

(No Model.)

2 Sheets—Sheet 1.

U. BEAUPRÉ.
HOT WATER BOILER.

No. 442,566.

Patented Dec. 9, 1890.

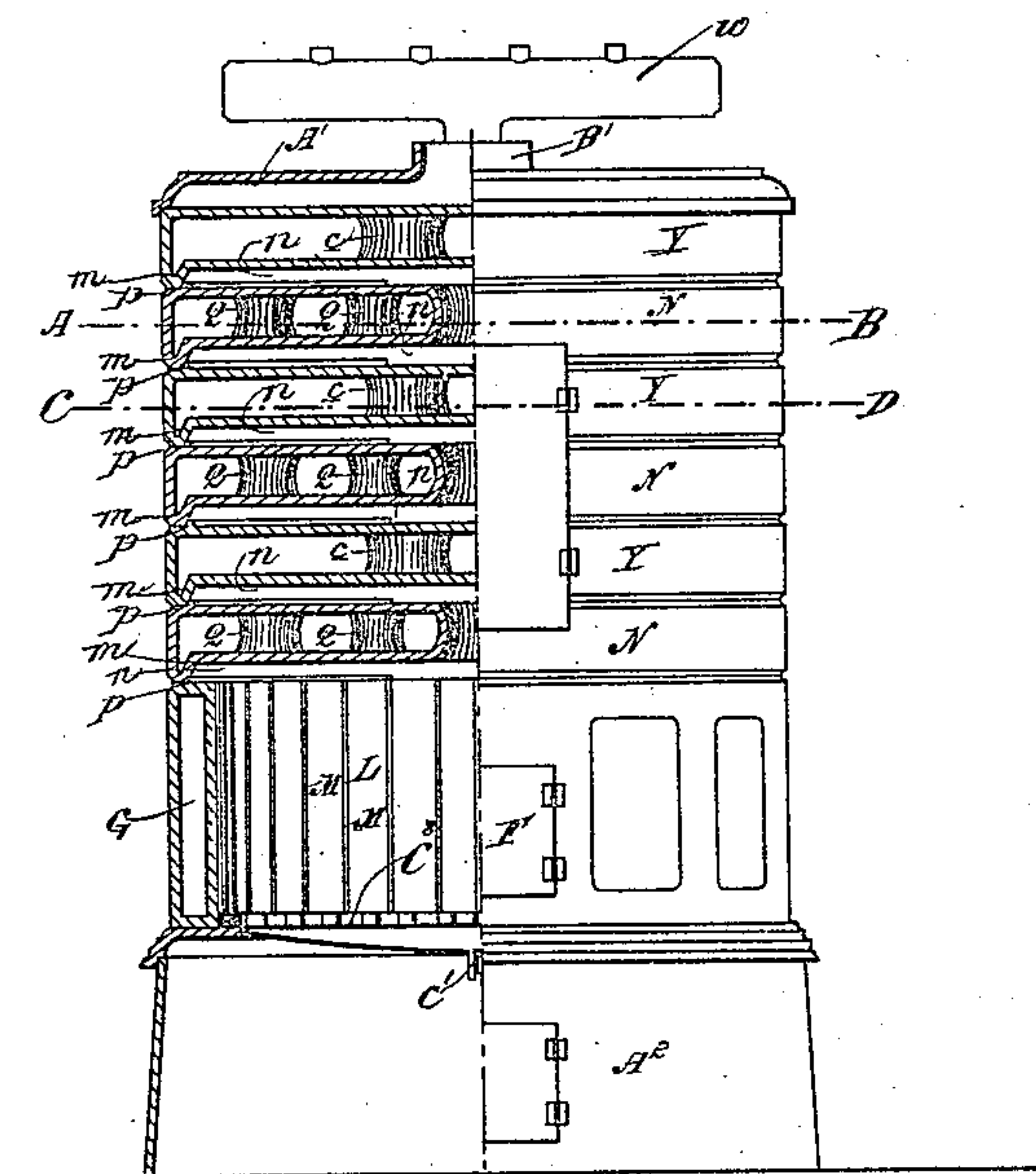


Fig. 1.

