

No. 736,487.

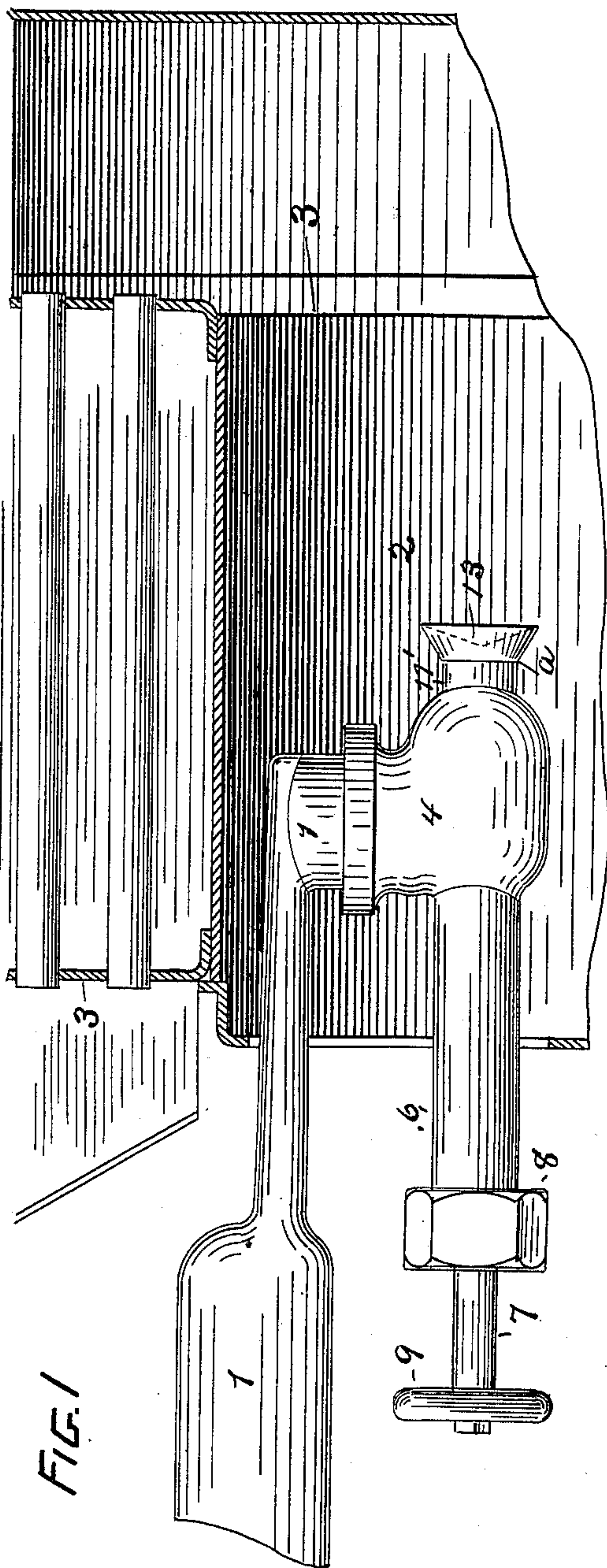
PATENTED AUG. 18, 1903.

H. E. BRUNNER & E. J. PATTERSON.

OIL BURNER NOZZLE.

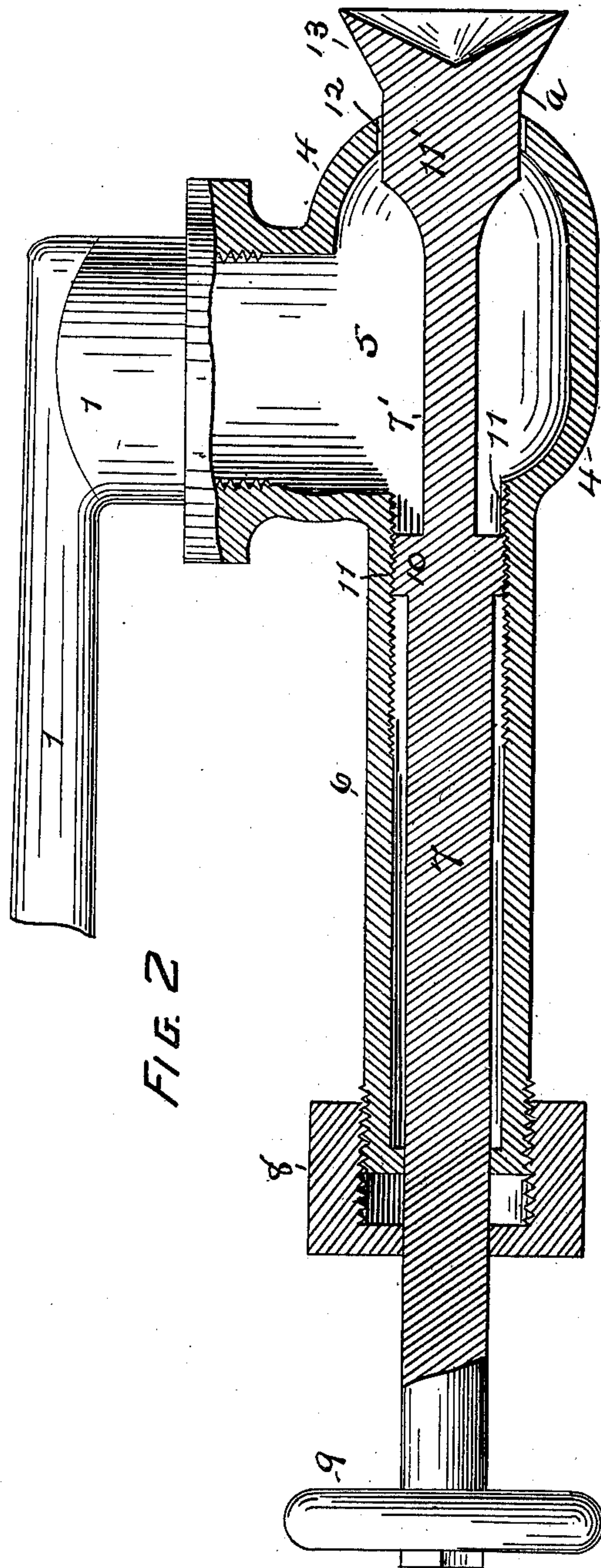
APPLICATION FILED AUG. 25, 1902.

