

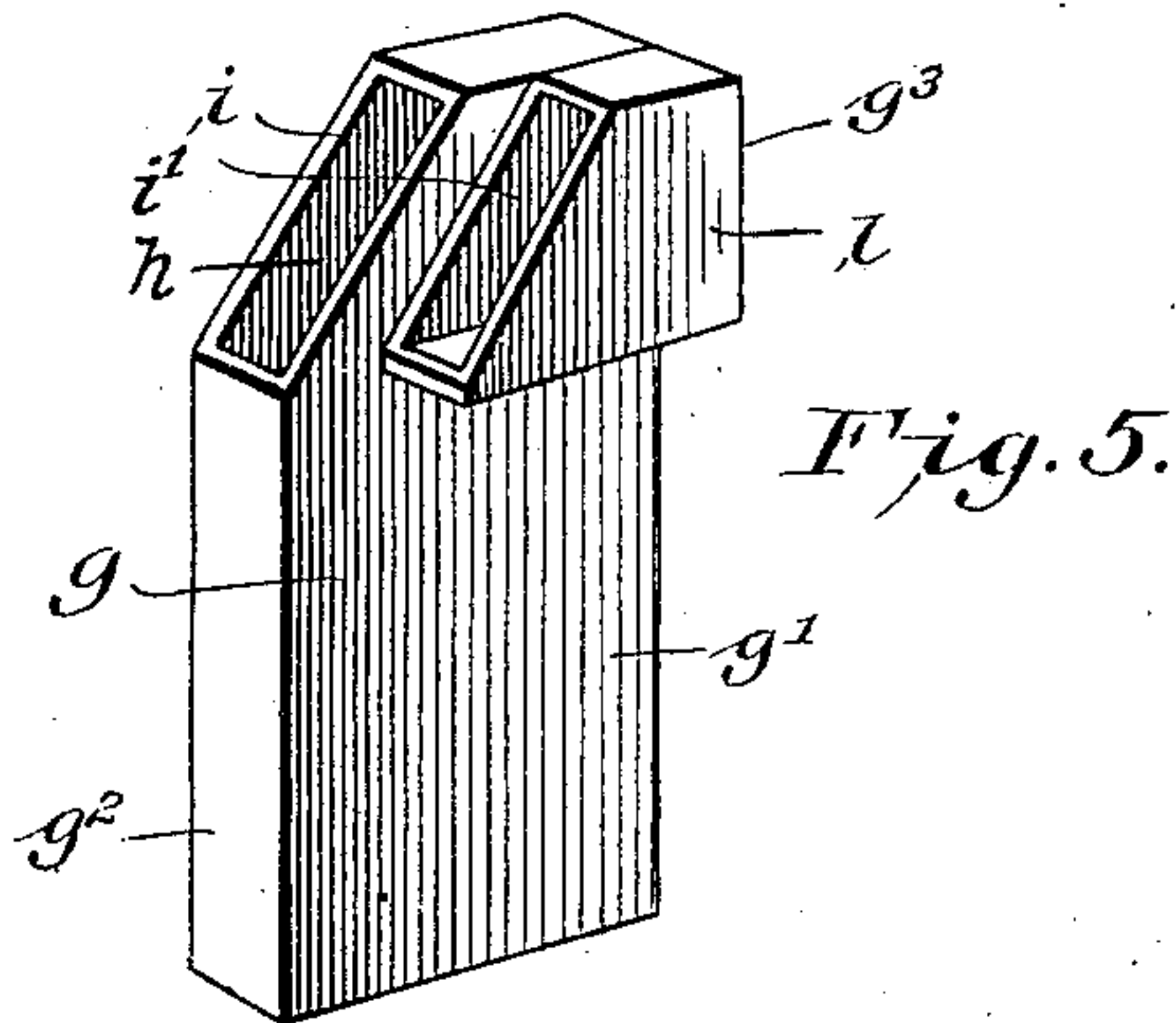
