

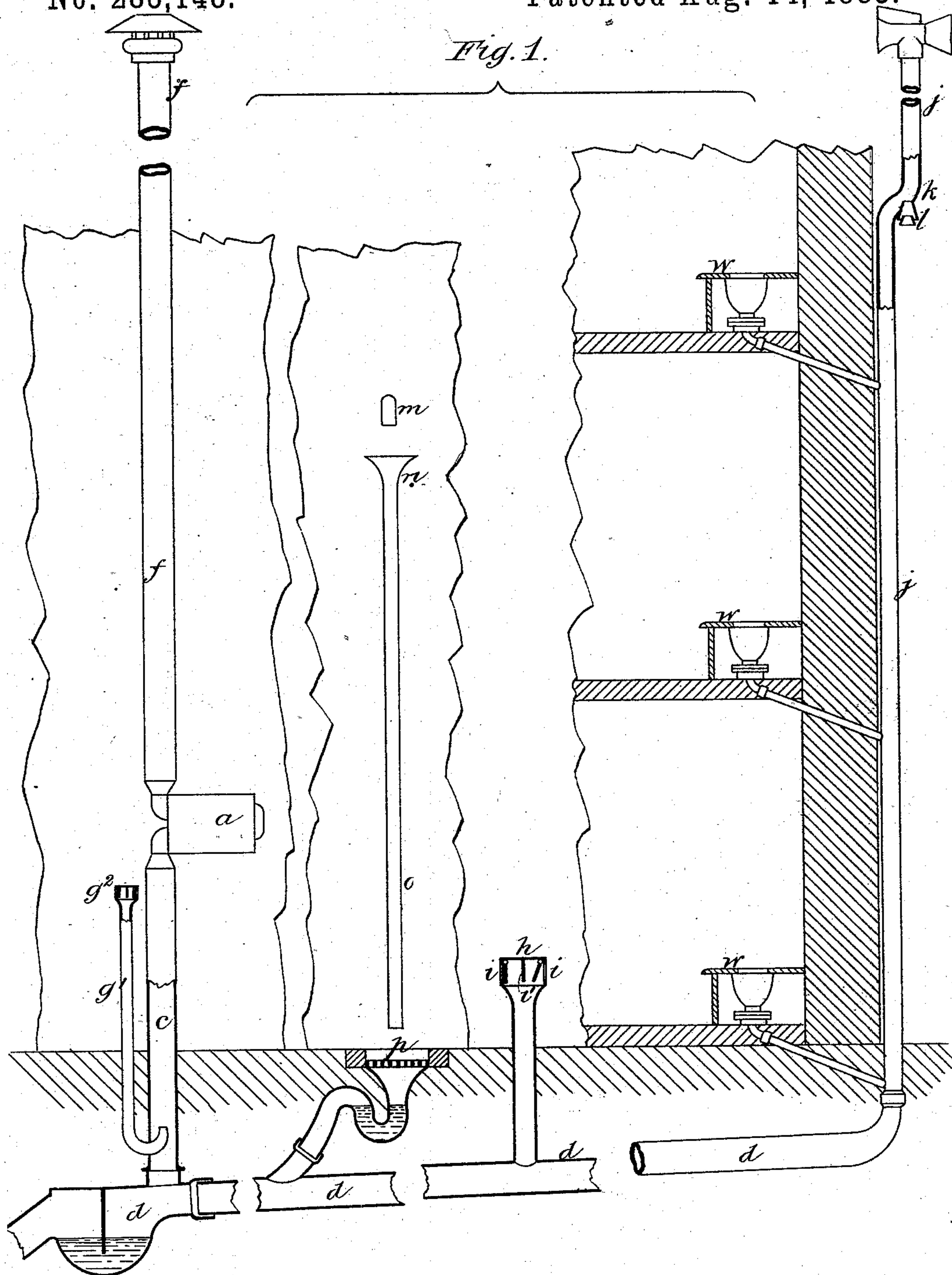
T. ROWAN.

