNER.
APPLICATION FILED OCT. 21, 1910.

1,019,124.

Patented Mar. 5, 1912.



UNITED STATES PATENT OFFICE.

JOHN P. BLACK, OF GREENFIELD, INDIANA, ASSIGNOR OF ONE-THIRD TO CHARLES P. DUNCAN AND ONE-THIRD TO DAVID H. BENTLEY, OF DEPUTY, INDIANA.

HYDROCARBON-BURNER.

1,019,124.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed October 21, 1910. Serial No. 588,281.

To all whom it may concern:

Be it known that I, JOHN P. BLACK, of Greenfield, county of Hancock, and State of Indiana, have invented a certain useful
5 Hydrocarbon-Burner; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

10 The object of this invention is to provide an efficient coal oil burner, one which may be made of only one single part, and therefore is simple and cheap to make, sell and operate.

15 The nature of the invention will be understood from the accompanying drawings and the following description and claim.

20 In the drawings Figure 1 is a central vertical longitudinal section through the device. Fig. 2 is a vertical transverse section on the line 2—2 of Fig. 1. Fig. 3 is a similar section looking in the opposite direction. Fig. 4 is a section on the line 4—4 of Fig. 1.

25 In the form herein shown the device is in one casting or piece, although it may be made in separate pieces placed or united together. There is a base 10 with an elevated bead 11 around the edge thereof on the upper side so as to leave a depression in
30 the upper surface of said base plate to receive and hold the drip at the starting of a fire. At one end of this base plate there is an upwardly extending arm 12, and a fuel passageway 13 extends horizontally through the base plate 10 and vertically through the arm 12 and also through
35 the nozzle 14 which projects horizontally from the upper end of the arm 12 to a point about midway over the base plate, and near its inner end there is a fuel outlet 15 on the underside so as to direct the flame downwardly. On the underside of the base plate there is a nipple 16 threaded so as to be
40 secured to a pipe for supplying the oil or other hydrocarbon fluid. The fuel conduit 13 extends preferably through a raised portion of the base plate, so that the fuel therein will be more effectively vaporized by the flame directed downwardly upon the base
50 plate.

At the other end of the base plate 10, opposite the arm 12, there is an air tube 17 vertically disposed and open at the lower

end and extending preferably below the base plate 10. From the upper end of said
55 air tube a chamber 18 extends horizontally over the base plate and surrounding the nozzle 14. There is a longitudinal slot 19 in the lower wall of said chamber and over the base plate, which at its central portion
60 is widened to form a substantially circular opening 20, which is immediately below the fuel outlet 15 from the nozzle.

The burner is started in the usual way by lighting an accumulation of oil in the
65 depression on the upper side of the base plate 10 and permitting the heat therefrom to heat the fuel in the conduit 13, so that it is converted into a gas when it issues through the fuel outlet 15. The gas thus
70 formed mixes with the air in the chamber which comes up through the flue 17, and the combined air and gas is combustible and makes the flame which issues in a large volume, first being directed downwardly
75 against the base plate and then curling up therefrom on each side of the chamber and extending usually above the chamber, so that the chamber is enveloped in flame and the base plate is always engaged by the flame,
80 and, therefore, fuel entering the conduit 13 is heated while passing through the horizontal portion of said conduit, which lies in said base plate.

Further advantages resulting from the
85 novel construction herein set forth are that since the entire structure is cast in one piece, there are no joints capable of coming loose or leaking as is true of burners made of parts
90 screwed or otherwise united together because of the tremendous heat to which they are subjected and the vast and sudden changes in temperature first from cold to
95 extremely hot and then from extremely hot to cold. For this reason the action of the device is uniform and unchangeable and it contributes largely to the complete combustion.

By turning the air intake downwardly, as indicated, and making the device as set
100 forth, it is adapted to be inserted in the furnace of a stove without boring any hole in the wall of the stove or doing anything to the stove. It sets on the furnace grate and since the air intake is below, it receives
105 air directly from the opening of the hearth

of the stove. To bore holes in stoves for equipping the same with a burner is impractical and injures the stove.

I claim as my invention:

- 5 A hydrocarbon burner consisting of a single piece including a horizontal base plate with an upwardly extending arm at one side thereof, a nozzle extending from said arm horizontally over the base plate,
10 said base plate, arm and nozzle being provided with a fuel conduit extending through them and discharging downwardly upon the base plate, a chamber over the base plate

surrounding the nozzle with an opening on the under side, and a vertical air tube extending up from the side of said base plate 15 opposite said arm and leading to said chamber from a point below the base plate, substantially as set forth.

In witness whereof, I have hereunto 20 affixed my signature in the presence of the witnesses herein named.

JOHN P. BLACK.

Witnesses:

O. M. McLAUGHLIN,
H. J. WELLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."