

W. H. BROWN.
HYDROCARBON BURNER.
APPLICATION FILED MAY 7, 1910.

998,835.

Patented July 25, 1911.

Fig. 1

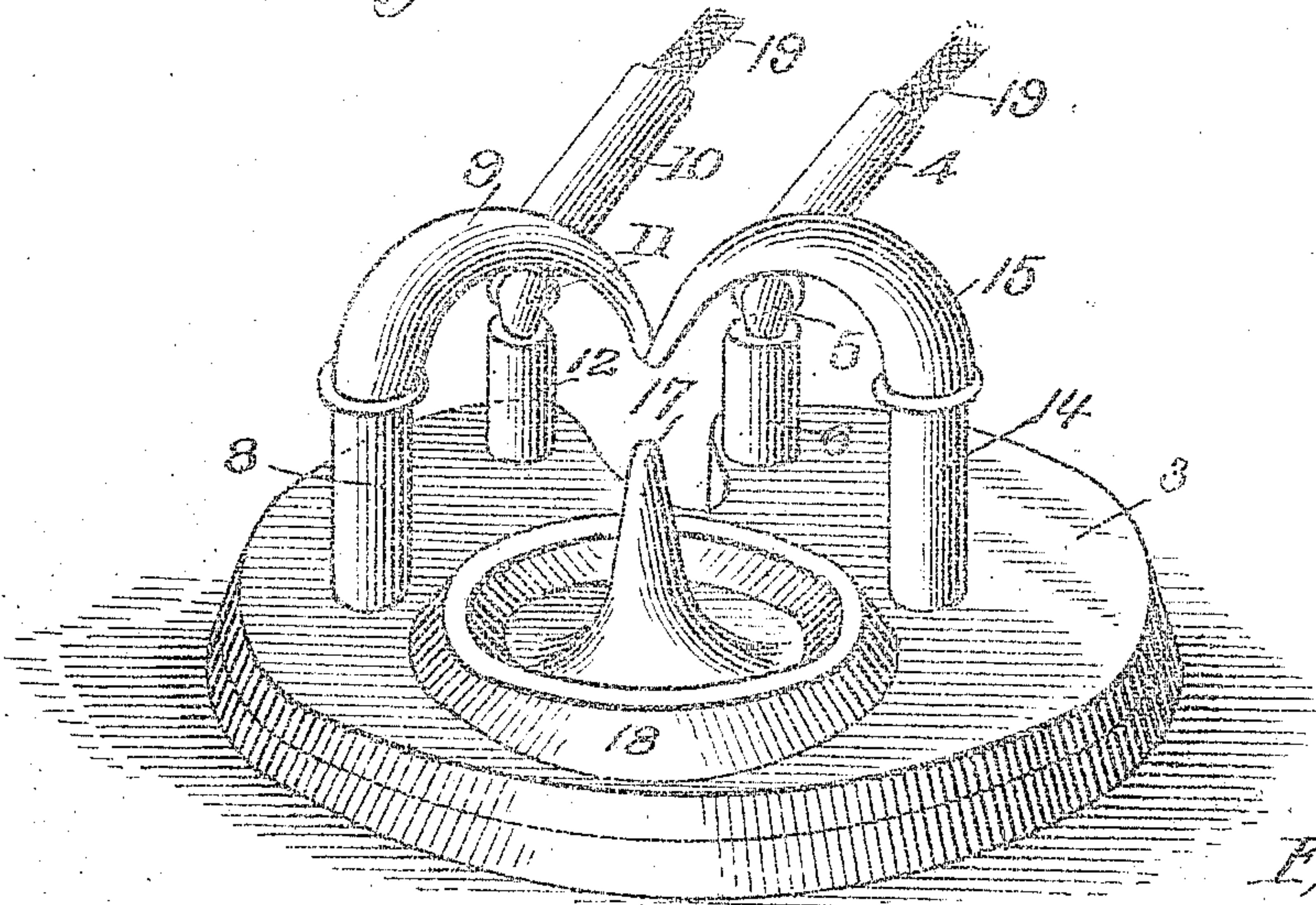


Fig. 3.

