No. 754,112. PATENTED MAR. 8, 1904.

G. W. ARPER.

HYDROCARBON BURNER.

APPLICATION FILED DEC. 9, 1902.

NO MODEL.

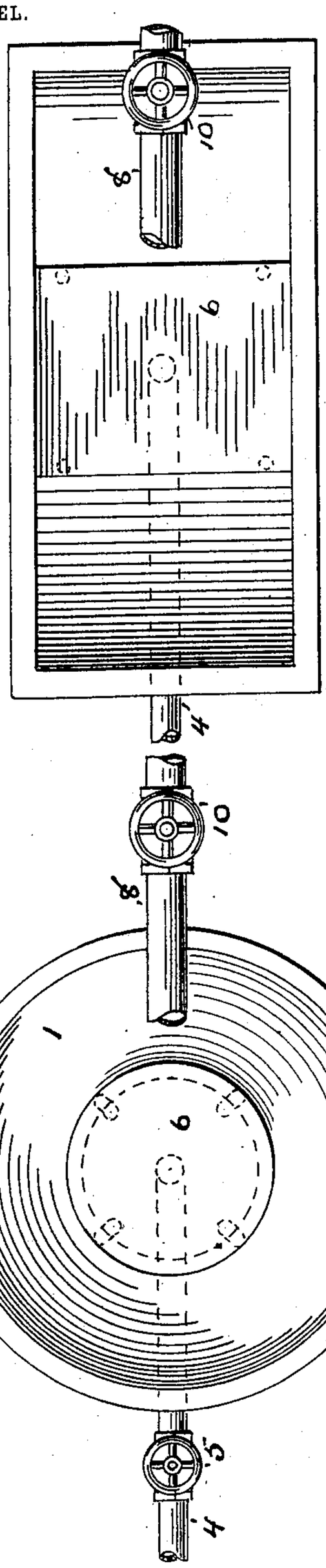

FIG. 4

FIG. 2

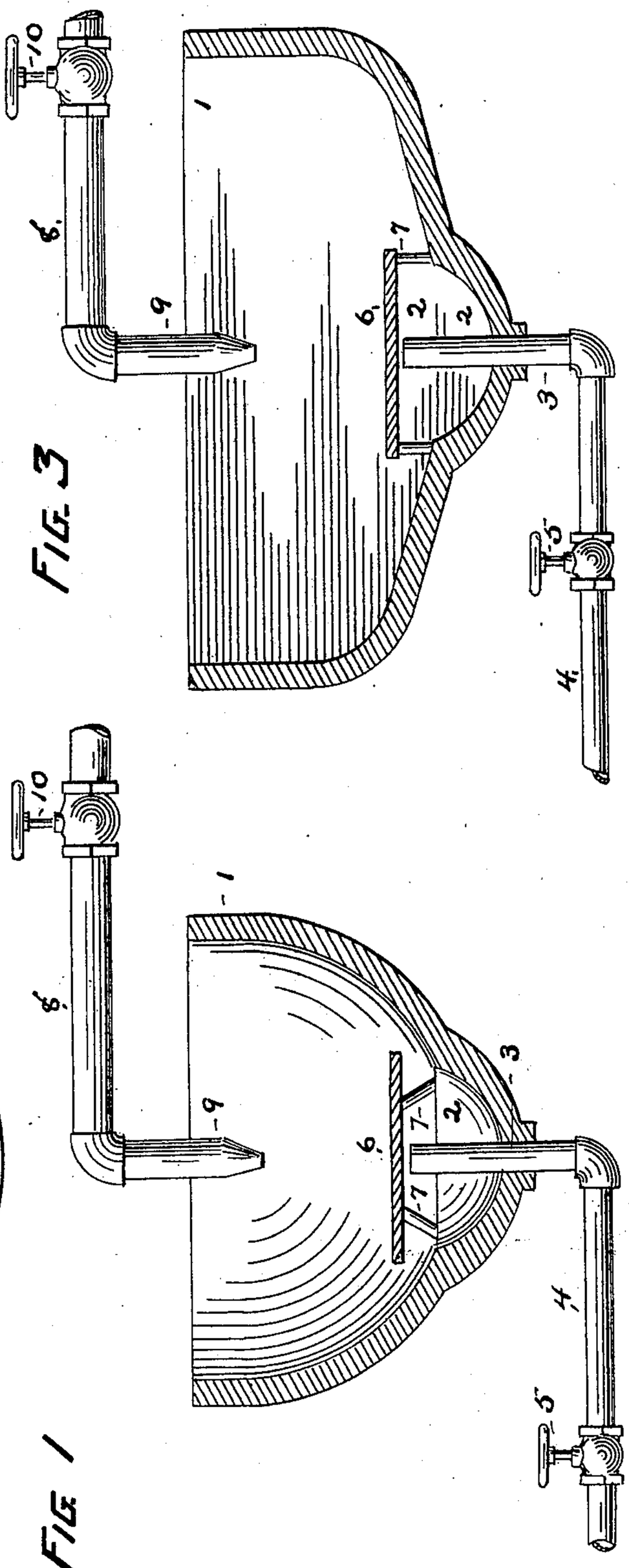

FIG. 3

FIG. 1

WITNESSES:

Walter F. Vance.

