Jan. 23, 1951 J. L. BREESE 2,538,745

FLAME DIRECTOR FOR USE WITH AN OPEN END POT TYPE OIL BURNER

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Fig. 1

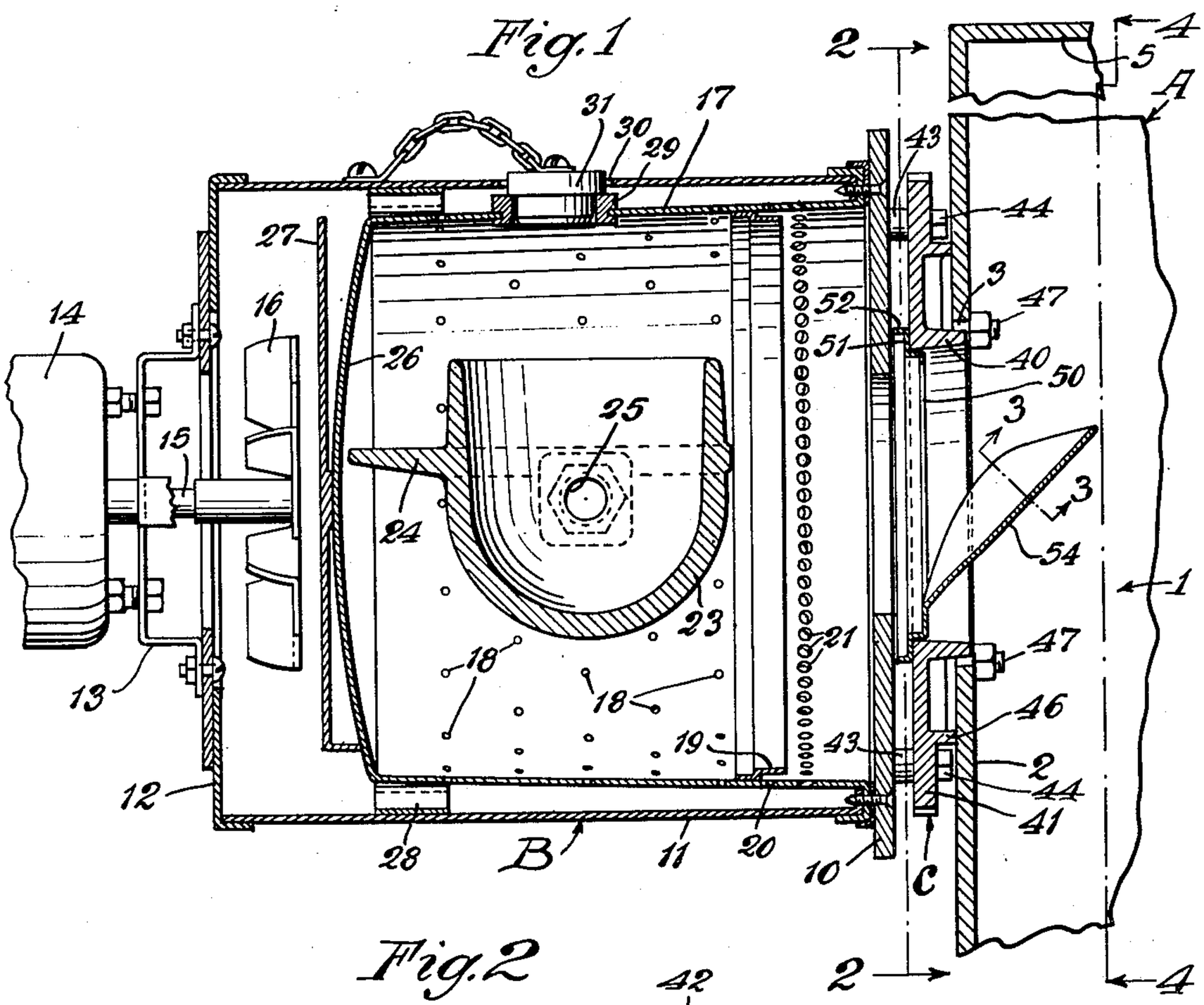

