

(No Model.)

2 Sheets—Sheet 1

A. McARTHUR.
WARM FRESH AIR VENTILATOR.

No. 354,161.

Patented Dec. 14, 1886.

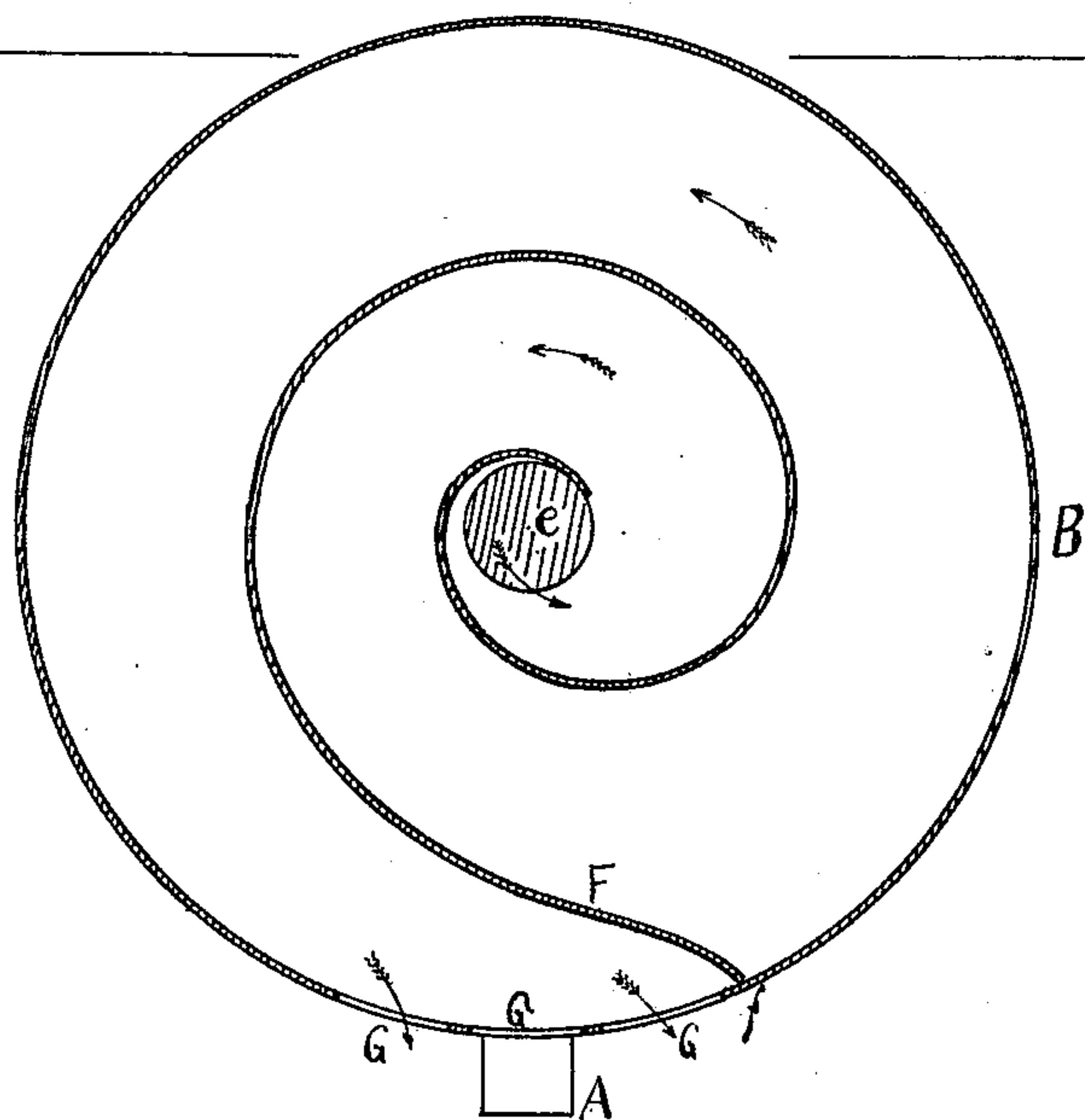
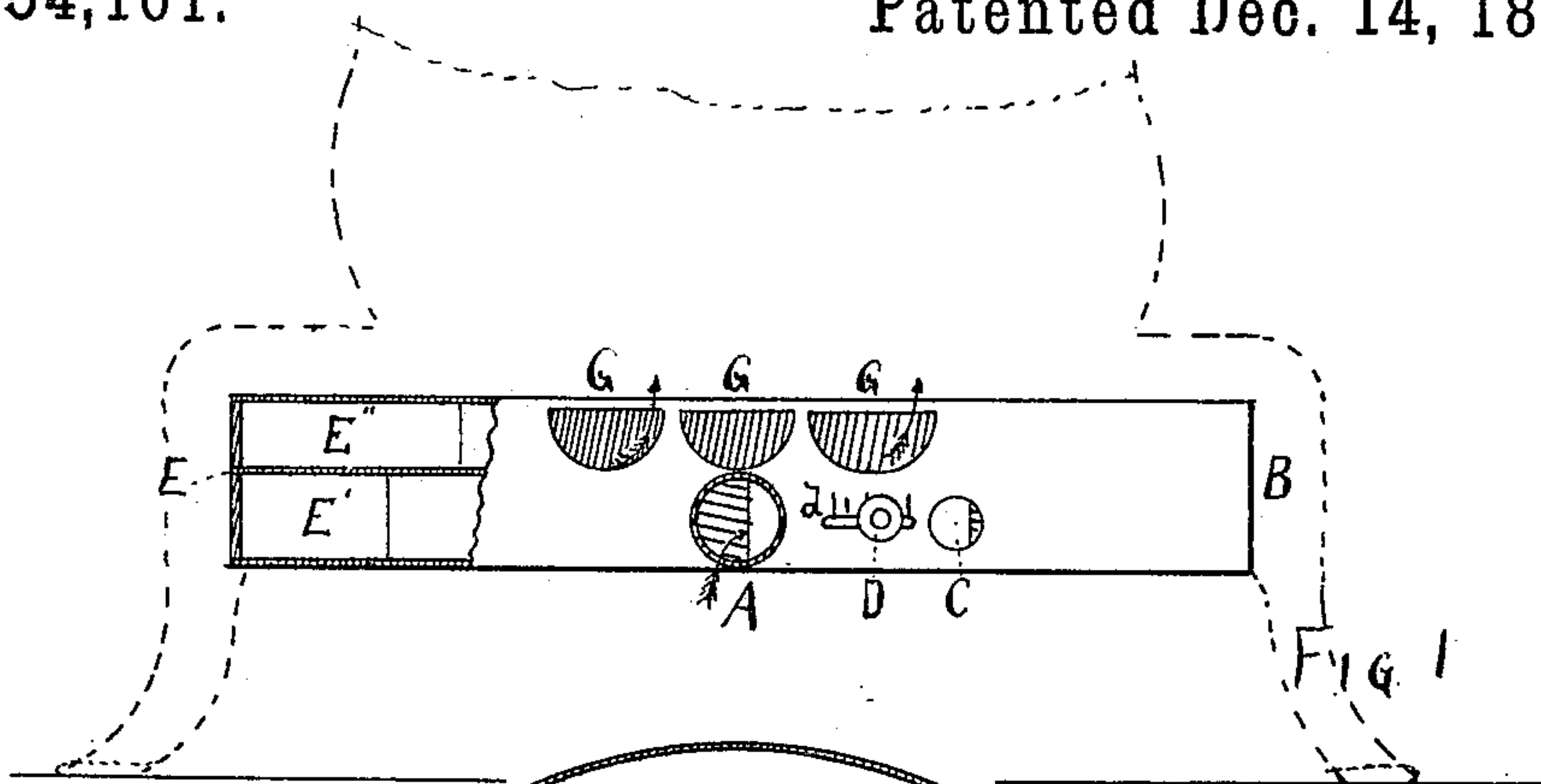