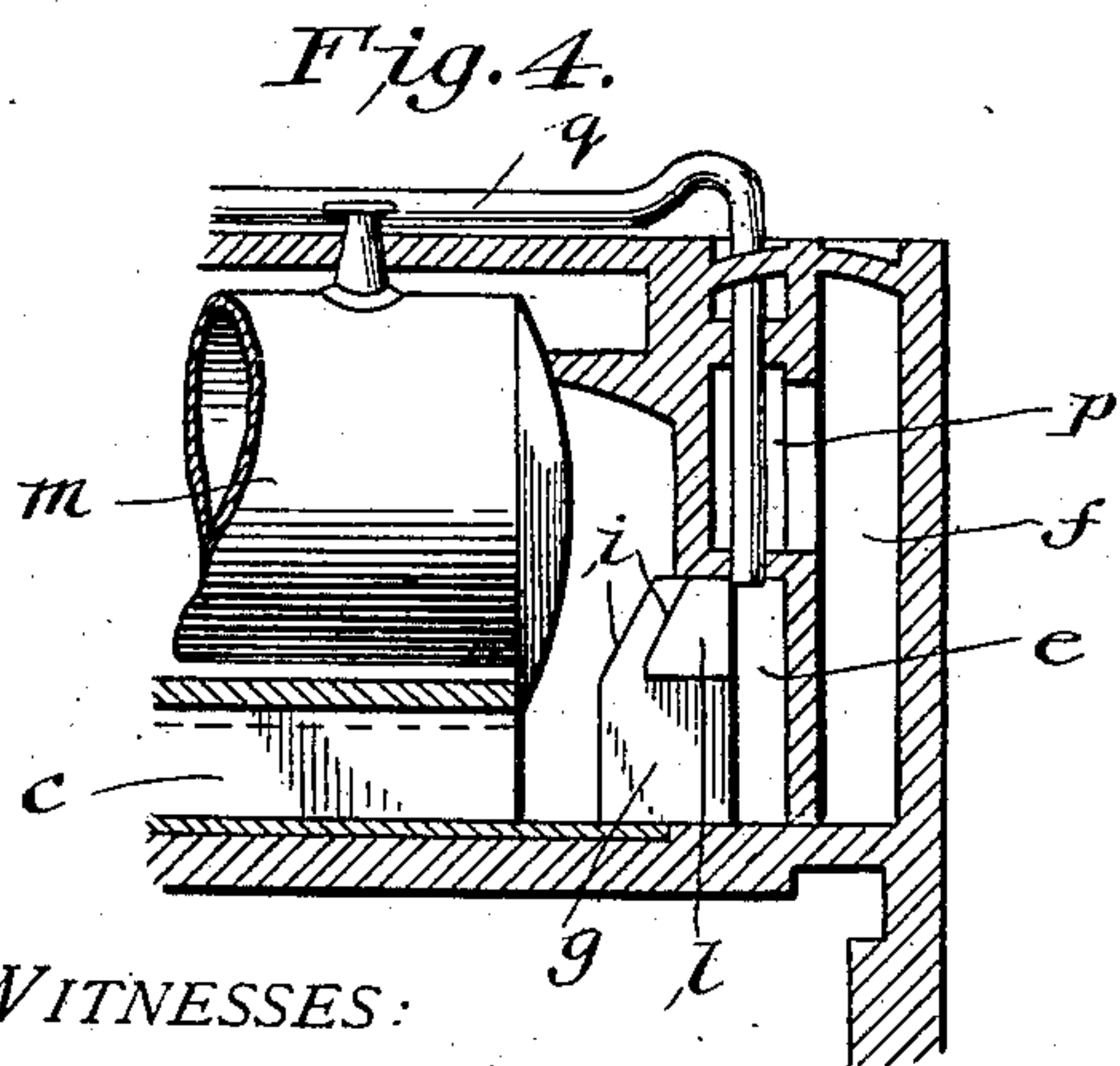
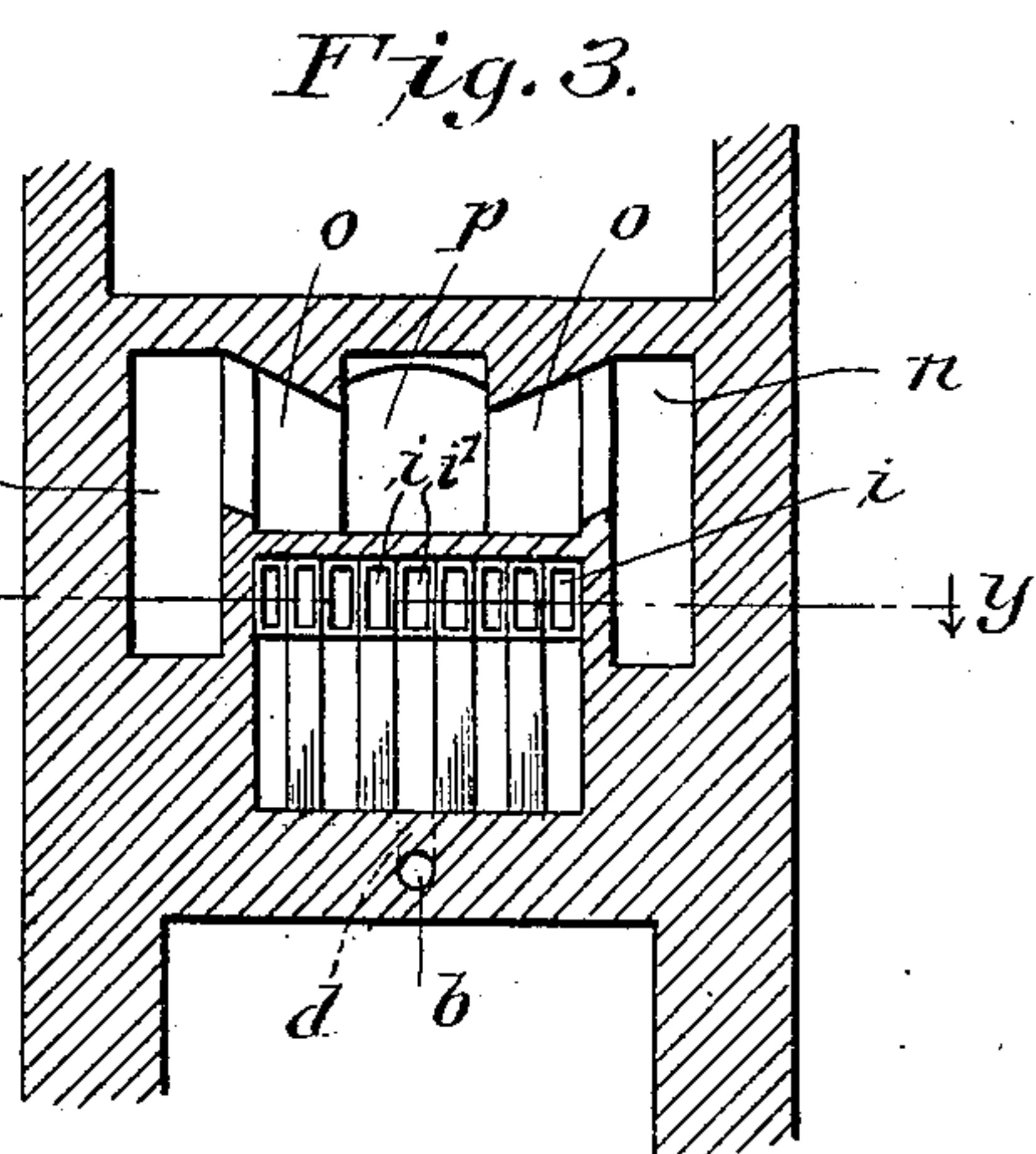