Fig. 2

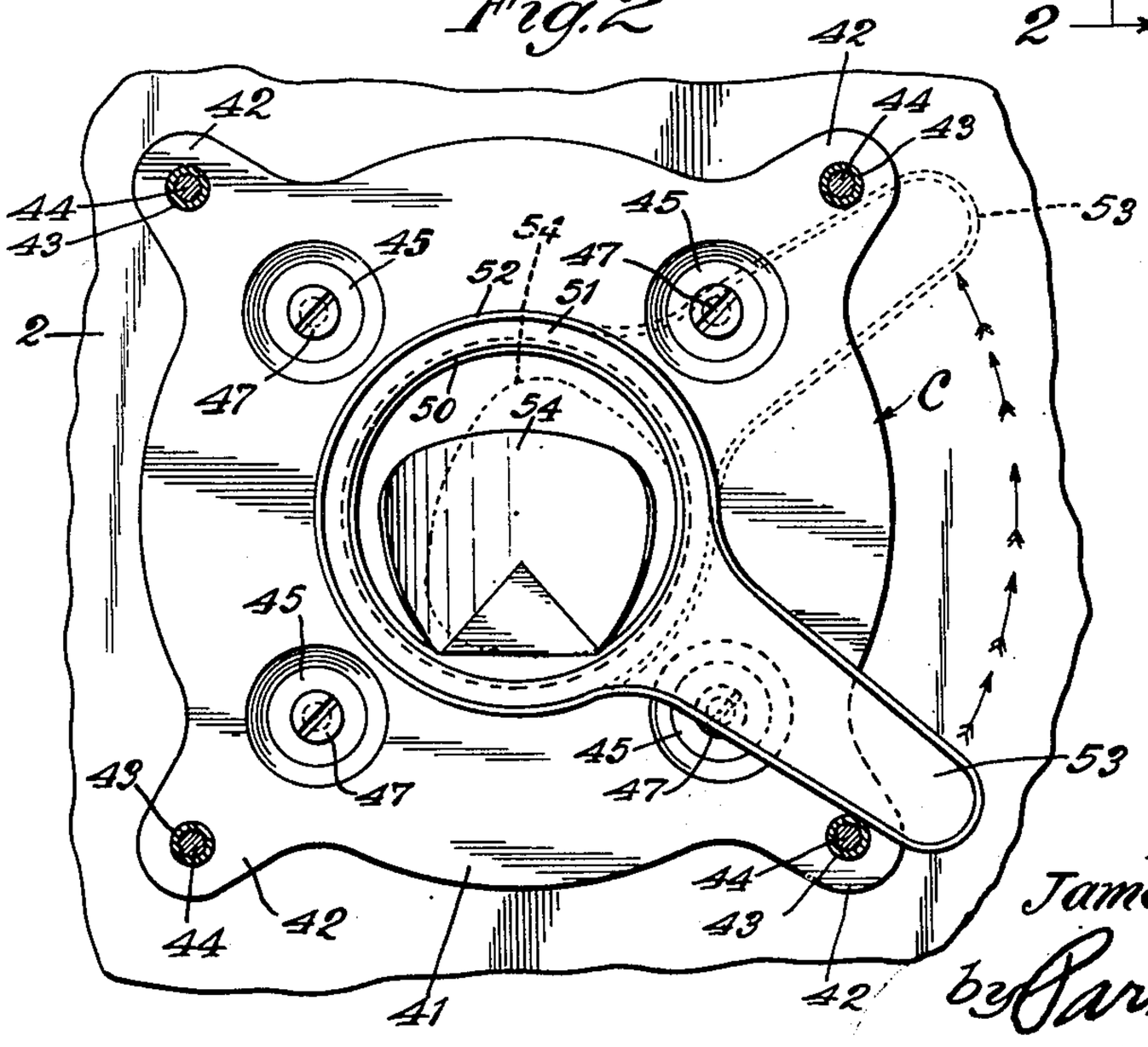

Fig. 3

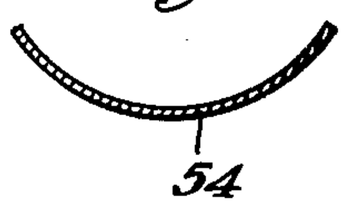

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Fig. 4