FIG. 2.

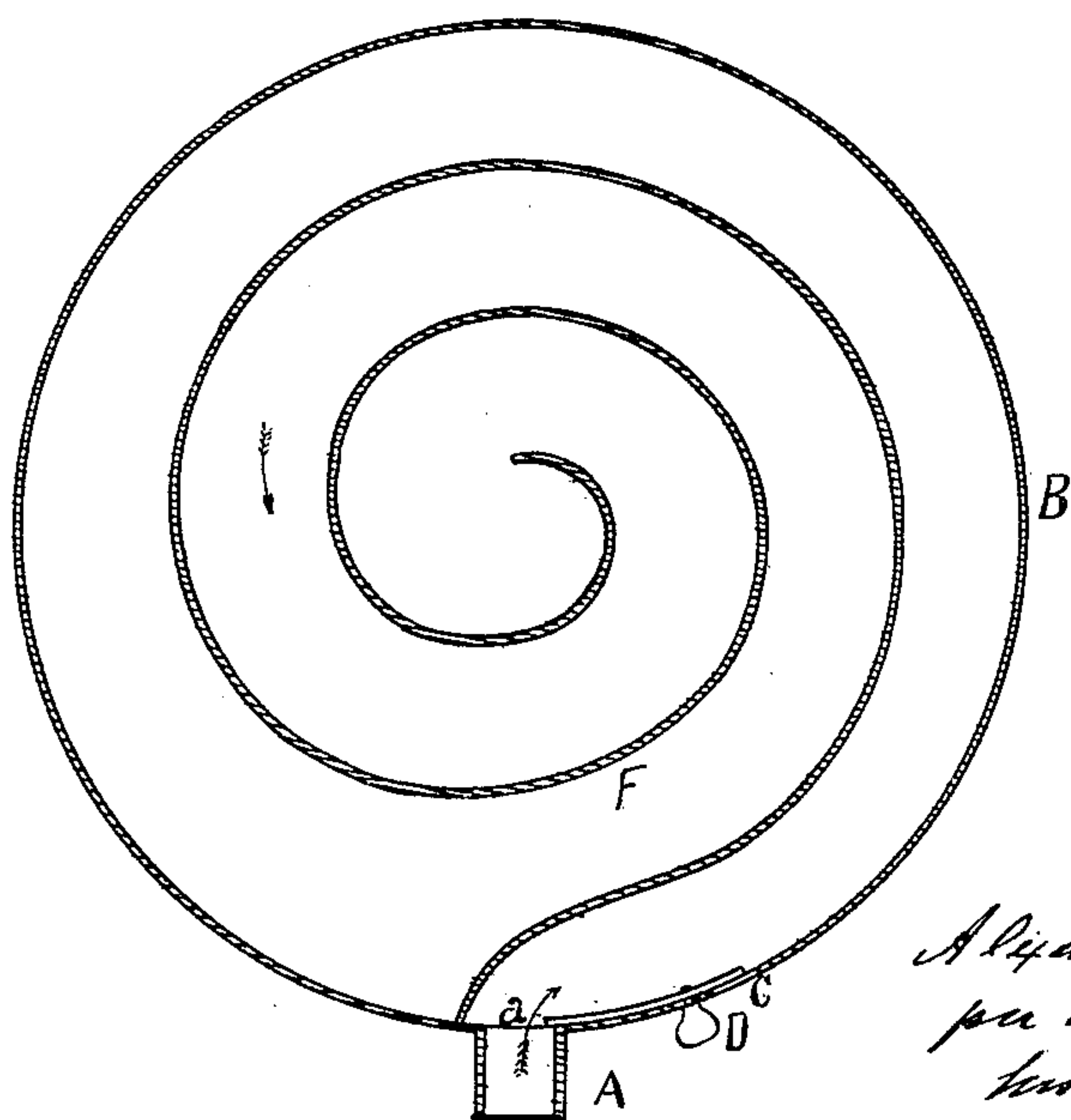


FIG. 3.

Witnesses:
C. Regier,
C. Marble,

Inventor
Alexander McArthur,
per *H. D. Roberts*
att'y.

(No Model.)

