

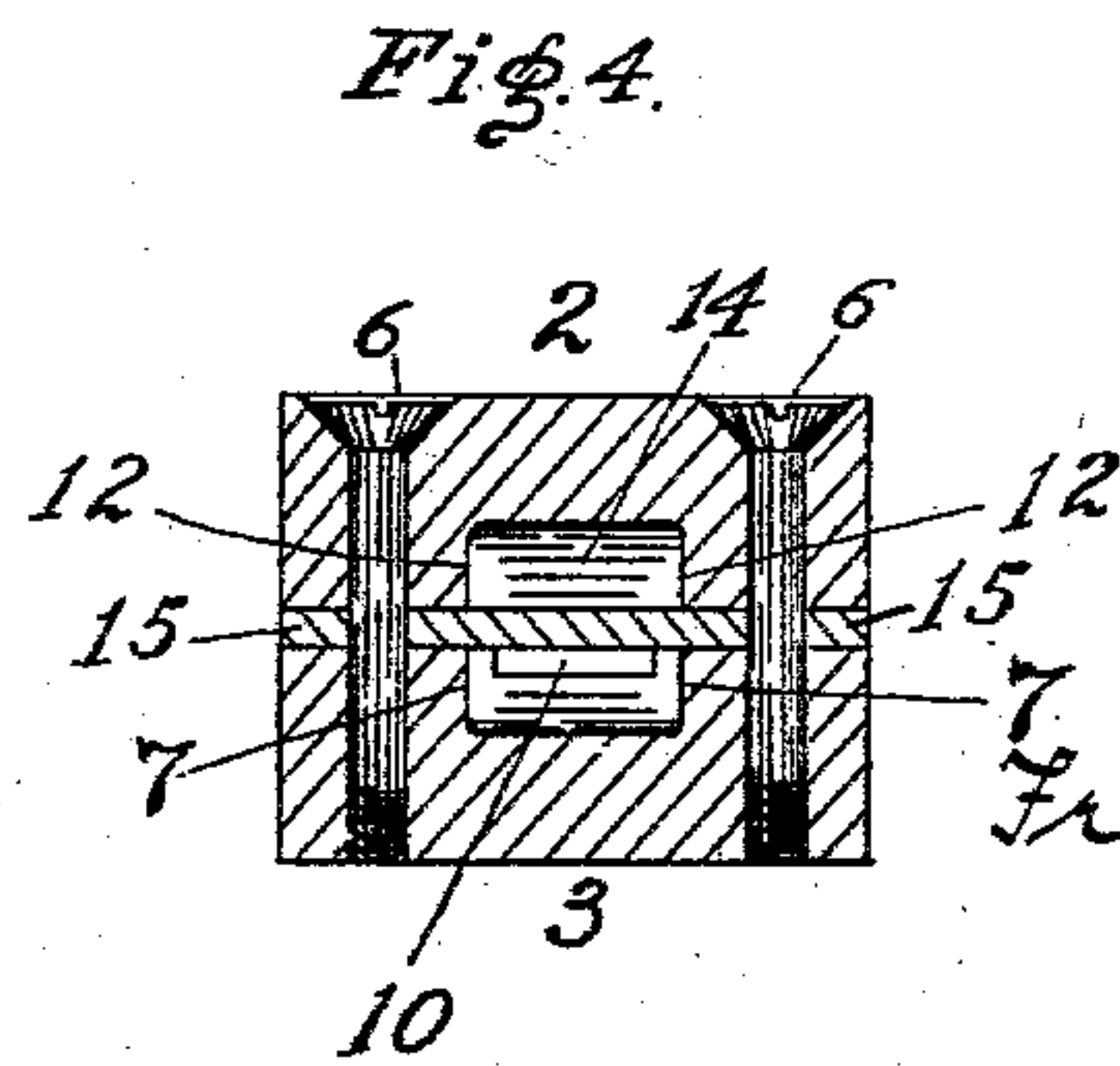