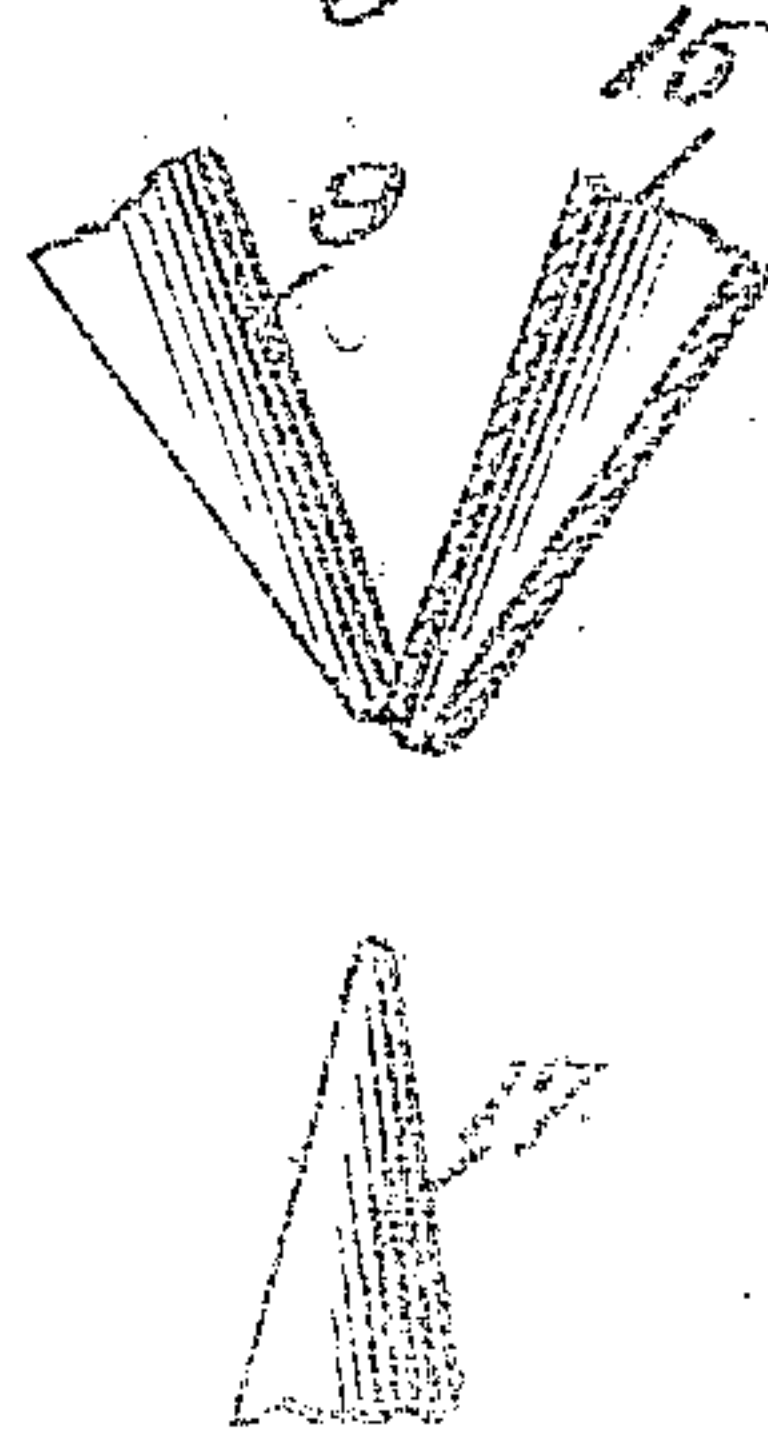