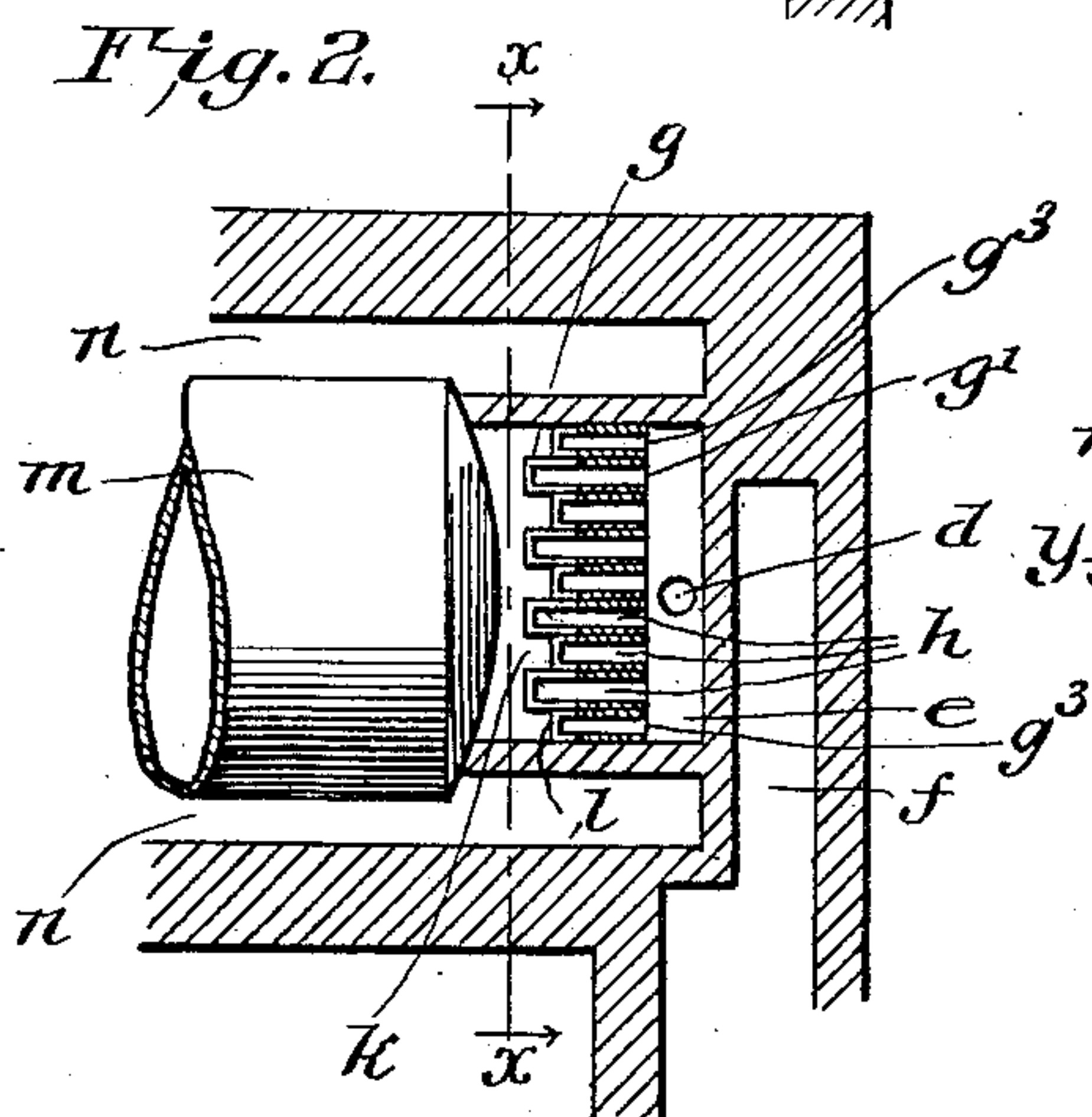
