

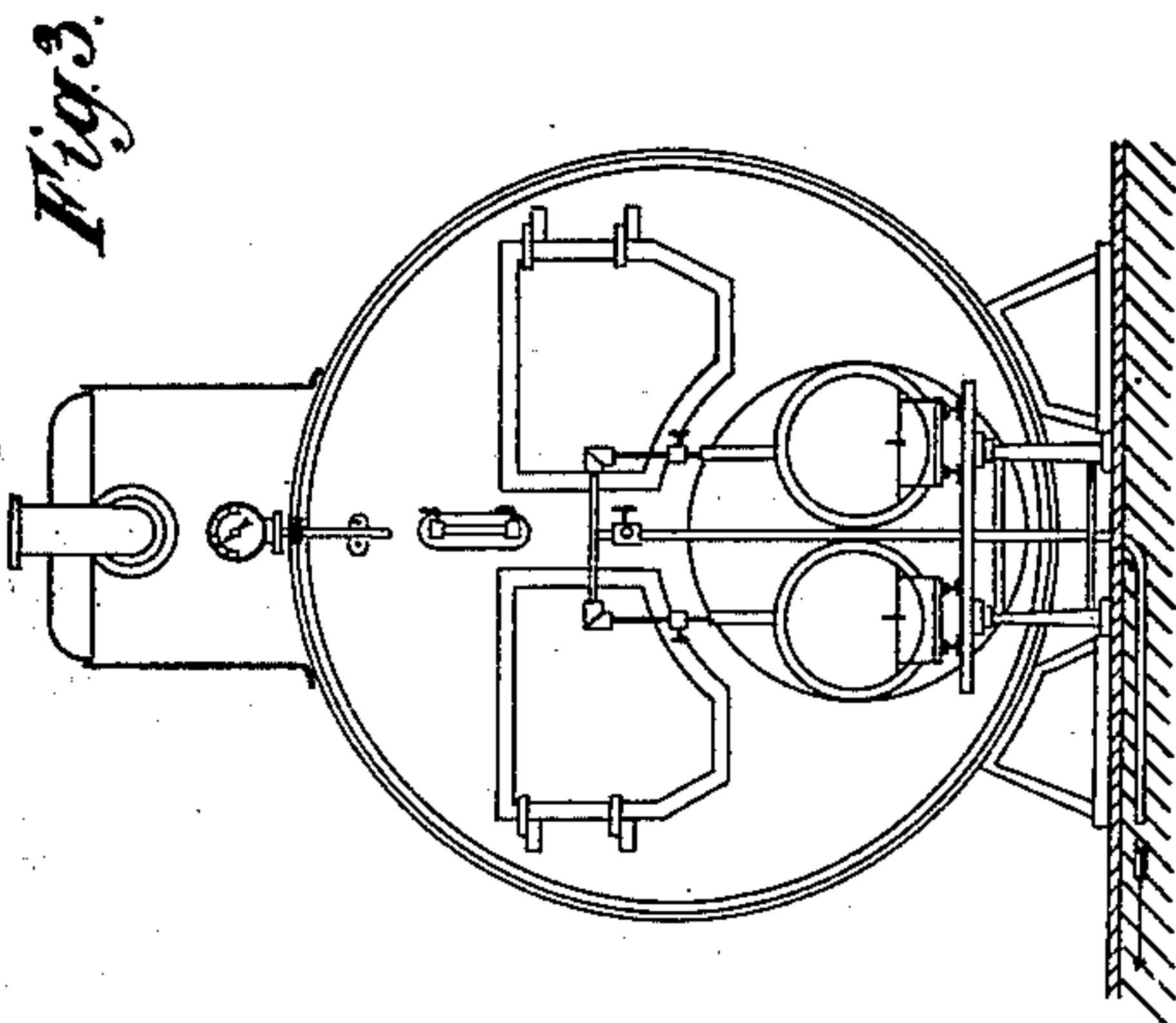
