

No. 772,858.

PATENTED OCT. 18, 1904.

H. K. AUSTIN.
RADIATOR.

APPLICATION FILED APR. 1, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

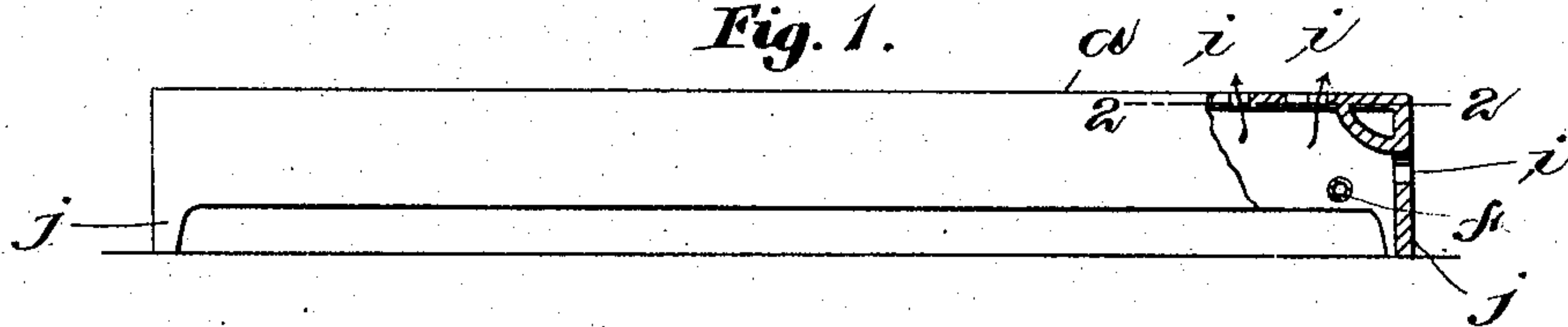


Fig. 2.

