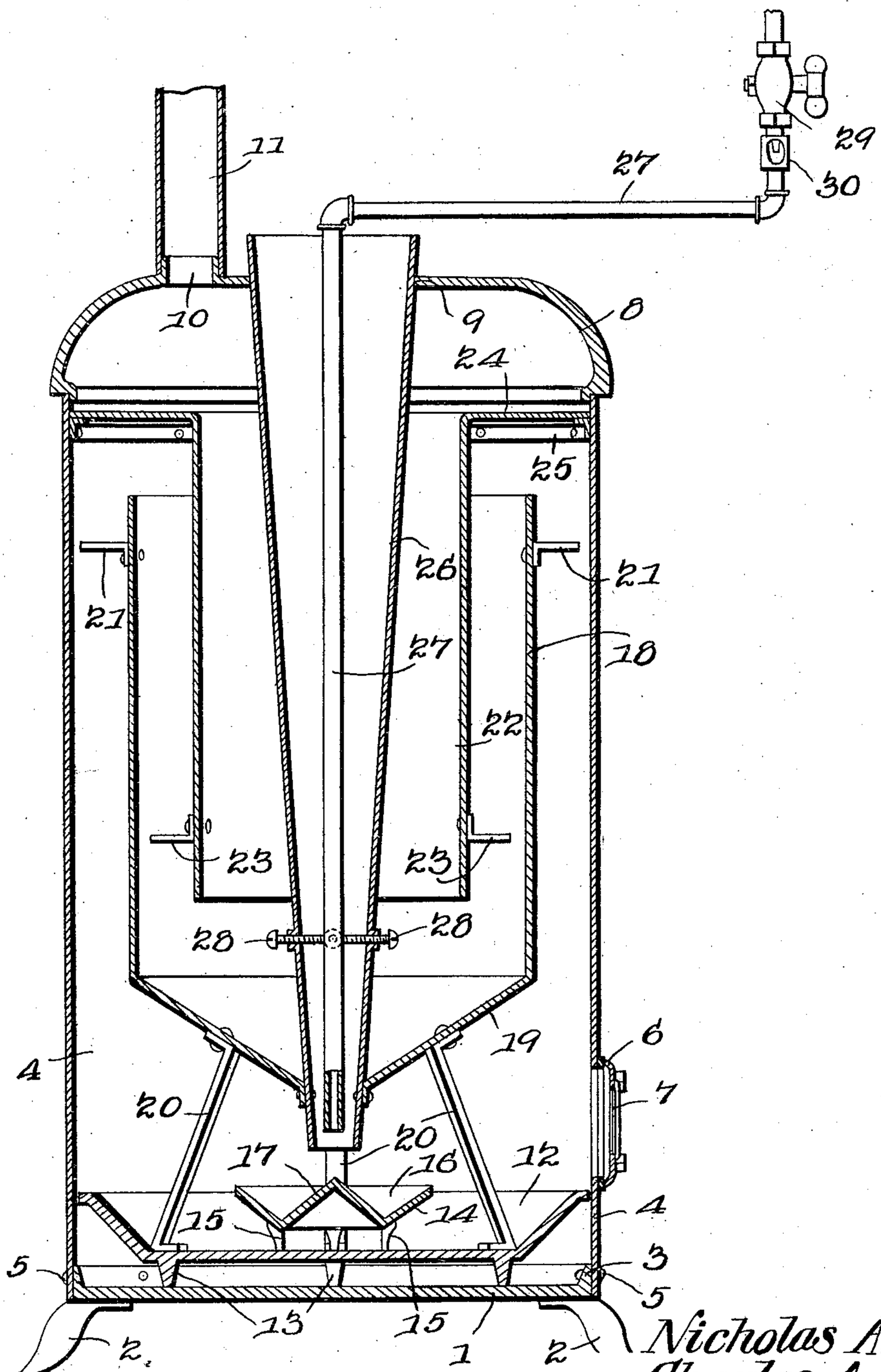
No. 865,746. PATENTED SEPT. 10, 1907.

N. & C. ARCH.

CRUDE OIL BURNER.

APPLICATION FILED MAR. 9, 1906.



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CRUDE-OIL BURNER.

No. 865,746. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed March 9, 1906. Serial No. 305,108.

To all whom it may concern:

Be it known that we, NICHOLAS ARCH and CHARLES ARCH, citizens of the United States, residing at Nappanee, in the county of Elkhart and State of Indiana, have invented a new and useful Crude-Oil Burner, of which the following is a specification.

This invention relates to hydrocarbon burners; and it has particular reference to a crude oil burner adapted for heating purposes; the objects of the invention being to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel combination and arrangement of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to, when desired.

In the drawings, the figure is a vertical sectional view of a heating stove or apparatus embodying the improved oil burner.