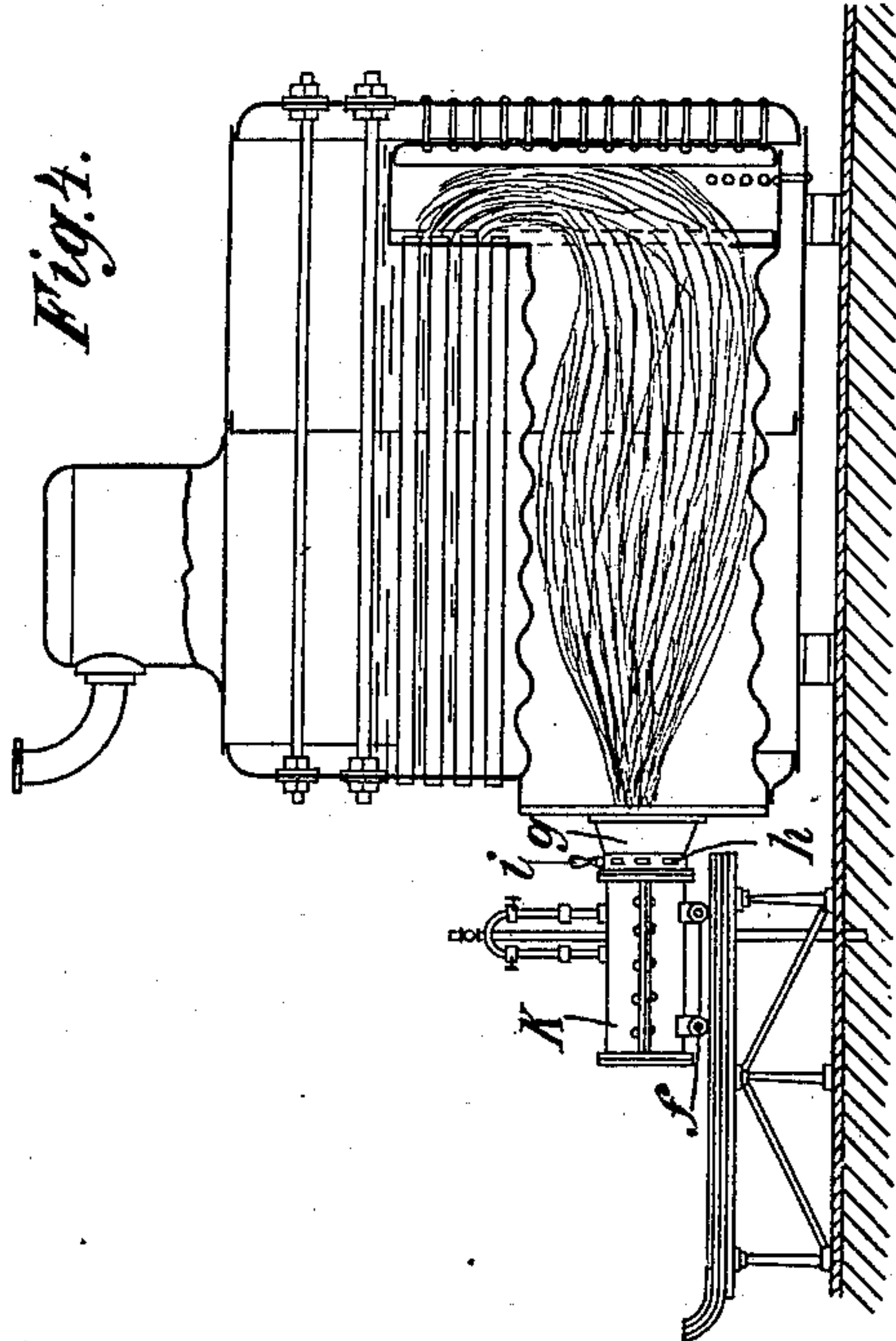
