

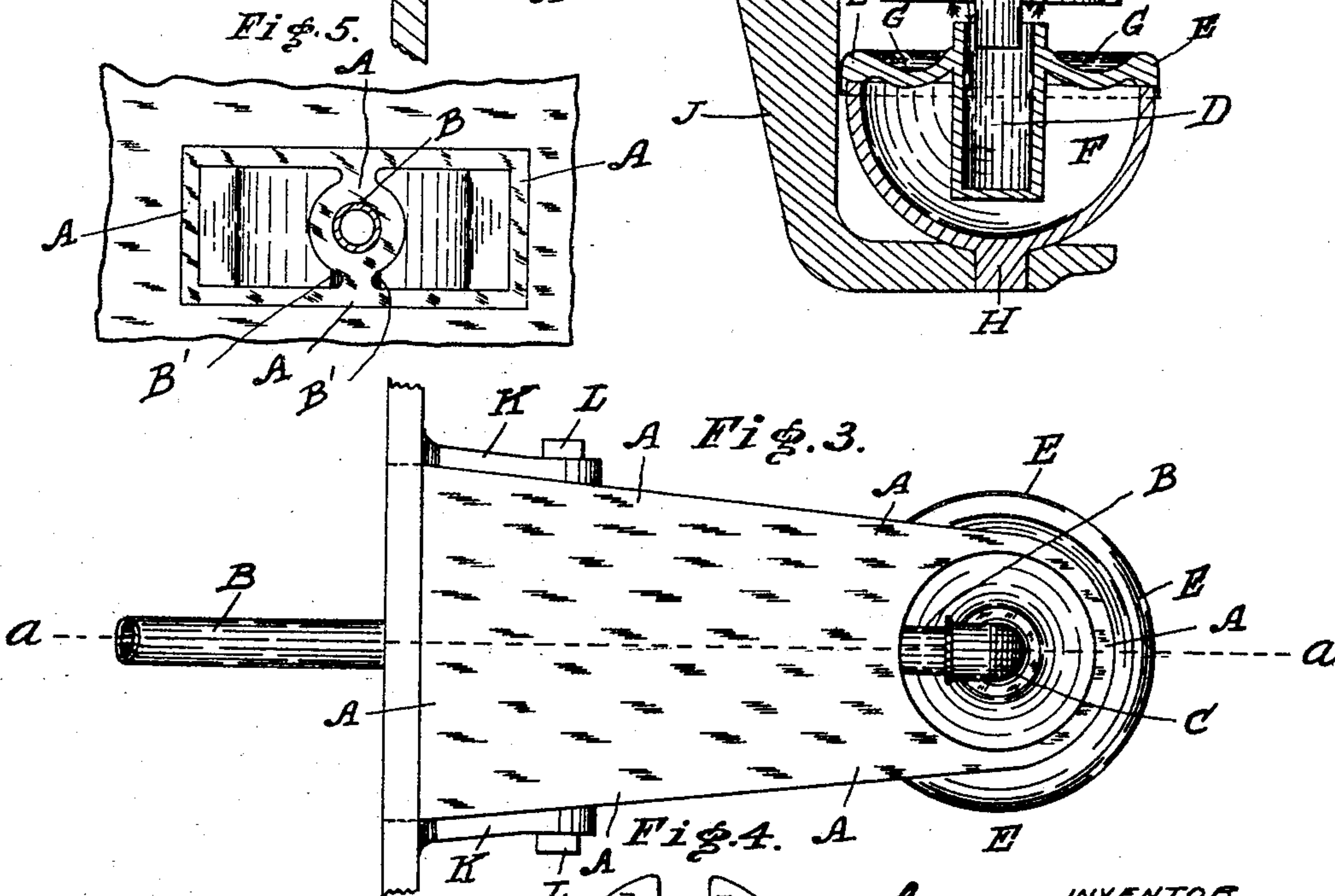