NO MODEL.



WITNESSES:

Walter Fr. Rame,
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UNITED STATES PATENT OFFICE.

HENRY E. BRUNNER AND EDIE J. PATTERSON, OF HAYWARDS,
CALIFORNIA.

OIL-BURNER NOZZLE.

SPECIFICATION forming part of Letters Patent No. 736,487, dated August 18, 1903.

Application filed August 25, 1902. Serial No. 120,944. (No model.)

To all whom it may concern:

Be it known that we, HENRY E. BRUNNER and EDIE J. PATTERSON, citizens of the United States, and residents of Haywards, county of Alameda, State of California, have invented certain new and useful Improvements in Oil-Burner Nozzles; and we do hereby declare the following to be a full, clear, and exact description of the same.

The present invention is designed more particularly for use in connection with the utilization of oil as fuel for marine engines of the tubular steam-boiler type, the object of the invention being to provide a nozzle which will permit of a circular flame being produced within the main heat-flue of the horizontal boiler, so as to heat all portions of the circular wall, the nozzle being so constructed that the position of the flame within the heat-flue may be varied without reducing the outlet-area for the oil passing therefrom, so that a uniform degree of heat is maintained irrespective of the position of the flame.

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

Figure 1 is a side view in elevation of the nozzle attached to the oil-burner and applied to a marine steam-boiler, and Fig. 2 is a detail longitudinal sectional view of the nozzle.

The numeral 1 is used to indicate the oil-burner to which the nozzle is attached, and 2 the main heat-flue of the steam-boiler 3, into which the flame is injected. To the oil-burner is attached the nozzle-casing 4, the inner receiving-chamber 5 of which is approximately globular in form. From the casing extends the sleeve 6, within which works the operating-stem 7. This stem extends through a stuffing-gland 8, screwed onto the outer end of the sleeve 6, and to said stem is attached a handle or hand-wheel 9, by means of which the stem may be operated. This stem is formed with a screw-threaded portion or collar 10, the threads of which engage with or mesh with the internal threads 11, formed in the wall of the sleeve near its inner end. From the collar or screw-threaded portion 10 the stem portion 7' is somewhat reduced in diameter, the object of which is to reduce interference with the hydrocarbon deliv-

ered into the receiving-chamber 5 to a minimum. To the free end of this portion of the operating-stem is secured the plug 11', which works within the outlet-opening 12 of the nozzle-casing 4. The diameter of this opening is somewhat larger than that of the plug 11' in order to provide a clearance-space for the outflow of the hydrocarbon. The plug is of uniform diameter throughout its length, so that the same may be moved its entire distance longitudinally without reducing the outlet area of the clearance-space for the hydrocarbon. This plug 11' is formed with or has attached thereto an inverted cone-shaped valve 13, which valve during operation of the burner serves as a spreader for the flame. This valve being of circular form spreads the flame into a corresponding shape, thereby causing the same to be brought into contact with the entire surface of the inner wall of the main heat-flue 2 of the steam-boiler. The valve 13, while answering as a spreader for the flame, also answers to close the outlet-opening 12 against the escape of hydrocarbon when it is desired to extinguish the flame or put out the fire. Inasmuch as the valve is outwardly inclined it is obvious, if so inclined, the same may be employed to reduce the size of the flame by being moved inward, so as to partially close the outlet-opening 12. The plug 11' may be moved outward its full distance by simply screwing inward its regulating-stem, which outward movement of the plug 11' carries the spreader-valve 13 farther into the main heat-flue 2, so as to throw the flame a greater distance from the outer wall of the furnace in order to place the heat nearer the rear end of the flue. An outward movement of the regulating-stem 7 draws the plug 11' into the nozzle-casing chamber 5, but without reducing the outlet area for the hydrocarbon until it has moved beyond the point *a*, when the inclined wall of the valve 13 begins to move into the outlet-opening 12.

The stuffing-gland 8, while answering to prevent escape of oil from within the guide-sleeve 6, also serves as a guide-support for the outer end of the regulating-stem 7.

Having thus described the invention, what we claim as new, and desire to secure protection on by Letters Patent, is—

An oil-nozzle of the character described comprising a shell or casing having an enlarged chamber for the oil, said chamber being provided with an outlet-opening, an operating-stem passing through the oil-chamber, an elongated plug carried by the end of said stem and working loosely through the outlet-opening of the casing to provide an unobstructed passage around the plug and between the same and the inner surface of the casing, said plug being of uniform diameter throughout and enlarged relative to the di-

ameter of the stem, and a spreader carried by the outer end of the plug and arranged to constitute a valve for the outlet-opening; substantially as described. 15

In testimony whereof we have hereunto affixed our signatures in the presence of witnesses.

HENRY E. BRUNNER.
EDIE J. PATTERSON.

In presence of—

N. A. ACKER,
E. PATTERSON.