

No. 762,987.

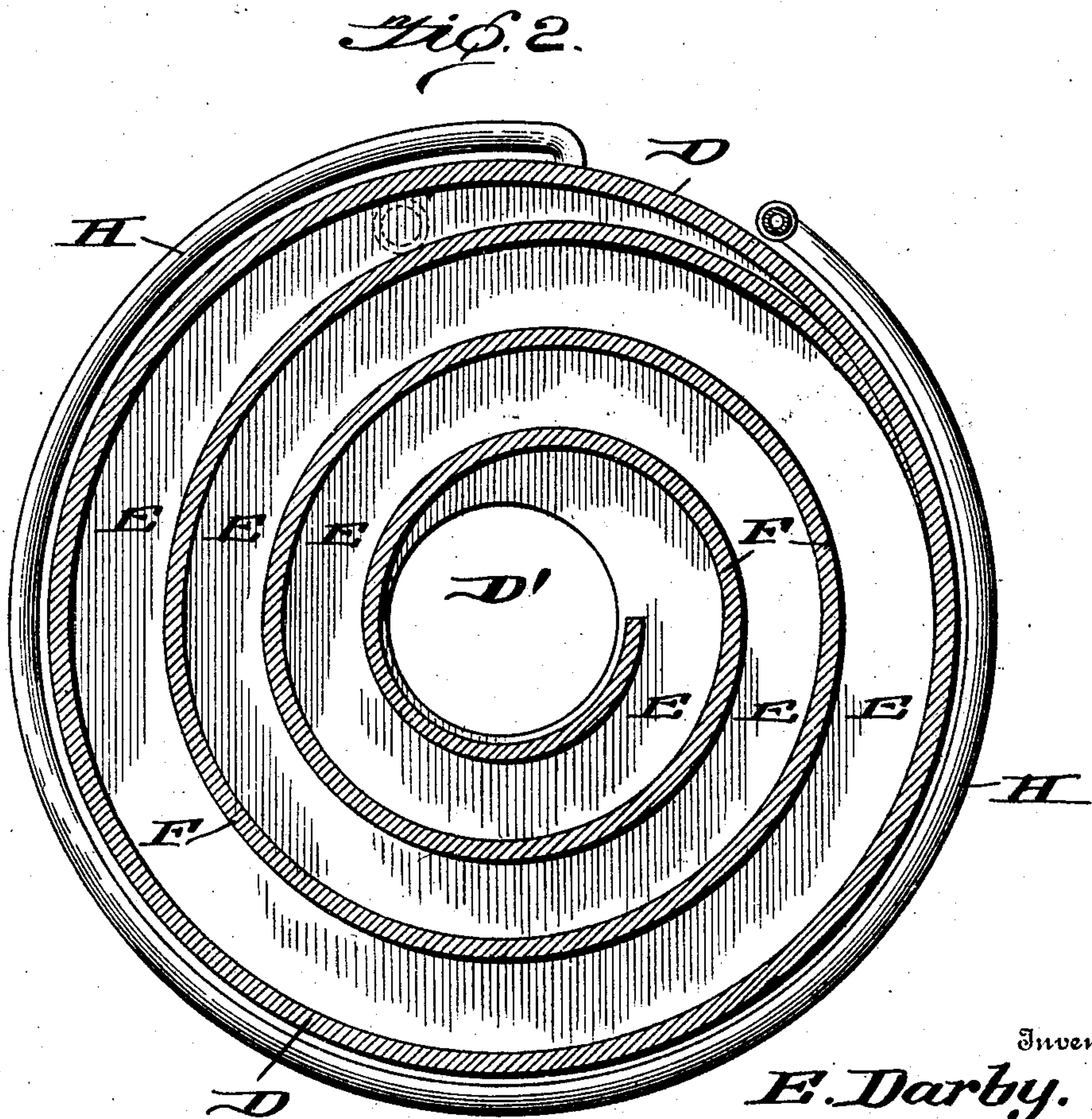
