(No Model.) 3 Sheets—Sheet 1.

J. L. W. OLSEN.

APPARATUS FOR HEATING OVENS BY GAS.

No. 466,127. Patented Dec. 29, 1891.

Fig 1.

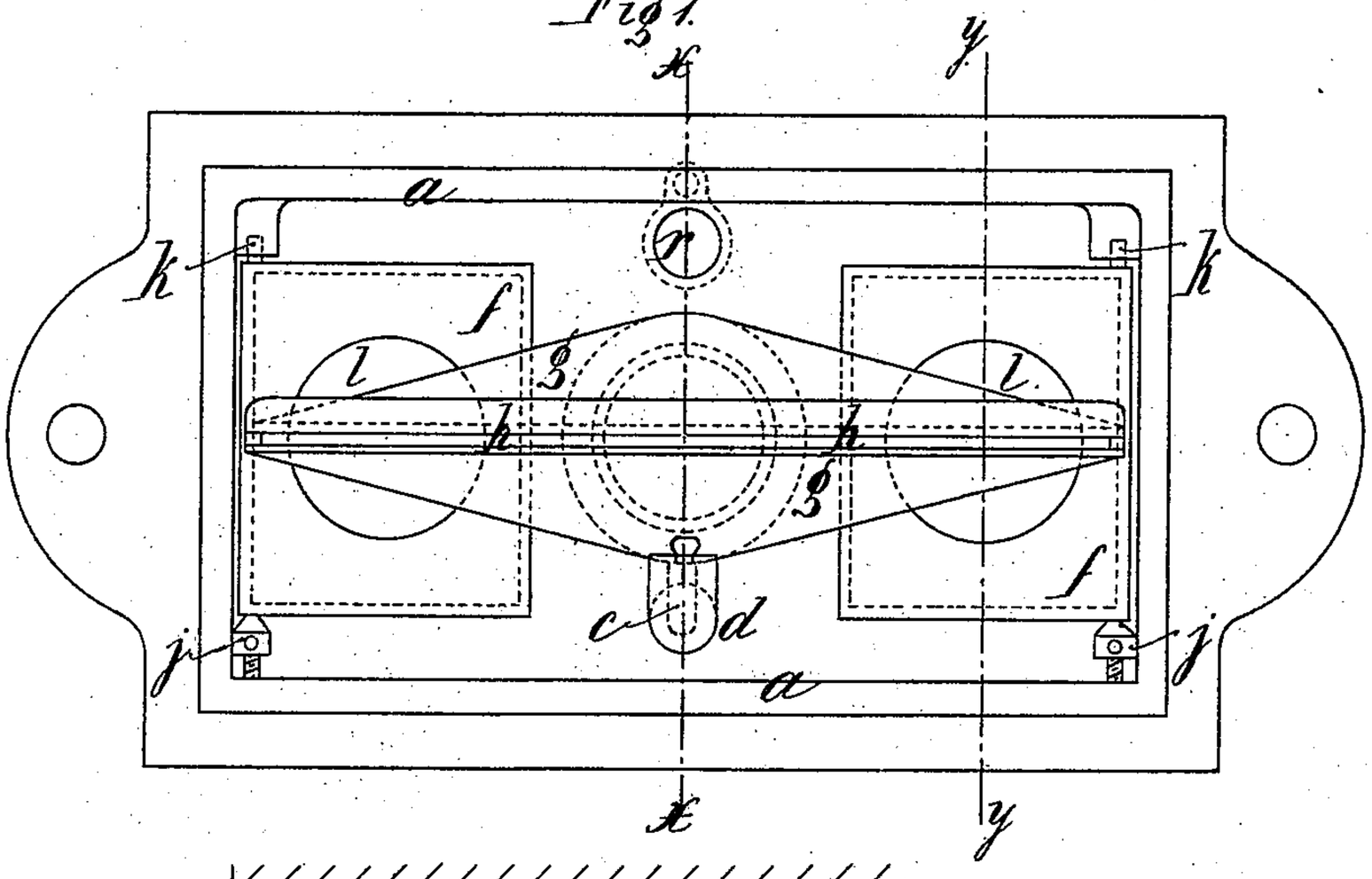
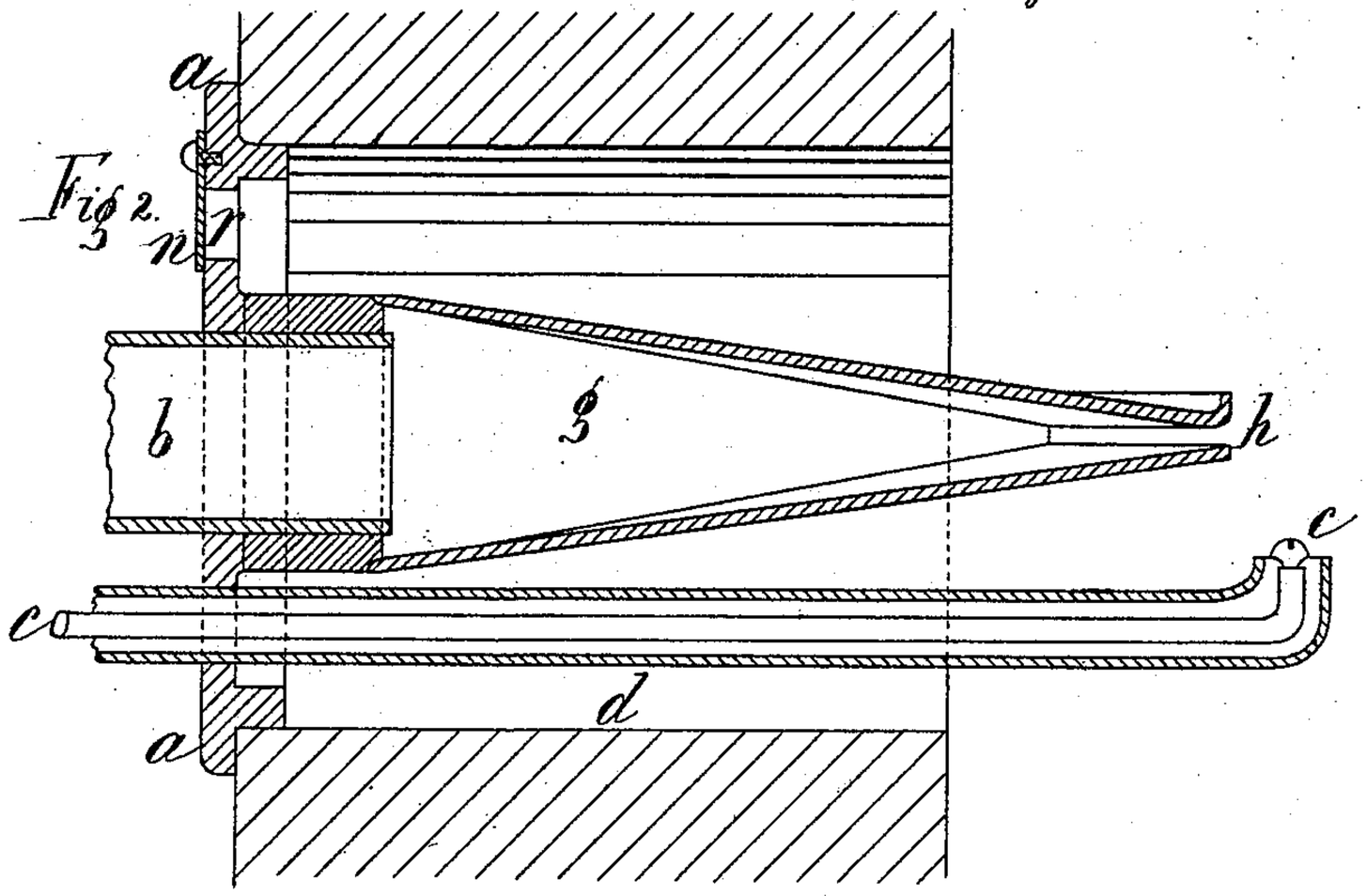


Fig 2.