The base 1 having supporting legs 2, 2 is provided with an annular flange 3 with which the cylindrical casing 4 is connected, as by means of bolts or rivets 5. The casing is provided with a door 6 having side apertures that are covered with transparent material, such as mica, as indicated at 7. The casing supports a top member 8 having a central aperture 9 and an eccentrically disposed exit 10 for the products of combustion; said exit being connected, as by a flue 11, with the point of final discharge, not shown.

Supported upon the base 1, within the casing, is a burner, comprising in the present instance an overflow pan or vessel 12, which may be of cast iron, and which has been shown as being provided with legs or supporting members 13. Supported upon the bottom of the pan or vessel 12 is the generator pan 14, the latter being elevated upon legs or supporting members 15 in order that air may circulate thereunder; the generator pan, in cross section, resembles the letter W, it being composed of an annular V-shaped channel 16 surrounding a central conical protuberance 17.

18 is a drum or cylinder, terminating at its lower end in a funnel 19 having legs or supporting members 20 adapted to rest upon the bottom of the pan 12, within the stove casing where said drum or cylinder 18 is centered by means of radial lugs or brackets 21. A drum or cylinder 22 of smaller diameter than the cylinder 18 is centered within the latter by means of lugs or brackets 23; said cylinder 22 being provided at its upper end with an annular flange 24 whereby it is supported within the stove casing 4, as upon an annular bracket 25; the flange 24 being spaced above the upper edge of the drum or cylinder 18. A flaring, or funnel-shaped tube, 26, enters through the top 8 of the stove casing and extends downwardly through the drum 22 and through the funnel 19 of the drum 18, said tube terminating directly above the apex of the cone 17 of the generator pan. An oil pipe 27 leading from a suitable source of supply extends downwardly into the funnel-shaped tube 26, terminating near the lower end of the latter, said oil pipe being centered in the funnel-shaped tube, as by means of set screws 28. The oil supply pipe has a drip valve 29 and a sight glass 30 through which the passage of oil may be observed.

In the operation of this device, a small quantity of oil is ignited in the generator pan, heating the latter to a point at which oil, subsequently permitted to drip thereupon, will be vaporized and consumed, combustion being supported by air entering in a downward direction through the funnel-shaped tube 26, and obviously heated in its downward passage, so that it will effectively combine with the vaporized oil to produce a highly inflammable gas. The products of combustion will be guided in a devious course, first upward between the casing 4 and the drum 18, then downward between the drums 18 and 22, and finally upward between the drum 22 and the air supply pipe 26 to the exit 10; the outer casing will thus be thoroughly heated for radiating purposes, while the incoming air will be thoroughly heated before it is permitted to mix with the oil vapors.

Having thus described the invention, what is claimed is:—

1. A stove casing having a bottom and a top member the latter provided with an exit, a generator pan supported in the bottom of said casing, a drum centered within the stove casing open at its upper end and having its lower end closed by a funnel provided with supporting members, a second drum centered within the first drum open at its lower end and having at its upper edge a flange supported within the stove casing and dividing the upper portion of the latter from the exit and spaced above the upper edge of the first drum, a funnel-shaped inlet for air extending through the top of the stove casing and secured to and closing the funnel at the lower end of the first drum terminating above the generator pan, and an oil supply pipe extending into the air tube and centered within the latter.

2. A heating-stove embodying a suitable casing provided with an exit at its top, an overflow pan supported in the bottom of the casing, a generator pan supported in the bottom of the overflow pan, an inner drum centered in the casing having its lower end open, a circumferential flange on the upper end of said drum and secured to the wall of the casing to support said drum and separate the space within the casing from the exit, an outer drum interposed between the inner drum and the casing and forming a flue connection between the pans and the inner drum, the upper end of the outer drum being open and spaced below the said flange, and the lower end thereof being closed by a bottom having the form of an inverted cone for directing the heated gases from the pans to the flue between the

outer drum and the casing, and supporting legs interposed between the overflow pan and the bottom of the outer drum.

3. In an oil burning stove, the combination with a casing having a smoke exit at the top and a burner arranged in the lower portion of the casing, of an air tube arranged axially within the casing and projecting downwardly through the top thereof and discharging above the burner, a fuel pipe arranged axially within the air tube and discharging at the burner, a drum having a funnel-shaped bottom rigidly attached to the lower portion of the air tube and forming a deflector for directing the gases outwardly from the burner and toward the sides of the casing, the upper end of said burner opening within the casing, an inner drum spaced within the outer drum and having its lower end open to receive the gases entering the top of the outer drum from the casing, and a flange connecting the top of the inner drum and the upper portion of the casing and serving to deflect the products of combustion into the space between the two drums and separating the upper portion of the casing from the smoke exit.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

NICHOLAS ARCH.
CHARLES ARCH.

Witnesses:
E. E. FREVERT,
CHARLES H. KLINE.