

(No Model.)

2 Sheets—Sheet 1.

A. GLENN.
STOVE DRUM.

No. 451,375.

Patented Apr. 28, 1891.

FIG. 1.

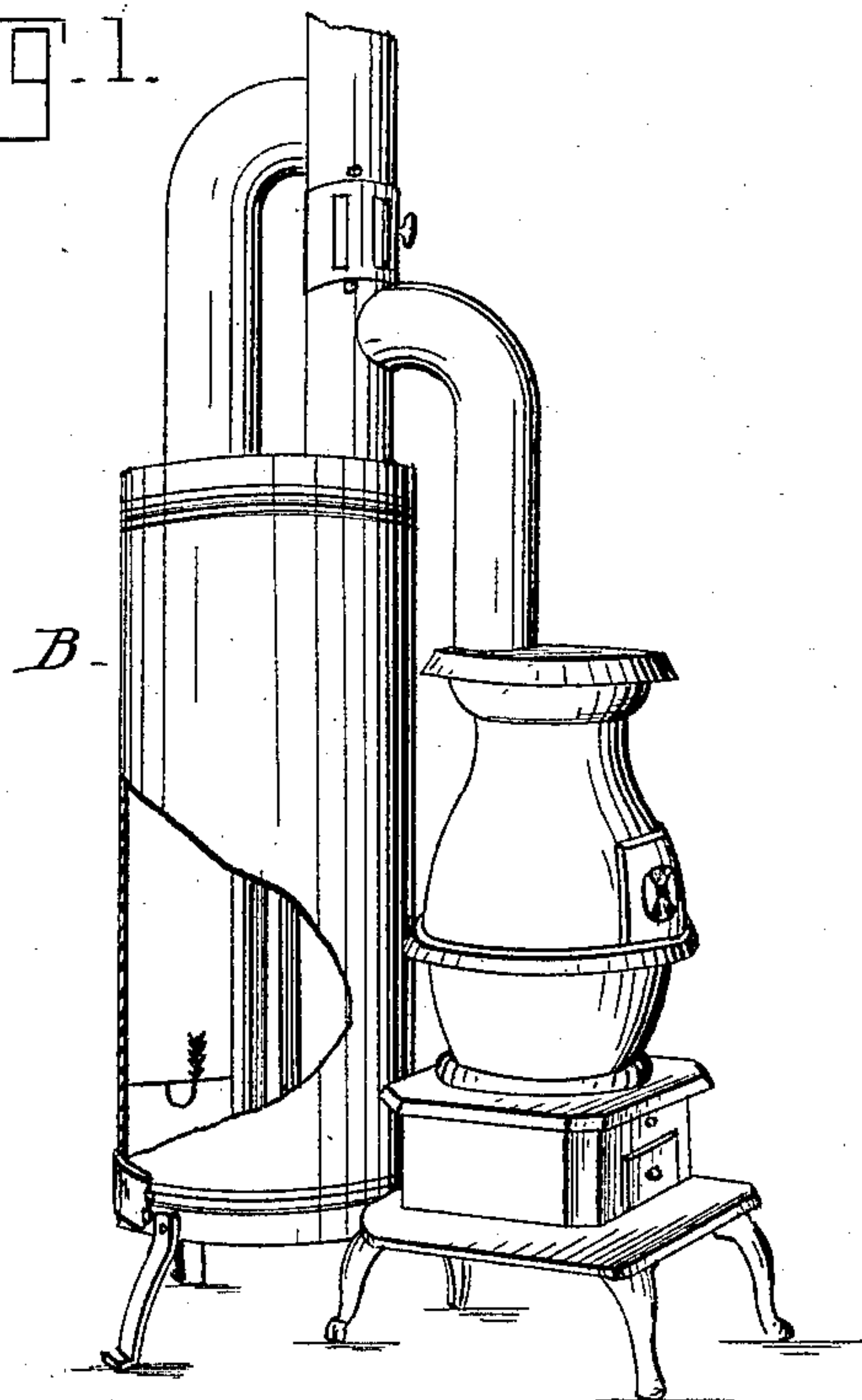


FIG. 2.

