

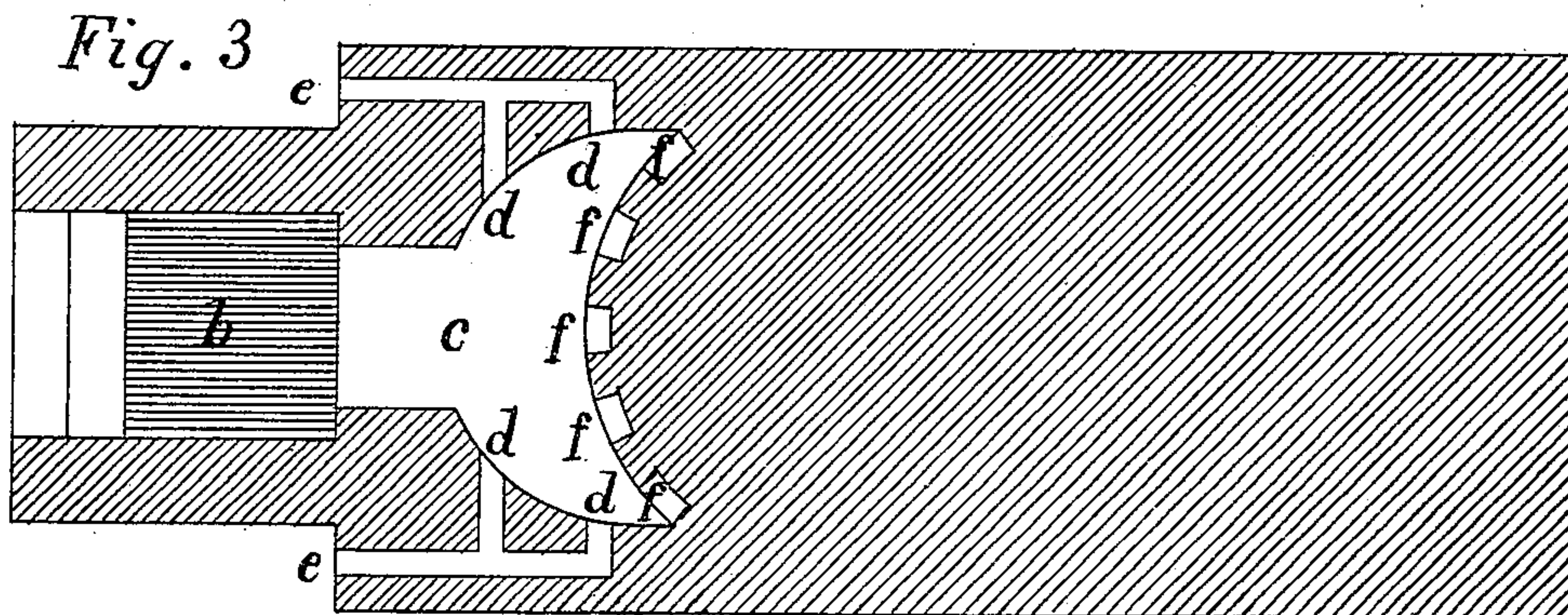
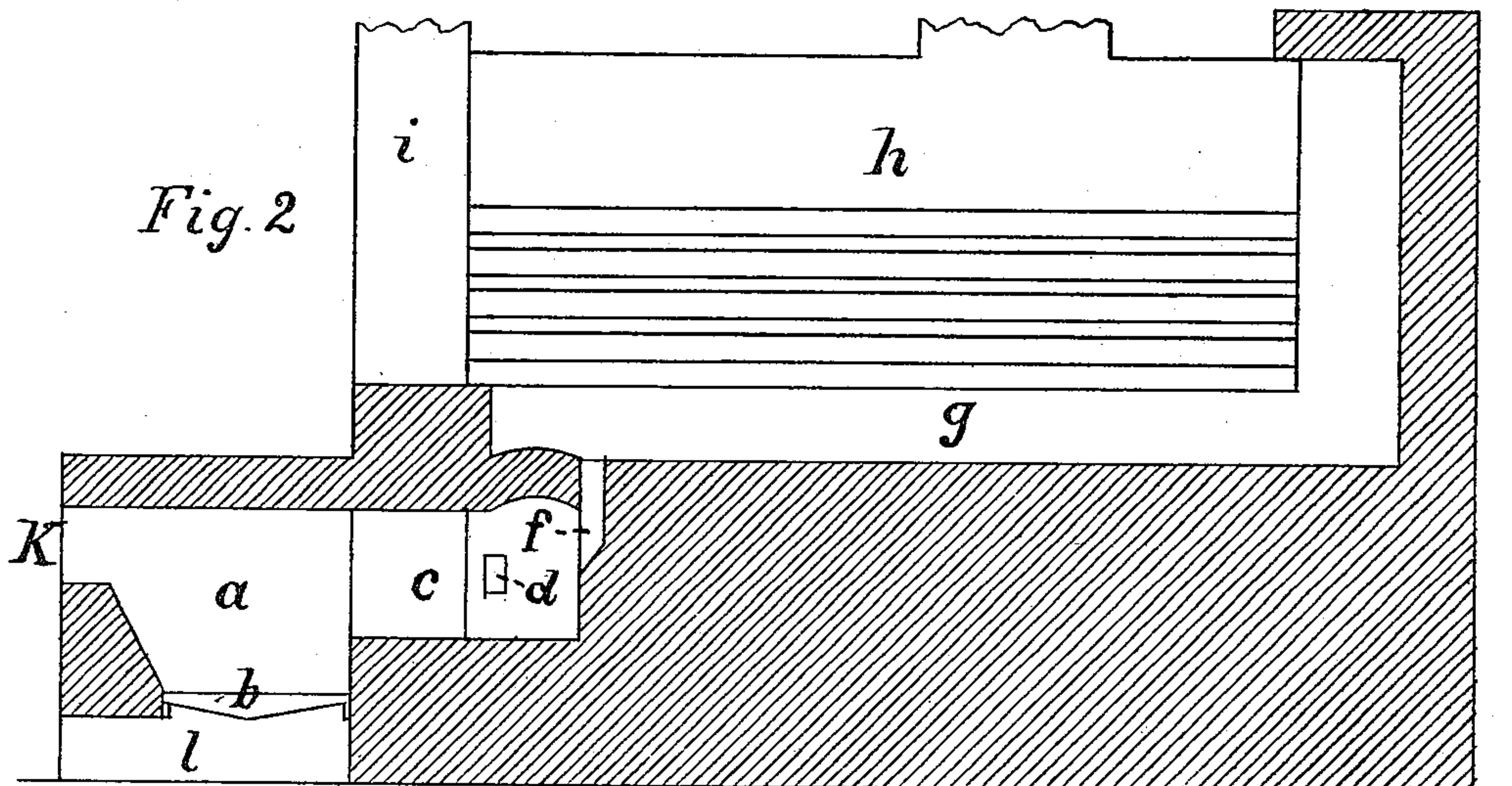
