

(No Model.)

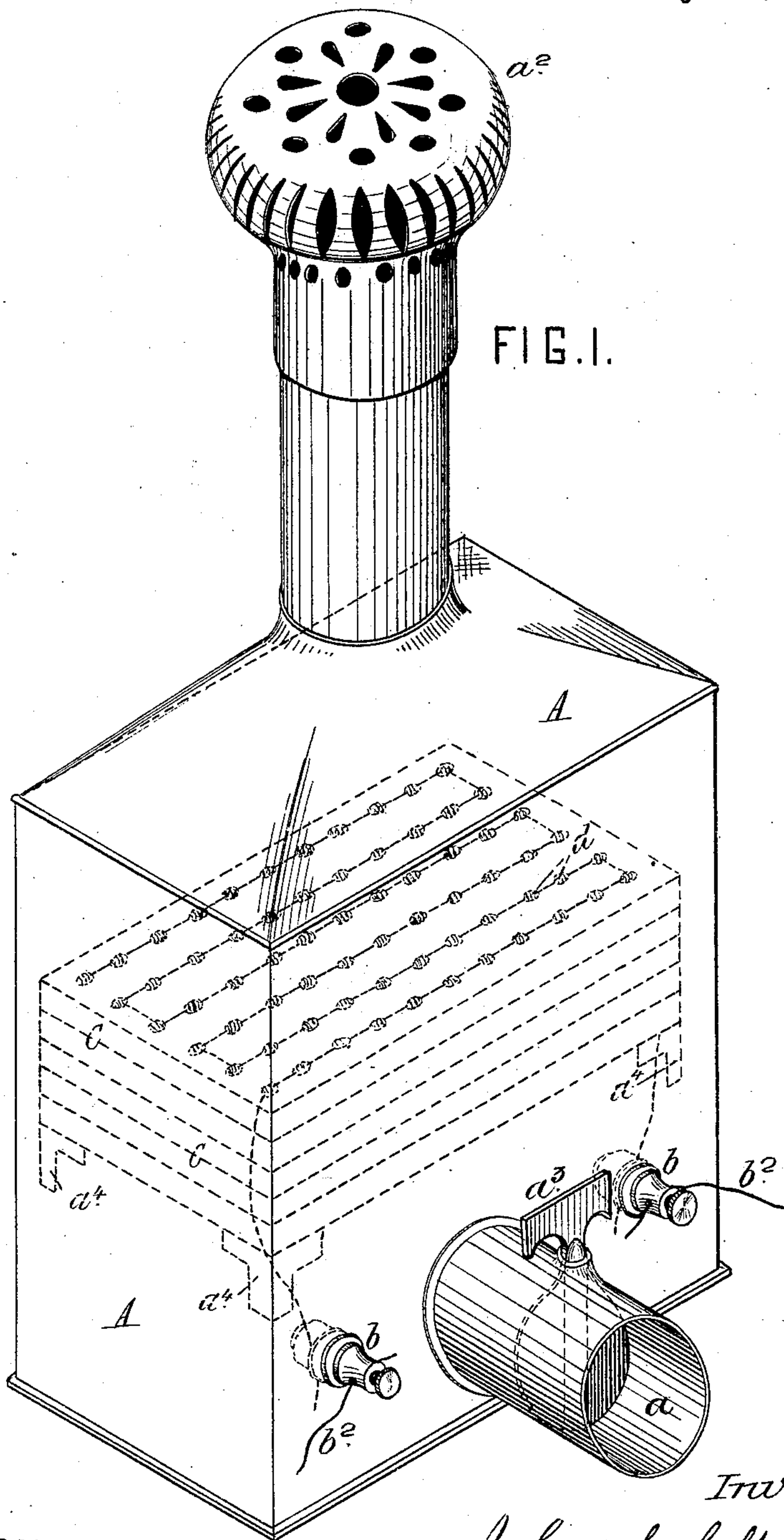
4 Sheets—Sheet 1.

J. S. SELLON.

APPARATUS FOR ELECTRICAL HEATING.

No. 302,673.

Patented July 29, 1884.



Witnesses:  
Philip Chauron  
C. J. Hendrick

Inventor:  
John S. Sellon by  
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his attorney.

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FIG. 3.