VENTILATING AND APPARATUS THEREFOR.

No. 283,148.

Patented Aug. 14, 1883.

Fig. 1.



Witnesses.
Geo. Bacon
H. C. Hurstmann

Inventor.
Thomas Rowan
By John J. Halsted & Son
his Attys

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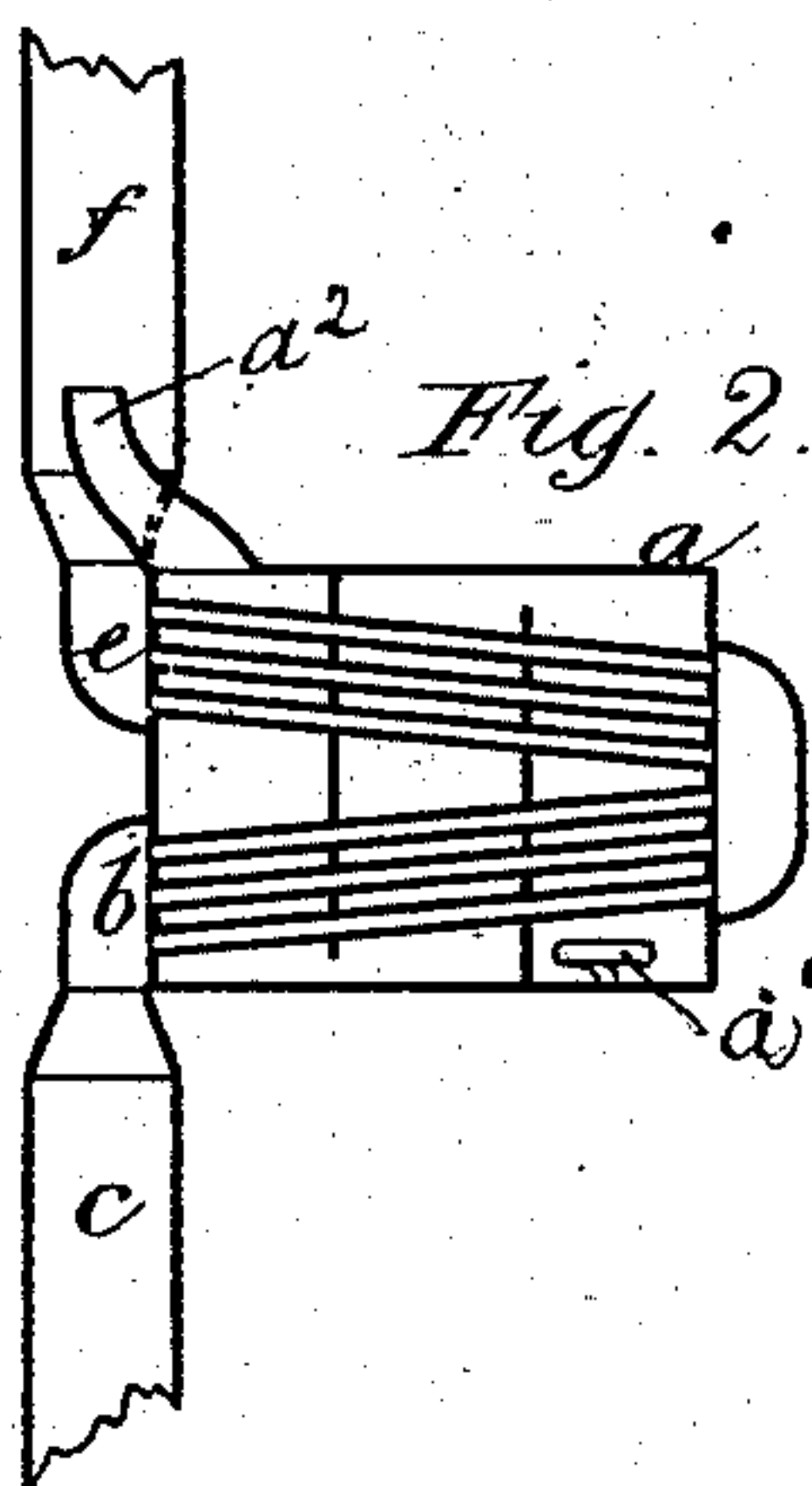


Fig. 2.