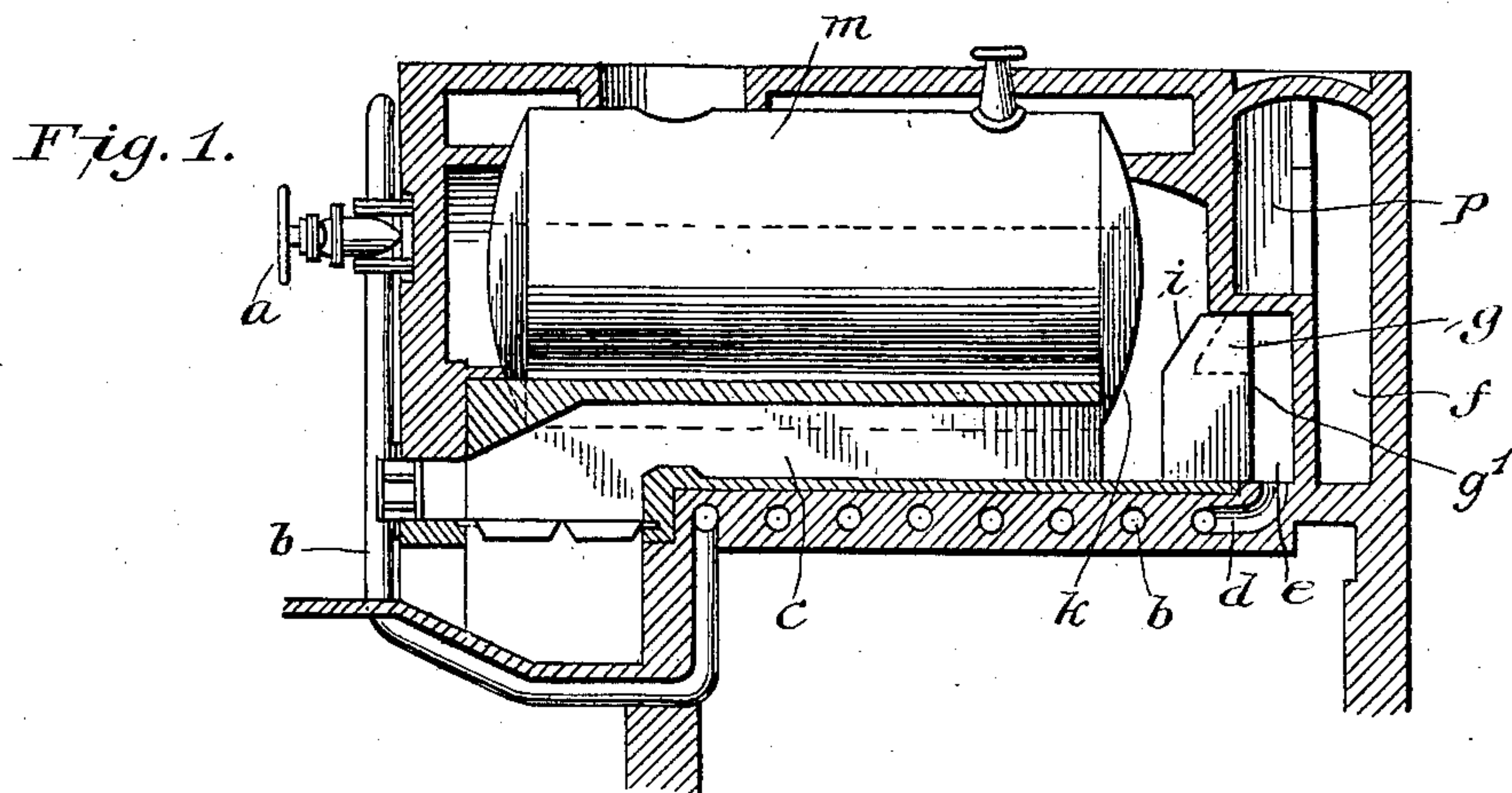
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PATENTED JUNE 23, 1908.