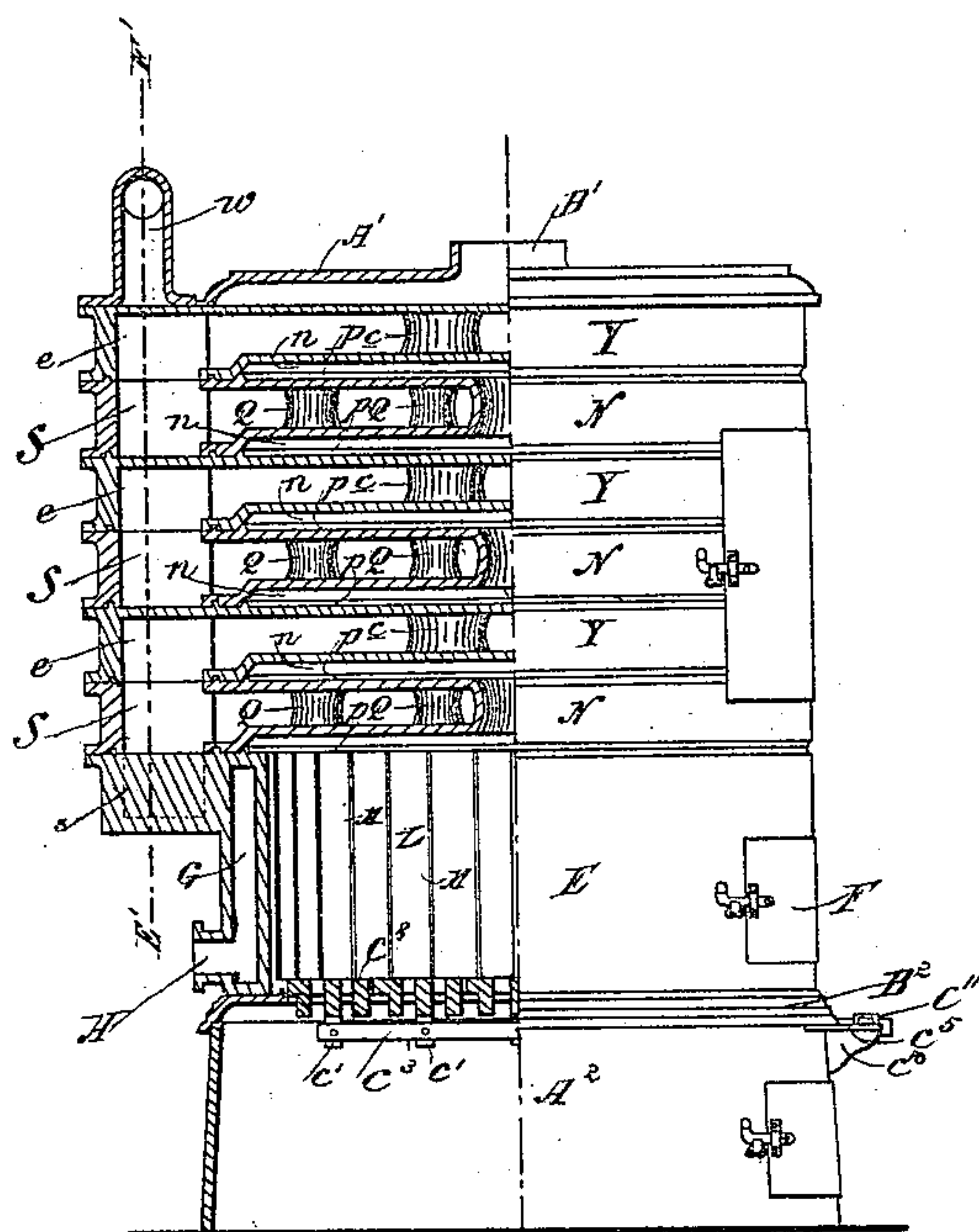


Fig. 2.

Witnesses.

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2 Sheets—Sheet 2.