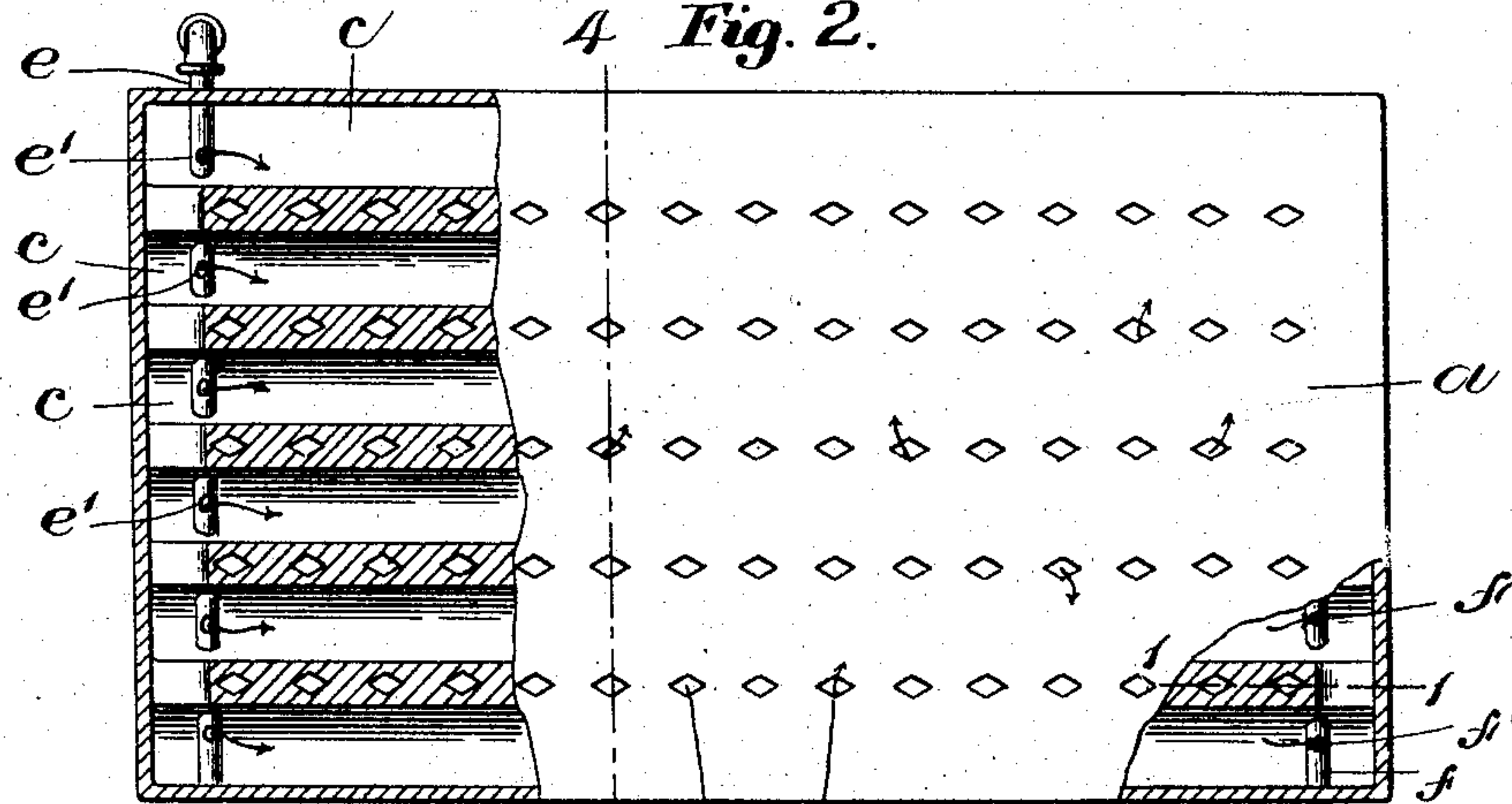


Fig. 3.

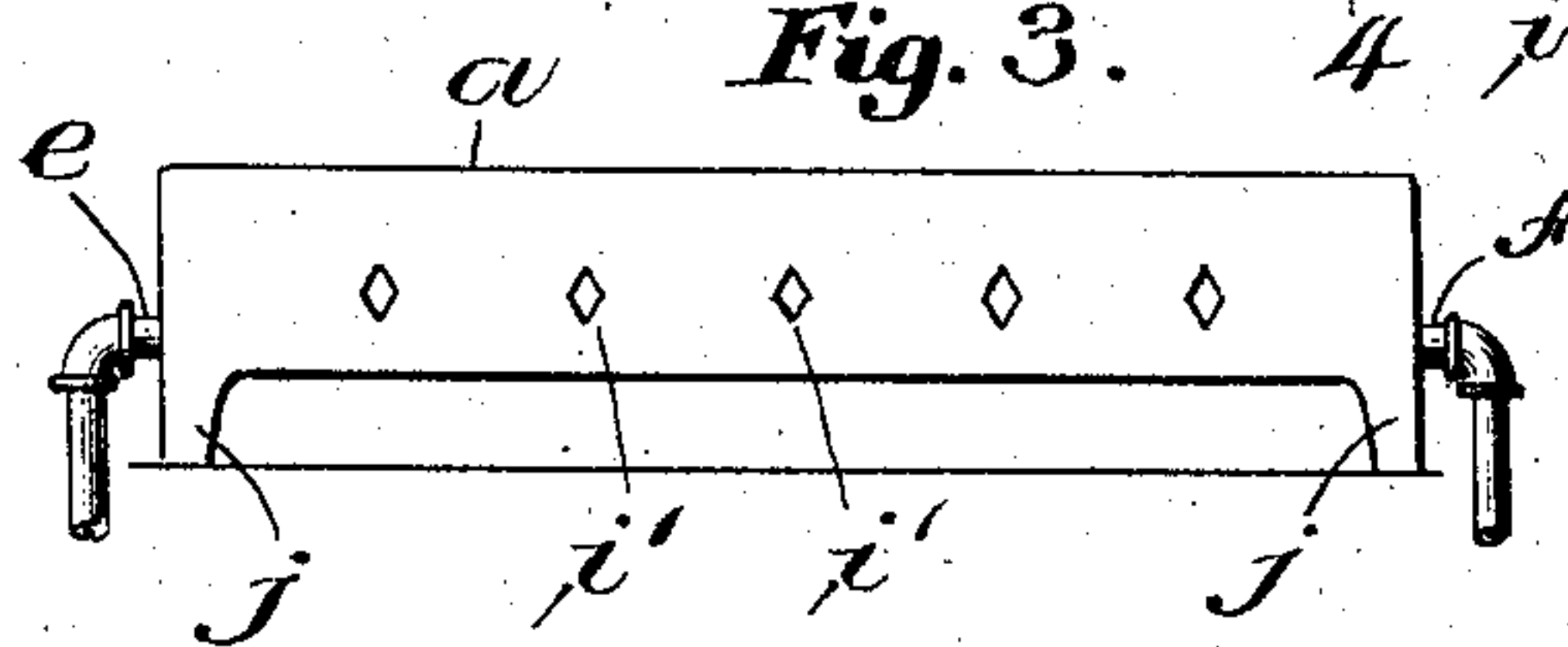


Fig. 4.

