

(No Model.)

C. GILBERT.

OIL BURNER.

No. 399,517.

Patented Mar. 12, 1889.

Fig. 1.

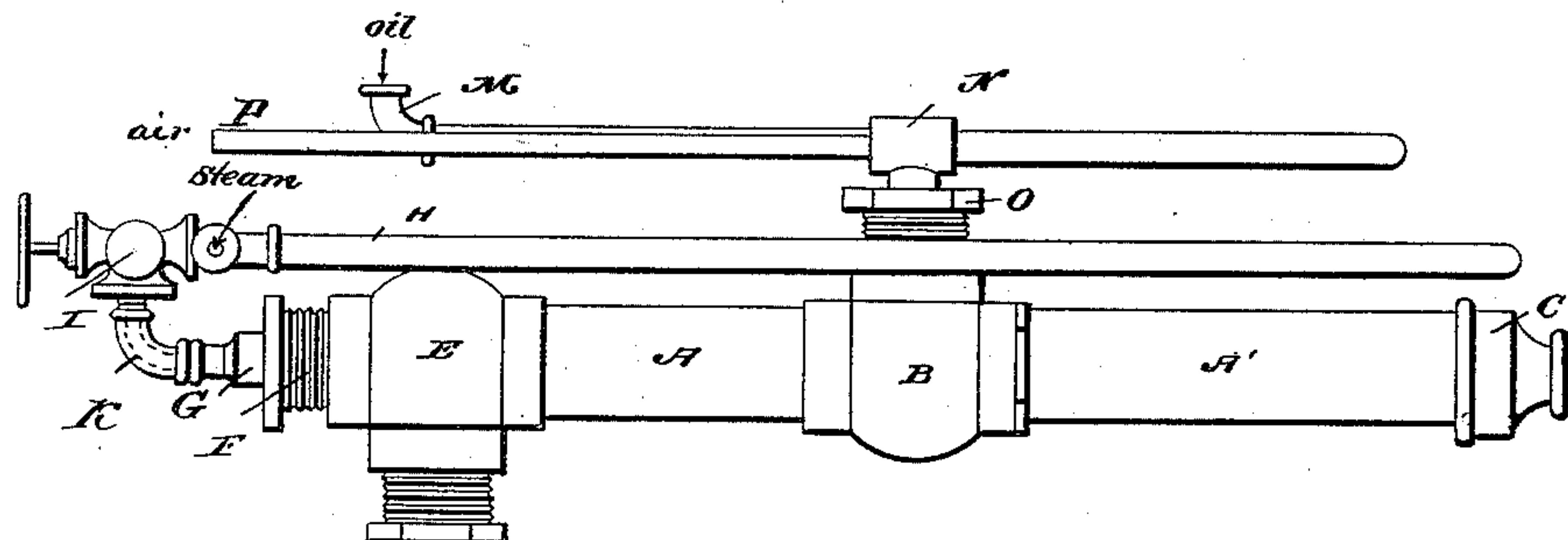