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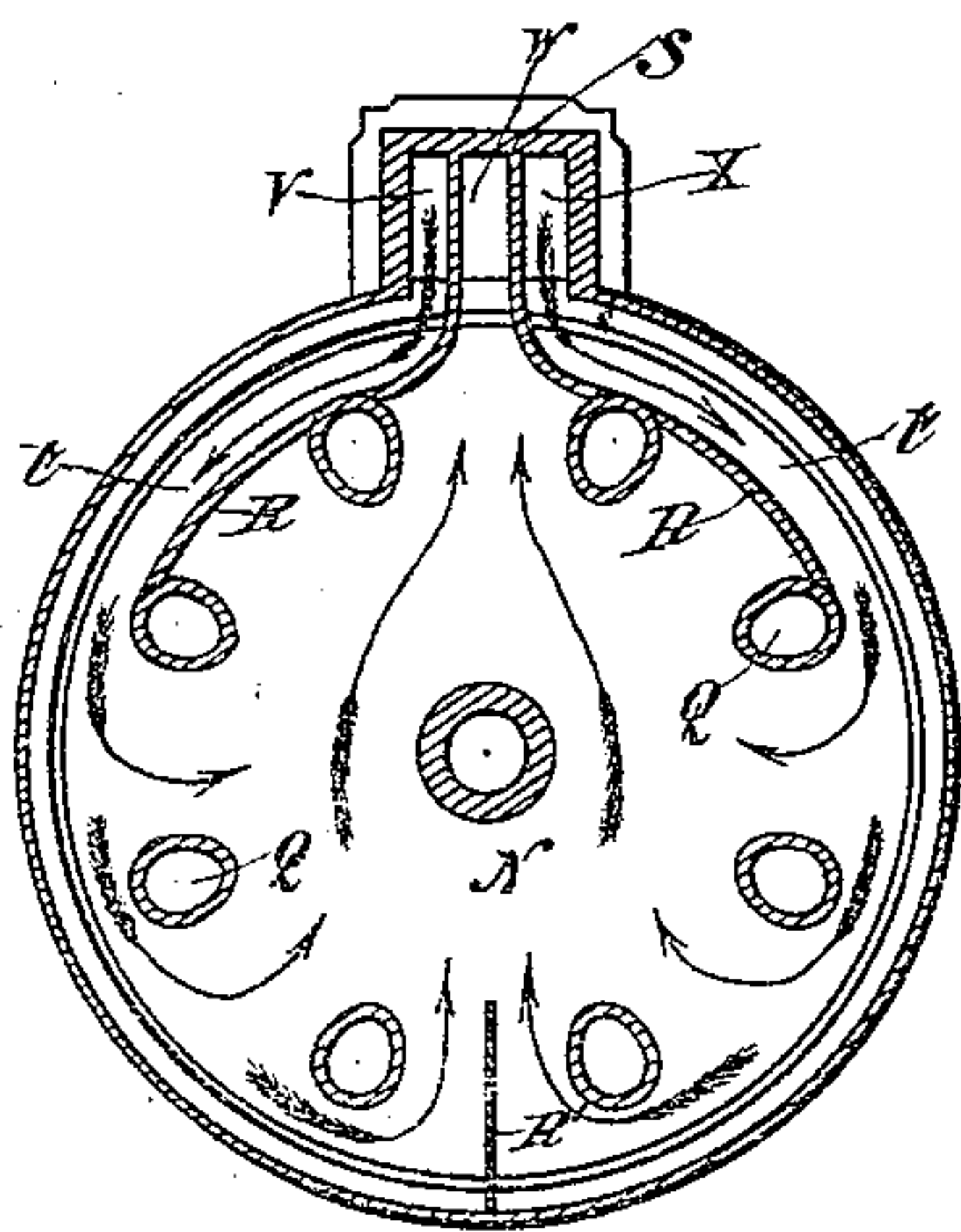


Fig 3.