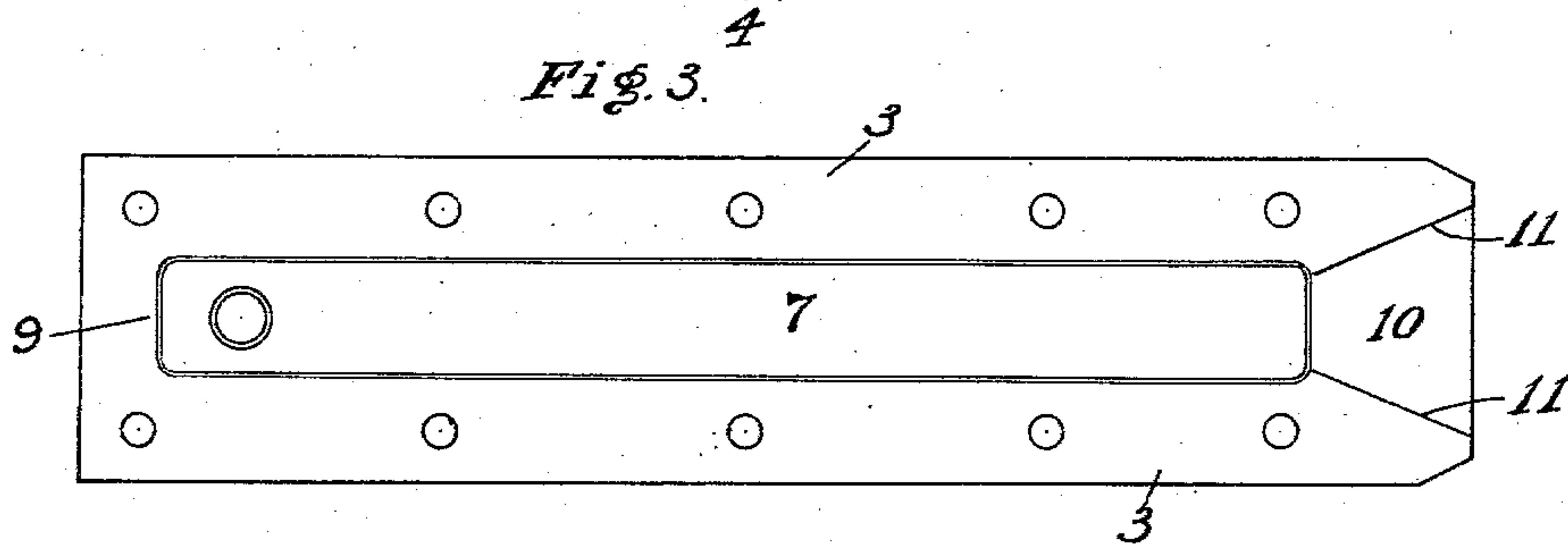
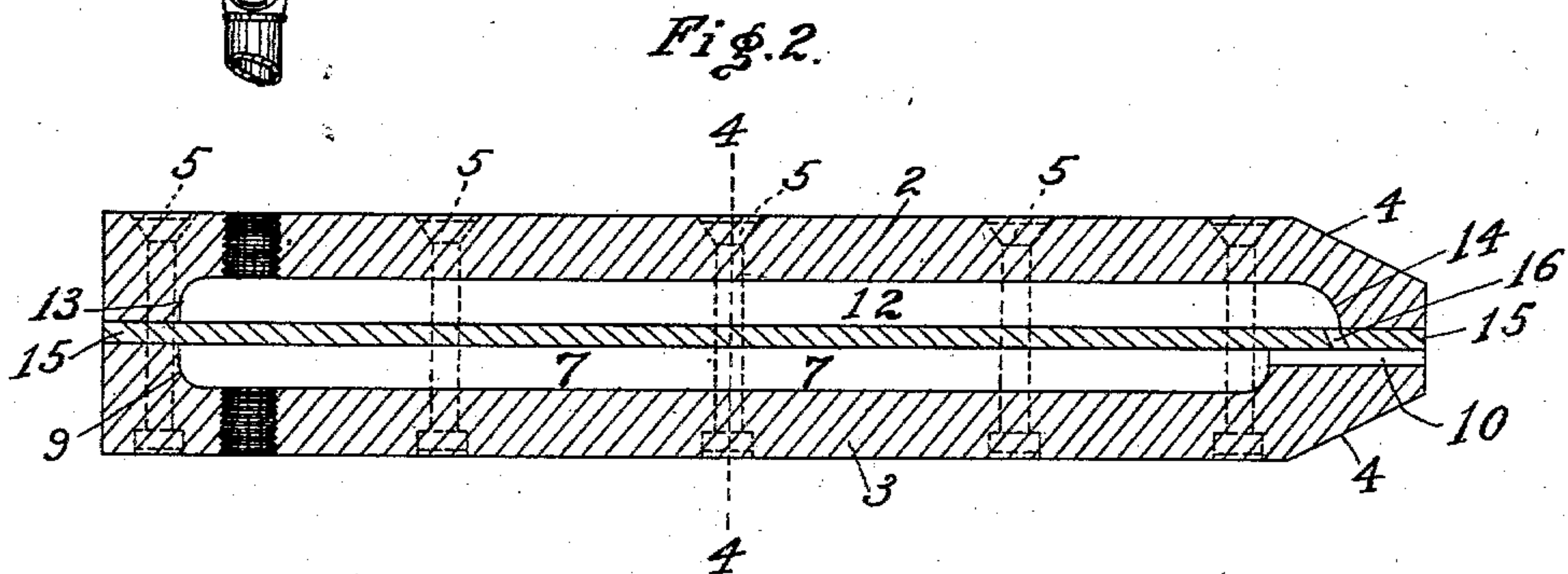