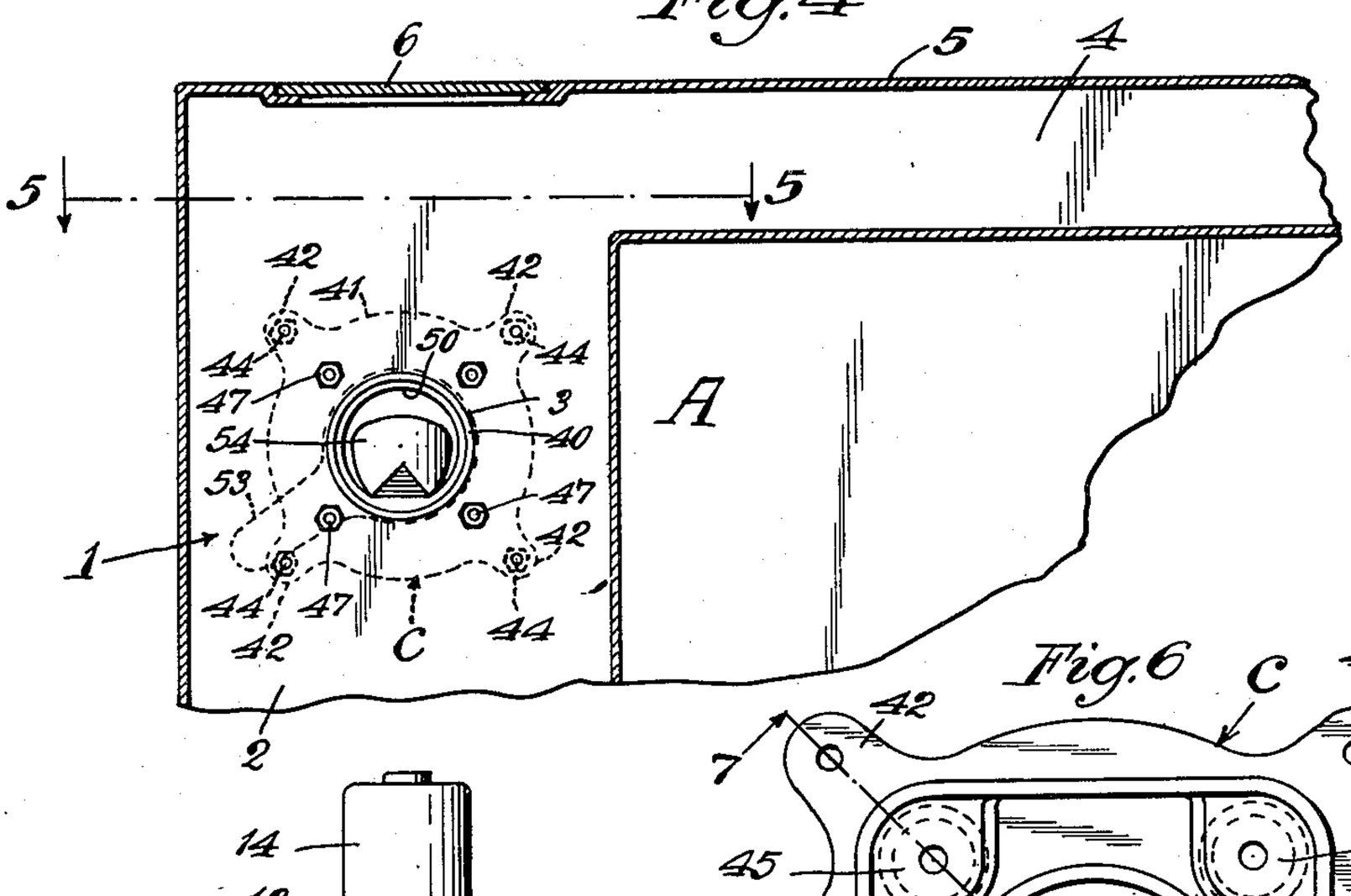

Fig. 5

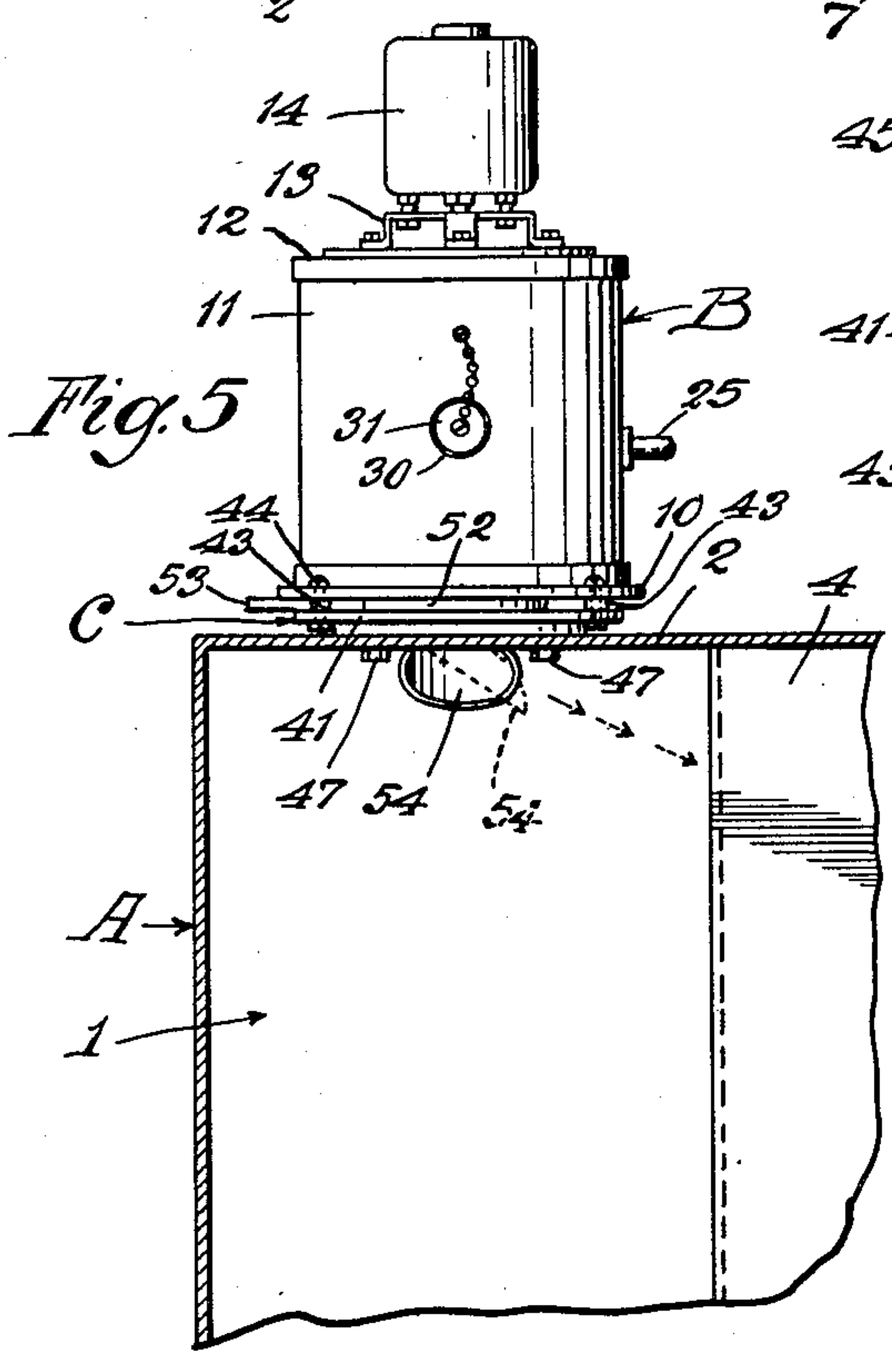

Fig. 6

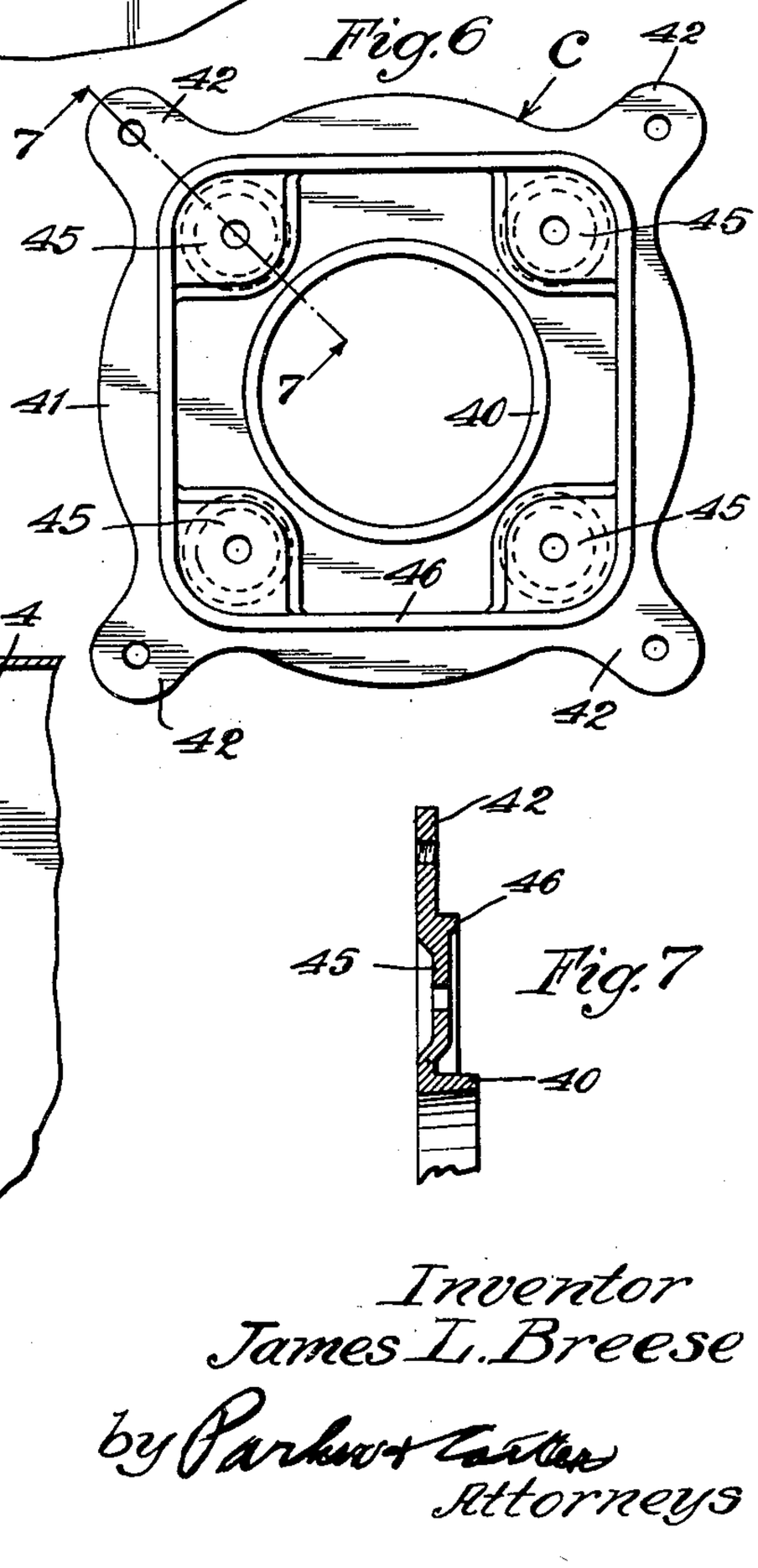

Fig. 7

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UNITED STATES PATENT OFFICE

2,538,745

FLAME DIRECTOR FOR USE WITH AN OPEN END POT TYPE OIL BURNER

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5 Claims. (Cl. 158—91)

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My invention relates to an improvement in liquid fuel burners and has particular application to flame directors for oil burners used in cook ranges.