2 Sheets—Sheet 2.

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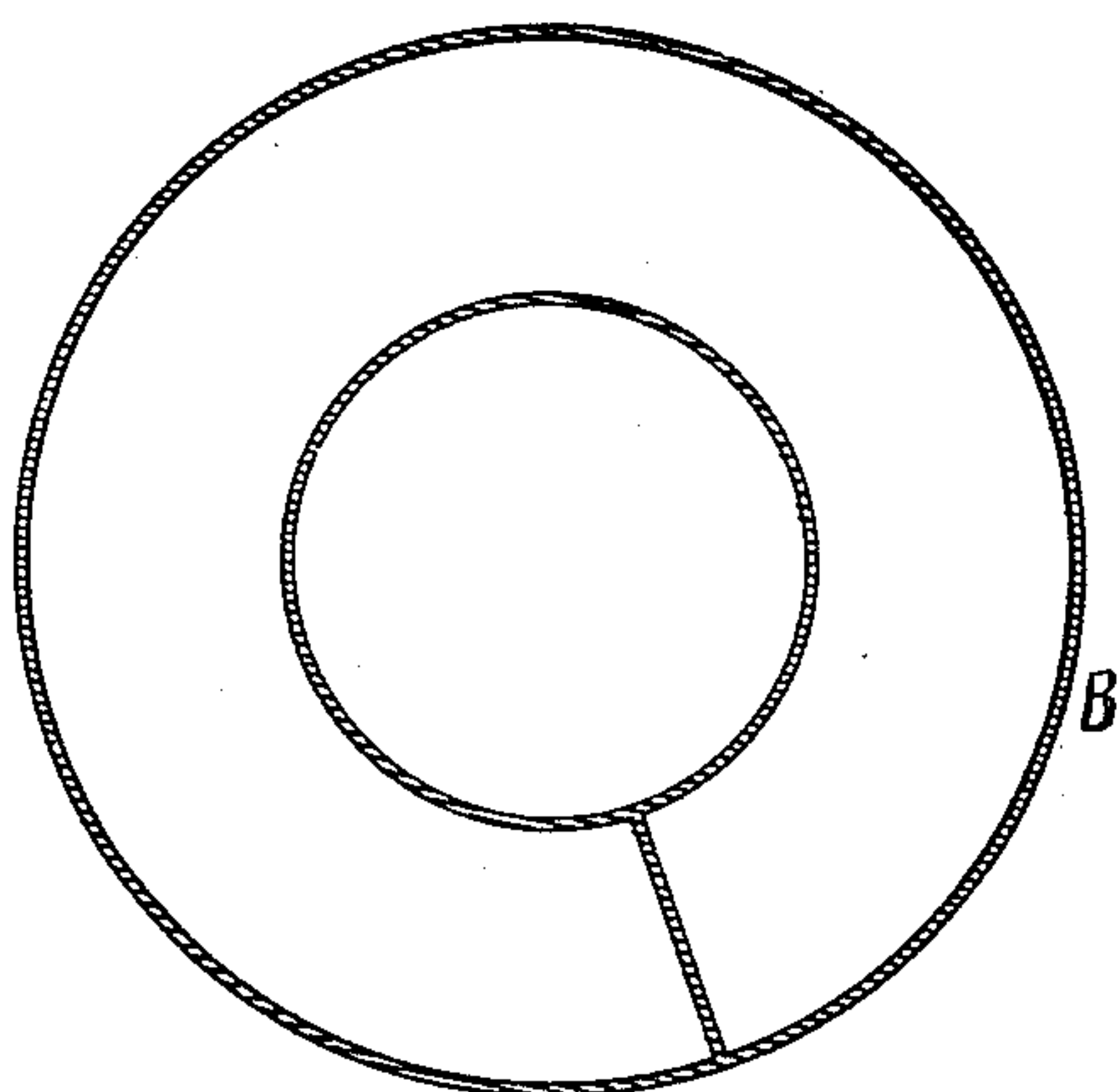