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(No Model.) 3 Sheets—Sheet 2.

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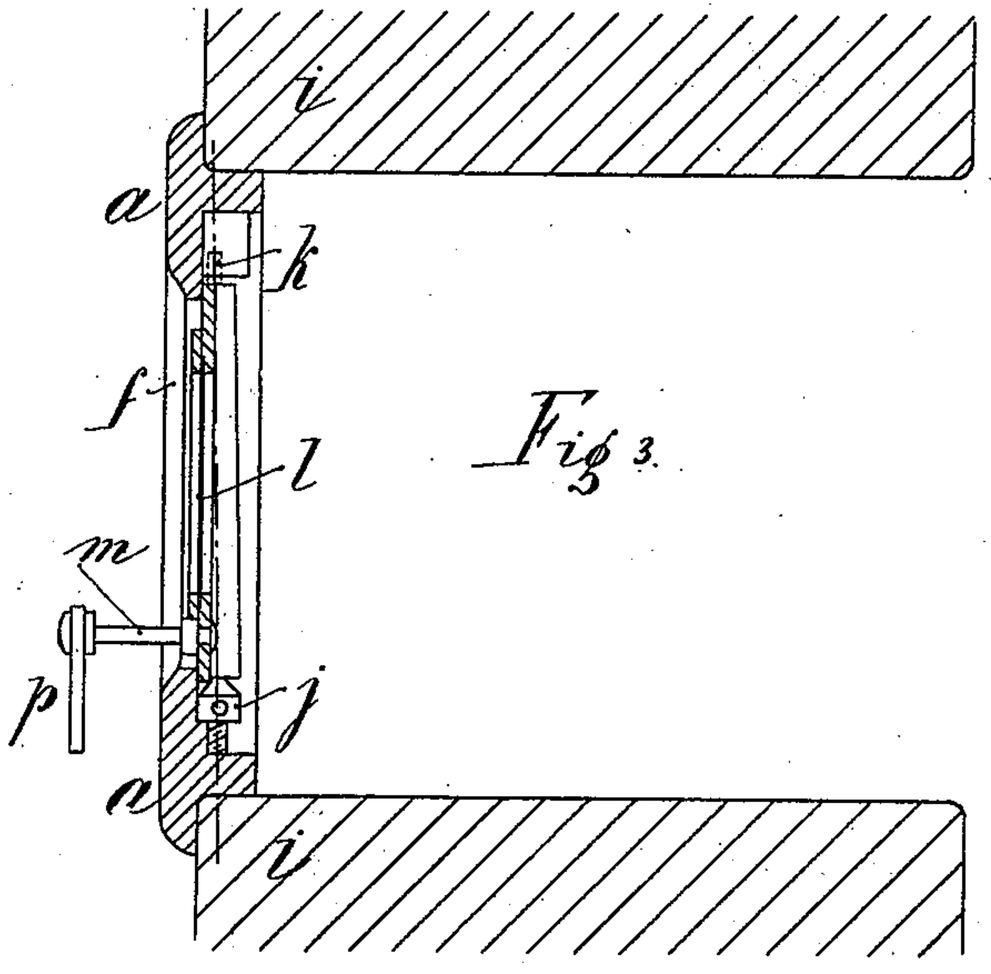

Fig 3.