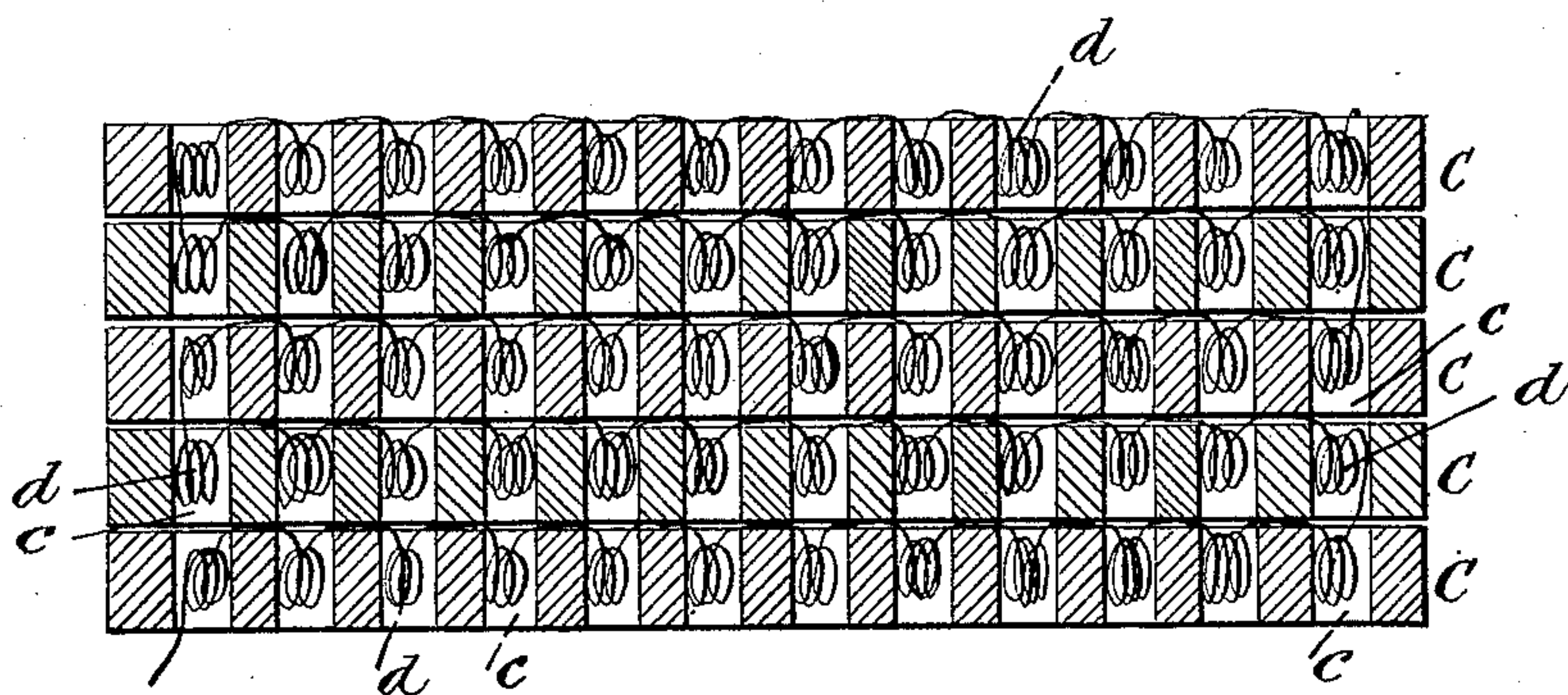
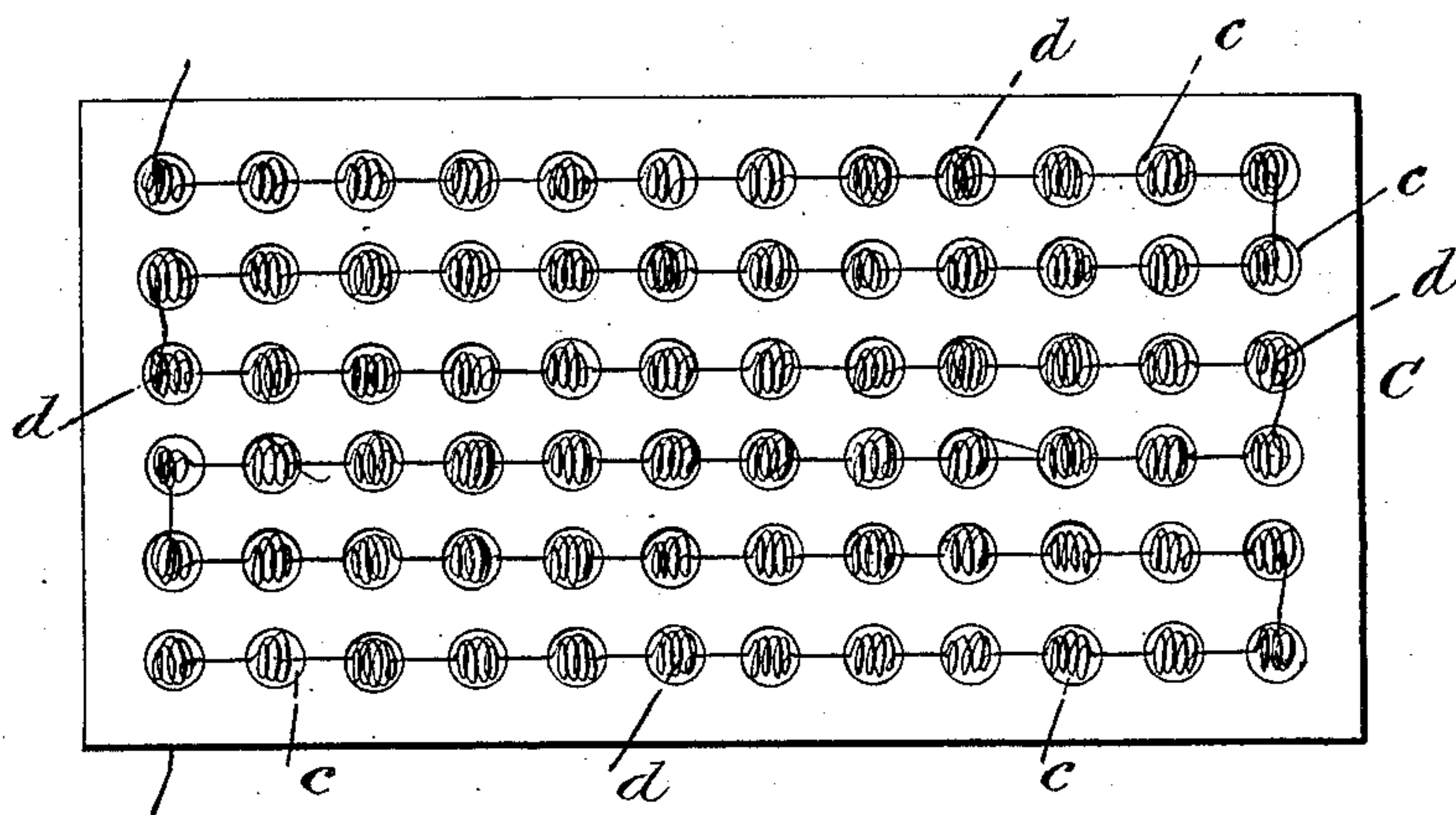