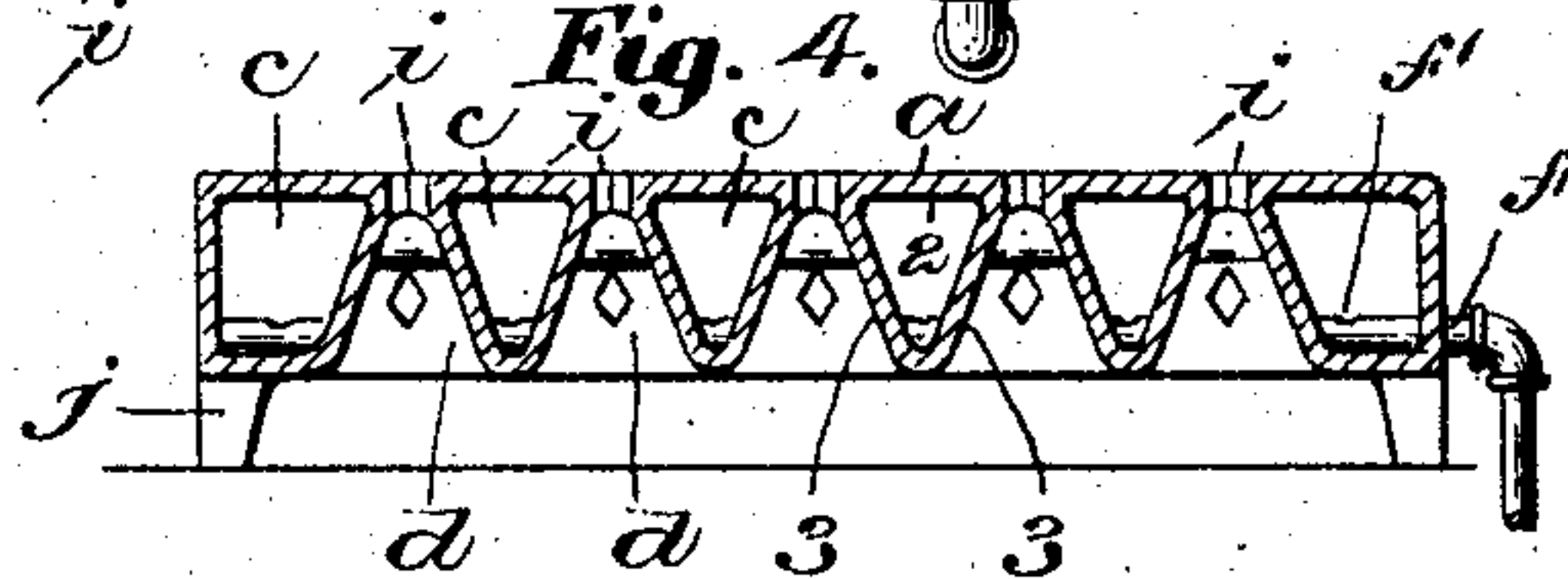


Fig. 5.