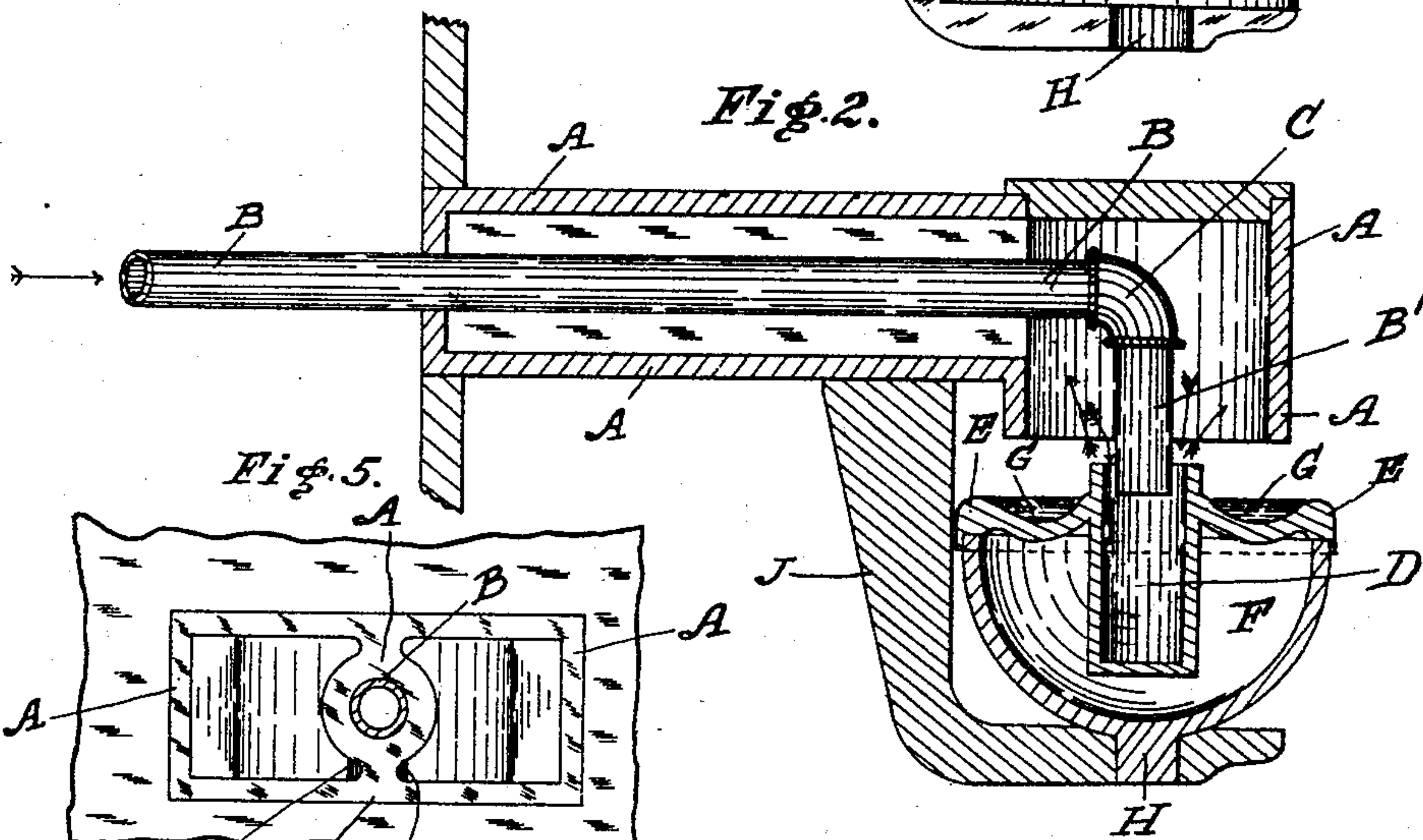
