

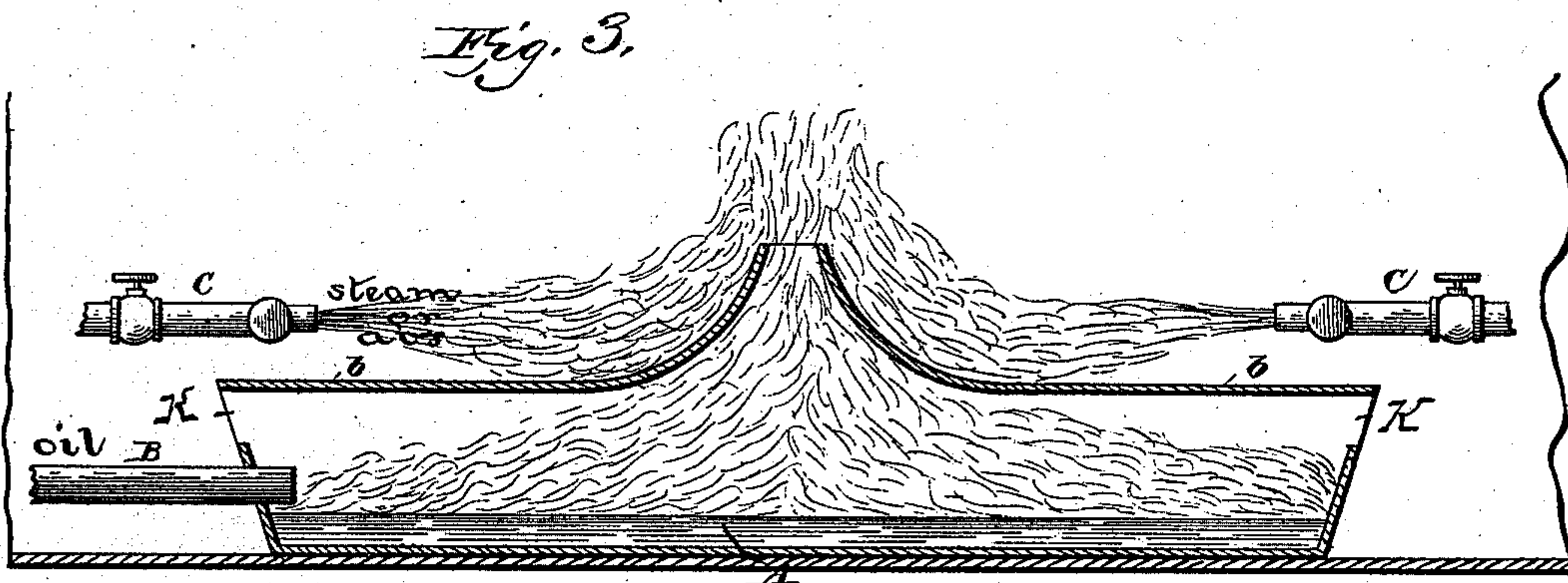
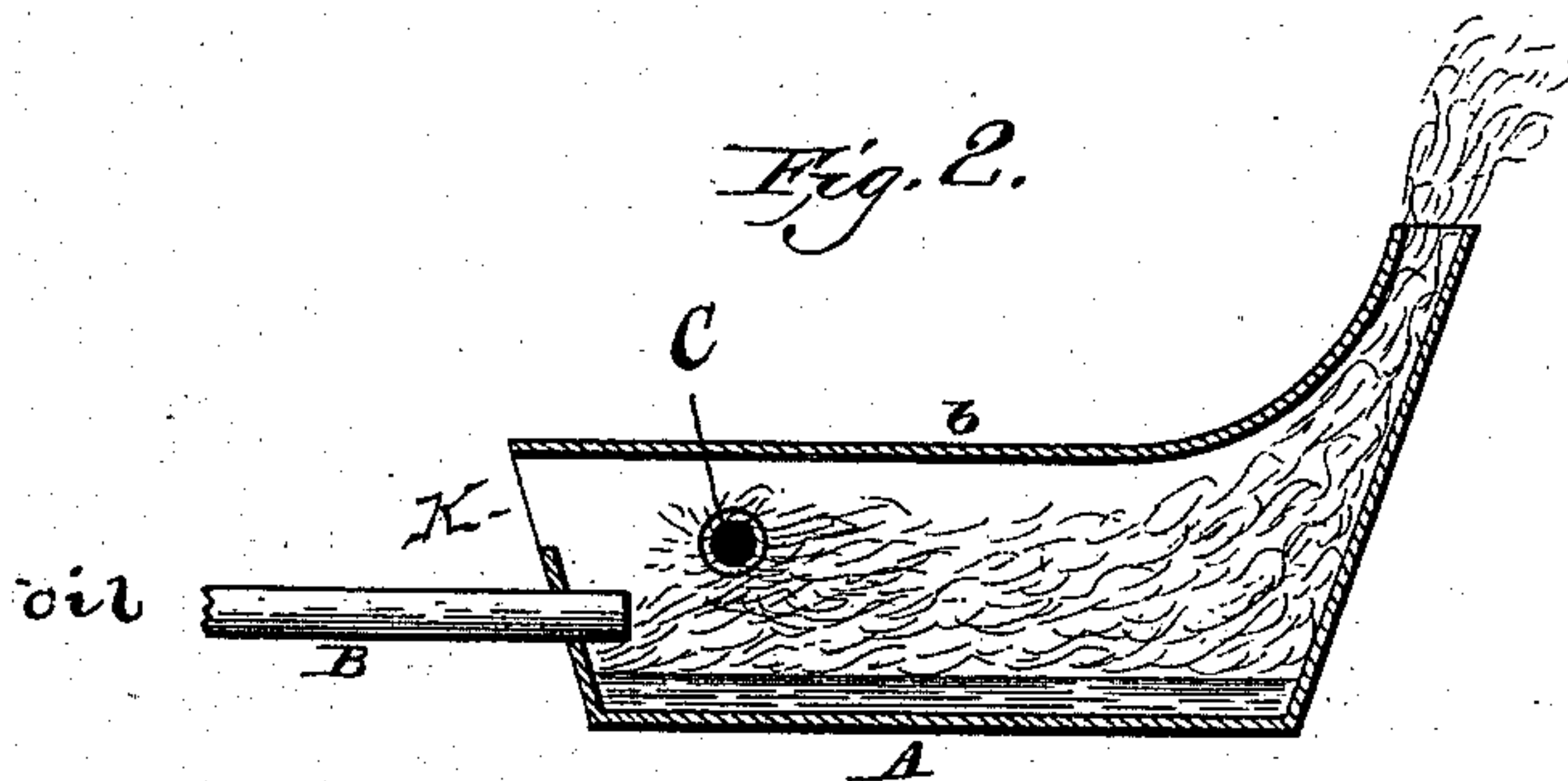