FIG. 2.



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*C. J. Hedrick*



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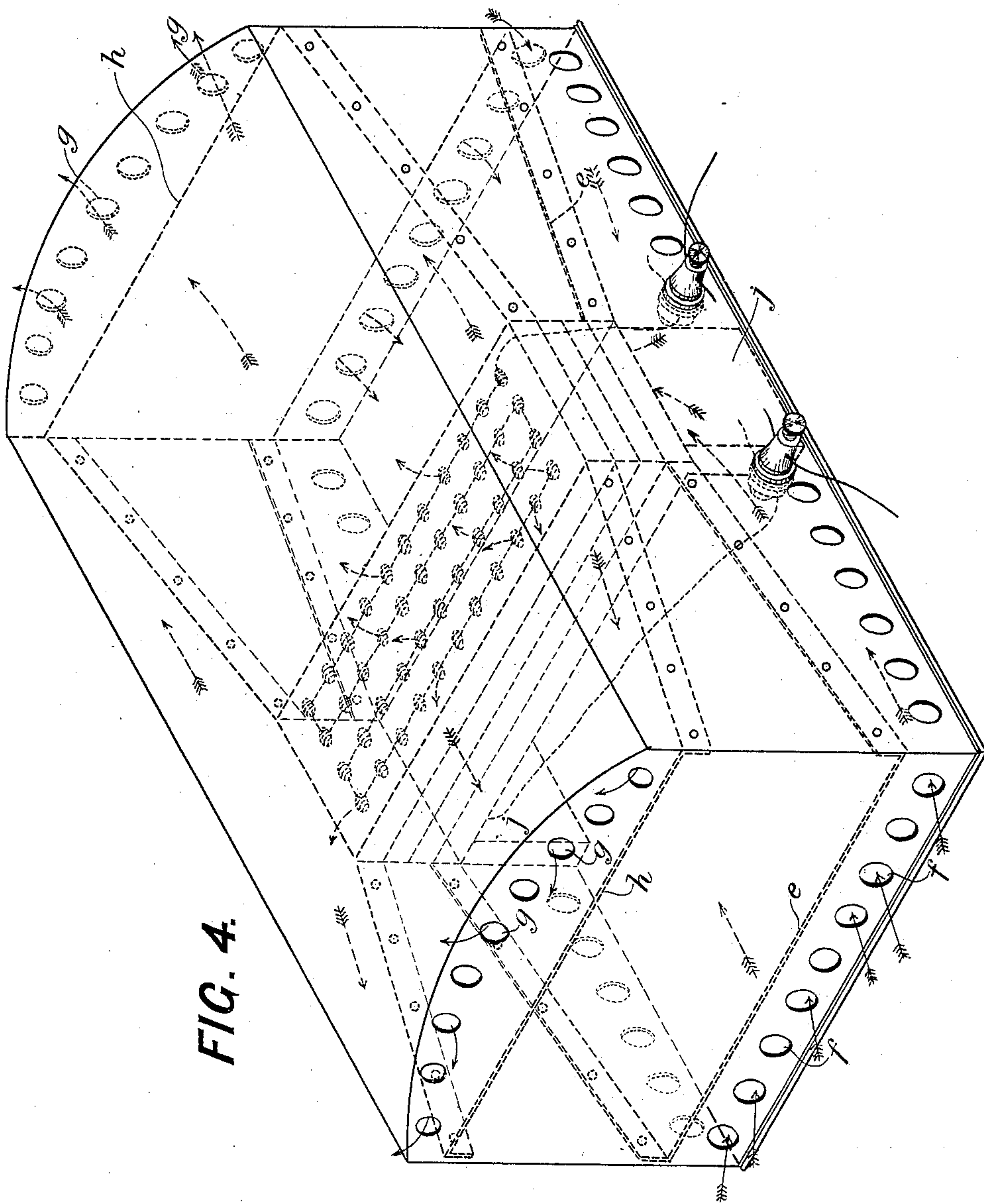


FIG. 4.

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FIG. 5.