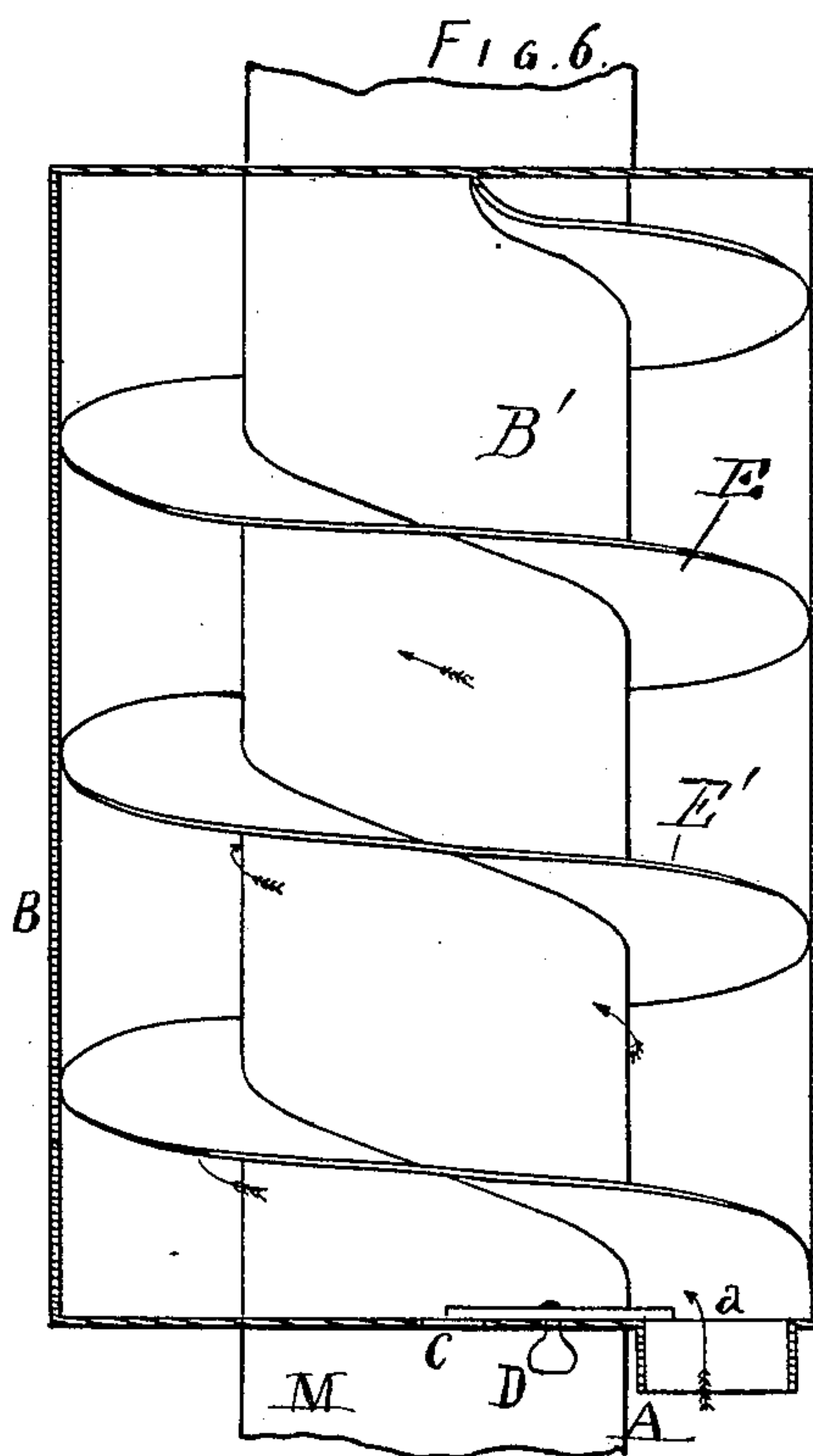
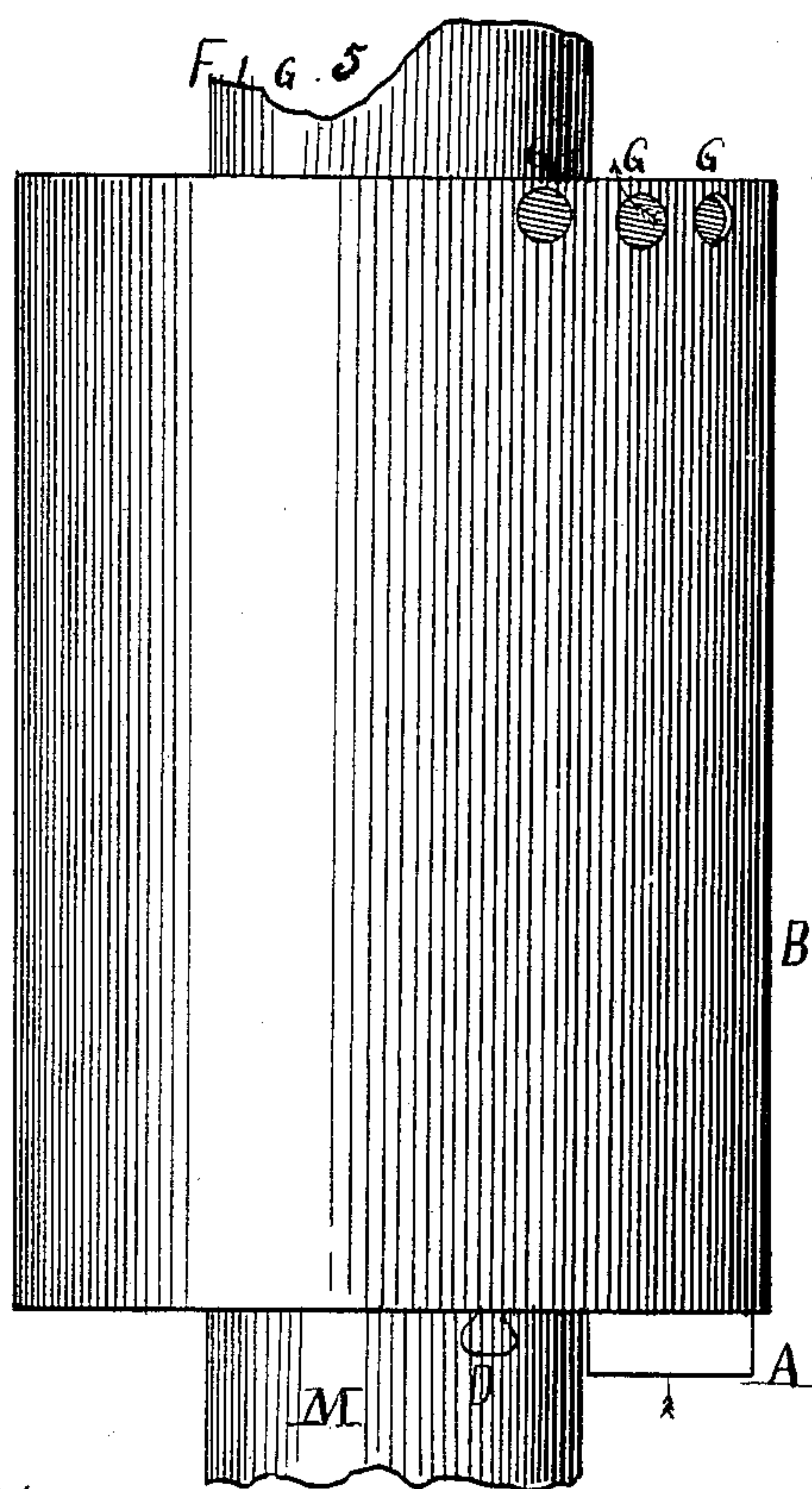