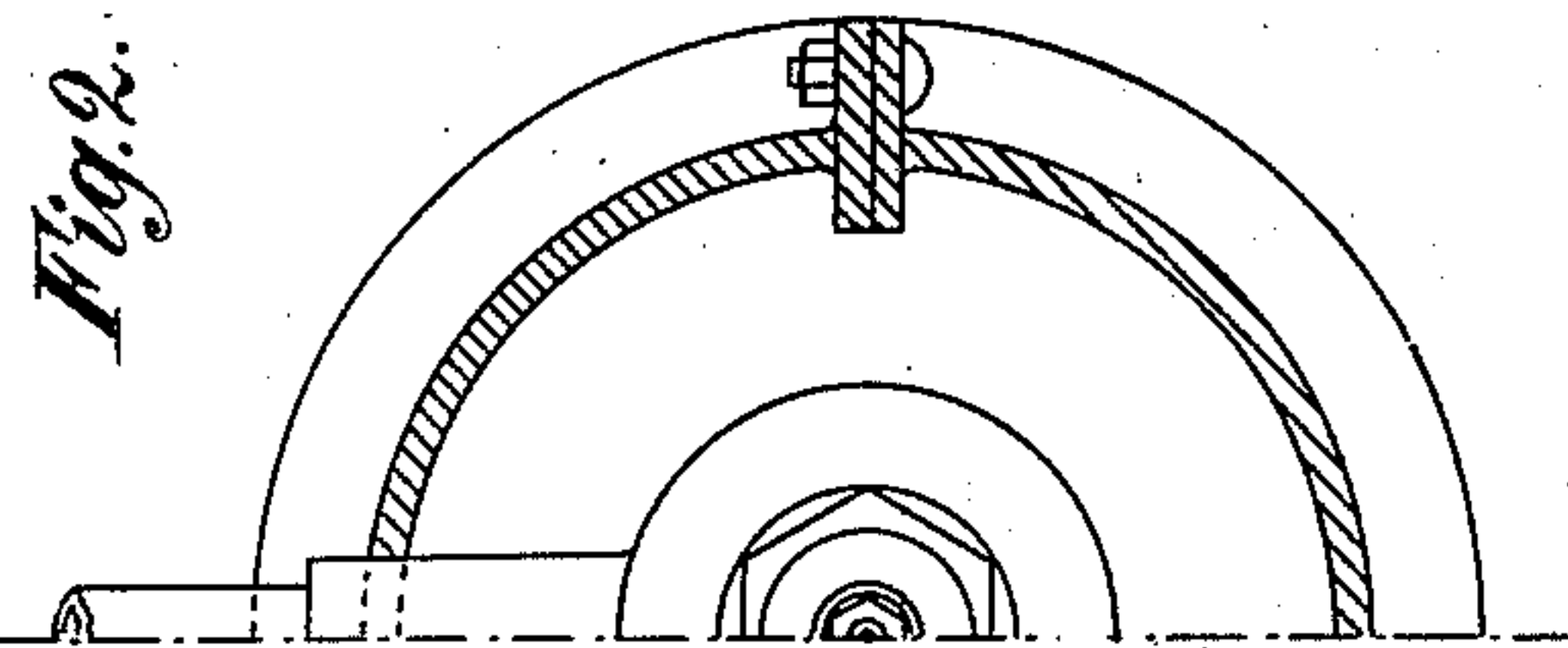