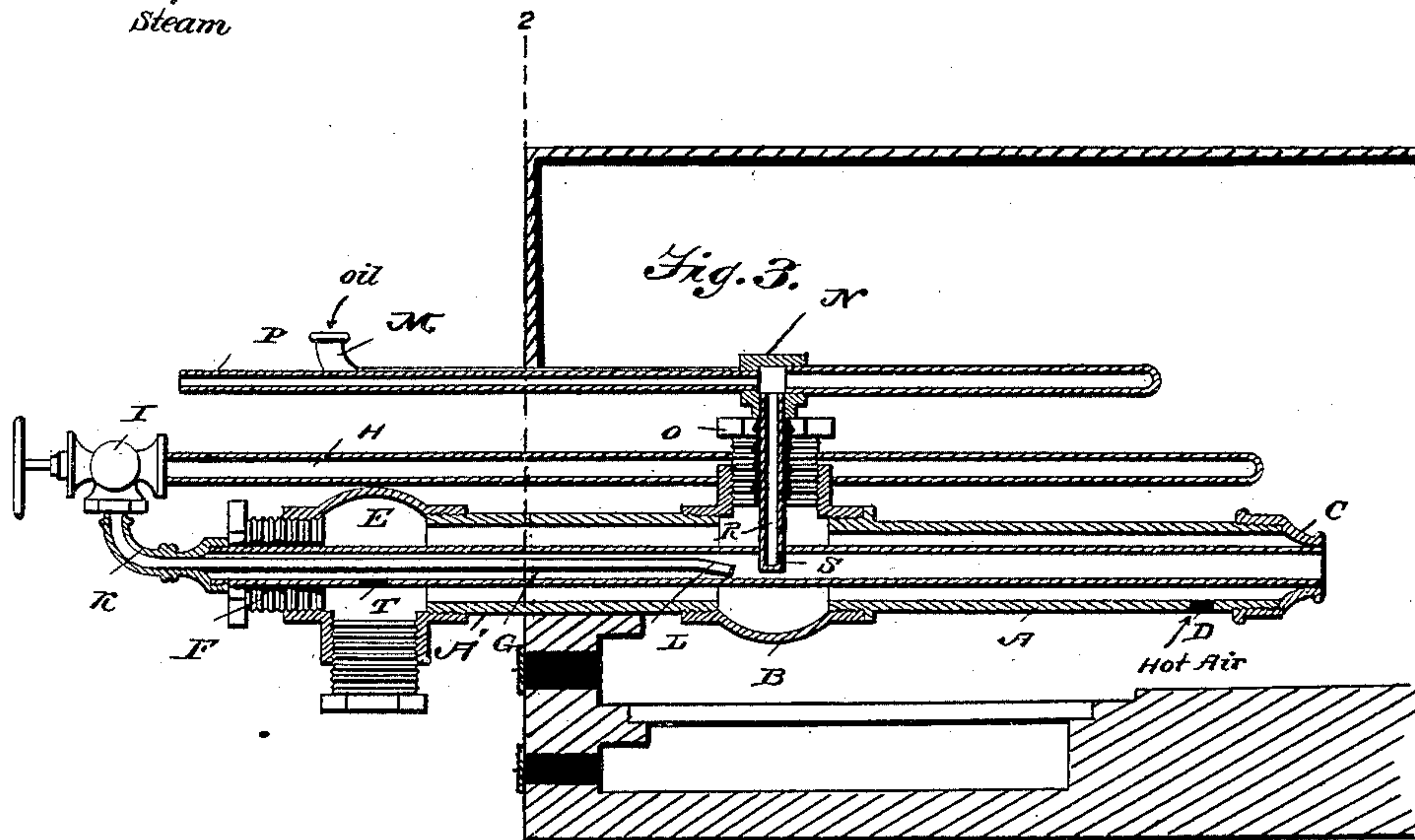
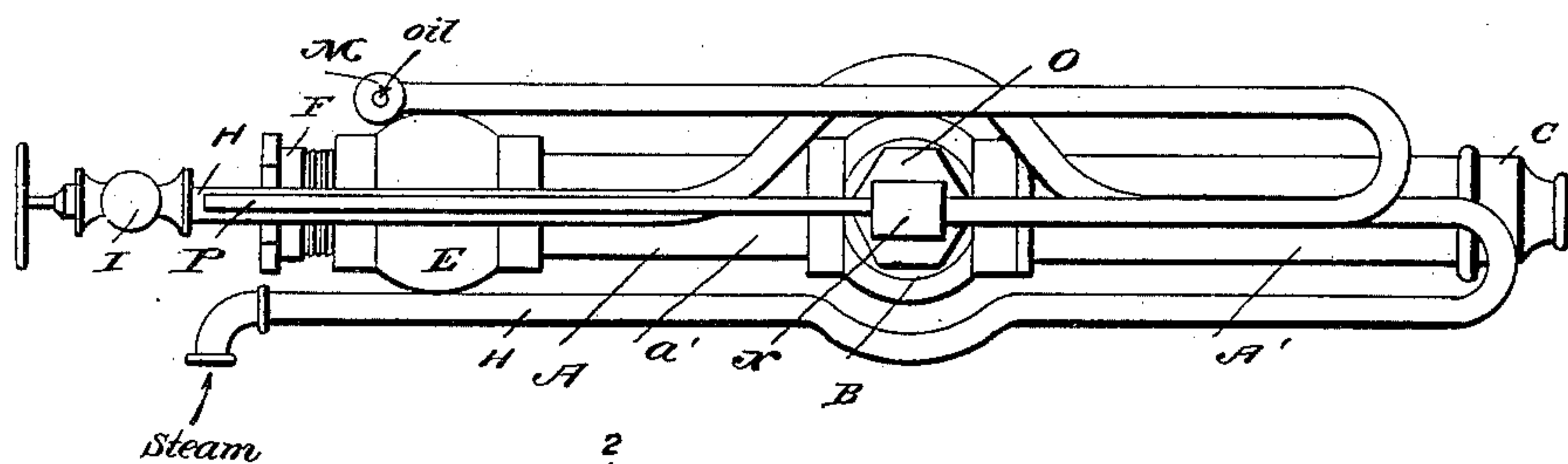


Fig. 2.