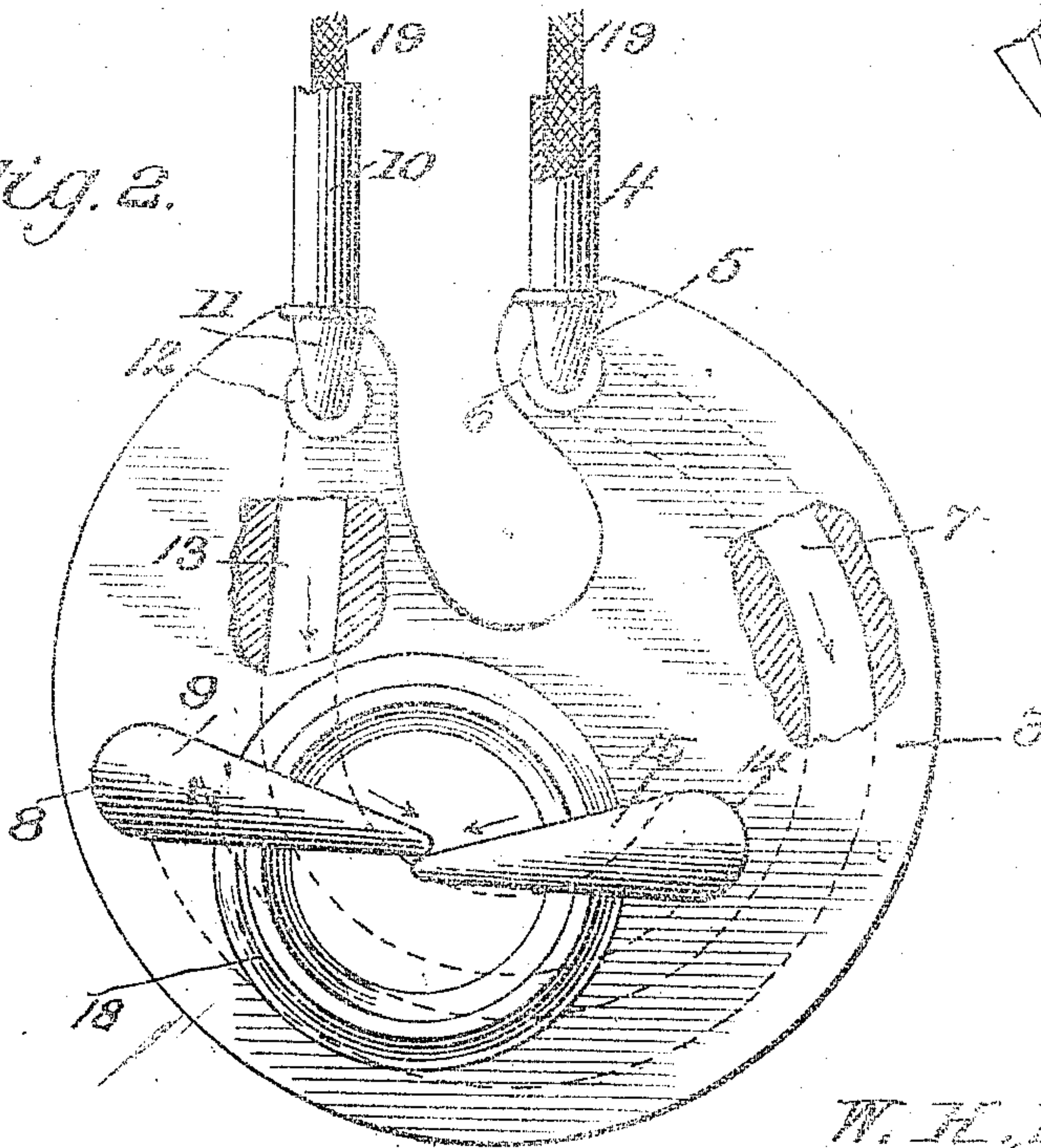