One purpose is to provide means for varying the direction of delivery of flame from a pot type burner.

Another purpose is to provide means for varying the direction of delivery of flame in a burner used in a cook stove assembly.

Another purpose is to provide improved means for varying or controlling heat delivery to various parts of a stove or heating assembly.

Other purposes will appear from time to time in the course of the specification and claims.

My invention is illustrated more or less diagrammatically in the accompanying drawings wherein:

Figure 1 is a vertical section through the burner and associated parts;

Figure 2 is a section along the line 2—2 of Figure 1;

Figure 3 is a section along the line 3—3 of Figure 1;

Figure 4 is a section along the line 4—4 of Figure 1;

Figure 5 is a section along the line 5—5 of Figure 4;

Figure 6 is a side elevation of the supporting bracket looking from the side of the stove on which the bracket has been mounted; and

Figure 7 is a section along the line 7—7 of Figure 6.

Like parts are indicated by like characters throughout the specification and drawings.

A indicates a stove or range with which my burner is to be used. 1 indicates the combustion chamber which may have a grate of the usual coal or wood type, as the case may be. Combustion chamber is closed at the back by wall 2, apertured at 3. Combustion chamber also connects with a flue 4. 5 is the top of the stove having one or more removable lids 6 and on which pots and pans to be heated may be placed. The products of combustion circulate from the combustion chamber through the flue 4 or any other suitable manner to heat the stove.

The burner itself is generally indicated at B. The burner comprises an annular ring 10. This ring is accurately called the flame ring. Mounted on this ring is an outer cylindrical housing 11 having an apertured end 12. Mounted on this apertured end is a bracket 13 which carries a motor 14. The motor has a drive shaft 15 which carries a fan 16 contained within the housing 11.

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17 is the burner pot, is enclosed within the housing 11, is also mounted on the flame ring 10, and is partially closed as is the housing 11 by the flame ring 10. Disposed in the wall of the pot 17 are a plurality of primary air inlet apertures 18. They are located at various points therein and permit the entrance into the pot of air under pressure from the fan 16. 19 is a deflector ring encircling the inside of the pot between the primary air inlet apertures and the flame ring. 20, 21 are two parallel rows of secondary air inlet apertures more close'y spaced than are the primary apertures and the row 20 being in line with the deflector ring 19 so that air passing through the apertures 20 is guided by the deflector ring 19 to impinge upon the jets of air entering through the apertures 21. 23 is an oil cup. It is contained within the pot 17, is open at the top and provided with a heat conducting belt 24. Extending laterally in the pot 25 is an oil supply pipe which passes through the wall of the housing 11, the wall of the pot 17 and supports the cup 23 in place in the pot wall supplying fuel to the cup from any suitable control and supply means not here illustrated as they form no part of my invention.

The member 24 extends back from the cup 23 toward the closed end of the pot, the pot being closed at a preferably curved wall 26, conducting heat from the cup toward the closed end of the pot. 27 is a shield on the outside of the pot masking the fan 16 to protect it and the motor from the heat of the pot. 28 indicates brackets positioning the pot in the housing. 29 is a sleeve in the wall of the housing 17 in register with the aperture 30 in the housing 11, which is normally closed by a plug 31. The purpose of this is to provide access to the pot so that burner may be lighted.

The supporting bracket for the burner is indicated generally at C in Figure 6. This bracket comprises a central collar 40 adapted to penetrate the aperture 3. A flange 41 extends laterally from this collar 3 and is provided with a plurality of arms 42 which, by means of sleeves 43 and bolts 44, support the flame ring 10 spaced away from the flange 41. Screw seats 45 on the opposite side of the flange 41 defined by walls 46 rest against the wall 2 being held there-against by bolts 47 to hold the burner in register with the aperture 3.