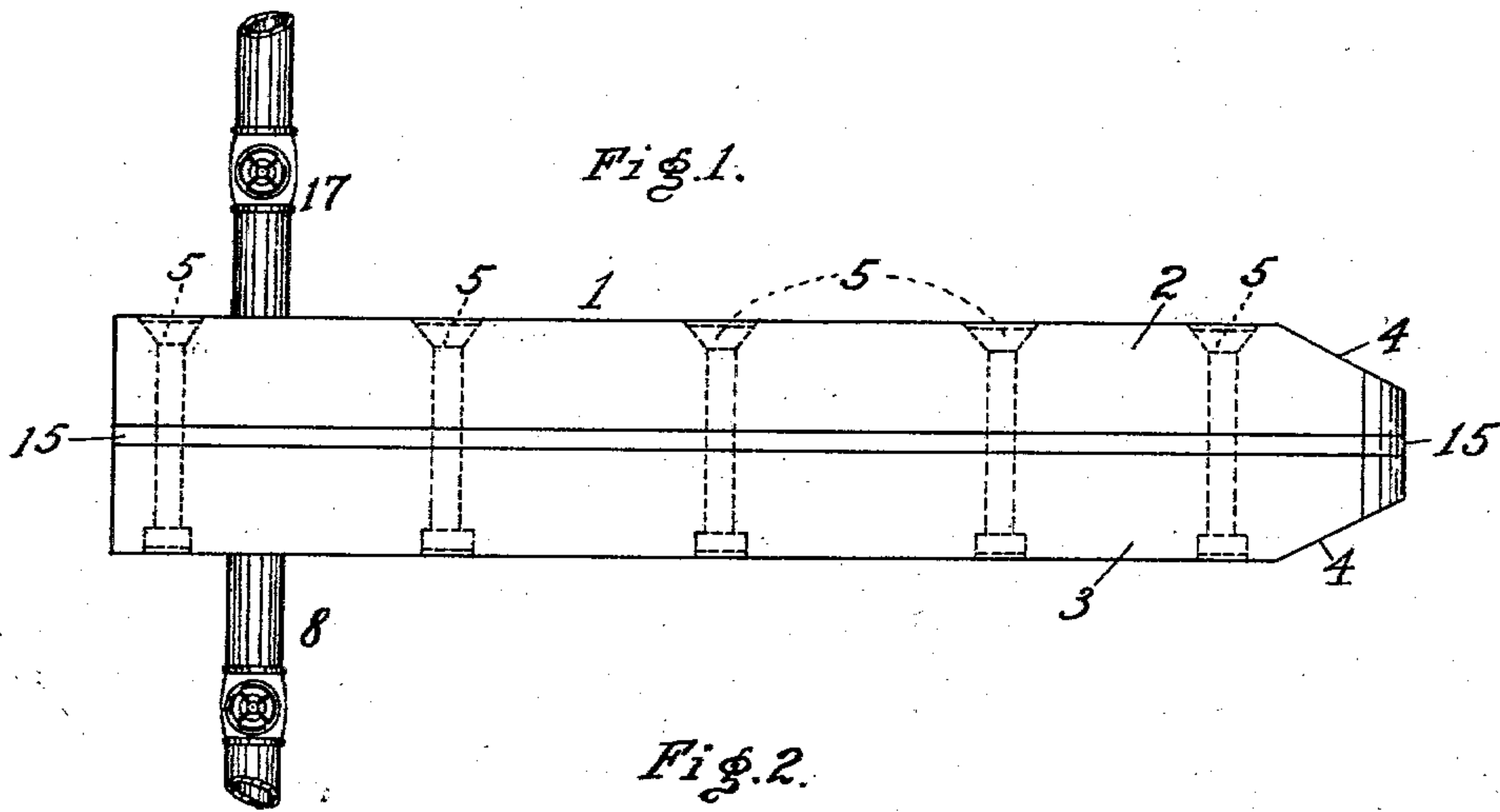
No. 745,518.