Leon Bolles

INVENTOR:

George W. Arper

by N. A. Acker

his atty.

No. 754,112. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

GEORGE W. ARPER, OF OAKLAND, CALIFORNIA.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 754,112, dated March 8, 1904.

Application filed December 9, 1902. Serial No. 134,482. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. ARPER, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do hereby declare the following to be a full, clear, and exact description of the same.

The present invention relates to an improved hydrocarbon-burner, designed more particularly for the burning of heavy or crude oil, the object being to provide for a perfect combustion of the hydrocarbon directly within the fire-pot of the burner by causing a jet of steam discharged therein to be broken and deflected into the flame of burning hydrocarbon.

To comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view of the fire-pot, disclosing the arrangement of the supply-pipe for the hydrocarbon steam-supply and the spreader for the jet of steam. Fig. 2 is a top plan view of the mechanism disclosed by Fig. 1 of the drawings. Fig. 3 is a view similar to Fig. 1 of the drawings, disclosing an irregular-shaped fire-pot; and Fig. 4 is a top plan view of the mechanism disclosed by Fig. 3 of the drawings.

The numeral 1 is used to indicate a fire pot or chamber, within the bottom portion of which is formed an oil-seat 2. Into the fire-pot 1 extends, through the bottom thereof, a pipe-section 3, which section connects with an oil-supply pipe 4. This pipe is provided with a regulating-valve 5, by means of which the flow of oil into the fire-pot is controlled. Within the fire-pot above the section 3 is arranged a spreader plate or disk 6, which in the present case is illustrated as being held a slight distance above the discharge end of pipe-section 3 by means of the depending legs or support 7.

The oil or hydrocarbon delivered to the fire-pot escapes from the upper end of pipe-section 3 and runs into the oil-seat 2 for ignition.

Steam is admitted to the fire-pot to procure proper combustion of the hydrocarbon through the steam-pipe 8. To the inner end of this pipe is attached the steam-nozzle 9, which is arranged to discharge a jet of steam onto the spreader or deflecting plate or disk 6. The steam striking against the plate or disk 6 is deflected or spread to the side wall of the fire-pot, intermixes with the flame of burning hydrocarbon, and intensifies the force of flame. By reason of the spreader plate or disk 6 a uniform distribution of the flame throughout the fire-pot results.

The shape of the fire-pot is immaterial. It may be of globular form, as shown in Figs. 1 and 2 of the drawings, or the same may be of irregular shape, with curved bottom, as shown in Figs. 3 and 4 of the drawings.

The admission of steam into the fire-pot is controlled by the regulating-valve 10.

Having thus described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. A hydrocarbon-burner comprising a fire-pot, a centrally-arranged oil-supply pipe communicating with the interior thereof, a deflector centrally arranged above the oil-feed, and spaced at its sides from the walls of the fire-pot forming an unobstructed passage thereabout, whereby an exit is formed for the vapor beyond the respective sides of the deflector, and a steam-pipe extending into the upper portion of the fire-box, the jet therefrom impinging centrally on the deflector under pressure and passing beyond the sides thereof to commingle with the oil.

2. A hydrocarbon-burner comprising a fire-pot, a deflector centrally arranged therein and spaced from the surrounding walls thereof, an oil-supply pipe communicating with the interior of the fire-pot at a point adjacent the under surface of the deflector intermediate its sides, and a steam-inlet pipe extending within the fire-pot at a point adjacent the upper surface of the deflector, the jet therefrom impinging on the deflector, and the deflector having an uninterrupted upper and lower surface, so as to afford no obstruction to the direct passage of the oil and steam beyond the edges thereof to become commingled.

3. A hydrocarbon-burner comprising a fire-pot, an oil-supply pipe passing through the bottom and communicating with the interior

thereof, a deflector arranged within the fire-pot and spaced from said oil-supply pipe and the surrounding wall of the burner by suitable leg-supports, and a steam-inlet pipe passing through the upper portion of the fire-pot to a point directly above said deflector, whereby the jet therefrom impinges on the deflector, said deflector being unobstructed at its sides, whereby the oil and steam may commingle beyond the opposite sides thereof.

In witness whereof I have hereunto set my hand.

GEORGE W. ARPER.

Witnesses:
N. A. ACKER,
D. B. RICHARDS.