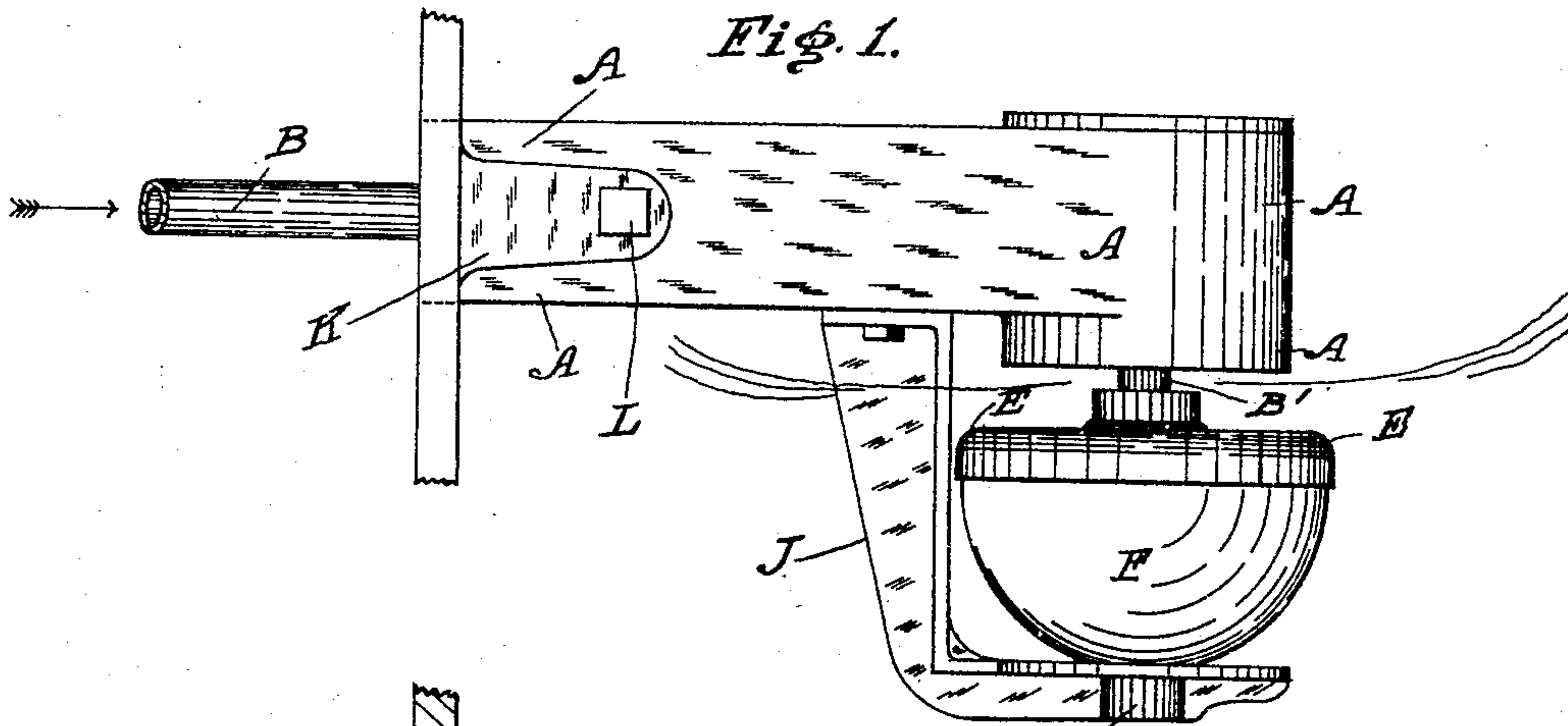
No. 771,981.