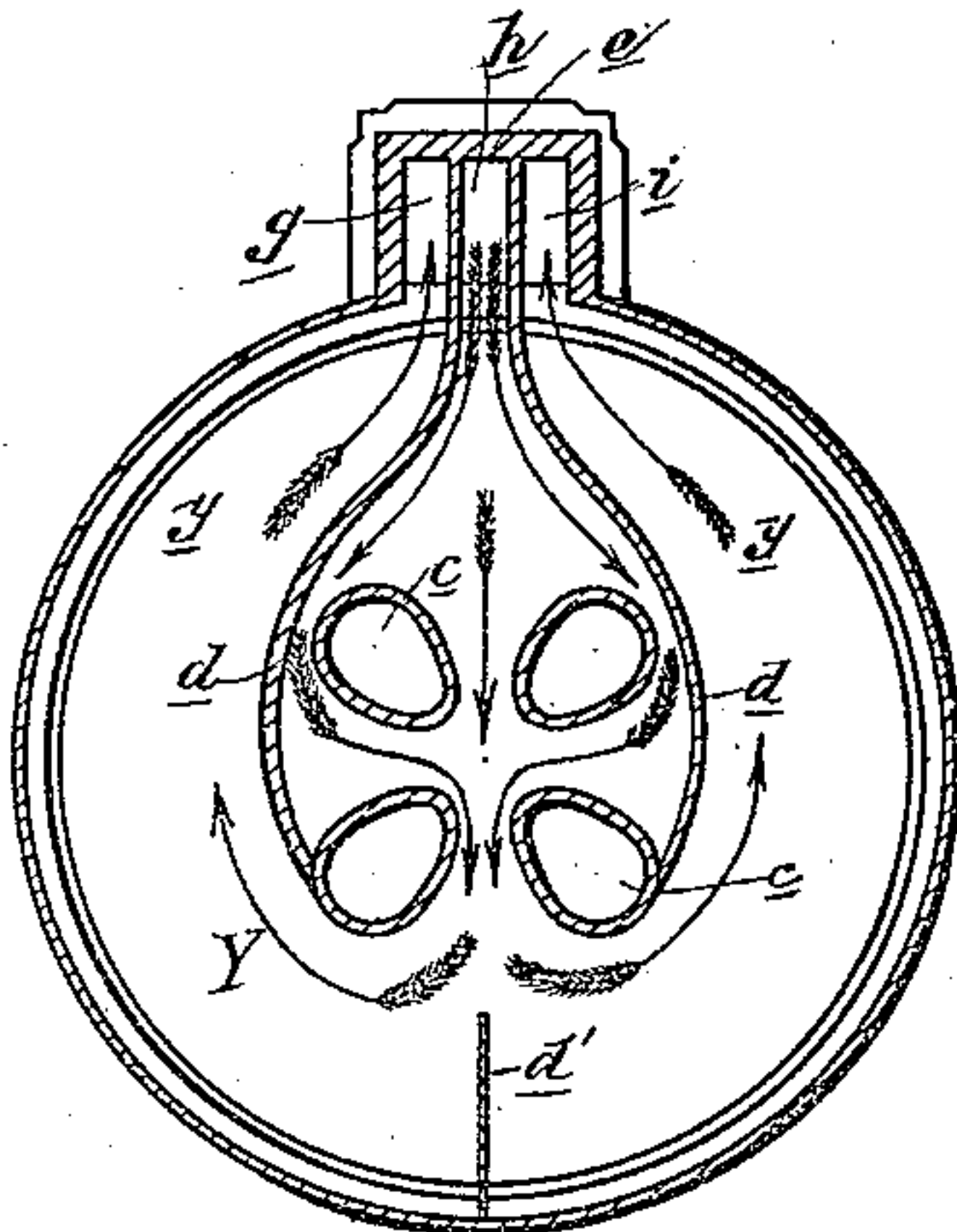


Fig 4.