FIG. 4.



Witnesses:-
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C. Marble

Inventor:-
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UNITED STATES PATENT OFFICE.

ALEXANDER McARTHUR, OF ALEDO, ILLINOIS.

WARM FRESH AIR VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 354,161, dated December 14, 1886.

Application filed February 4, 1886. Serial No. 190,770. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER McARTHUR, a citizen of the United States, residing at Aledo, Mercer county, Illinois, have invented a new and useful Warm Fresh Air Ventilator, of which the following is a specification.

My invention relates to improvements in warm fresh air ventilators, in which a drum containing a diaphragm and coiled partitions operates in conjunction with a supply-pipe and an ordinary heating-stove; and the object of my invention is to furnish a ventilator which shall be simple in its construction and effective in its use. I accomplish this by the mechanism illustrated in the accompanying drawings, in which—

Figure I represents a view of my drum B partly cut away so as to show inside, showing in dotted lines the stove with which it is connected. Fig. II represents a horizontal cross-section of drum B, showing coiled partition F'. Fig. III represents a horizontal cross-section of drum B, showing coiled partition F. Fig. IV shows a top view of my drum B as it is when used around a stove-pipe. Fig. V shows a side view of my drum B as it may be used around a stove-pipe. Fig. VI shows a view of my drum B as it is when used around a stove-pipe, having the outside inclosure cut away.