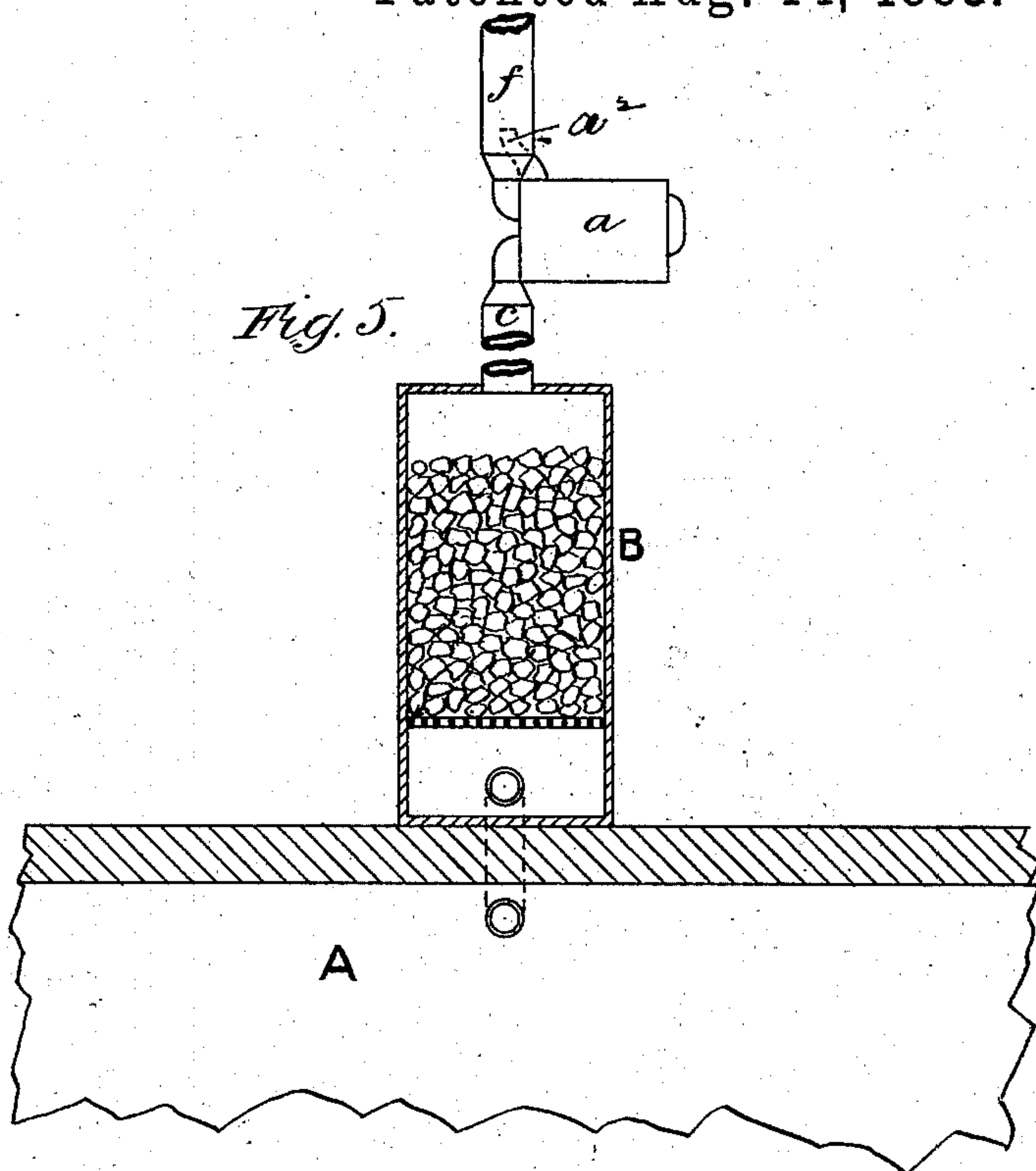


Fig. 5.