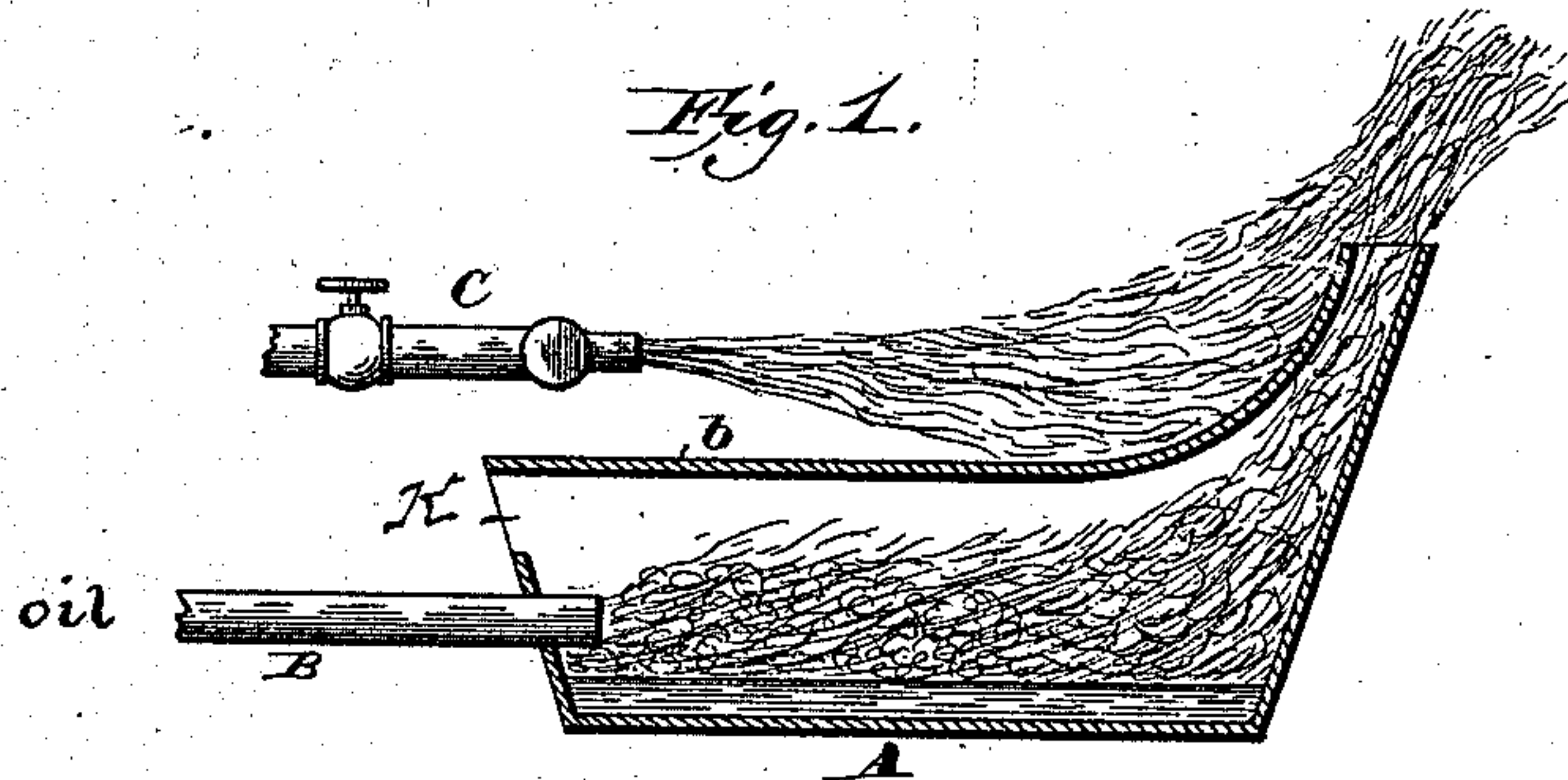
(No Model.)