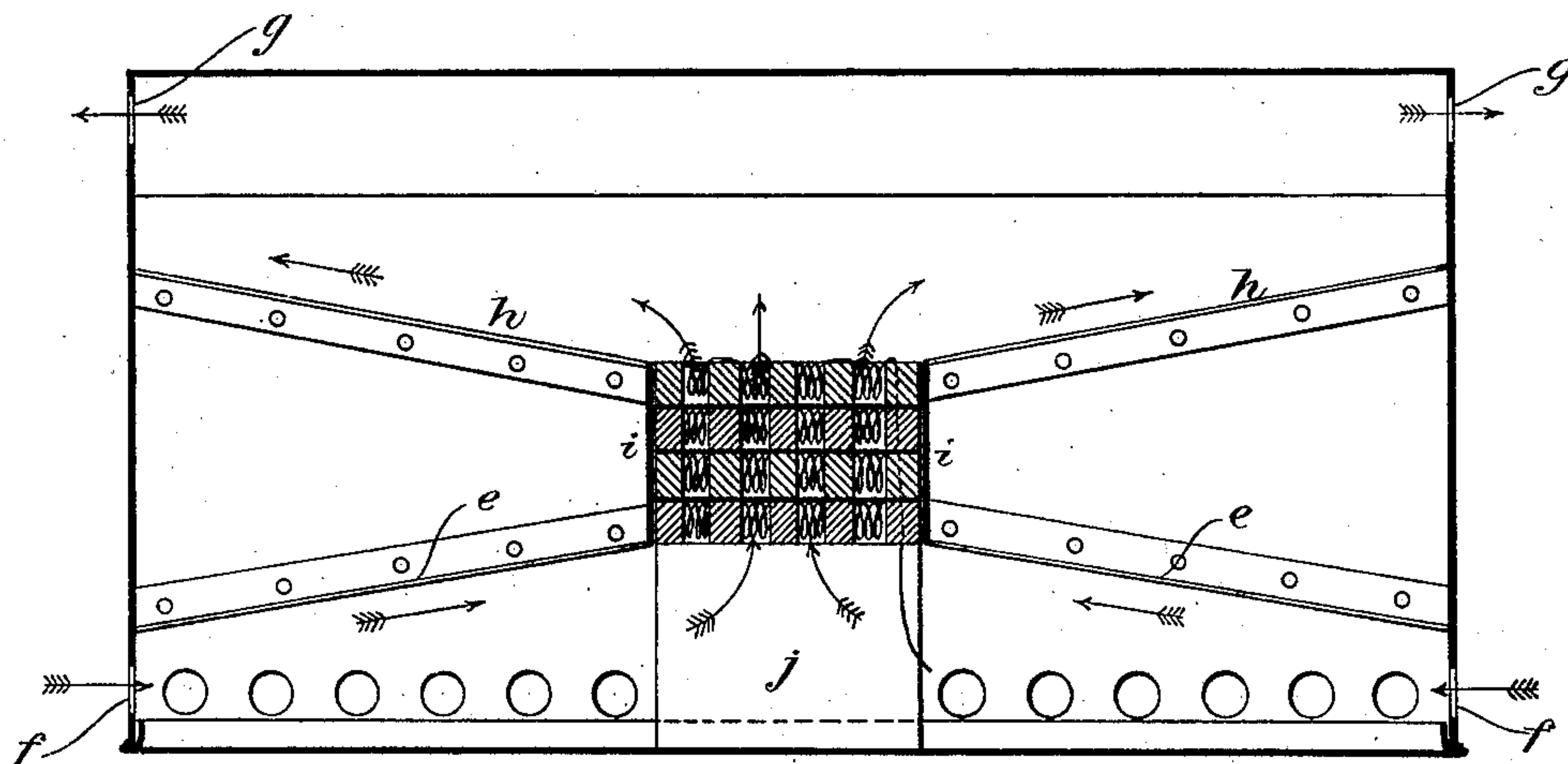