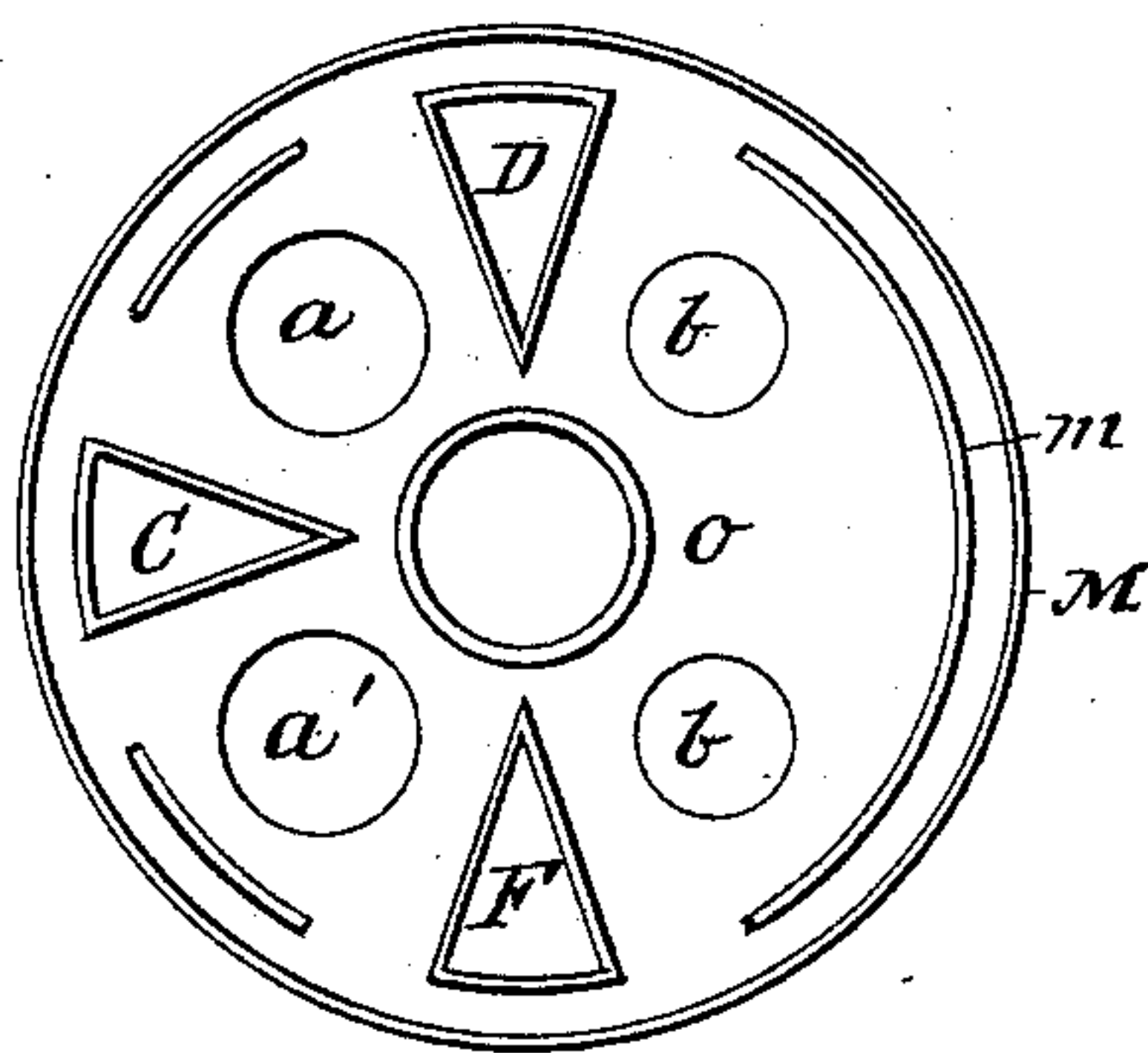