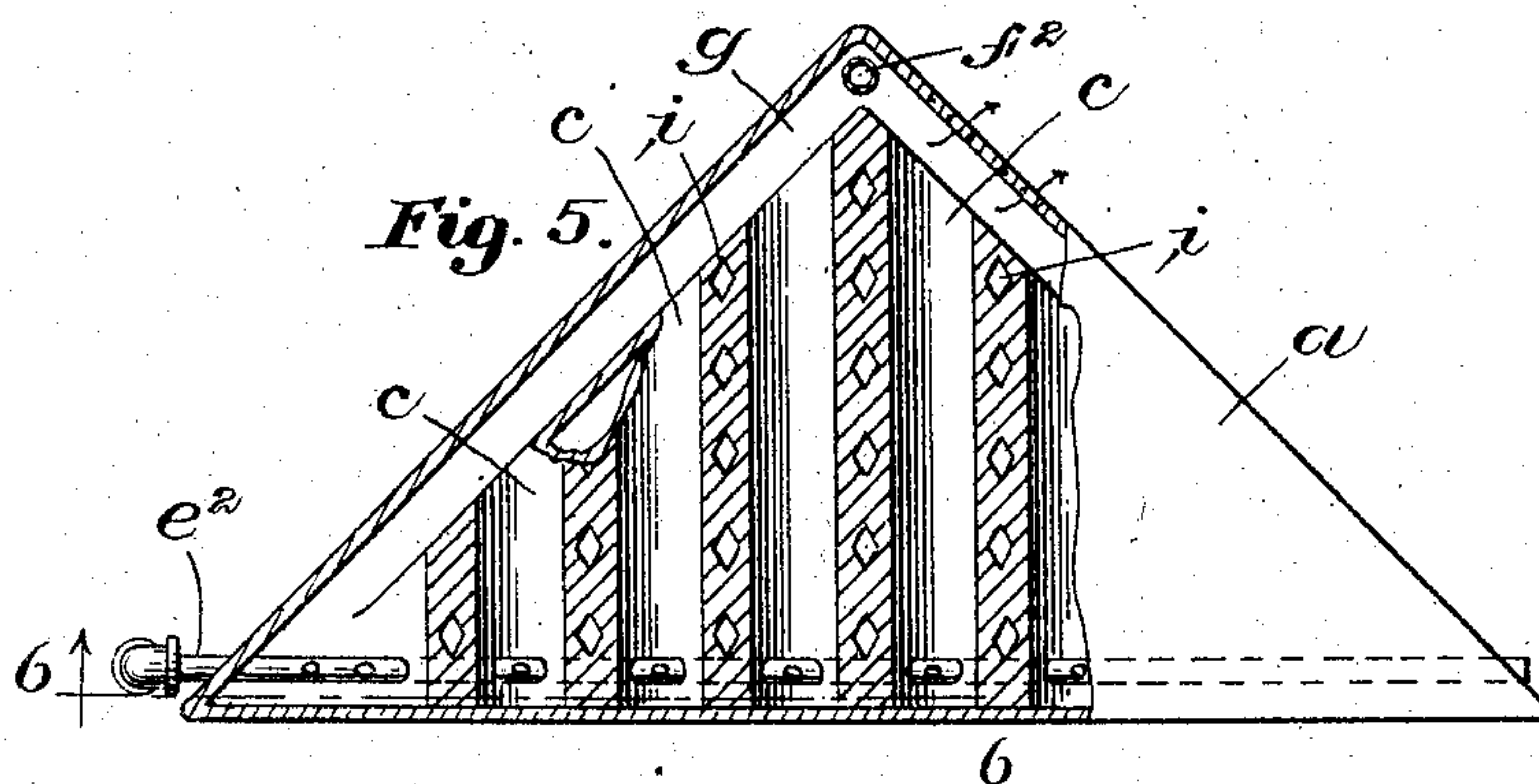
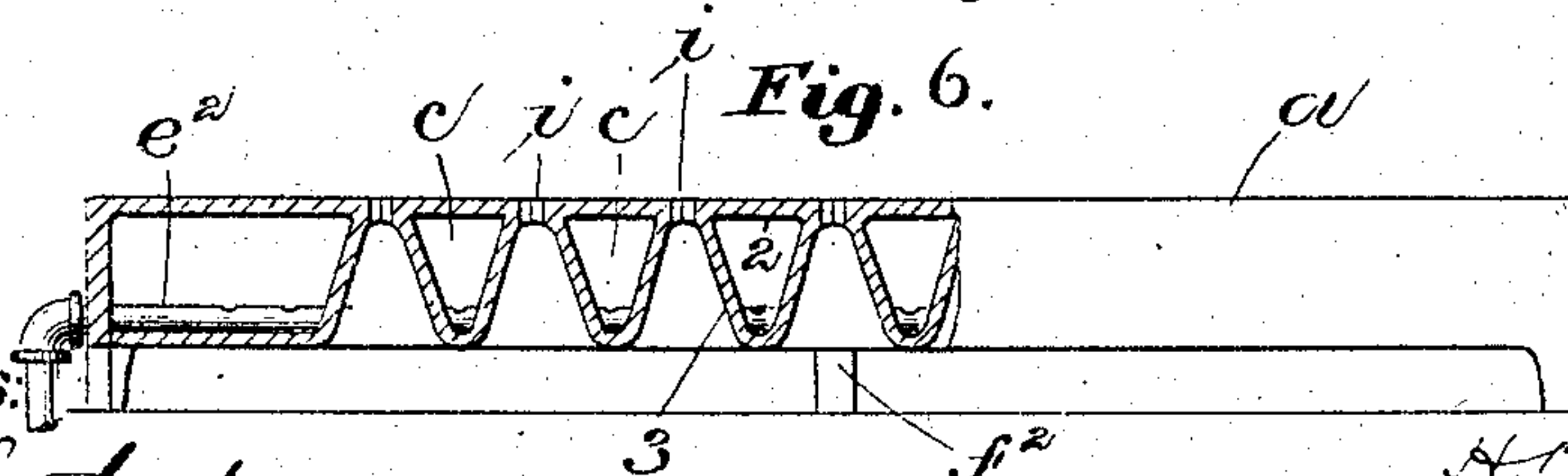