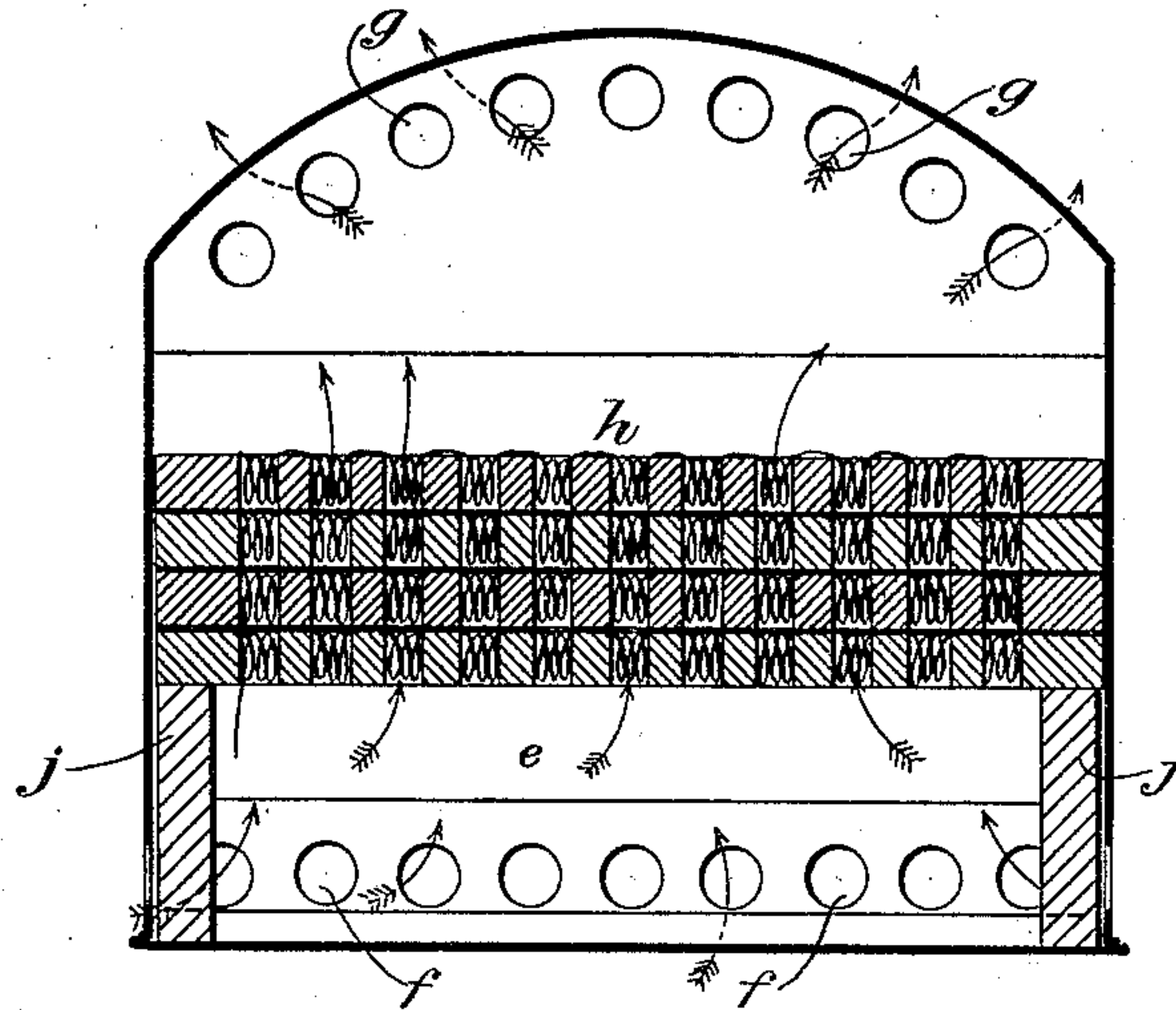