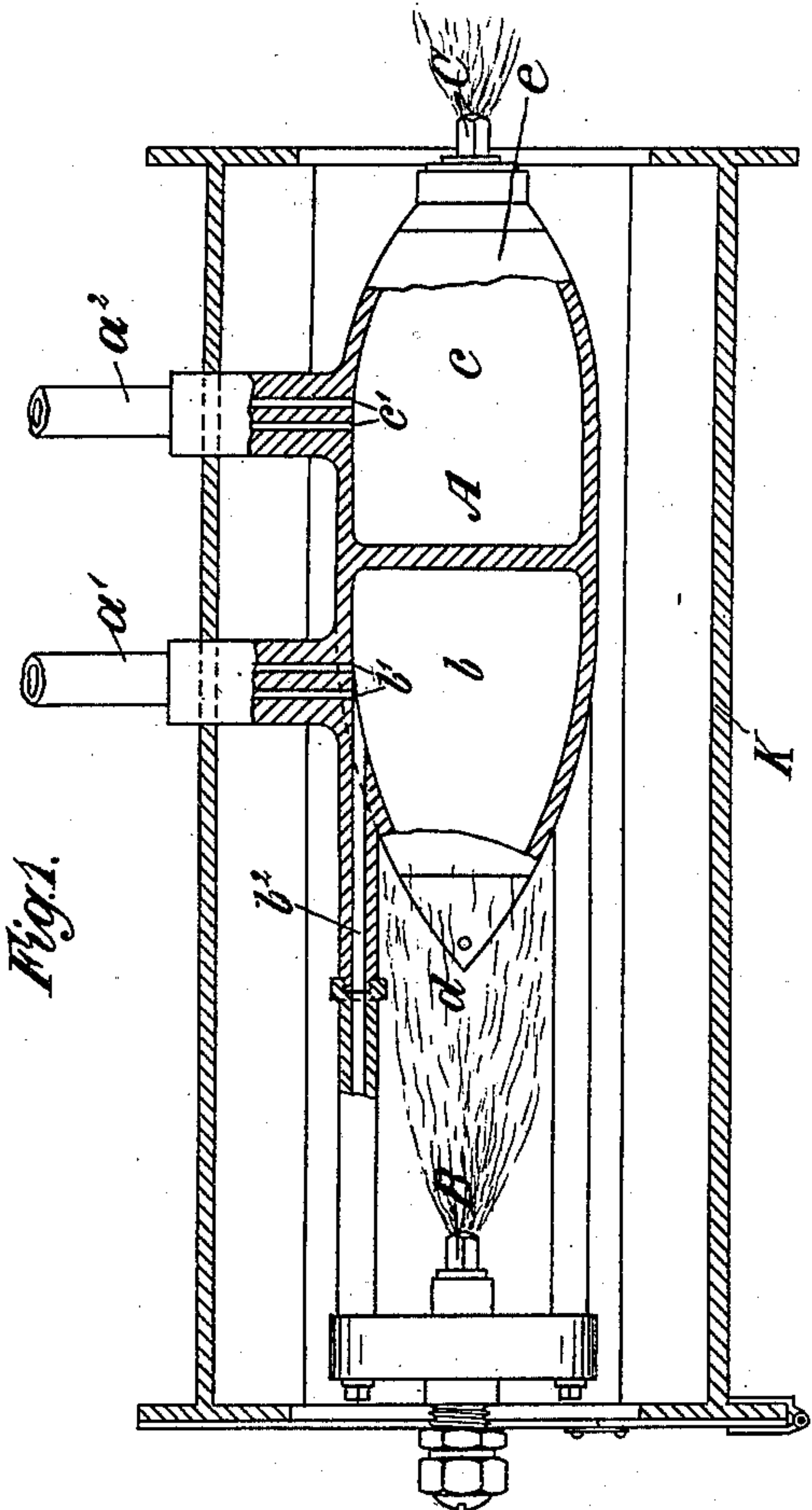
No. 661,636.