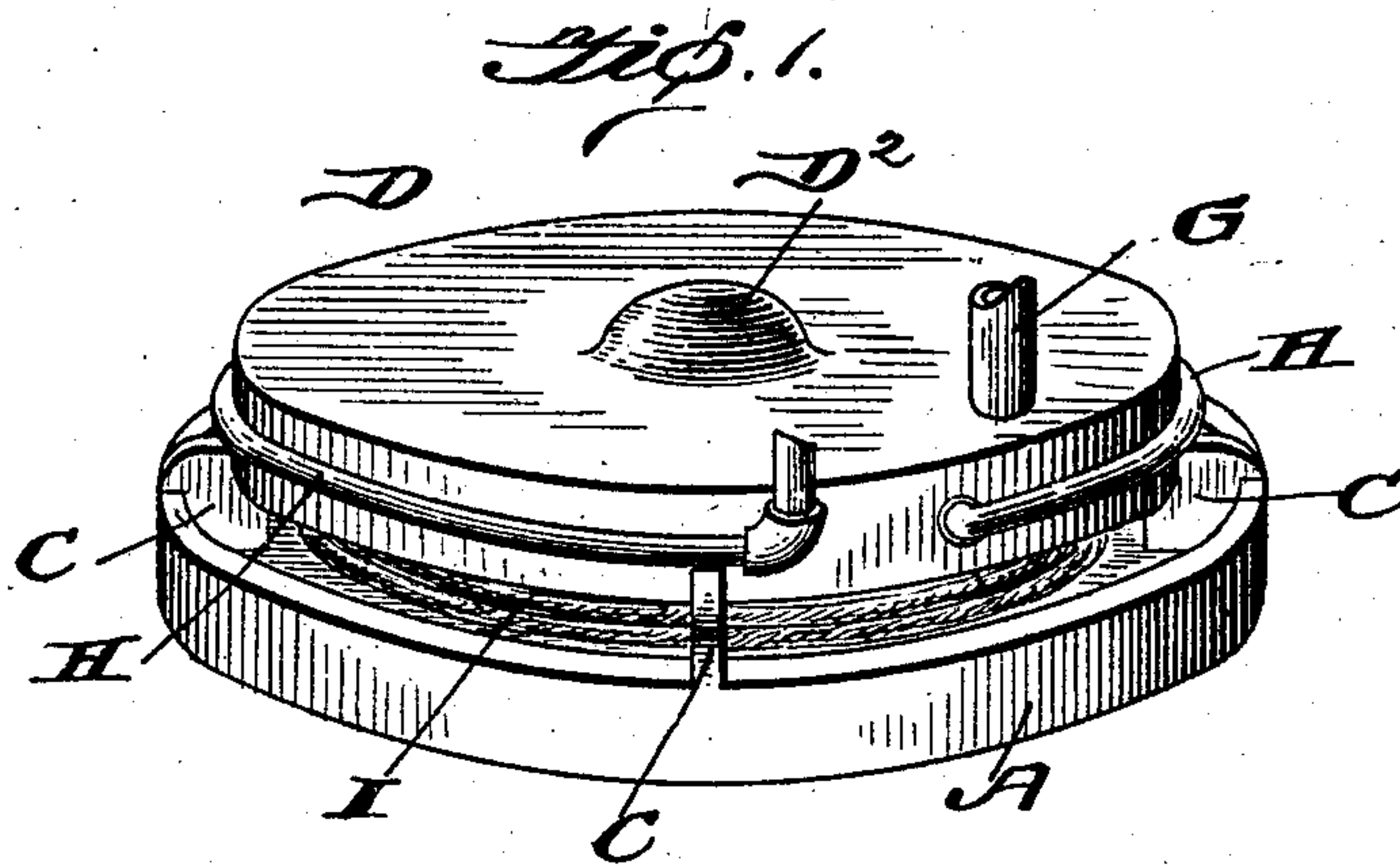
PATENTED JUNE 21, 1904.