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Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES GILBERT, OF OMAHA, NEBRASKA.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 399,517, dated March 12, 1889.

Application filed August 10, 1888. Serial No. 282,430. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES GILBERT, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Oil-Burners; and I do 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 improvements in oil-burners of that class in which steam is employed as the injecting agent, and is designed for furnaces, where a high degree of heat is desired.

In the drawings, Figure 1 is a side elevation of my improved burner. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal vertical section showing the same arranged in a section of a furnace.

Referring to the drawings, the main or body portion of the burner consists of pipe-sections A A', connected by a T-coupling, B. The section A' is provided with a reducer, C, forming the nozzle on the burner, and near the end carrying the said reducer has an inlet, D, for hot air. The pipe A carries a T-coupling with a reducing-nut, F. Extending centrally and entirely through the pipes A A', and supported at the ends in the reducer C and nut F, is a pipe, G, of smaller diameter than the said pipes, and provided with an opening, T, adjacent to the coupling E.

H designates a steam-pipe extending from one end of the burner nearly the length of the same and then returned to a valve, I, which in turn is connected to a small pipe, K, passing into the pipe G at the end opposite that connected with the reducer C, and extending nearly to the middle of the said pipe is there bent slightly downward, as shown at L.

M designates an oil-supply pipe extending toward the nozzle of the burner and then returning and entering a T-coupling, N, which latter is supported by a nut, O, in the coupling B. The said coupling N carries an air-inlet pipe, P, opposite the pipe M, to prevent oil suction, and also carries a pipe, R, extending into the pipe G in front of the end L of the pipe K. The end of the pipe R within

the pipe G is closed, while a small opening, S, is provided in the side facing the nozzle of the burner and opposite that adjacent to the end L of the pipe K.

The burner enters the furnace to a point indicated by the line 2 2 shown in Fig. 3, and it will be seen that both the oil-pipe and the steam-pipe enter the furnace before passing into the body of the burner, thus causing the oil to be vaporized and the steam superheated when the burner is in operation.

When it is desirable to use the burner, the oil-supply is started, and then the steam is turned on, and, passing through the pipe K and end or nozzle L, flows under and beyond the end of the pipe R and into the furnace through the nozzle of the burner.

The vaporized oil is drawn through the pipe R and the orifice S into the pipe G by the steam-jet, and is ultimately mixed with the steam as it is projected into the furnace. The action of the steam-jet causes heated air from the furnace to be drawn through the hole D in pipe A', and thence through hole T in pipe G, in which it mixes with the steam and oil and is projected with them into the furnace.

The combined action of the steam, oil, and hot air is such that a perfect combustion is effected at the mouth of the burner and no oil is wasted, and I am enabled to use a minimum of steam to operate the burner.

Having described my invention, what I claim is—

1. In an oil-burner, the combination, with the body composed of two tubular sections, of a coupling therefor, a nut arranged in the upper branch of the coupling, the T-coupling arranged in said nut, the oil-pipe extending nearly the entire length of the burner and communicating with the T-coupling, the pipe G, arranged in the main body, a pipe leading from the T-coupling to said pipe in the main body, and the small pipe K, leading from the valve and passing into the main body, substantially as specified.

2. In an oil-burner, the combination, with the main body composed of two tubular sections united by a T-coupling, one section having a hot-air inlet and a reducer and the other section a coupling for the main supply, a tube



arranged within the body and provided with an opening, T, a reducing-nut at the T-coupling, a T-coupling arranged within said nut, an oil-supply pipe extending from the T-coupling in the main body, a steam-pipe  
5 extending the entire length of the main body in a loop form and having a valve at one end, a small pipe leading from said valve and passing into the pipe arranged within the

main body, and an air-pipe communicating to with the T-coupling N, substantially as specified.

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

CHARLES GILBERT.

Witnesses:

HANS J. WINTHERLICH,  
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