PATENTED OCT. 11, 1904.

T. W. HILL.  
OIL BURNER.

APPLICATION FILED MAR. 10, 1902.

NO MODEL.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

THOMAS W. HILL, OF LOS ANGELES, CALIFORNIA.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 771,981, dated October 11, 1904.

Application filed March 10, 1902. Serial No. 97,672. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS W. HILL, of the city of Los Angeles, in the county of Los Angeles, in the State of California, have invented  
5 a certain new and useful Device or Apparatus to be Used for Burning Oils and Generating Heat, of which the following is a full, clear, and exact description or specification, reference being had to the accompanying sheet of  
10 drawings and to the letters marked thereon.

My said invention, which relates to a burner for burning oils, is more especially adapted for burning crude mineral oils, such as are found either in the natural condition of thick  
15 viscous oils in the rock formations of the earth's crust, which are obtained by the distillation and refining of such oils, and which are also largely obtained from the destructive distillation of bituminous shales, bituminous  
20 coals, and lignites.

The object of my said invention is to insure complete combustion of the oils referred to and their analogues without the production of carbonaceous deposit in any injurious degree  
25 in the parts of the burner itself and without detracting from the thermic capacity of the oils consumed in the burner constituting my present invention.

Upon the annexed drawings, Figure 1 is a  
30 side elevation of the apparatus or device constituting my new or improved burner. Fig. 2 is a vertical section of the same, taken on the line *a a*, Fig. 3. Fig. 3 is a plan of my new or improved burner with the lid at the  
35 inner end of the air duct or passage removed. Fig. 4 is a plan of the bracket by which the vaporizing-chamber and its relative parts are carried removably. Fig. 5 is an end elevation of the outer end of the air duct or pas-  
40 sage, showing the oil-pipe passing through it and the openings for air to enter thereinto on each side and around the oil-pipe.

In the aforesaid figures of drawings the air duct or passage is marked A A, and within it  
45 is carried the oil-pipe B, leading from an oil-tank which is provided with a regulating-cock or its equivalent for adjusting the flow of oil into and through the oil-pipe B B, and which tank and regulating-cock being no part of my

invention and which may be of any suitable 50 kind of tank and cock commonly in use it is unnecessary to describe the same. The inner end of the oil-pipe B is fitted with an elbow C, whereinto a short piece of vertical pipe B' is fastened, as shown particularly at Fig. 2. 55 The lower end of this vertical pipe B' dips to some slight extent into the oil-vaporizing chamber D, which is fastened into or forms part of the lid E E, which covers the chamber F, the purpose of which chamber F is, 60 while being a carrier for the chamber D and lid E E, to shield or prevent too much heat from the flame being allowed to act directly upon the vaporizing-chamber D.

When it is desired to start the burner (here- 65 inbefore fully described) into operation, then a small quantity of oil is placed in the circular hollow G of the lid or cover E, and the oil when placed therein is ignited by a match or otherwise. When the oil so placed in the 70 hollow G is burned, the parts of the apparatus round about it have become heated, and oil is allowed to flow slowly into the chamber D, which being also heated causes the oil flowing thereinto from or by the pipe B to be vapo- 75 rized or converted into vapor or gas, and the vapor or gas of oil thus generated ascends through and out of the upper part of the chamber D, while in so ascending this vapor or gas 80 meets and commingles with the heated air descending from the air-duct A, as shown by the arrows in Fig. 2. An intimate admixture of oil vapor or gas and heated air is thus produced in the region of the device surrounding the upper part of the chamber D and beneath 85 the downward opening or orifice of the air duct or passage A, and this admixture of oil vapor or gas and heated air being a combustible admixture thereof burns with or into a circular sheet of flame of high temperature 90 and without the production of smoke and with as little as possible of production of carbonaceous deposit, the practical result of which process of admixing oil vapor or gas and heated air is that my burner is one of consid- 95 erable range of utility for a vast variety of purposes wherein oil can be advantageously used as fuel with a ready adjustment of the



temperature generated at any moment by regulating the quantity of oil admitted into the burner.

5 The cup E is provided at the center of its bottom with a short stud H, which fits into the slot I, Fig. 4, formed in the lower part of the bracket J.

10 It is to be understood that the air duct or passage A A and the burner may be carried within the front plate of any heating-chamber or furnace by means of brackets K, through which tap-bolts L L are passed and screwed into the metal of the air-duct A A, as shown at Figs. 1 and 3; but the mode or means of  
15 attaching my burner to any heating chamber or furnace constitutes no part of my invention and may be arranged according to the requirements of any and every application of my burner so long as provision is made for  
20 access of fresh air to enter through the opening M M' of the air duct or passage A, as shown at Fig. 5. It is further to be understood that the several parts of the apparatus or device constituting my new or improved  
25 burner for burning oil and generating heat may be considerably varied so long as the relationship of the oil-vaporizing chamber and the air-duct with oppositely-projecting orifice or dis-

charge-mouth for feeding downward hot air oppositely to the movement of the vapor or 30 gas of oil from the vaporizing-chamber is maintained.

Having now described the nature of my said invention and the form or arrangement of the apparatus which I find best adapted for carrying my said invention into practice, I desire 35 to observe in conclusion that what I consider to be novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows: 40

The burner consisting of an air-duct, a pipe within said air-duct, a heating and vaporizing receptacle, a shielding-chamber, all arranged in relationship so that the oil is vaporized, and ascends as oil-vapor into heated air descending through said air-duct, substantially as described. 45

In testimony whereof I have hereunto set my hand and seal, this 15th day of January, A. D. 1902, in the presence of two subscribing witnesses. 50

THOMAS W. HILL. [L. S.]

Witnesses:

ST. JOHN DAY,  
HADASSAH DAY.