Patented Nov. 13, 1900.

L. DÜRR.
VAPOR BURNER.

(Application filed Feb. 19, 1898.)

(No Model.)



Witness:
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UNITED STATES PATENT OFFICE.

LUDWIG DÜRR, OF BREMEN, GERMANY.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 661,636, dated November 13, 1900.

Application filed February 19, 1898. Serial No. 670,944. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG DÜRR, a subject of the King of Bavaria, residing at Bremen, in the Empire of Germany, have invented certain new and useful Improvements in Vapor-Burners; 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.

In the specification of former Letters Patent granted to me, No. 568,842, of October 6, 1896, there is described a construction of oil-vapor burners wherein two burners fed from a single gasifying, vaporizing, or superheating body, hereinafter called a "vaporizing" body, are arranged to coöperate one behind the other in such a manner that the rear burner essentially heats the vaporizing body, while the front burner serves as the illuminating or heating burner, whose practically unobserved flame is nevertheless somewhat increased by the flame of the rear burner. The vaporizing body has been constructed hitherto preferably in the form of an annular body heated from within. The accompanying drawings show a construction of such oil-vapor burner with burners arranged to coöperate one behind the other.

Figure 1 is a longitudinal section, and Fig. 2 partly a cross-section and partly a front view, of the apparatus. Figs. 3 and 4 illustrate an arrangement for using the new burners for heating steam-boilers.

The gasifier or vaporizer A of the new oil-vapor burner is a hollow body which is spread over from without by the flame of the superheater-burner B. The vaporizer may be of any suitable outer shape; but preferably it is made in the form of a torpedo, so that it is completely surrounded by the flame of the rear burner, so as to obtain a good uniform gasifying and superheating of the oil for both of the burners; but if the front illuminating or heating burner C is to be stopped it is advantageous that the flame of the rear burner continue to burn, so that the vaporizer is not unnecessarily cooled. For this purpose the vaporizer is divided, so that the two burners B and C have separate vaporizing-chambers *b* and *c*, respectively, each of which is

provided with a separate petroleum-supply pipe *a'* or *a*².

When the petroleum-supply of the pipe *a*² for the illuminating or heating burner C is shut off, the left half of the vaporizer and its appurtenances continue to work, so that the heating-burner is fed with gas or vapor as formerly, and it heats the vaporizer so perfectly that when the petroleum-supply to the vaporizing-chamber *c* is reopened the illuminating-burner C enters at once in action. In this construction the vaporizer is provided at each end with a removable closure-head *d* or *e*, the rear head or end *d* being conical, so that the flame issuing from the rear burner, which burner is in alinement with such head, is caused to spread over the surface of the vaporizer or retort.

The petroleum is supplied to the pipes *a'* and *a*² from a reservoir. (Not shown in the drawings.) The petroleum enters the vaporizing-chamber through fine perforations *b'* *c'*. For regulating the supply of liquid there are inserted into the upper part of the supply-pipes *a'* *a*² any suitable regulating devices. (Not shown in the drawings.) The petroleum enters in a regulated, but sufficient, quantity slowly into the vaporizing-spaces. For putting the apparatus into action the vaporizer is first heated by a burning wad of cotton-waste or the like placed around the same. Petroleum-vapor passes through the pipe *b*² to the heating-burner B and ignites in front thereof, and the flame thus produced spreads permanently over the vaporizing body, heating the latter to such a degree that the petroleum is transformed with certainty into superheated gas or vapor. This complete gasification or vaporization has also the result that deposits are not formed in the vaporizing-chambers. The pipe *b*² is placed substantially parallel to the axis of the retort A, so that its contents are heated by the flame of the rear burner. This construction of the apparatus is particularly suitable for heating purposes, and Figs. 3 and 4 represent a steam-boiler furnace provided with such vapor-burners. A marine boiler is shown heated by two apparatus arranged one beside the other in front of the fire-flue, and each apparatus is mounted on a wheeled

carriage-frame *f*. To the front end of the apparatus is secured, as shown in Fig. 4, a cone *g* for connecting the apparatus with the boiler. At *h* close to the end of the apparatus this cone is circumferentially perforated to such an extent that there will be a sufficient supply of air to the flame of the heating-burner. For controlling the air-supply a slotted valve *i* is provided. The longitudinal outer casing *k* of the apparatus may be lined, if the heating apparatus is submitted to a high temperature, with a layer of refractory material, such as fire-brick.

As will be evident, the constructions shown may be varied with regard to the material and details without departing from the nature of the invention.

What I claim is—

1. A petroleum-vapor burner composed of a retort having a rear conical end and divided into a pair of chambers, separate inlet-pipes for said chambers, a front and a rear burner, the rear burner being placed in alinement

with the rear conical end of the retort, and a vapor-supply pipe adapted to feed the rear burner, all being so constructed that the flame of the rear burner is adapted to overspread the surface of the retort, substantially as specified.

2. A petroleum-vapor burner composed of a retort having a rear conical end, and divided into a pair of chambers, separate inlet-pipes for said chambers, a front and a rear burner, the rear burner being placed in alinement with the rear conical end of the retort, and a vapor-supply pipe placed substantially parallel to the axis of the retort and adapted to feed the rear burner, substantially as specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LUDWIG DÜRR.

Witnesses:

GERHARD CALLMEYER,
JOHN H. SCHNABEL.