Fig. 6.



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3 SHEETS—SHEET 2.

Fig. 7.

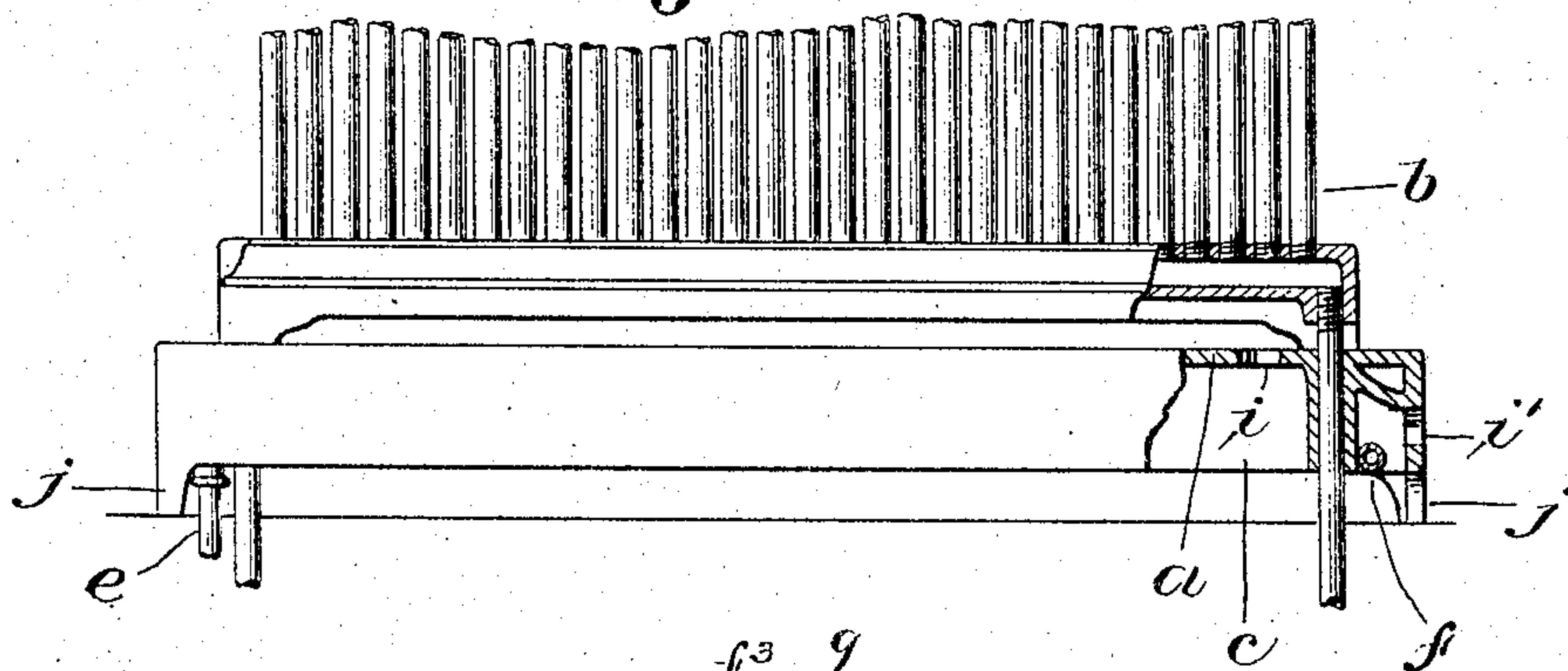


Fig. 8.