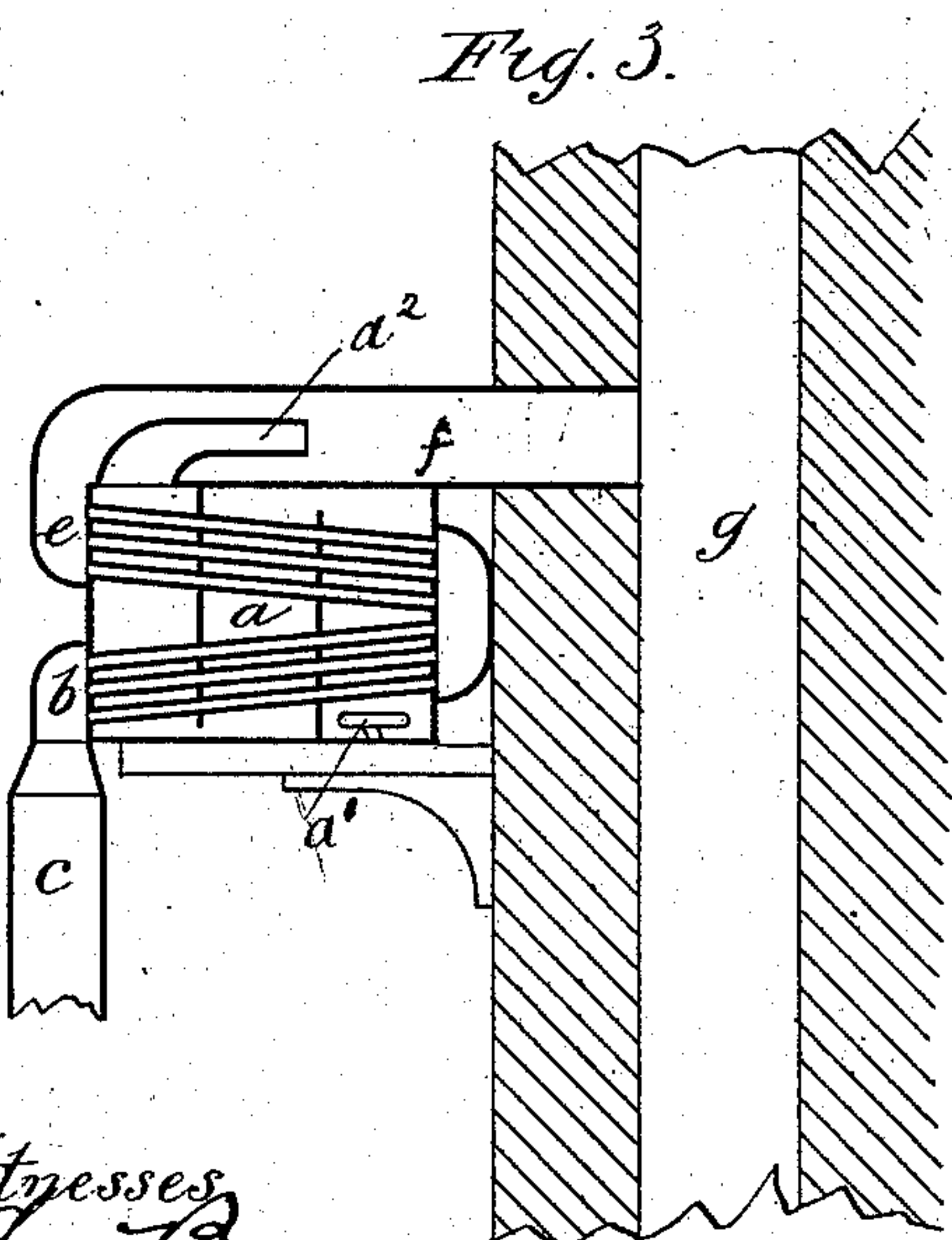


Fig. 3.