FIG. 6.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOHN SCUDAMORE SELLON, OF HATTON GARDEN, COUNTY OF MIDDLESEX,  
ENGLAND.

## APPARATUS FOR ELECTRICAL HEATING.

SPECIFICATION forming part of Letters Patent No. 302,673, dated July 29, 1884.

Application filed May 5, 1884. (No model.) Patented in England October 17, 1883, No. 4,961.

*To all whom it may concern:*

Be it known that I, JOHN SCUDAMORE SELLON, gentleman, a subject of the Queen of Great Britain and Ireland, and residing at Hatton Garden, in the county of Middlesex, England, have invented certain Improvements in Apparatus for Electrical Heating, (for which I have obtained a patent in Great Britain, No. 4,961, dated October 17, 1883, and for which I have made application in France, dated 1884,) of which the following is a specification.

My invention has for its object to provide apparatus whereby the heating of apartments, railway-carriages, ships' cabins, or the like can be conveniently effected by electricity, the said apparatus being so constructed or arranged that the maximum heating effect is obtained, and danger of injury to the apparatus is obviated.

According to my said invention, I take fire-clay or plumbago tiles, porous earthenware, or other suitable material perforated with a series of holes or passages or suitable cells or interstices, or so arranged as to give the equivalents thereof, and into the holes, passages, or openings thus formed the circuit-wires or their equivalents are led, which wires are preferably coiled or twisted into a number of convolutions or the like. The said fire-clay or other material may be mounted in a casing or stove, either closed or provided with an inlet for cold air and an outlet for heated air, the parts being preferably so arranged that the only passage for the air through the apparatus is by the aforesaid holes or passages containing the heating coils or wires or their equivalents. The said coils are so held or supported by their position in the perforations or interstices of the fire-clay or other material that sagging of the said wires and destructive short-circuiting is prevented. The fire-clay or other suitable material may be in a series of slabs, with the holes or passages and coils or heating-wires or their equivalents so arranged therein that when the slabs are placed together the said holes or passages form shafts (of a length in accordance with the number and thickness of the slabs used) through which the air to be heated passes. By adding or removing slabs, or by altering the size of wire,

more or less resistance may be obtained, so that the arrangement can be rendered suitable for any required electro-motive force, and so that the degree of heat may be regulated. The terminals of the wires or conductors for the heating-current will be so arranged and connected to the external leads that the requisite circuit or circuits is or are established through the heating arrangements. By the means above indicated a continuous current of fresh air from the exterior of any apartment or closed space may be warmed up to any convenient degree of temperature and supplied to the interior of the said apartment or space, thus effecting also ventilation of the said apartment or space. Such an arrangement for heating is also very suitable and applicable to the apparatus known as a "thermostatic nurse" for infants or for chicken-incubators, as the heat can be readily adjusted and regulated to an absolute and constant nicety for any desired period of time, or can also be conveniently adapted to serve as a bed-warmer, or for the application of warmth to invalids, the heat being with facility turned on or off at any moment. Apparatus constructed as described may be employed for heating purposes generally. For example, it may be used to heat reservoirs or holders of water or of chemical salts—such, for instance, as may be used for foot-warmers for railways.