C. MOCHE & K. A. PETTERSSON.

BOILER AND OTHER FURNACE.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

CARL MOCHE AND KARL ALFRED PETTERSSON, OF NYKÖPING, SWEDEN.

BOILER AND OTHER FURNACE.

No. 891,781.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed February 2, 1907, Serial No. 355,423. Renewed May 20, 1908. Serial No. 433,939.

To all whom it may concern:

Be it known that we, CARL MOCHE, a subject of the King of Prussia, and KARL ALFRED PETTERSSON, a subject of the King of Sweden, both residents of Nyköping, Sweden, have invented new and useful Improvements in Boiler and other Furnaces, of which the following is a specification.

Our invention has reference to steam boiler and other furnaces, and the improvements relate to means for heating the outside air and conducting it to the furnace gases, for the purpose of increasing the heating effect, economizing fuel and more thoroughly consuming the smoke.

The invention is illustrated in the accompanying drawings, in which certain forms of the improved furnace are shown by way of example. It must, however, be understood that the invention is in nowise restricted to these particular examples, being applicable to the most various descriptions of horizontal boilers, etc.

Figure 1 is a longitudinal section through the new construction of boiler. Fig. 2 is a horizontal section through the rear end of the furnace on line $y-y$ of Fig. 3. Fig. 3 is a vertical section on the line $x-x$ of Fig. 2, looking in the direction of the arrows. Fig. 4 is a fragmental longitudinal section through the flue end of a modified form of furnace. Fig. 5 shows a perspective view of the hollow bricks to be hereafter referred to.

a is a valve for controlling the supply of outside air to the furnace. This air passes through the pipe b which follows a zig-zag or sinuous course in the brickwork, either in or below the sole of the flue c . At d this pipe enters the air-heating chamber e which is located in the chimney flue f . In the chamber e is a wall of hollow blocks or bricks g forming twyers, with smaller hollow bricks or twyers l between. The chamber h of these bricks g is open at the one side g^1 , but is closed at the opposite side g^2 , while there is a second inclined outlet at i . The bricks l are open at the two opposite sides i^1 and g^3 .

The bricks g are assembled in such manner that the open edges g^1 , face the chamber e , while the closed edges g^2 , i^1 face the boiler g^3 , about half of the bricks being in the flame chamber k , and the other half projecting into the chamber e . These bricks may be set simply one beside the other, but it is better if between each two bricks g there is inserted

held in position in any suitable manner, in which instance also the outer surfaces of the bricks g are enabled to act as heating surfaces. The bricks are thus exposed on the one side to the direct flame and the heating gases, while on the other side the air which was already heated to a certain extent in passing through the pipe b flows into the chamber e and is there highly heated. This air then passes through and between the hollow bricks into the chamber h , where the air and gases mix and flow together to the boiler m . Thus by means of the hollow bricks g and l the air is heated to an exceedingly high temperature whereby it contributes very essentially to increase the heating effect and the better consumption of smoke.

The furnace gases (air and gas mixed) do not pass direct from the boiler into the chimney flue f , but flow first into the flues n which lie approximately at the right and left of the crown of the chamber e , at both sides of the boiler. From n they pass through the chamber o into the collecting chamber p and thence finally into the chimney. They are thus thoroughly utilized throughout their entire passage for heating the brickwork, etc., especially for the purpose of increasing the temperature in the air chamber e .

In the arrangement shown in Fig. 4 the air does not enter through the pipe b , but from above the boiler through the pipe q , and is heated by the pipe being conducted through the chimney vault into the chamber e . From here the course followed is the same as before.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. A boiler furnace comprising a fire-box, an enlarged chamber, a horizontal flue leading from the fire-box to said chamber, and a partition dividing the chamber into two compartments, one of which forms an air heating chamber, said partition being formed of heating twyers placed side by side, each of said twyers comprising two plates spaced apart and provided with means for preventing the passage of air except at the upper ends of the twyers, substantially as described.

2. A boiler furnace comprising a chamber, and a partition separating it into two compartments, said partition consisting of twyers placed side by side and spaced apart, each twyer consisting of a box-like structure open on one side to permit of the entry of air and

having the upper end of its opposite side removed to permit of the exit of the air, substantially as described.

3. A boiler furnace comprising a chamber,
5 and a partition separating it into two compartments, said partition consisting of twyers placed side by side and with intervening smaller twyers between their upper portions, each twyer consisting of a box-like
10 structure open on one side to permit of the entry of air and having the upper end of its opposite side removed to permit of the exit

of the air, and each smaller intervening twyer having its two opposite sides open, substantially as described.

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In testimony whereof we affix our signatures, in presence of two subscribing witnesses.

CARL MOCHE.

KARL ALFRED PETTERSSON.

Witnesses:

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