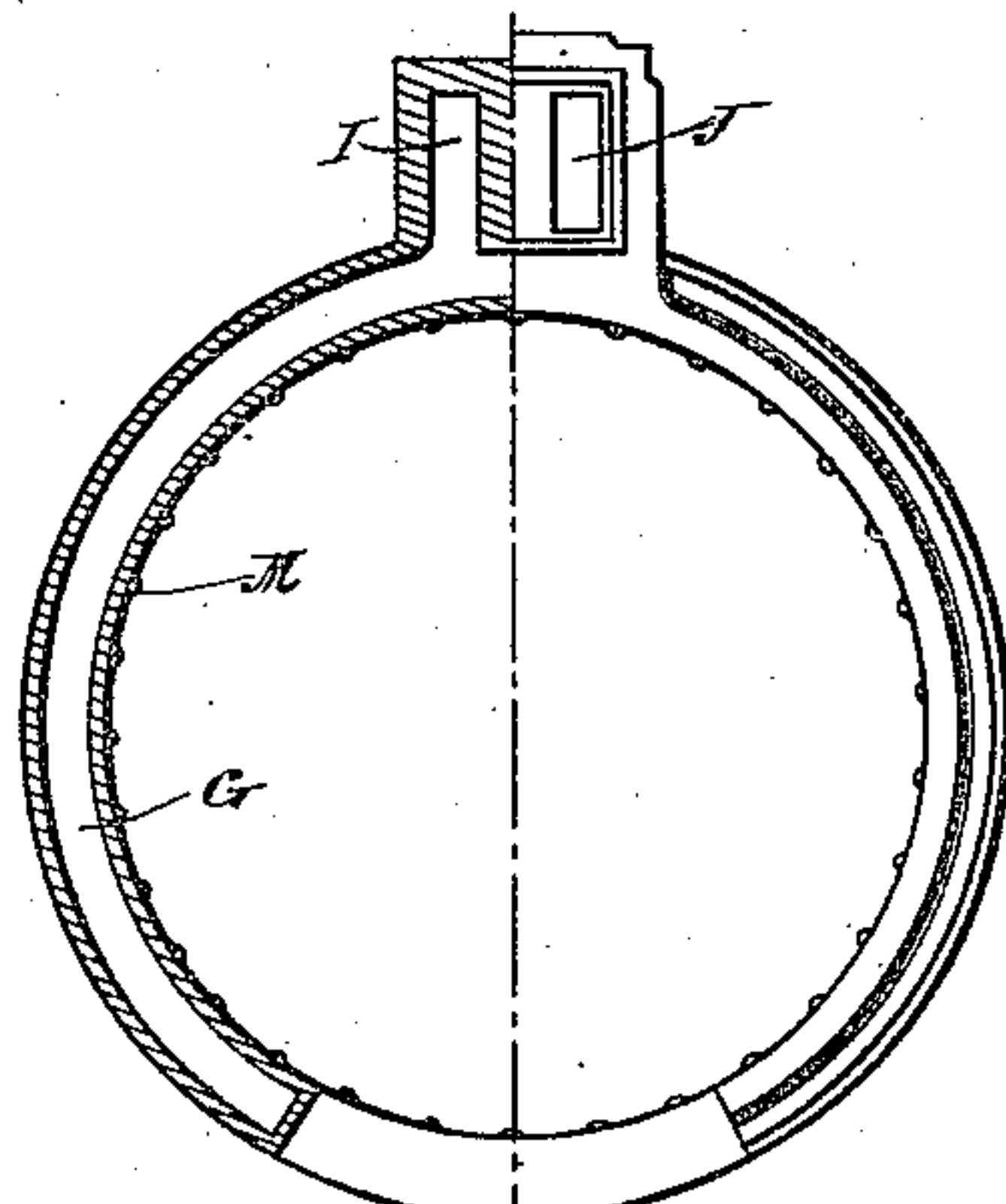