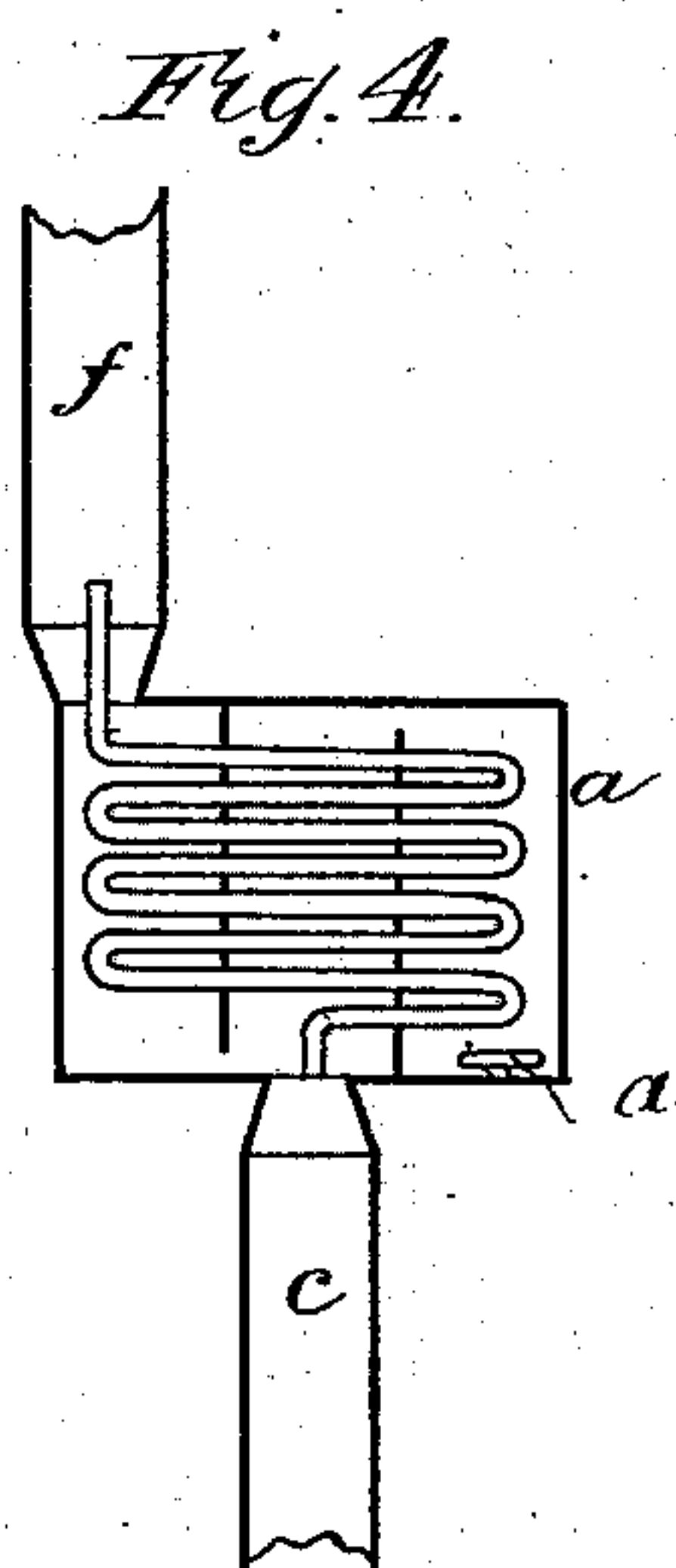


Fig. 4.