PATENTED DEC. 1, 1903.

F. B. PETTENGILL.
BURNER.

APPLICATION FILED MAR. 13, 1902.

NO MODEL.



WITNESSES
L. B. Alderete

INVENTOR
Fredrick B. Pettengill.

BY *Charles S. Rogers*
ATTORNEY

UNITED STATES PATENT OFFICE.

FREDERICK B. PETTENGILL, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO
OIL BLAST FURNACE SMELTING COMPANY, OF LOS ANGELES, CALIFOR-
NIA, A CORPORATION OF CALIFORNIA.

BURNER.

SPECIFICATION forming part of Letters Patent No. 745,518, dated December 1, 1903.

Application filed March 13, 1902. Serial No. 98,088. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK B. PETTENGILL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Burner, of which the following is a specification.

This invention relates to devices for burning fluids, and particularly to those wherein oil is employed; and some of the objects of the invention are to provide a device of this general character which is simple in construction and efficient in operation.

Another object of the invention is to provide a burner wherein the oil is extracted by the passage of a fluid agent and wherein the oil descends upon and is divided by the extracting agent employed.

With these and other objects in view the invention consists, essentially, in the construction, combination, and arrangement of parts substantially as more fully described in the following specification and illustrated in the accompanying drawings, forming part of this application, wherein—

Figure 1 is a side elevational view of a burner embodying the invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a top plan view of the lower member of the burner, showing the formation of the chamber and outlet for the extracting agent; and Fig. 4 is a transverse sectional view taken on lines 4-4 of Fig. 2.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawing, the reference character 1 designates a burner, preferably embodying two members or sections 2 and 3, desirably rectangular in form and preferably beveled or inclined at one end, as shown at 4, Figs. 1 and 2 of the drawings.

The members 2 and 3 are preferably united or removably secured together by bolts or screws 5, as shown in said figures; but screws 6 may be employed, if desired, which are screwed or tapped into the lower member 3, Fig. 3, to permit the ready assembling and disconnection of the members 2 and 3 in practice and particularly where free access to all parts of the burner cannot be had.

The member or section 3 is preferably constructed with a longitudinal chamber or recess 7, Figs. 2, 3, and 4 of the drawings, with which communicates a pipe or connection 8, which also connected with a source of supply (not shown) of any suitable extracting agent, as will be readily understood, and one end of said chamber is preferably closed, as at 9, Figs. 2 and 3, while the other end of said chamber is desirably provided with a throat or outlet 10, through which the extracting agent passes, preferably under more or less pressure.