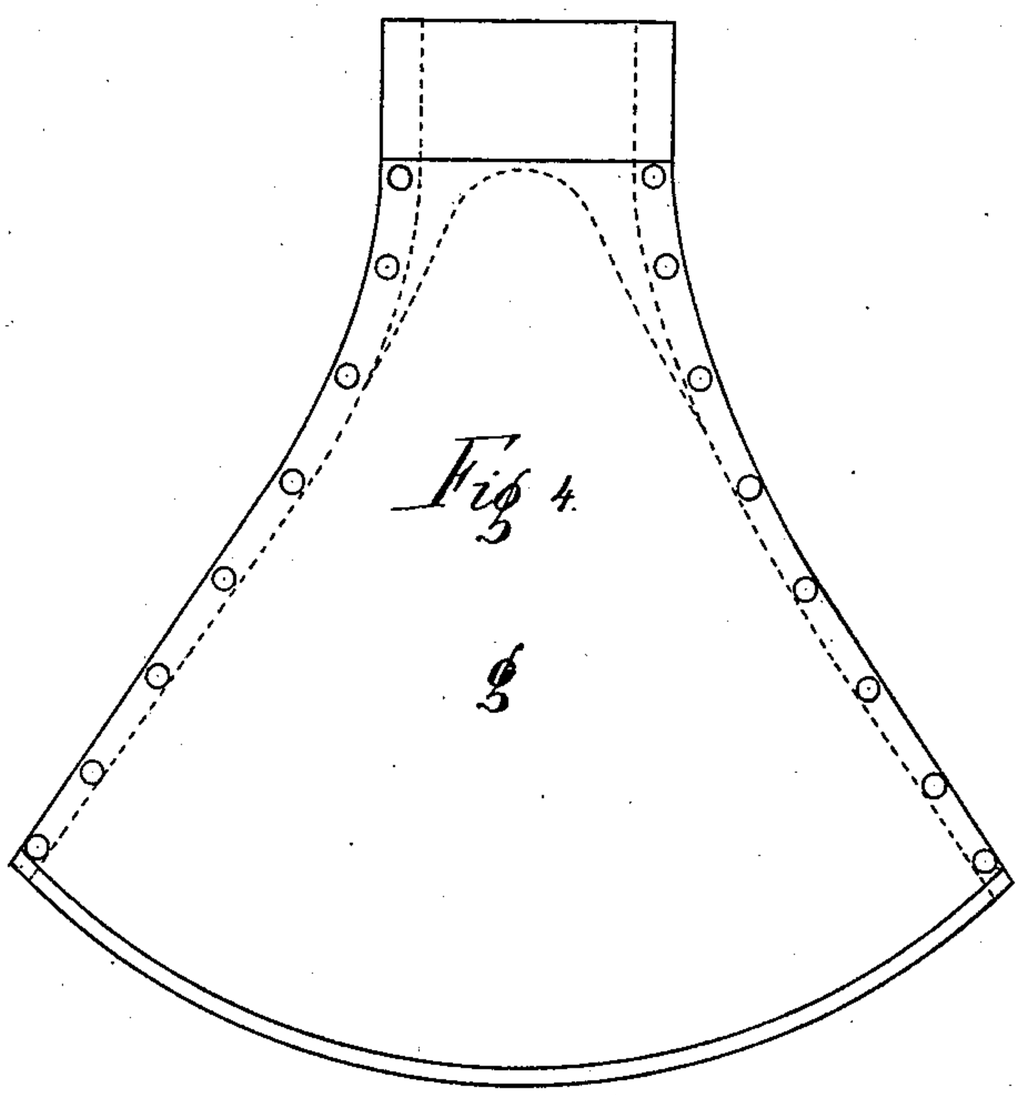

Fig 4.