Mounted in the sleeve 40 is a collar 50. This collar is outwardly flanged at 51 with an extension flange 52 largely bridging the gap between the flange 41 and the flame ring 10. A handle 53

extends outwardly from this flange beyond the burner so that the flange may be rotated. Extending inwardly from this flange through the aperture **3** into the combustion chamber is a deflector blade **54** integral with the flange **50**. This deflector blade is inclined to the axis of the pot, is curved as indicated in Figures 1 and 3, and may be adjusted in position rotating about the horizontal central axis of the pot by manipulating the handle **53**.

Without this deflector the flame passing through the flame ring from the pot into the combustion chamber in the stove would tend to continue to deliver along the pot axis. It frequently happens that the cook needs to have a special application of heat at some particular place on the stove and he always wants to have the top of the stove hotter than the lower portion, so if this deflector is left in the full line position, shown in Figures 1 and 5, the flame will be deflected upwardly against the upper surface of the top wall of the stove **5**, and deflected away from the lower portion of the stove, the grates and the like. However, it frequently happens that the cook wants to deflect the flame laterally and when he does, all he has to do is to rotate the deflector by manipulating the handle **53** so that the flame, for instance, goes in the general direction as the arrow shown in Figure 5. The handle as shown in Figure 2 is free to move through an angle of slightly less than 90° which gives ample space for such adjustment.

I claim:

1. For use with a pot type oil burner having an open end, a flame ring adapted to partially close the open end, a supporting ring parallel to and spaced from the flame ring, a rotatable ring supported between the flame and supporting rings, all three rings being concentrically apertured, the inner diameter of the flame ring being less than the inner diameter of the supporting ring, a flame deflector plate, extending diagonally, outwardly from one side of the supporting ring adapted to intersect the axis of the pot and the three rings.

2. For use with a pot type oil burner having an open end, a flame ring adapted to partially close the open end, a supporting ring parallel to and spaced from the flame ring, a rotatable ring supported between the flame and supporting rings, all three rings being concentrically apertured, the inner diameter of the flame ring being less than the inner diameter of the supporting ring, a flame deflector plate, extending diagonally, outwardly from one side of the supporting ring adapted to intersect the axis of the pot and the three rings, the effective cross-sectional area of the flame deflector plate projected on a plane perpendicular to the axis being less than the cross-sectional area of the aperture in the flame ring.

3. For use with pot type oil burner having an open end, a flame ring adapted to partially close the open end, a supporting ring parallel to and spaced from the flame ring, a rotatable ring supported between the flame and supporting rings, all three rings being concentrically apertured, the inner diameter of the flame ring being less than the inner diameter of the supporting ring, a flame deflector plate, extending diagonally, outwardly from one side of the supporting ring adapted to intersect the axis of the pot and the three rings, an adjusting handle extending outwardly from the rotating ring between the flame and supporting ring.

4. For use with a pot type oil burner having an open end, a flame ring adapted to partially close the open end, a supporting ring parallel to and spaced from the flame ring, a rotatable ring supported between the flame and supporting rings, all three rings being concentrically apertured, the inner diameter of the flame ring being less than the inner diameter of the supporting ring, a flame deflector plate, extending diagonally, outwardly from one side of the supporting ring adapted to intersect the axis of the pot and the three rings, the deflector plate being concave toward the burner.

5. For use with a pot type oil burner having an open end, a flame ring adapted to partially close the open end, a supporting ring parallel to and spaced from the flame ring, a rotatable ring supported between the flame and supporting rings, all three rings being concentrically apertured, the inner diameter of the flame ring being less than the inner diameter of the supporting ring, a flame deflector plate, extending diagonally, outwardly from one side of the supporting ring adapted to intersect the axis of the pot and the three rings, the effective cross-sectional area of the flame deflector plate projected on a plane perpendicular to the axis being less than the cross-sectional area of the aperture in the flame ring, the clearance between the projected area of the deflector and the aperture in the flame ring increasing from its connection with the flame ring toward the opposite side of the circle defined by the flame ring.

JAMES L. BREESE.

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