J. B. DEEDS.

HYDROCARBON BURNER FOR FURNACES.

No. 412,481.

Patented Oct. 8, 1889.



WITNESSES

Edwin L. Yewell,
Curtis Lammond

John B. Deeds
INVENTOR

By

C. Everett Ellis Attorney

UNITED STATES PATENT OFFICE.

JOHN B. DEEDS, OF TERRE HAUTE, INDIANA, ASSIGNOR OF ONE-HALF TO
JOHN C. WATSON, OF SAME PLACE.

HYDROCARBON-BURNER FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 412,481, dated October 8, 1889.

Application filed August 9, 1888. Renewed August 15, 1889. Serial No. 320,794. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. DEEDS, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Hydrocarbon-Burners for Furnaces, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in hydrocarbon-burners; and it has for its objects to provide for effectively and thoroughly burning liquid fuel in various furnaces, as will be more fully hereinafter set forth in this specification and particularly pointed out in the claims.

The objects of my present invention I accomplish by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional view of my improved burner; Fig. 2, a sectional view of a modification of the burner; Fig. 3, a sectional view of a portion of a furnace, showing my invention applied thereto.

Referring to the drawings, the letter A indicates a retort or chamber constructed of metal or other suitable material, which is extended upwardly at one side, as indicated in Fig. 1 of the drawings, and provided with a top *b*, extending upwardly at one side toward the upwardly-extended side, an opening or slot being left between the extended side and the top for the escape of the vapors or gases to be burned. At the side opposite the said extended side the retort or chamber is provided with perforations or a slot K for the admission of air, and through said side extends a pipe B, connected with a suitable liquid-fuel supply and a cock or valve, by means of which liquid fuel in regulated quantities may be delivered to said retort.

The letter C indicates an injector connected with a steam-generator or air-supplying device, located above the top of the retort in such position that a jet or series of jets of steam or air may be injected against the curved portion of the top, in immediate proximity to the opening through which the gas or vapor escapes, so as to meet the flame at

such point to insure a proper draft and effect perfect combustion of the fuel.

In the modification shown in Fig. 2, the injector enters the retort below the top, so that the current of steam or air may be injected directly into the said retort, where it commingles with the gases or vapors generated therein, and insures perfect combustion at the point of escape.

As shown in Fig. 3 of the drawings, the construction of the burner is modified, the top in this case being raised at the center, a slot or perforations being formed at the apex of the raised portion for the escape of the vapors or gases generated in the retort, the combustion of such gases or vapors being effected at the point of escape. In this instance two injectors are employed, one at each side of the raised portion of the top, and so located as to inject the steam or air from each side upon the burning fuel at the point of combustion.

The burner is designed to set in the lower part of the fire-box of a furnace, and the oil or other liquid fuel is fed into it in proper quantities by means of the oil-feed pipe. The fuel, being ignited, soon heats the retort to a sufficient temperature to vaporize the fuel or convert it into gas, which, escaping at the exits provided therefor, burns in the combustion-chamber of the furnace, the thorough combustion being insured by the blast of steam or air injected.

In order to regulate the quantity of steam or air supplied, the injector is provided with a controlling valve or cock at any suitable point.

It will be perceived that the burner as thus constructed not only serves as a gas or vapor generator, but by taking in the air at one side produces a vaporous or gaseous mixture of such nature as to burn with an intense heat, which is further intensified by the current of steam or air injected, rendering the combustion of the fuel complete, so as to avoid the production of smoke or of tarry or solid deposits, which would clog the flues of the furnace and interfere with its operation.

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

1. A hydrocarbon-burner consisting of a

suitable retort or pan having a curved top, and a portion thereof elevated and provided with an escape-opening for the generated gases, and also having air-inlet K and liquid-
5 fuel-supply pipe, in combination with a steam or air injector, whereby a current of steam or air may be injected into the ignited gases to increase the draft and insure perfect combustion, substantially as specified.

10 2. The combination, with a furnace, of a hydrocarbon-burner having a curved top and a portion thereof elevated and provided with

an opening at the apex of the elevated portion, and the same also having inlet K, a suitable liquid-fuel-supply pipe, and an injector, 15 whereby air or steam may be injected into the said furnace into the ignited gas or vapor, substantially as specified.

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

JOHN B. DEEDS.

Witnesses:

W. A. MCFARLAND,
FRED A. ROSS.