E. DARBY.
CRUDE OIL BURNER.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.

2 SHEETS--SHEET 1.



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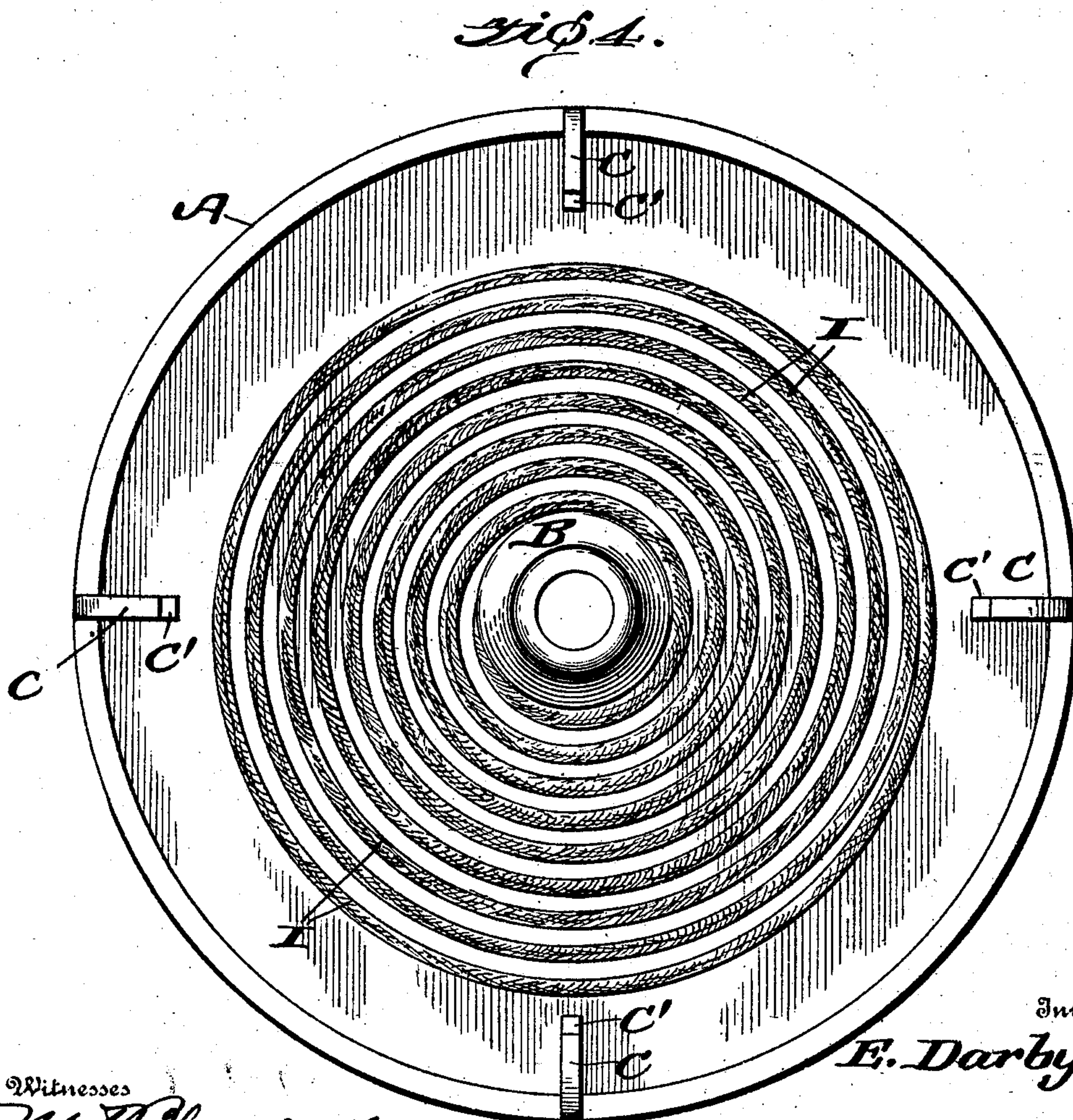
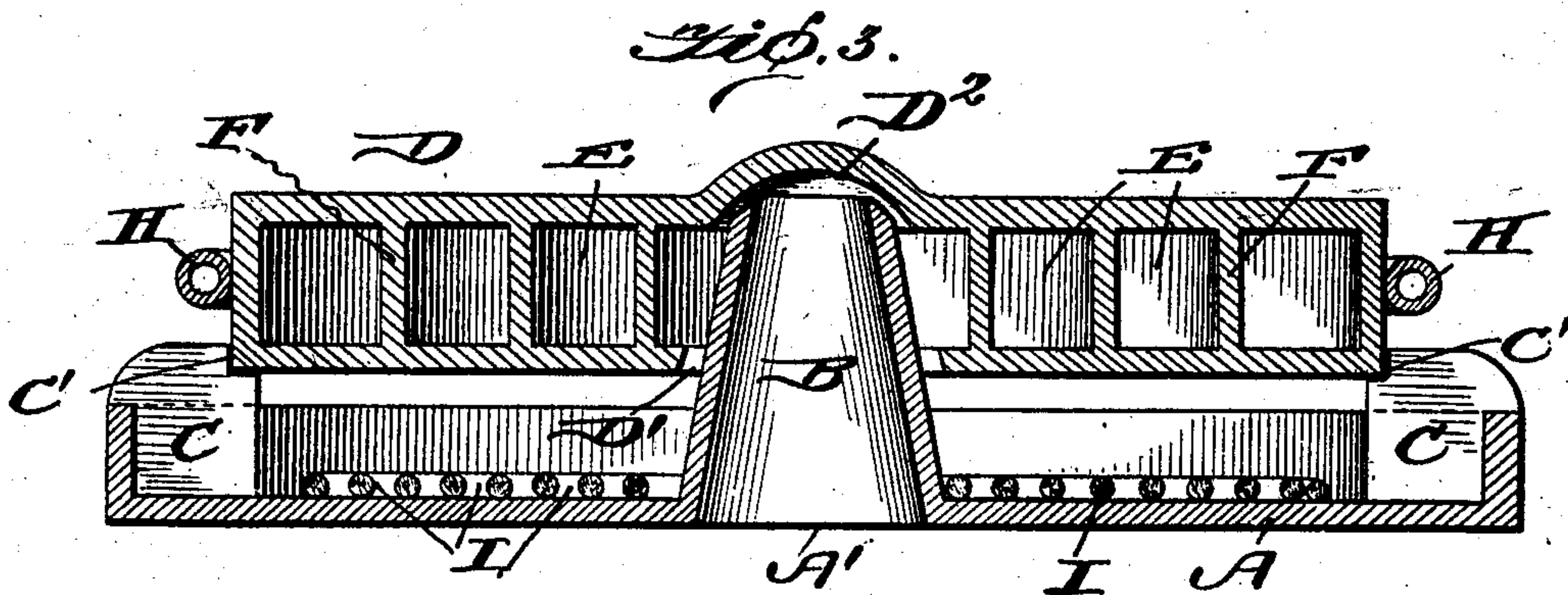
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Witnesses
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UNITED STATES PATENT OFFICE.