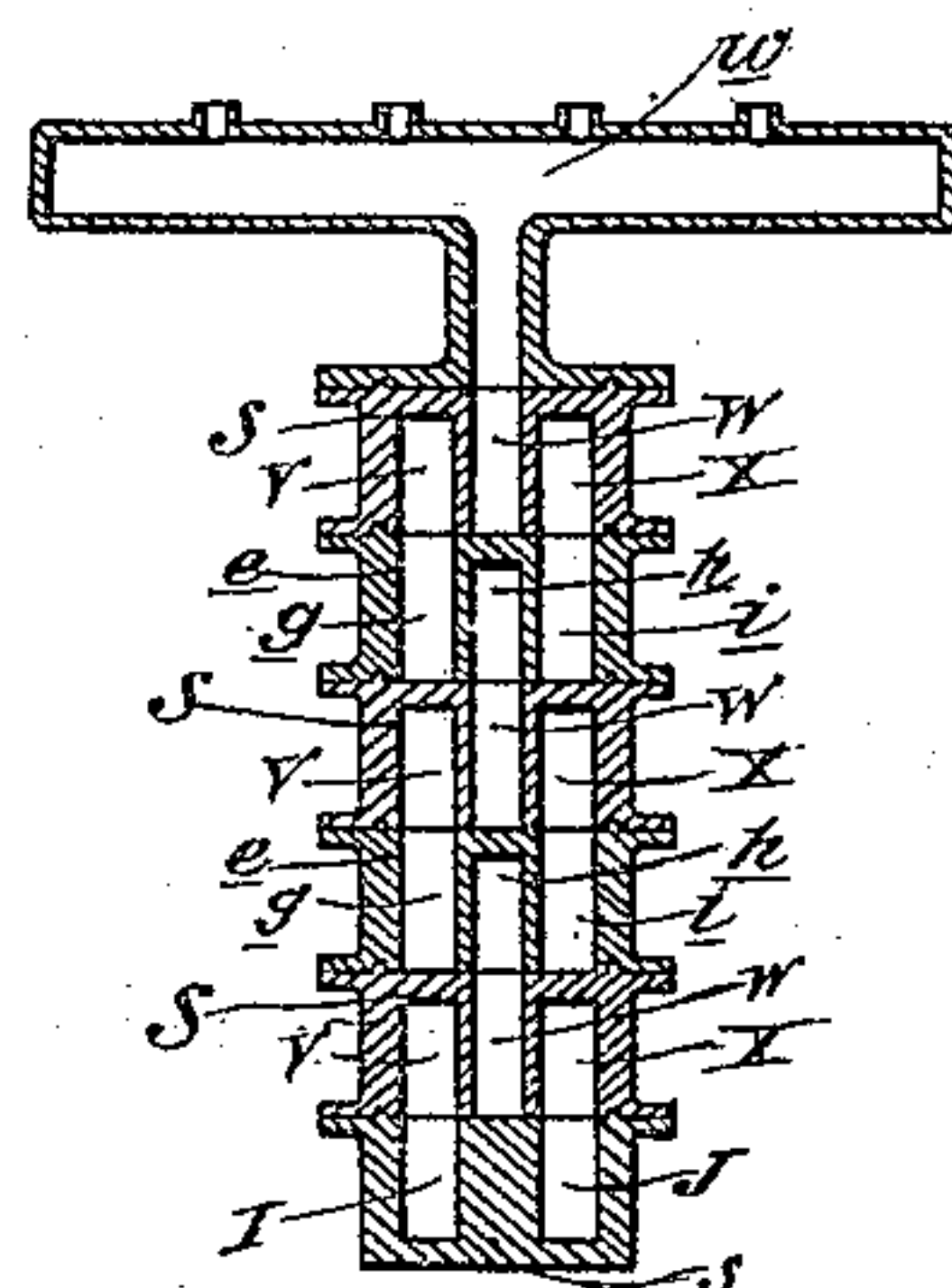
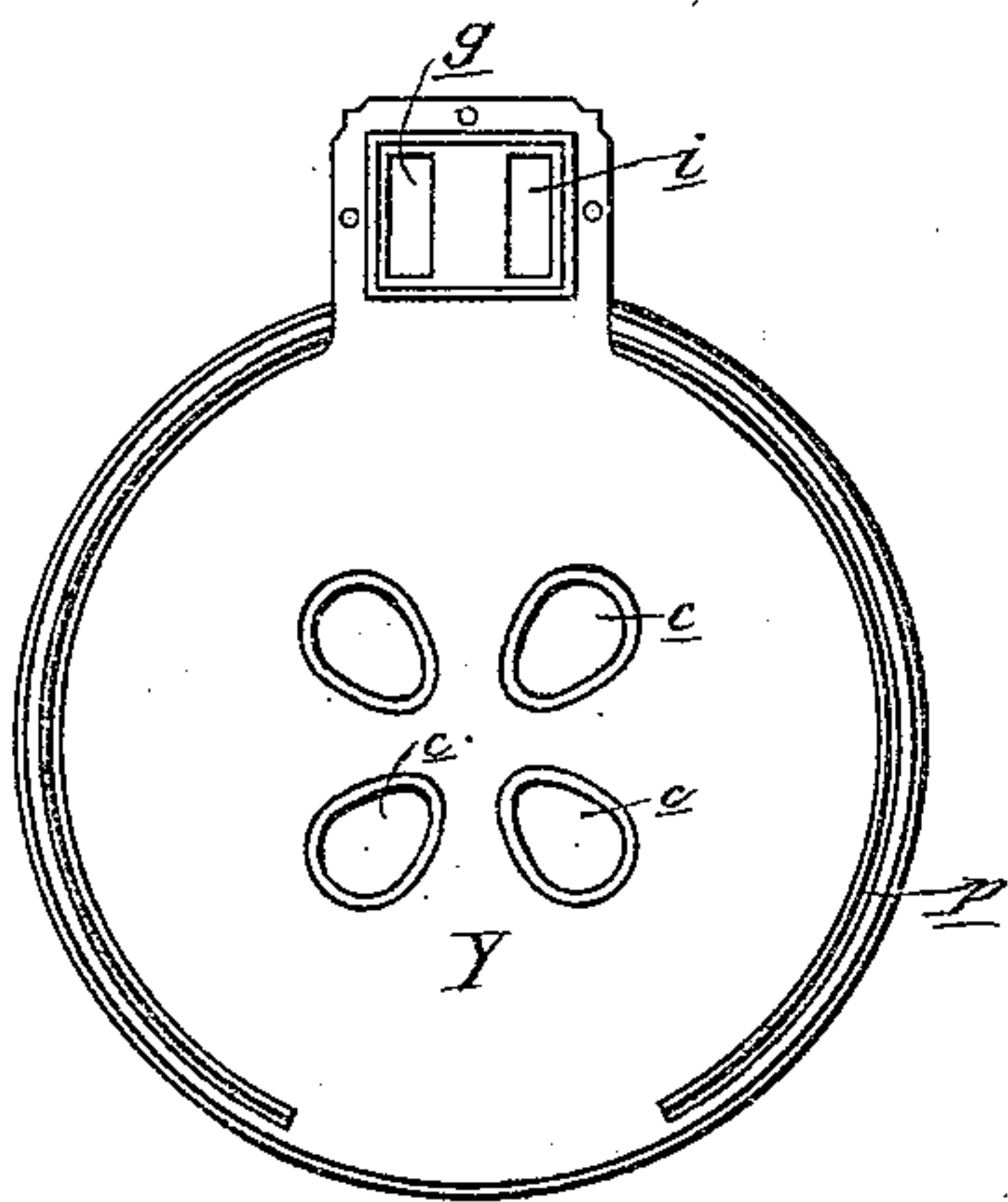
