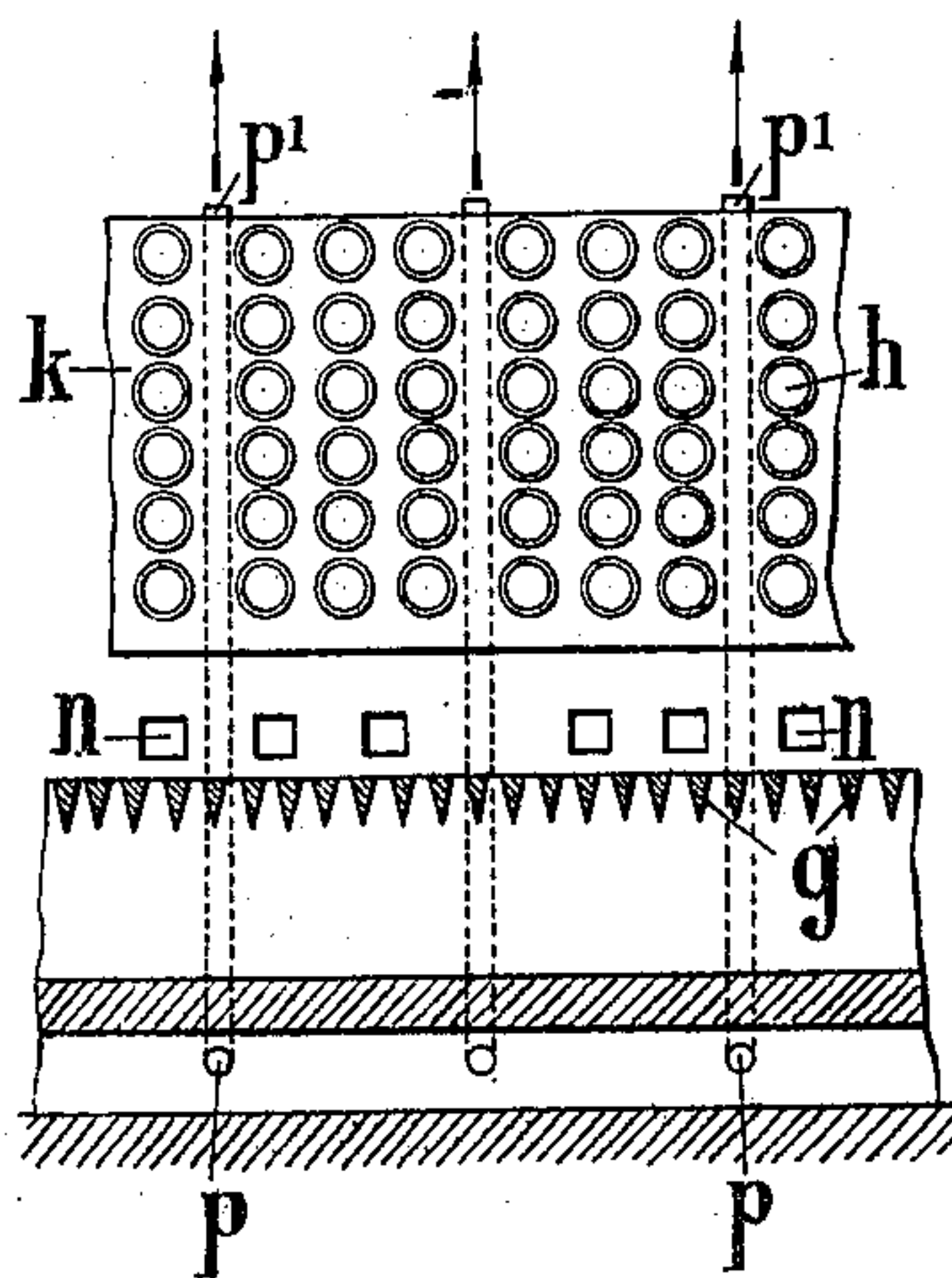
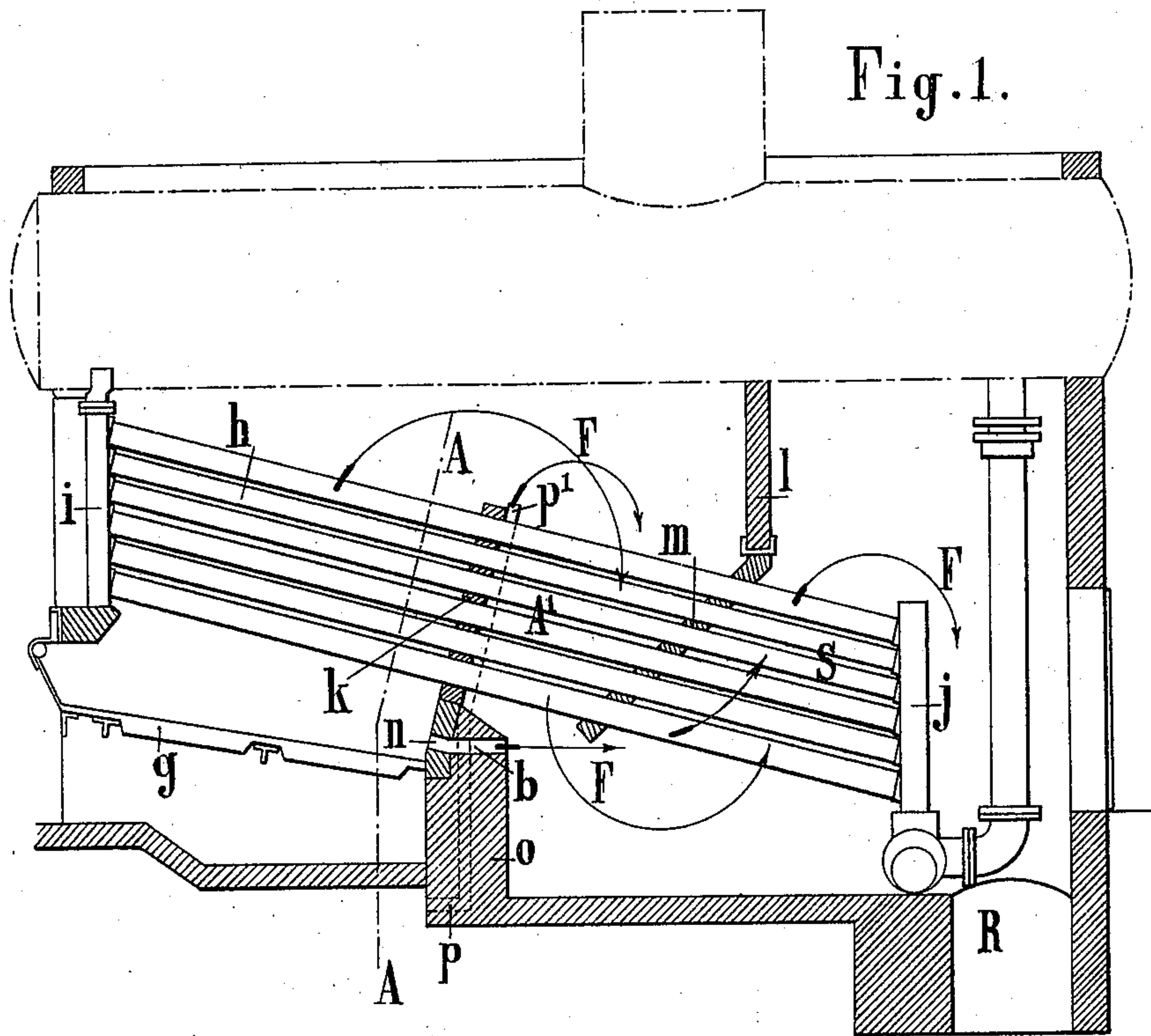