In order that my said invention may be fully understood, I shall now proceed more particularly to describe the same, and for that purpose shall refer to the several figures on the annexed sheet of drawings, the same letters of reference indicating corresponding parts in all the figures.

The accompanying drawings represent apparatus arranged according to my invention.

Figure 1 is an isometrical view of a heating and ventilating stove containing perforated slabs of clay, plumbago, or equivalent material, with coils of wire in each perforation, through which coils the electric current is passed. Fig. 2 is a plan of one of the slabs separately. Fig. 3 is a vertical section of a number of slabs superposed. Fig. 4 is an isometrical view of a foot-warmer constructed according to my invention. Figs. 5 and 6



are, respectively, longitudinal and transverse sections of the same.

Referring to Figs. 1, 2, and 3, A represents a casing (which may be of any suitable shape) provided with an inlet for cold air at  $a$ , and an outlet for warm air at  $a^2$ . The inlet  $a$  may be open to the outer air, and be provided with a valve,  $a^3$ , for regulating the admission of air. It is also provided with terminal screws  $b$ , to which the wires  $b^2$  from the source of electricity are connected.  $a^4$  are brackets or supports, upon which rest slabs C of clay, plumbago, or like material, having therein perforations  $c$ , forming, when the slabs are placed together, passages for the air from the inlet to the outlet. In each of the perforations  $c$  is contained a coil of wire,  $d$ , each coil forming a part of the electrical circuit, owing to all the coils of all the slabs being connected up in one continuous line connected at one end of one of the terminals  $b$ , and at the other end to the other of the said terminals. The slabs fit the casing A so that the air passes from the inlet to the outlet by way of the perforations  $c$ , and in its passage it takes up heat, which is developed when an electric current is passed through the coils  $d$ .

The foot-warmer shown in Figs. 4, 5, and 6 is provided with slabs as in the arrangement, Fig. 1. If a circulation of air be required, it may be effected by placing plates  $e$  so as to form passages to the under side of the series of slabs, through which passages air passes by the inlets  $f$ , thence passing through the perforations in the slabs, from whence it escapes by the outlet-orifices  $g$ , a passage to which may be formed by the plates  $h$ . Between the plates  $e$  and  $h$  may be plates  $i$ , forming the sides of the receptacle for keeping the slabs in place, the said slabs being supported upon the side pieces  $j$ . I may, of course, use any form, size, and number of slabs, made of any suitable material, and with any suitable number and arrangement of perforations and coils or resistances therein, and I may make the connections for the electric current such that slabs may be added or taken away, as may be required.

Having now described and particularly ascertained the nature of my said invention, and the manner in which the same is or may be used or carried into effect, I would observe, in conclusion, that what I consider to be novel and original, and therefore claim, is—

1. An apparatus for electric heating, comprising a case or holder and a series of perforated or cellular slabs assembled together, coils or resistances disposed in the cells or perforations, and electrical connections, substantially as described.

2. An apparatus for electric heating, comprising a series of coils or resistances placed in holes or perforations extending through a slab or slabs of plumbago or similar material, so that the air in passing through said holes or perforations comes in contact with the coils or resistances, substantially as described.

3. The combination of the series of cellular or perforated slabs, the coils or resistances, and the holder or case provided with air-inlets below the slabs and air-outlets above the same, substantially as described.

4. The combination of the pile or series of cellular or perforated slabs, the coils or resistances, the case or holder containing the same, and provided with air inlets and outlets, and the cock or valve for regulating the supply of air, substantially as described.

5. An apparatus for electric heating, comprising a case or holder, a slab or series of slabs having perforations extending upwardly through the same, and coils or resistances in said perforations, the said case having air-inlets below the slab or slabs, so that the air passes through the perforations in contact with the coils or resistances therein, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN SCUDAMORE SELLON.

Witnesses:

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CLAUDE WOODROW,

Both of 31 Lombard Street, London.