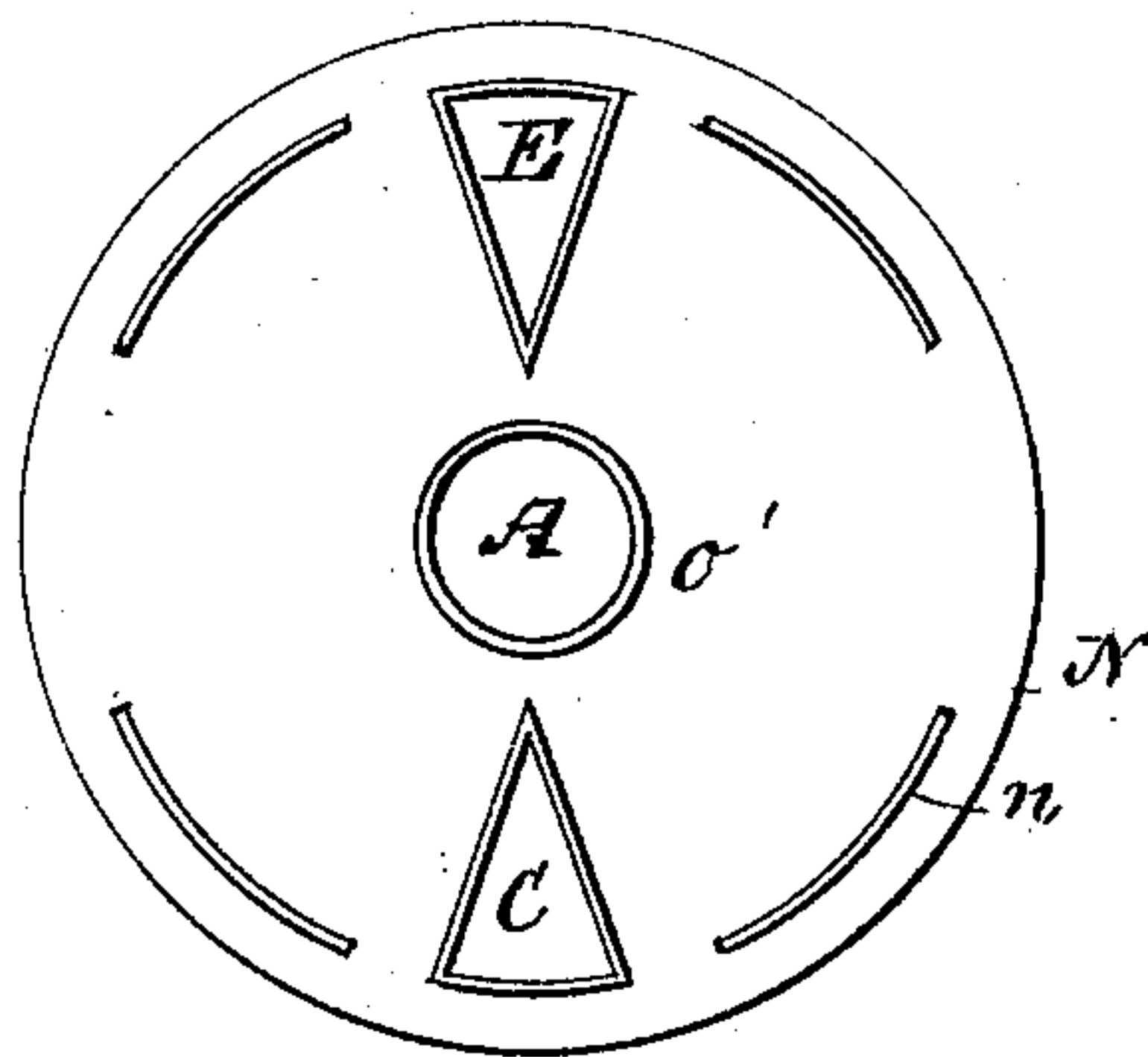