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CRUDE-OIL BURNER.

SPECIFICATION forming part of Letters Patent No. 762,987, dated June 21, 1904.

Application filed June 6, 1903. Serial No. 160,364. (No model.)

To all whom it may concern:

Be it known that I, EDWIN DARBY, a citizen of the United States, residing at Iowa City, in the county of Johnson and State of Iowa, have invented a new and useful Crude-Oil Burner, of which the following is a specification.

This invention relates generally to oil-burners, and more particularly to that class thereof known as "retort-vaporizers;" and the object of this invention is to provide a simple and inexpensive burner of this class in which oil will be thoroughly vaporized and commingled with steam and air before ignition takes place.

Another object of the invention is to provide a burner of the kind described in which the retort can be quickly and easily separated from the flash or burner pan for the purpose of cleaning the same.

With these various objects in view my invention consists, essentially, in the employment of a circular pan having a central opening, from which a hollow truncated cone projects upwardly to a height considerably above the sides of the pan, said cone projecting through a centrally-apertured bottom of the vaporizing-retort, which is in the form of a flat cylinder and is provided with a convolute spiral partition, which divides the retort into a continuous tortuous passage, beginning at one side of the retort and ending at the central aperture in the bottom thereof, oil and water pipes being connected to the retort at adjacent points and through which oil and water are supplied to the vaporizer, air being drawn up through the hollow truncated cone and commingled with the vaporized oil and water prior to ignition.

The invention consists also in certain details of construction and novelties of combination, all of which will be fully described hereinafter and pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view showing an oil-burner constructed in accordance with my invention. Fig. 2 is a horizontal sectional view taken through the retort, the water-pipe being

shown in elevation. Fig. 3 is a vertical sectional view of the burner, and Fig. 4 is a top plan view of the flash or burner pan.