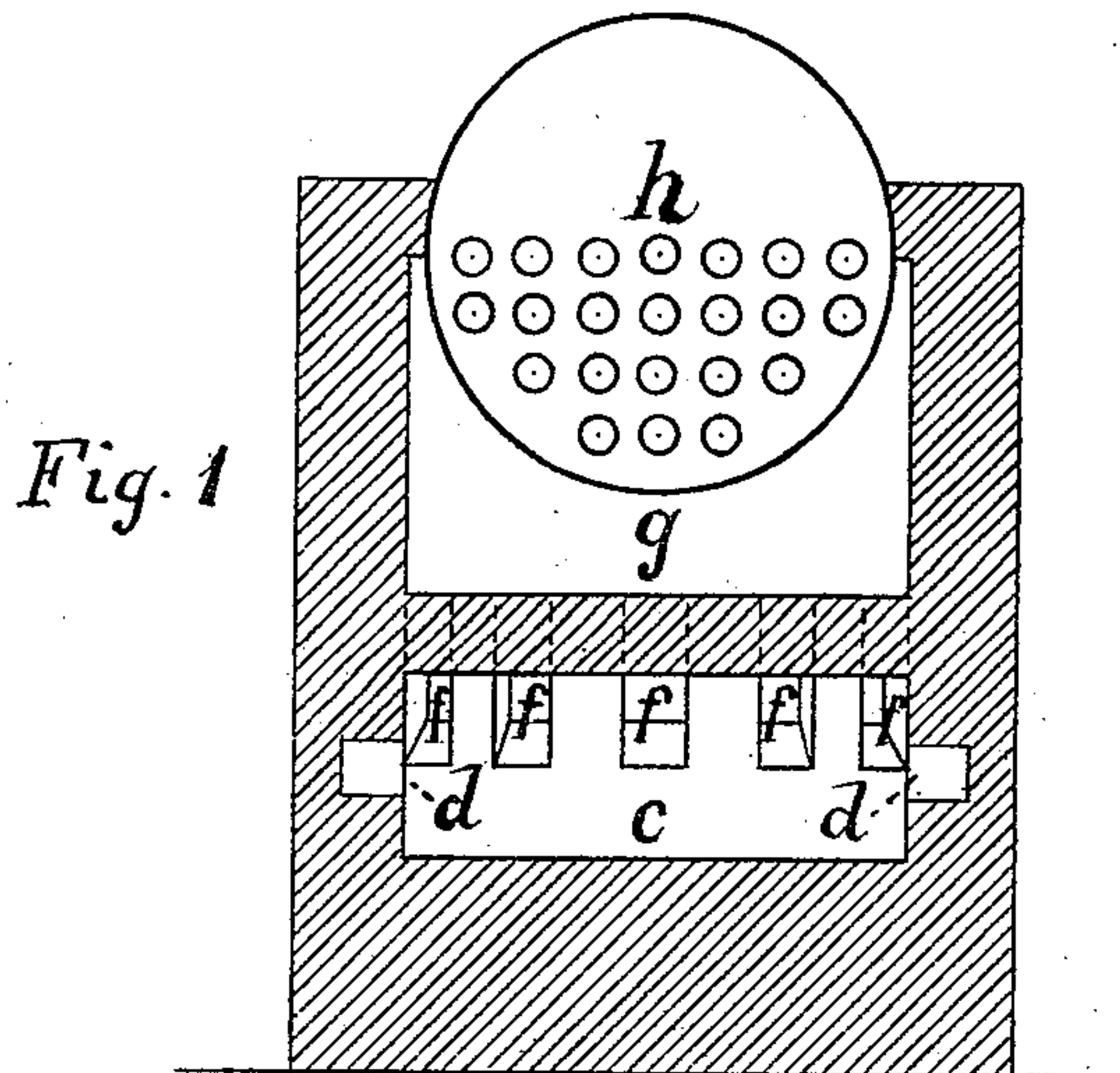
(No Model.)