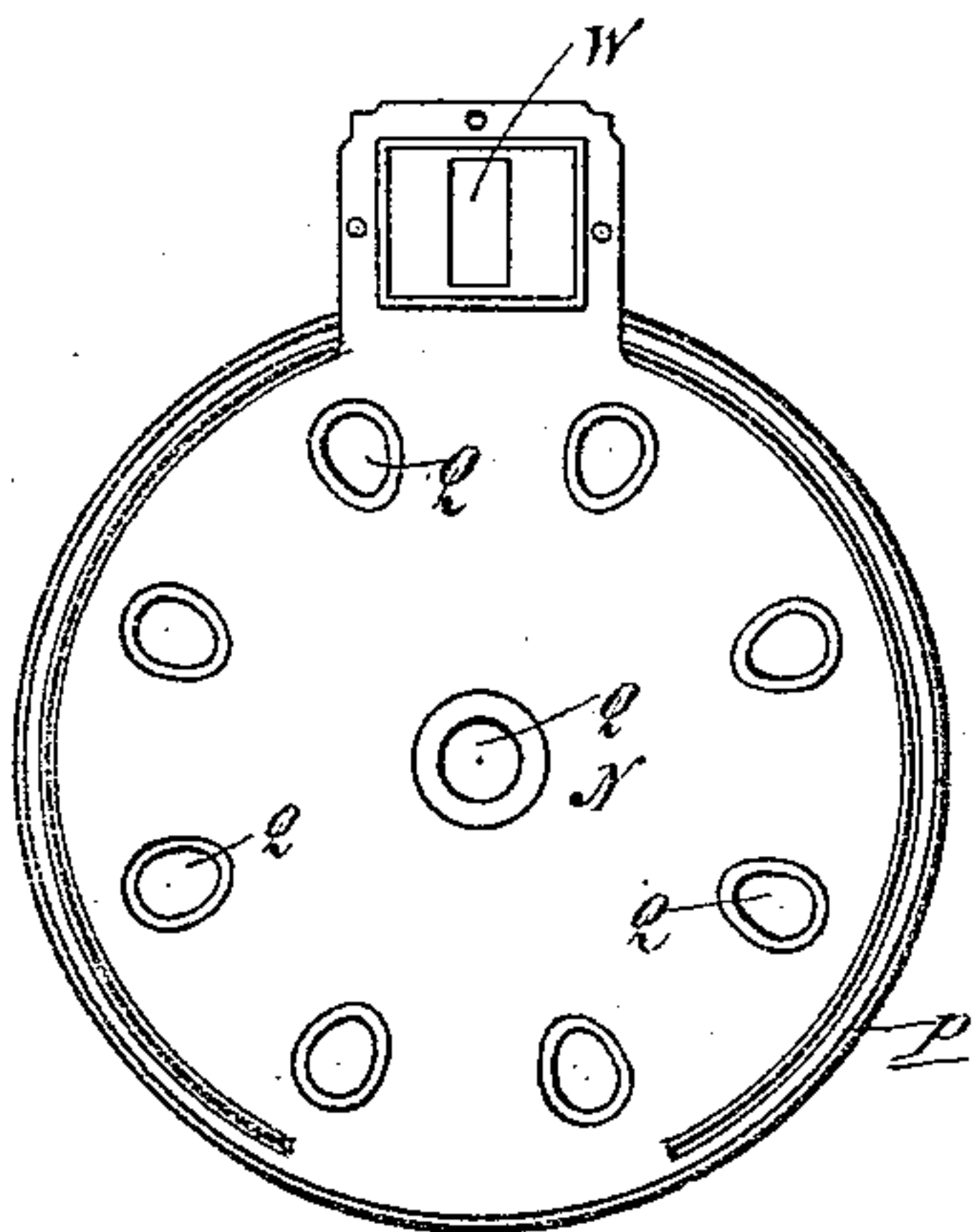