FIG. 3.



WITNESSES:

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INVENTOR

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R. S. W. Lacey
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(No Model.)

2 Sheets—Sheet 2.

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FIG. 4.

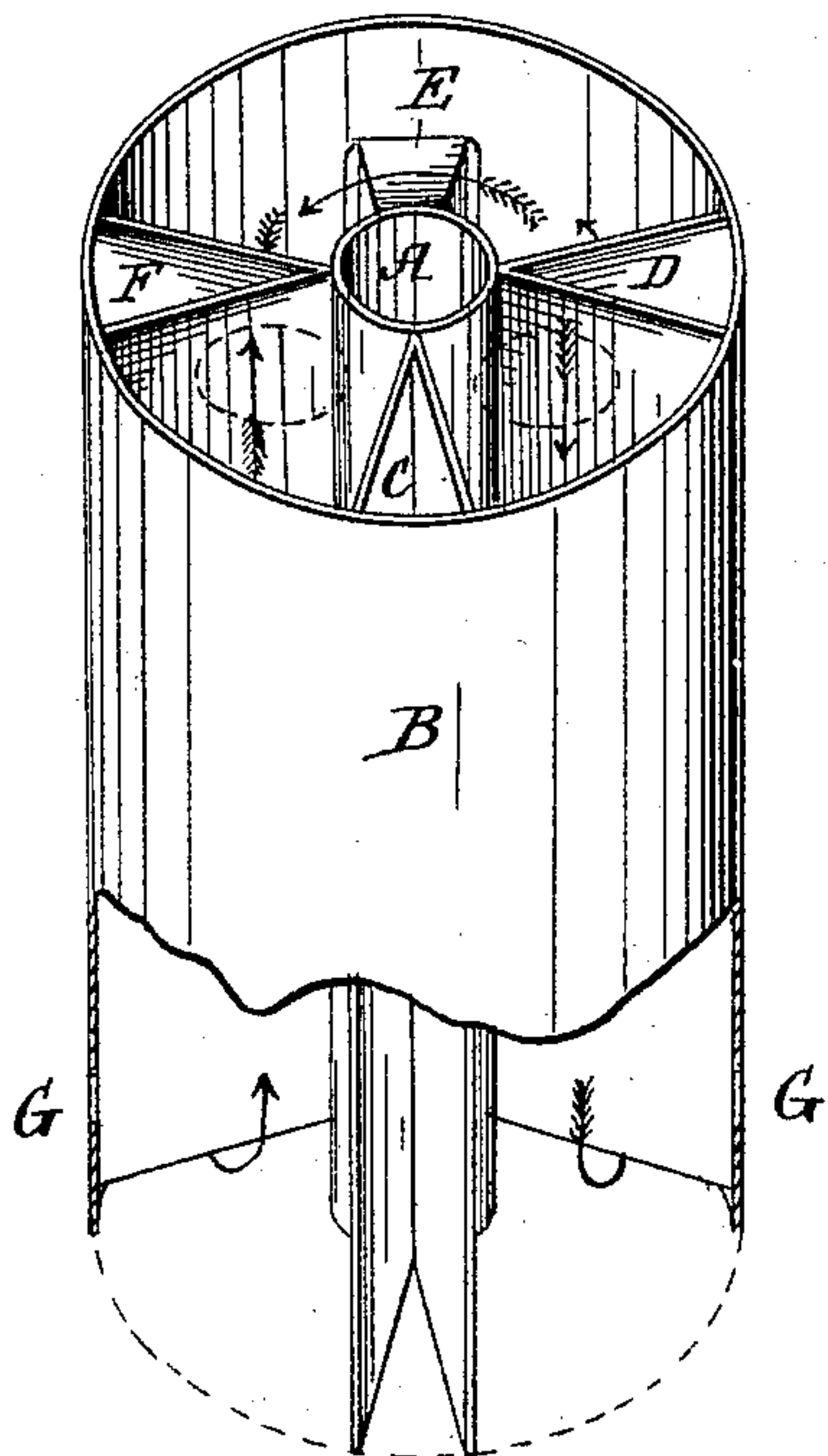
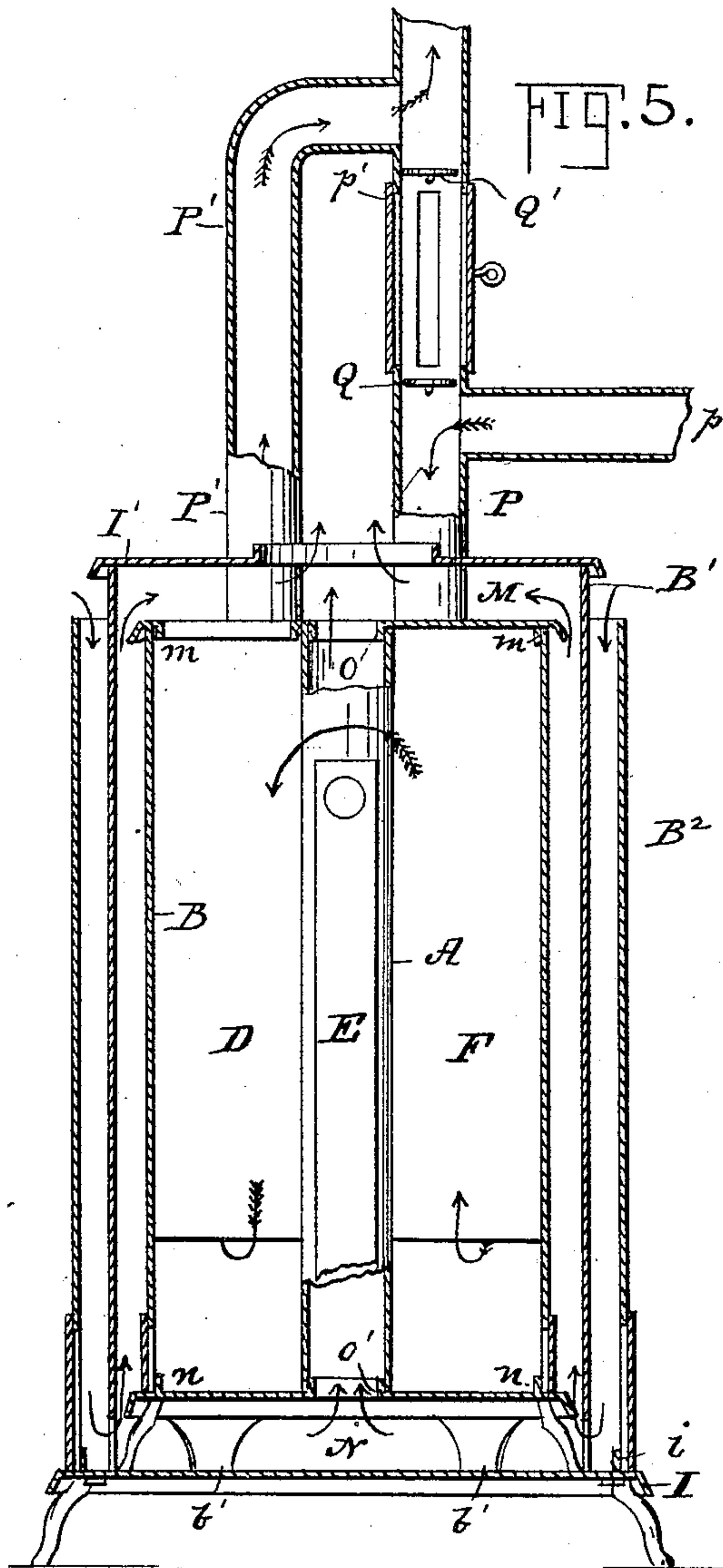