Witnesses
Geo. T. Bacon
J. A. Deutermann

Inventor.
Thomas Rowan
by John J. Halsted
his atty.

(No Model.)

3 Sheets—Sheet 3.

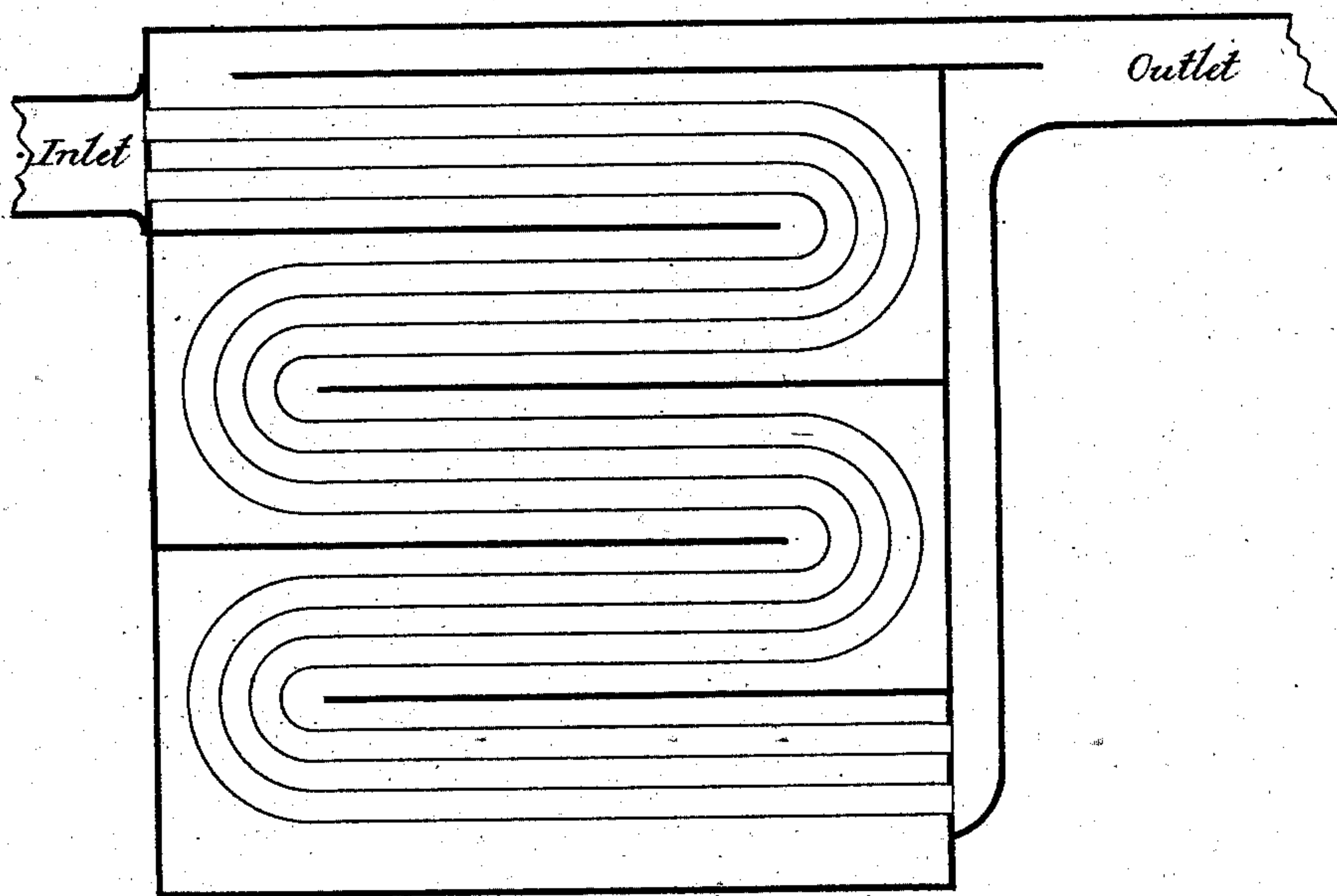
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Fig. 6.