Similar letters refer to similar parts throughout the several views.

In the drawings, A represents a supply-pipe for outside air, and runs preferably from the outside under the floor of the room to the place where my ventilator is to be placed. Here it enters the room through the floor and is connected at *a* with drum B. Drum B is preferably of the shape as illustrated in the drawings, although it may be made of any other suitable shape, and is placed, where a base-burner for heating purposes is used, under the base-burner, so that the top of drum B shall rest against the bottom of the base-burner. To accomplish this, drum B may be provided with adjustable legs. To one side of *a*, where the pipe A enters the drum B, there is the perforation C. Between perforation C and *a*, where pipe A is inserted, is the sliding plate or damper D, sliding in a slot, *d*, as illustrated in the drawings, which damper D is so adjusted that the passage in the tube or pipe A

can be either partly or completely closed thereby, and, further, that when the pipe A is completely closed by damper D then the perforation C shall be open. The upper edge of slot *d* is provided with a scale, *d'*, for the purpose of indicating to what extent the pipe A is closed by damper D.

The drum B is horizontally divided by a diaphragm, E, into two compartments, of which the lower one (designated by E') is preferably one third larger than the upper one, (designated by E''). Diaphragm E has in its center the perforation *e*. Compartment E', into which tube A opens, has a coiled partition, F, as illustrated in the drawings, which partition F starts from near pipe A and ends its winding course in perforation *e*. Compartment E'' is also partitioned by a coiled partition, F', starting from perforation *e* and ending its winding course in the outside of drum B at *f*.

Drum B has a series of perforations just above where pipe A enters the drum (marked G.) These perforations, as will be seen from the drawings, enter compartment E'', so that a current of air entering the drum B from pipe A, as indicated by the arrows in the drawings, will rush around the passage made by partition F up to and through perforation *e* in diaphragm E and in the compartment E'', along the passage made by partition F' and out into the room through perforations G.

It will be seen that in the series of perforations marked G the first is smaller than the rest and there is an increase in size. The object of this is to obtain a better distribution of the air.

The operation of my invention is as follows: A current of cold air led in from the outside through pipe A to the drum B will be heated in the upper compartment of the drum, by reason of the position of the drum in relation to the heating-stove, as heretofore described. The warm air expanding will rush out through perforations G into the room, and thus make room for additional fresh and cold air to be supplied by pipe A. Thus a constant current will be created.

The drawings show that compartment E' is deeper than compartment E'', and that the passage formed in compartment E'' by partition F is wider than the passage in compart-

ment E'. The object of this is to furnish a larger heating-surface to be brought in contact with the air.

I am aware that my invention as heretofore described is not applicable to all kinds of stoves. For stoves which do not admit of the attachment of the improvement to their base I modify the device as represented in Figs. IV, V, and VI. In said figures it will be noted that the body of the drum proper is a vertically-extended cylinder with a central pipe, B', large enough for an ordinary stove-pipe joint to pass through. Moreover, the diaphragm E is dispensed with and but one partition E' is employed in place of the two partitions E' E'', before referred to. The said single partition E' is arranged spirally within the body B, so that it presents a spiral passage around the central pipe, B', as represented in Fig. VI. In said modified construction the openings A and C and the damper D are preferably located on the bottom of the drum.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a heating-drum, of the drum-body B, provided at or adjacent to its base with openings A and C, a damper located between said openings A C, and adapted to alternately close them, a partition arranged spirally within said drum to form a spiral passage, and discharge-openings G at its top, substantially as described.

2. In a warm fresh air ventilator, a drum, B, having a diaphragm, E, with central perforation, e, and the coiled partitions F and F', substantially as and for the purpose herein set forth.

3. A warm fresh air ventilator, comprising pipe A, drum B, diaphragm E, coiled partitions F and F', damper D, and perforations C, G, and e, substantially as and for the purpose herein set forth.

ALEXANDER McARTHUR.

Witnesses:

JAS. I. GILBERT,
JOHN T. ILLICK.