Fig. 2.



Witnesses.

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HYDROCARBON-BURNER.

998,835.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed May 7, 1910. Serial No. 560,052.

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented certain new and useful improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to hydrocarbon-burners of that type in which a hydrocarbon such as coal oil and water are vaporized and then directed against a burning cone, thereby combining the steam and the hydrocarbon vapor with air.

The invention consists in the details of construction and arrangement of the parts set forth in the accompanying specification and fully illustrated in the drawings appended.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a perspective view of my improved burner. Fig. 2 is a plan view thereof partly broken away. Fig. 3 is a fragmentary detail view showing the nozzles and the apex of the distributing cone.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these figures, 3 designates a solid base of metal, or other suitable material, and 4 designates an oil inlet pipe leading from any suitable source of supply and formed at its inner end with an elbow 5, which has a screw-threaded engagement with a downwardly extending nipple 6 which projects upward from the face of the base 3. This nipple 6 forms the inlet end of a duct 7 which extends from the nipple 6 through the interior of the base to a point on the opposite side of said base and then extends upwardly out of the base through a tubular nipple 8 which is provided with tapering inwardly and downwardly curved nozzle 9. The bore of said nozzle being tapered so as to provide a very small outlet opening.

The water inlet pipe is designated 10, and extends from any suitable source of water supply and is formed at its end with an elbow 11 having screw-threaded engagement with a nipple 12 of precisely the same construction as the nipple 6, which nipple extends down into the interior of the casing

3 and connects with the duct 13, which is preferably curved substantially in the arc of a circle parallel with the inside face of the curved duct 7 and which opens into an upwardly extending nipple 14 opposed to the upwardly extending nipple 8.

Each duct extends from its inlet end in the arc of a circle through the body 3 approximately parallel to the circumference of the body 3 and approximately concentric to each other, the ducts ending at approximately opposite points of the burning cup 18. This arrangement of the ducts gives a maximum extent to the ducts and thus provides for complete vaporization. Both ducts extend beneath the burning cup and are consequently subjected to the heat of the burning oil therein when the burner is primed and when in operation, and furthermore the solid base 3 absorbs the heat and retains it for a considerable time, thus subjecting the oil and water as it passes into the ducts to the heat retained by the base and thus acts to very perfectly vaporize the incoming oil and water.

The nipple 14 opens into a curved and tapered nozzle 15, of the same character as the nozzle 9 and formed with a small outlet opening. The nozzles 9 and 15 extend toward each other and to a point above a distributing cone 17, which is located within a burning cup 18 formed upon or supported on the upper face of the casing 3. The nozzles 9 and 15 are so directed that the jets of steam and vaporized oil therefrom may be ejected against the apex of the cone 17 so that the intermingled steam and oil vapor will mix with the oxygen of the air at this point. The gas produced by this combination is very similar to natural gas and burns without smoking and gives an exceedingly high degree of heat in proportion to the amount of fuel used.

I preferably provide both of the inlet pipes 4 and 10 with a filling of asbestos, this filling being designated in both cases by the numeral 19.

The operation of my invention is as follows:—The oil enters through the pipe 4 into the duct 7, which being entirely inclosed within the base 2 is raised to sufficient degree of heat to vaporize the oil. Water is fed into the pipe 10 and this also passes into its duct 13, which being inclosed within the base 3 is heated sufficiently to cause the water to be converted into steam. The va-

porized water and oil pass into the nozzles 9 and 15 and are directed as before stated, against the apex of the spreading cone 17. The vapor from the oil, and steam from the water, both strike the spreading cone at the same point and then combine with the oxygen of the atmosphere, as before remarked.

Of course, the initial vaporizing of the oil and water may be accomplished by priming the burning cup 18 and igniting the oil therein until the heat has generated sufficient vapor in the ducts 7 and 13 to vaporize the oil and water passing from the inlet pipes 4 and 10.

I do not wish to be limited to any special manner of forming the vapor chamber, as it is obvious that the double ducts 7 and 13 may be formed within the vaporizing chamber in any suitable and desirable manner.

Having thus described the invention what is claimed as new is:—

1. A hydrocarbon burner, including a base, an oil inlet pipe in the base, a duct formed in the base into which said inlet pipe opens, a distributing cone mounted on the base and projecting upward above the face thereof, an upwardly projecting tubular member extending from said oil inlet duct and projecting above the face of the base, a water inlet pipe, a duct into which the water inlet pipe opens located within the base, a tubular member projecting above the base into which the water duct opens, said tubular members being disposed opposite to each other at diametrically opposite points of the said cone, and inwardly and down-

wardly curved nozzles mounted on said tubular members, said nozzles being directed toward the apex of the distributing cone.

2. A hydrocarbon burner including a solid base, a distributing cone formed with the base and projecting upward above the face thereof, the cone being surrounded by a burning cup formed with the base, said base being formed with an oil inlet duct extending approximately in the arc of a circle through the base, approximately parallel to the circumference thereof, said base being also formed with a water duct extending approximately in the arc of a circle through the base, one of said ducts being approximately concentric to the other, and both of said ducts extending beneath the burning cup, an upwardly projecting tubular member extending from the oil inlet duct and projecting above the face of the base, a tubular member projecting above the base in which the water duct opens, said tubular members being disposed opposite to each other at diametrically opposite points of said cone, and inwardly and downwardly curved nozzles on the extremities of the tubular members and curved toward the apex of the cone.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. BROWN. [l. s.]

Witnesses:

JOSEPH W. HORNER,
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