Witnesses.

Levi Bacon
J. C. Huntman

Thomas Rowan, Inventor.
by John J. Halsted & Son
Chas. H. H. H.

UNITED STATES PATENT OFFICE.

THOMAS ROWAN, OF LONDON, ENGLAND.

VENTILATING AND APPARATUS THEREFOR.

SPECIFICATION forming part of Letters Patent No. 283,148, dated August 14, 1883.

Application filed October 31, 1882. (No model.) Patented in England April 14, 1882, No. 1,785; in France October 13, 1882, No. 151,548; in Germany October 15, 1882, No. 22,854, and in Canada April 23, 1883, No. 16,746.

To all whom it may concern:

Be it known that I, THOMAS ROWAN, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Ventilating and Apparatus Therefor, of which the following is a specification:

This invention has reference to further improvements on my former inventions for "improvements in the method of and apparatus for ventilating sewers and drains, and for treating the gases therefrom," "improvements in the method of and apparatus for ventilating buildings, water-closets, ships, or vessels, and the like," "improvements in and applicable to chimneys or flues, parts of such improvements being applicable to other purposes," "improvements in warming and ventilating and apparatus therefor, the improvements being partly applicable to other purposes," and "improvements in the method of and apparatus for ventilating water-closets, urinals, drains, sewers, and the like, applicable also for other purposes," respectively, for which I am applying for Letters Patent, the present improvements having for object chiefly to dispense with the use of a cowl, or the like, for producing an induced current; and, further, in the case of sewers, drains, water-closets; and the like, to destroy and render innocuous bacteria or disease germs and virus.

I construct a suitable arrangement for carrying out my invention in the following manner: I employ a stove or oven heated by gas or otherwise, through which passes a series of tubes. The lower ends of the said tubes are in communication with the sewer, drain, water-closet, or the like, the other ends communicating with an up-shaft or chimney, into which also pass the products of combustion from the stove or oven. For ventilating buildings, rooms, or other places the arrangement is substantially the same as that hereinbefore described, except that the building, room, or other place is in communication with the stove or oven instead of the stove or oven being in communication with the sewer or the like. When required, each branch drain is provided with an air-inlet box or shaft having a valve

opening inward and regulated to any required pressure, the object of this inlet being to allow a down current of air, at the same time preventing any escape of sewer or drain air or gas, such down current of air serving to insure a constant current of external air toward the shaft, which cuts off the main sewer from the building and likewise insures a current of air passing freely up the soil-pipes.

In order to enable my invention to be better understood, I will proceed to describe the same by reference to the accompanying drawings, in which—

Figure 1 is an elevation partly in section of part of a building with my improvements for ventilating the same applied thereto. Fig. 2 is a detached sectional view, on a larger scale, of the stove or heating apparatus. Fig. 3 is a similar view of the stove or heating apparatus, except that it is in communication with the ordinary flue of the building instead of with a separate flue. Fig. 4 is a section showing a modified arrangement of the tubes of the stove; and Fig. 5, a section showing the ventilating arrangement applied to a sewer.