In constructing an oil-burner in accordance with my invention I employ a shallow pan A, having a central circular opening A', and projecting upwardly therefrom is the hollow truncated cone B, open at both ends, said truncated cone extending upwardly a considerable distance above the sides of the pan. The pan is preferably provided with four supports C, arranged at regular intervals and adjacent the edges of the pan, the upper inner edges of the supports being notched, as shown at C', to provide a seat for the retort D to rest upon, said retort D being in the form of a flat hollow cylinder and of such diameter that it will fit snugly upon the notched supports C. The retort D has a central circular opening D' produced in the bottom thereof and through which the hollow truncated cone passes when the retort is placed upon the supports carried by the pan, and an annular space is left between the retort bottom and cone and through which the vaporized or liquid fuel can pass downwardly to the burner-pan. The top portion of the retort is slightly elevated at the center, as shown at D², for the purpose of receiving the upper end of the hollow truncated cone, and provides ample space for the escape of air into the central portion of the retort, where it is mixed or commingled with the vaporized oil and water just prior to ignition. The retort D is divided into a continuous tortuous passage E, which begins at one side of the retort and terminates at the central opening D', said tortuous passage being produced by means of a convolute spiral partition F, which connects the top and bottom of the retort and extends from a point at one side of the retort and terminates at a point adjacent the edge of the central opening after partially encircling the edge of said opening, as most clearly shown in Fig. 2.

An oil-pipe G is fitted into an opening produced in the top of the retort adjacent the beginning of the tortuous passage E, and a water-pipe H is fitted into an opening produced

in the side of the retort at a point adjacent the beginning of the passage E, and preferably to the rear of the oil-pipe, said water-pipe being carried around the retort close to the side thereof and then carried off to any suitable source of water-supply. An asbestos wick I is arranged upon the bottom of the pan A, said wick being coiled around in convolute spiral formation, starting at the truncated cone and extending outwardly to points adjacent the supports C, as most clearly shown in Fig. 4.

In operation the pan and retort are arranged as shown in Figs. 1 and 3, the oil and water pipes being connected to any suitable source of supply. The oil is first passed into the retort and flows through the passage E down through the central opening D' to the wick, where it is ignited, and the heat of the oil burning in the pan beneath the retort will be sufficient to vaporize the oil as it passes through the passage to the central opening, and the water which passes through the water-pipe surrounding the retort will be converted into steam and will pass into the retort either in the form of steam or in a highly-heated condition and will soon be converted into steam after reaching the retort. The steam or hot water which enters the retort serves also the purpose of an ejector for forcing the oil around the passage E. The air is drawn up through the hollow truncated cone and commingled with the vaporized oil and water, and the mixed oil, steam, and air are then forced through the annular space down to the flash or burner pan, where they are consumed, a portion of the heat being utilized for the vaporization of the oil and water passing through the retort, the remaining heat units being utilized for any purpose for which the burner is designed. The burner construction in accordance with my invention can be arranged in a stove or steam-boiler furnace and can be supported either directly upon the grate-bars or any other suitable form of support may be employed. The retort and pan can be quickly and easily separated whenever it is desired to clean either the retort or pan.

Owing to the simple construction of the

burner, there are no parts likely to get out of order, and, furthermore, the device is not at all likely to become clogged.

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

1. An oil-burner comprising a pan having a hollow truncated cone extending upwardly from the center thereof, a retort supported above the pan and having a central opening into which the upper end of the truncated cone projects, and the oil and water pipes connected to the retort, substantially as shown and described.

2. An oil-burner comprising a pan having a central opening and a hollow truncated cone extending upwardly from the said central opening, said truncated cone being opened at both ends, a retort supported above the pan and having a central opening in the bottom thereof, said retort having a continuous tortuous passage extending from one side of the retort and terminating at the central opening, and the oil and water pipes connected to the retort at points adjacent the beginning of the tortuous passage, the water-pipe being passed around the exterior of the retort before entering the same, substantially as described.

3. An oil-burner comprising a pan having a hollow truncated cone at the center and the supports adjacent the sides, the flat cylindrical retort resting upon the said supports and having a central opening in the bottom through which the hollow truncated cone projects, the convolute spiral partition connecting the top and bottom of the retort and extending from one side of the retort to a point adjacent the edge of the central opening, and providing a continuous tortuous passage within the retort, an oil-pipe connected to the top of the retort, and the water-pipe connected to the side of the retort, said water-pipe passing around the exterior of the retort before entering the same, substantially as described.

EDWIN DARBY.

Witnesses:

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