FIG. 5.



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UNITED STATES PATENT OFFICE.

ALLEN GLENN, OF SCRANTON CITY, IOWA.

STOVE-DRUM.

SPECIFICATION forming part of Letters Patent No. 451,375, dated April 28, 1891.

Application filed August 6, 1890. Serial No. 361,233. (No model.)

To all whom it may concern:

Be it known that I, ALLEN GLENN, a citizen of the United States, residing at Scranton City, in the county of Greene and State of Iowa, have invented certain new and useful Improvements in Stove-Drums; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to stove-drums, and has for its object to provide a means whereby the heat that usually passes out of the chimney and is lost in the use of stoves and furnaces may be kept in the room and utilized, thereby effecting a saving in the fuel used.

The improvement consists in the novel features and the peculiar construction and combination of the parts, which will be herein after more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a perspective view, parts being broken away, of the drum, showing its application to a stove. Fig. 2 is a bottom plan view of the head or top plate of the radiator proper. Fig. 3 is a top plan view of the bottom plate of the radiator. Fig. 4 is a perspective view of the radiator, the heads being removed. Fig. 5 is a vertical section of radiator as applied to a furnace for conducting the heated air into rooms above the furnace.

B represents the outer casing of the radiator, which is made of sheet-iron, and is engaged by the flanges *m* and *n* near the circumference of the heads M and N.

C, D, E, and F are V-shaped air-flues, which are attached at equal distances apart to the outer casing by means of rivets, which pass through flanges at the outer edges of the flues, the apices of the flues extending inward.

A is a central circular cylinder of sheet-iron, which is engaged by the inner annular flanges or collars *o* and *o'* of the top and bottom plates when in position. This cylinder also comes in contact with the points of the V-shaped air-flues, thus dividing the space between the inner and outer casings into compartments.

a and *a'* are circular openings through the head or top plate and provided with collars on the top of the plate to engage the induction

and eduction pipes P and P', respectively, communicating with a compartment of the drum.

b b are openings through the top plate, and each over a compartment of the drum and provided with a lid or covering. Through these openings *a a'* and *b b* every compartment of the drum may be reached for cleaning of soot by inserting a scraper, scraping the soot to the bottom of the drum, and taking it out through suitable doors at the bottom of the casing B.