C. DENIS.
SMOKE CONSUMER.
APPLICATION FILED DEC. 17, 1909.

975,402.

Patented Nov. 15, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

CONSTANT DENIS, OF FÉPIN, FRANCE, ASSIGNOR TO EUGÈNE COLIGNON, OF PARIS, FRANCE.

SMOKE-CONSUMER.

975,402.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed December 17, 1909. Serial No. 533,550.

To all whom it may concern:

Be it known that I, CONSTANT DENIS, of Fépin, Ardennes, France, have invented Improvements in Smoke-Consumers; and I do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

The present invention has for its object a smoke-burning device, for instance: hearths of boilers with heating compartments, of semi-tubular boilers, of marine-boilers and others, as well as hearths of distillery and any other furnaces.

The application of the improved device to a hearth of a multitubular-boiler is shown as an example in the accompanying drawing, in which:

Figure 1 is a longitudinal section of such a hearth, and Fig. 2 is a transversal section through the line A—A of Fig. 1.

In the drawing, (*g*) is the fire-grate placed as usual, and (*h*) is the nest of flues sustained at its two ends by the collectors (*i*) and (*j*), and sustained further by the partition (*k*).

At (*l*) is a partition made of masonry which is connected with an oblique partition (*m*), through which pass the tubes, so as to form an obstruction to the gases in the space A¹.

To obtain the continuous suction of the gases of the fuel there is disposed, at the rear of the hearth, at a very little distance above the upper part of the horizontal fire-grate, a fire wall, providing the orifices (*n*), the said orifices extending at (*b*) through the thickness of the wall (*o*). The whole section of the orifices (*n*) could be modified between 1/5 and 1/10 of the section of the draft area of the first escape.

p are conduits for admitting air to the fire-box, said conduits extending upwardly above the flues, as seen at *p'*, running along

the partition *k* and terminating near the upper end thereof. These conduits for admitting the air have no regulating device and they have thus a continuous action so that the air which they bring will be constantly superheated to attain its maximum of intensity in its passage through the tubes (*p'*). This supply of superheated air coming in contact with the gaseous currents in the space of concentration A¹, assures the suroxygenation and the total combustion of the same on the account of the mixture.

The fire-grate can not be obstructed considering that a sufficient draft is always through the orifices of the said grate, and considering that the coal which is on the said grate (*g*) in the vicinity of the orifices (*n*), is always in ignition. This arrangement, applicable to any industrial hearth of steam-boiler, or boiler of distillation, and any others, assures therefore a great economy of fuel out of all the advantages being the consequence of the entire absorption of the smoke.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed, I declare that what I claim as my invention and desire to be secured by Letters Patent is:

In a smoke-consuming furnace, a grate a fire wall having apertures therethrough above the grate, a partition extending upwardly from the fire wall, a downwardly and forwardly extending partition to the rear of the fire wall, and means for admitting air to the rear of the forward partition.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CONSTANT DENIS.

Witnesses:

FERDINAND COLIGNON,
VICTOR PRÉVOST.