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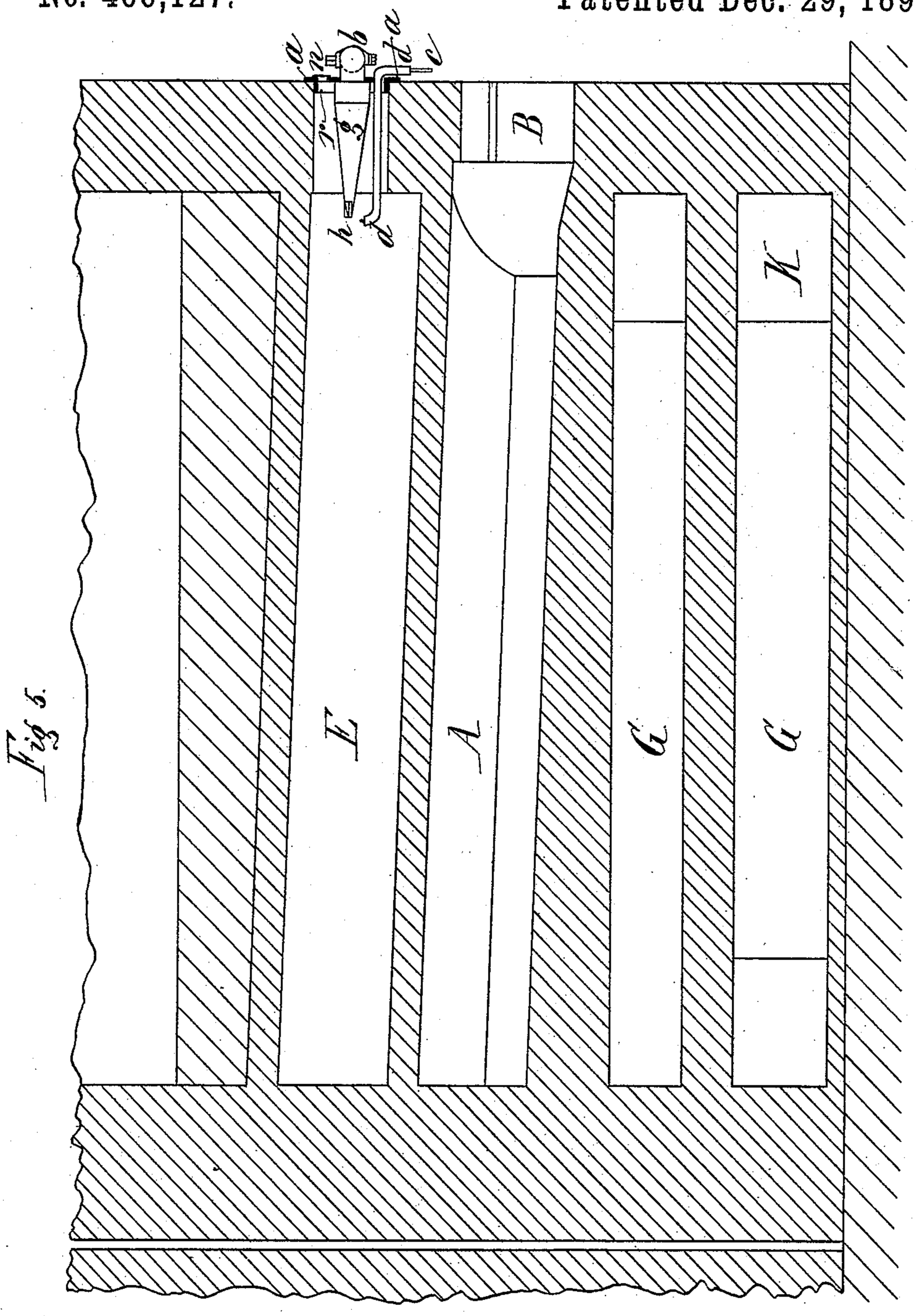

Fig 5.

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UNITED STATES PATENT OFFICE

JOHAN LUDWIG WALDEMAR OLSEN, OF COPENHAGEN, DENMARK.

APPARATUS FOR HEATING OVENS BY GAS.

SPECIFICATION forming part of Letters Patent No. 466,127, dated December 29, 1891.

Application filed July 10, 1891. Serial No. 399,011. (No model.)