The V-shaped air-flues serve the triple purpose of dividing the drum into a series of different compartments, of circulating the air in the room, and of presenting an increased radiating-surface to the drum without increasing its size. The air-flue C is the same length as the drum and is open at both ends, and is engaged by the V-shaped collars of the top and bottom plates. The air-flues D and F are open at the top and are engaged by the V-shaped collars corresponding to them on the top plate, but do not extend to the bottom plate by four or five inches, leaving a space for the smoke to pass under, and are closed at lower end to prevent smoke from entering them, air being admitted into them through openings *d* and *f* in the outer casing B. The air-flue E is open at the bottom and is engaged by the V-shaped collar on the bottom plate, but does not reach to the top plate by about four or five inches, leaving a passage between the upper end and the top plate for the passage of smoke over it, air being admitted into it through the V-shaped openings in the bottom plate and escaping through the opening *e* in the outer casing near its top. This flue is closed at its top end.

In use the smoke enters the induction-pipe at *p*, as shown in Figs. 1 and 5, and by means of the lower damper Q is turned down into the first compartment through the opening *a*, down to the bottom of the drum and under the flue D into the second compartment and up to the top of the drum and over the air-flue E, down through the third compartment to the bottom of the drum and under the air-flue F, and up through the fourth compartment of the drum and out through the opening *a'* in top plate through the eduction-pipe P' to the chimney. The induction-pipe P is

straight, having two parts p and p' , usually called T' S, the one to admit the pipe leading from the stove, the other to receive the outlet-pipe from the drum and at right angles to each other and one a foot or more above the other.

Just above the inlet p is a damper Q , and just below the outlet is another damper Q' , both fitted to close the pipe perfectly tight when shut. Between these two dampers Q and Q' and extending from one to the other is a double pipe, or one within the other, and each having elongated slots or openings through them, so that when the outer pipe or sleeve is turned to the right place air may circulate freely through the openings therein, and when turned to the right or left the solid part of the outer pipe or sleeve will cover the openings in the inner pipe and allow the smoke to pass up through it without coming into the room. The object of and the advantages gained by this arrangement is that when both dampers are closed and the smoke is turned down through the drum to allow the heat that passes through the lower damper to escape through these openings into the room. Without this arrangement there is a considerable amount of heat wasted by passing up the pipe to the chimney. When both dampers are open and the outer pipe or sleeve is turned so as to close the openings therein, a direct draft is obtained.

The bottom plate is provided with legs to raise it a suitable distance from the floor. The loss of heat from furnaces through the outlet smoke-pipes is as great in proportion to the amount of fuel used as it is in stoves, and my drum or radiator will effect a saving in the same proportion and is attachable in the same way.

Fig. 5 shows the radiator as used on a furnace where it is desired to carry the heat to rooms above the furnace.

B represents the radiator as seen in Fig. 1, which is placed upon another cast-iron bottom plate I , which is larger than the plate N , and is also provided with legs and an annular flange i to engage the casing B^2 . Outside of and around the radiator B is the casing B' , which is higher than the radiator D and is raised a little above the bottom plate I by means of short legs or extensions b' . Upon the top of this casing B' rests the top plate I' , which is provided with a flange on the under side to engage the casing B' and with openings through which the pipes P and P' pass down to the inside drum, and also having an

opening II , provided with an upwardly-extending collar, to which a pipe is attached to conduct the heat to the room or rooms above the furnace. The draft enters at the top of casing B^2 and passes down between casings B^2 and B' , passing under the lower end of casing B' , and ascending through the space between the casing B' and B , also through all the air-flues to the space under the plate I' and between it and the plate M , also through the collar II into the conductor-pipe to the rooms above.

The casings B' and B^2 are provided at the bottom with suitable openings opposite the doors in casing B , through which the soot may be taken from the drum.

The clean-out openings are provided with suitable doors.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A radiator comprising the casing B , the concentric cylinder A , the heads M and N , the V-shaped flues C , D , E , and F , arranged at intervals around the cylinder A and placed with their apices touching the said cylinder and with their outer edges touching the casing, thereby forming a series of compartments between the opposing sides of the cylinder and the casing, the flue C extending through the heads M and N the flues E and D closed at their lower ends, which ends do not extend quite to the plate N and open at their upper ends and having openings near their lower ends through the sides of the casing, the flue E opening through the plate N and closed at its upper end, which terminates short of the head M , and having opening near its upper end through the side of the casing, and the head M having openings a and a' on opposite sides of the flue C , substantially as and for the purpose specified.

2. The combination, with the radiator having the openings a and a' , of the induction and the eduction pipes P and P' , the dampers Q and Q' , and the rotating sleeve on the inductor-pipe between the dampers Q and Q' , the sleeve and pipe having corresponding openings or slots, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ALLEN GLENN.

Witnesses:

D. G. CROMWELL,
J. W. FROST.