Fig 5.



Figs.

Witnesses.

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UNITED STATES PATENT OFFICE.

ULRIC BEAUPRÉ, OF MONTREAL, CANADA.

HOT-WATER BOILER.

SPECIFICATION forming part of Letters Patent No. 442,566, dated December 9, 1890.

Application filed April 5, 1890. Serial No. 346,774. (No model.) Patented in Canada May 2, 1889, No. 31,240.

To all whom it may concern:

Be it known that I, ULRIC BEAUPRÉ, a citizen of the Dominion of Canada, residing in the city of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Hot-Water Boilers, (for which I have obtained Letters Patent in Canada, dated May 2, 1889, No. 31,240;) 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.

My invention has reference to a hot-water boiler composed of sections into which the water circulates, as explained hereinafter, and passes from one section to the other through ports or openings arranged as shown below.

The object of my invention is to provide a hot-water boiler having a large heating-surface to be easy of repairs, compact, and inexpensive.

Referring to the drawings, similar letters refer to similar parts throughout the several views.

Figure 1 is a front elevation shown half in section; Fig. 2, a side elevation shown half in section; Fig. 3, a section through A B; Fig. 4, a section through C D; Fig. 5, a plan of the fire-box section, shown half in section. Fig. 6 is a plan view of one of the sections; Fig. 7, a plan view of the other section; Fig. 8, a section through E' F'.

E is the fire-box section, provided with the ordinary door F and the circular water-space G, exit ports or openings I J, and the cold-water intake H, which may be a single pipe or several pipes, as found suitable. These ports I and J run through the projection s. The fire-box proper L is provided with the vertical pieces M, which project out somewhat, the object of these being to accelerate the draft and also to furnish a sufficient quantity of warm air to burn the gases, this being accomplished in the following manner: The burning coal is kept away from the sides of the fire-box by means of the pieces M, so that there remains a series of spaces between the sides of the fire-box L and the burning coal. Through this space rushes a certain quantity of air, which gets heated in these passages and consumes the gases in the upper portion of the fire-box, and

as the air meets but a small resistance through the passages so left there is quite a draft produced. On top of this section E is the section N, pierced by any number of suitable openings Q. In the interior of this section is placed the partitions R R and R', disposed as shown in Fig. 3 and for the purposes described hereinafter. This section N is provided with the projection s, which contains the ports or openings V, W, and X. Next comes the section Y, which is also provided with any number of suitable openings c, the interior also having partitions d d and d', disposed as shown in Fig. 4, the projection e being provided with the ports or openings g, h, and i. Now any number of these sections can be put in my hot-water furnace, provided, however, that they are always put in pairs and disposed as shown in the drawings.

The sections N and Y are provided on their under surface with the circular projections m, which serve to provide the spaces n n for the circulation of the hot gases and smoke, and also by resting against the V projection p, placed on top of all the sections to secure a good joint.

My furnace can be made out of any kind of suitable material and of any suitable size.

Now to describe the action of my hot-water furnace, I will suppose the cold water entering through the cold-water inlet H into the space G, where it circulates around the fire-box L and rises through the two ports or openings I and J, which communicate with the ports or openings V and X, which conduct the flow along the channels t, provided by means of the partitions R R, placed between the partitions of the openings Q into the interior of the section N, as shown by arrows in Fig. 3, where, continuing to absorb heat, its tendency to rise moves it up the port W, which communicates with the port h, placed so as to direct the current into the interior of section Y, as shown by the arrows in Fig. 4, where it again absorbs additional heat, and consequently proceeds along the channel y, formed by the partitions d d, and passes up into the ports g and i, where it again enters the ports V and X of the following section, if another set of sections exist, or, if not, passes directly into the delivery-pipe w, which de-

livers it where required. The small partitions R' and d' serve to deviate the current of the water, so as to take the directions shown in Figs. 3 and 4. These sections N 5 and Y can be joined together in any suitable manner. Now the whole of the sections are put upon the ash-pit section A^2 , made as shown in Fig. 2. However, between the sections A^2 and E is interposed the grate-section 10 B^2 , provided with the grates C^8 .

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

1. In a hot-water furnace, a section N, provided with the openings Q, partitions R R and R', channels t , and projections s , provided with the ports or openings V, W, and X, substantially as described, and for the purposes set forth.

2. In a hot-water furnace, a section Y, provided with the openings c , partitions d d' and d' , channels y , and projection e , provided with the ports or openings g , h , and i , substantially as described, and for the purposes set forth. 20

3. In a hot-water furnace, the combination 25 of the ash-pit section A^2 , grate-section B^2 , fire-box section E, intake-pipe H, with the sections N and Y, delivery-pipe w , and cover A' , substantially as described, and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses. 30

ULRIC BEAUPRÉ.

Witnesses:

J. EMILE VANIER,
J. D. DUCHARME.