J. JOHNSON.

FURNACE FOR STEAM BOILERS.

No. 248,864.

Patented Nov. 1, 1881.



Witnesses:
John P. Michaelberg
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Inventor:
James Johnson
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UNITED STATES PATENT OFFICE.

JAMES JOHNSON, OF BAY VIEW, WISCONSIN.

FURNACE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 248,864, dated November 1, 1881.

Application filed July 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES JOHNSON, a citizen of the United States, residing at Bay View, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Furnaces for Steam-Boilers; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in furnaces for steam-boilers; and it consists of the peculiar relative arrangements of the fire-box, boiler, flues, and air-passages to each other, whereby a more perfect combustion of the fuel and gases is attained and a higher temperature with the less quantity of fuel is produced.

My invention is further explained by the accompanying drawings, in which—

Figure 1 represents a transverse section of the furnaces on a line immediately in front of the boiler. Fig. 2 is a longitudinal section. Fig. 3 is a ground plan.

Like parts are represented by the same reference-letters throughout the several views.

A is the fire-box.

b is the grate.

C is a combustion-chamber, through which the flame passes from the fire-box to the boiler.

d d d d are cold-air passages, through which the exterior air enters the combustion-chambers and mingles with the blaze and gases that have escaped from the fire-box, and thus supplies the required oxygen to produce a more perfect

combustion, whereby nearly, if not all, the smoke and gases are consumed within the furnace, thus greatly increasing the heat and reducing the quantity of fuel which would otherwise be required.

fffff are flues communicating from the combustion-chamber to the boiler. The object of the several passages f is to subdivide the flame and distribute it more uniformly beneath the boiler. The chamber C is curved outwardly, as shown, to permit the flame to spread as it passes to the boiler.

g is a passage through which the heat and flame pass beneath the boiler to its rear end, when their course is turned forward through the flues h in the boiler to its front end, when they pass upward in the smoke-stack I, the course of the draft through the furnace being indicated by the arrows.

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

In furnaces for steam-boilers, the combination of the fuel-box, a semicircular combustion-chamber, C, boiler h, said combustion-chamber being arranged between said fuel-box and boiler, cold-air passages d d, arranged upon the respective sides of the combustion-chamber and communicating with the interior air-flues f, and passage g, all substantially as and for the purpose specified.

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

JAMES JOHNSON.

Witnesses:

JAS. B. ERWIN,

J. PETER WECHSELBERG.