In Fig. 1, *a* is the stove, oven, or heating apparatus. The said apparatus, as shown in Figs. 2 and 3, consists of a stove constructed substantially in the manner described in the specification of my said former improvements in warming and ventilating and apparatus therefor, the improvements being partly applicable to other purposes. The lower ends of the tubes, *b*, being in communication by means of the pipe *c* with the drain *d*, (or with the sewer, water-closet, or the like, according to circumstances,) the other ends, *e*, of the tubes communicate with the up-shaft or chimney *f* outside the building, or, as shown in Fig. 3, with the ordinary flue, *g*, of the building. *g'*, air-injecting pipe of the up-shaft *f*; *h*, air-inlet box or shaft communicating with the drain *d*; *i*, the valves of the air-inlet box, the said valves opening inward and being regulated to any required pressure; *i'*, dividing-plate. The air-injecting pipe *g'* is provided at the top *g''* with valves opening inward similar to those shown at *i*. *j* is the ordinary soil-pipe of the water-closets *w w w*. The said soil-pipe is el-

bowed at *k*, and provided with air-injecting cones *l*, in a manner similar to that described in the specification of my said former improvements in the method of and apparatus for ventilating buildings, water-closets, ships, or vessels, and the like.

When applying my improvements, I prefer that the waste water from all baths and the like should be discharged outside the building, as at *m*, into the open head *n* of a pipe, *o*, which itself discharges into an open grating, *p*, communicating, as shown, with the drain *d*.

From the preceding description it will be understood that if the stove *a* be heated by gas by means of a burner, *a'*, or otherwise, an induced current will be produced in the up-shaft *f* by the discharge of the products of combustion into said shaft at *a''*, and fresh air will be drawn into the pipe *c* through the injecting-pipe *g'*. The foul air and gases from the drain *d*, (or from the sewer, as the case may be,) will be drawn through the stove *a*, and will pass with the products of combustion into the atmosphere through the up-shaft *f*, and the heat to which the said air and gases are subjected in passing through the stove may be sufficient to destroy and render innocuous bacteria or disease germs and virus which the said air and gases may contain before passing into the atmosphere. Air will also pass into the drain *d* through the valves *i* in the inlet-box *h*, so that there will be practically a constant current of external air toward the shaft *c f*, which cuts off the main sewer from the building, and likewise insures a current of air passing freely up the soil-pipe *j*, the valves in the inlet-box and in the top of the air-injecting pipe *g'* preventing any escape from the drain *d*.

For ventilating rooms, buildings, or other places the stove *a* should be placed within the building; but instead of the lower ends, *b*, of the tubes being in communication with the sewer or drain the said ends would be open to the room or building, and would be covered by an ornamental grating. The upper ends of the tubes would be in communication either with the ordinary house-flue or with a separate flue, according to circumstances.

Instead of the tubes of the stove or heating apparatus being arranged as shown in Figs. 2 and 3, they may consist of a number of serpentine tubes, as shown in Fig. 4, placed side by side, or as shown in Fig. 6, Sheet 3.

Fig. 5 shows the improvements applied to a sewer. *A* is an ordinary sewer; *B*, a receiver similar to that described in the specification of my said former improvements in the method of and apparatus for ventilating water-closets, urinals, drains, sewers, and the like, applicable also for other purposes. *c* is the vertical pipe leading from the receiver *B* into the heating apparatus *a*, whence it passes into the up-shaft *f*. The action is substantially the same as that hereinbefore described. This arrangement of heater is specially applicable for introducing fresh warmed air into railway-carriages in the manner described in the specification of my said former improvements in warming and ventilating and apparatus therefor, the improvements being partly applicable to other purposes.

Having thus described my said invention and the best means I am acquainted with for carrying the same into effect, I wish it to be understood that what I claim is—

1. In combination with a heating apparatus through which passes a series of tubes, and a sewer, drain, water-closet, or the like, the part *f* of the up-shaft, into which pass the products of combustion, communicating directly with the upper ends of such series of heating-tubes, and the part *c* of the shaft communicating directly with the lower ends of such tubes, the whole operating to produce an induced current in the manner and for the purposes set forth.

2. In combination with a sewer, drain, or other pipe, the described arrangement of pipes *c f*, heating-case *a*, its discharge *a''* within pipe *f*, and its inclosed set of heating-pipes, communicating with pipes *c* and *f*, but not with the heating-space of the case.

THOMAS ROWAN.

Witnesses:

A. ALBUTT,
B. BRADY.