To all whom it may concern:

Be it known that I, JOHAN LUDWIG WALDEMAR OLSEN, manufacturer, of Copenhagen, Denmark, a subject of the King of Denmark, have invented certain new and useful Improvements in Apparatus for Heating Ovens by Gas, of which the following is a specification.

My invention relates to improvements in apparatus for heating bakers' and similar ovens by means of certain gaseous mixtures; and its object is to enable the cheap mixtures of gas and air—such as Dawson gas—to be employed economically and satisfactorily for that purpose.

In order that my invention and the best means by which it is to be carried into practical effect may be thoroughly understood, I will now describe them in detail, referring, in so doing, to the accompanying figures, which are to be taken as part of this specification and read therewith.

Figure 1 is a rear elevation of the front plate. Fig. 2 is a vertical section taken on the line *x x* of Fig. 1. Fig. 3 is a vertical section taken on the line *y y* of the same figure. Fig. 4 is a plan of the heating gas-jet, and Fig. 5 is a longitudinal section of a baker's oven to which my invention has been applied.

Similar letters of reference indicate corresponding parts.

a is a plate or frame which is built into the front of the oven, so as to cover its mouth.

b is the gas-supply pipe, its function being to introduce the heating-gas into the oven. It is passed through the plate *a*, to which it is connected gas-tight.

c is a second gas-supply pipe. It is fed with coal-gas and is surrounded by a larger tube *d*, adapted to supply air for the combustion of the coal-gas at the jet in the end of the tube *c*. The combustion of the coal-gas furnishes the flame which is relied upon for igniting the heating-gas supplied through the pipe *b*.

f f are two ventilators in the frame *a* and are provided for the purpose of automatically regulating the supply into the oven of air necessary for the combustion of the heating-gas.

g is the heating-gas jet. It is circular in cross-section at its rear end, which is screwed onto or over the end of the pipe *b;* but its cross-section is gradually modified into that of a horizontal and narrow slit *h*, through which the heating-gas flows into the oven in a thin but broad and fan-shaped stream. (See Fig. 4.) It will be noticed that the igniting-jet is under but a little farther into the oven than the nose of the jet *g*, so that the heating-gas will be lighted the moment it begins to issue from the slit *h*.

In order that the ventilators *f f* may close onto their seats automatically, the axes *i i* of their hinges are inclined out of the vertical, so that the weight of the ventilators will close them. (See Fig. 3.) Further, in order that the latter may be easily turned, each is adapted to turn on a vertical conical point or center *j*. Opposite to the point *j* the gudgeon *k* projects into a suitable hole.

Suitable apertures *l l*, fitted with suitable transparent material, are provided, through which the combustion can be watched. Further, spy-holes *r*, with swinging covers *n*, may also be formed in the plate.

To prevent the ventilators *f f* being opened by the draft into the oven beyond a certain limit, a stop *m*, Fig. 3, is provided for each of them, on which is an arm *p*, which, by striking against the plate *a*, limits the opening of the door. The arm may, however, be turned up when it is desired to open the door entirely—*e. g.*, when the igniting-jet is to be lighted.

The apparatus is used as follows: After the igniting-jet has been lighted the flue-dampers are opened and the heating-gas turned on. When the oven has been raised to the proper temperature, the heating-gas and the igniting-flame are turned off. The ventilators *f f* will then automatically close down upon their seats.

Referring to Fig. 5, A is the baking part of the oven—that is, the oven proper—and B is its door. F G G are the flues, the former being the combustion-chamber and the latter the flues, through which the products of combustion are led away through the flue K to the chimney-stack.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In apparatus for heating bakers' and similar ovens by gas, the combination, with a heating-gas-supply pipe, of a fan-shaped jet, an igniting-jet, and automatic ventilators adapted to turn in one direction to admit air under the action of the draft and in the other to close upon their seats by their own weight, as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHAN LUDWIG WALDEMAR OLSEN.

Witnesses:
WILHELM CARL HANS JEDKIN,
P. HOFMAN BANG.