The throat or outlet 10 is preferably in a different plane from that of the bottom of the chamber 7, and the side walls 11 of the throat or outlet are desirably flared laterally, substantially as illustrated in Fig. 3, to permit of the expansion of the extracting agent and to cause the creation of a vacuum in that portion of the burner.

The member or section 2 is also preferably constructed with a longitudinal recess or chamber 12, desirably closed at both ends, as at 13 and 14; but the chamber 12 is preferably longer than the chamber 7 and extends over and approximately one-half of the length of the throat 10 when the members 2 and 3 are assembled or secured together substantially as shown in Fig. 2 of the drawings.

A diaphragm or plate 15 is preferably secured between and separates the members or sections 2 and 3, as shown in Figs. 1 and 2, being secured in position by the bolts or screws 5 or 6, and this diaphragm also serves as a packing, being preferably of soft metal or other material, to prevent the unintentional escape of the contents of the chambers 7 and 12, as will be readily understood.

The diaphragm or plate 15 is preferably provided with an opening 16, desirably slightly inclined toward the near end of the same, so that the contents of the chamber passing therethrough will be directed outwardly to facilitate the sucking action of the contents of the chamber 7 as the same passes therefrom through the throat 10.

By means of the construction just described the contents of the superimposed chamber 12 will descend through the opening 16 upon the contents of the chamber 7 as the same es-

capacities through the throat 10, and the contents of both chambers will commingle at that point.

Steam, heated air, or any other suitable fluid may be employed as an extracting agent, and oil, gas, or other fluid may be used as fuel, as may be found desirable in practice; but oil will be mentioned in this description, and it will be admitted into the chamber 12 preferably through a supply-pipe or connection 17, communicating with a source of supply.

The operation of the invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following explanation thereof. The extracting agent preferably enters the chamber 7 through the connection 8, desirably under pressure, and said agent traverses the entire length of said chamber and escapes through the throat 10, wherein it is allowed to expand by reason of the flaring formation of the throat, creating a vacuum and preventing choking of the throat by pressure of oil. The fuel employed enters the chamber 12 by way of the supply connection 17 and traverses that chamber until it reaches the opening 16 in the diaphragm 15, through which opening the fuel descends, preferably in a limited quantity, upon the escaping extracting agent below, being sucked or drawn out thereby and mixed therewith, so that combustion takes place at the orifice of the throat 10, and a thin fan-shaped flame of great intensity is produced.

It will be understood that when steam or heated fluid is employed as an extracting agent the superimposed oil in the chamber 12 will be thinned during its passage over the diaphragm 15, so that when it shall have reached the opening 16 it will be in condition to be burned.

It is not desired to confine this invention to the specific construction, combination, and arrangement of parts herein shown and de-

scribed, and the right is reserved to make all such changes in and modifications of the same in practice as come within the spirit and scope of the invention.

I claim—

1. A burner provided with an upper bottomless member closed at both ends and having a top supply connection, a lower bottomless member closed at one end and having a flaring outlet, a separate diaphragm forming the bottom for said members when assembled and having an opening through which the fuel is sucked down into said outlet and atomized by the extracting agent escaping from said lower member.

2. A burner provided with an upper bottomless member closed at both ends and having a top supply connection, a lower bottomless member closed at one end and having a flaring outlet at the other end, a separate diaphragm between and forming the bottom of said members when assembled and having an opening for the passage of the fuel from the upper member into said outlet by the action of the extracting agent escaping from the lower member.

3. A burner provided with an upper member having a fuel-chamber and supply connection, a lower member having a chamber and connection for the extracting agent and constructed with a straight flared throat, a diaphragm between said members having an opening communicating with said throat, said opening being inclined so as to direct the oil outwardly as it passes into the outlet, and devices to retain the said parts together.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK B. PETTENGILL.

Witnesses:

J. W. KEMP,
S. L. KISTLER.