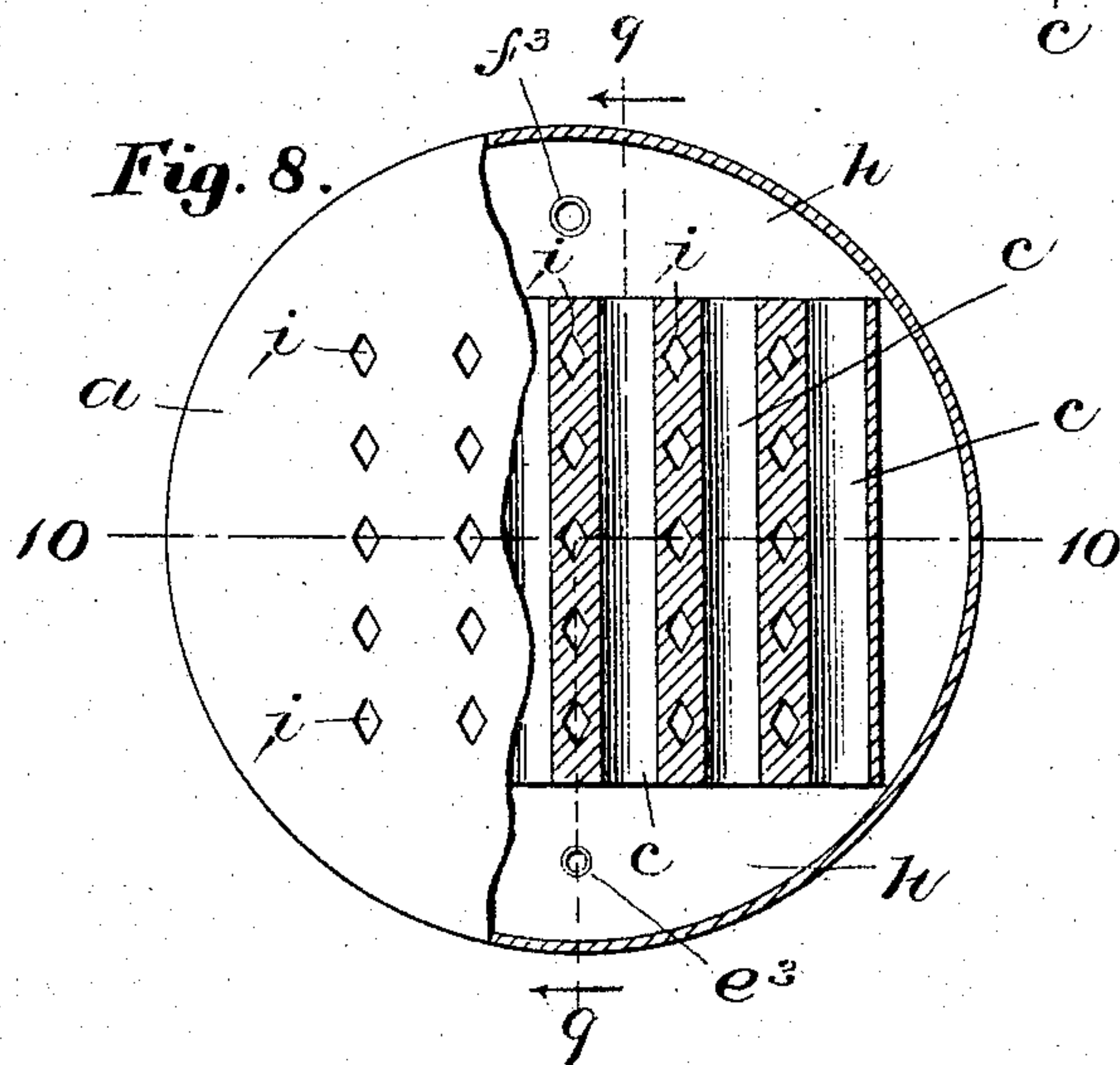


Fig. 9.

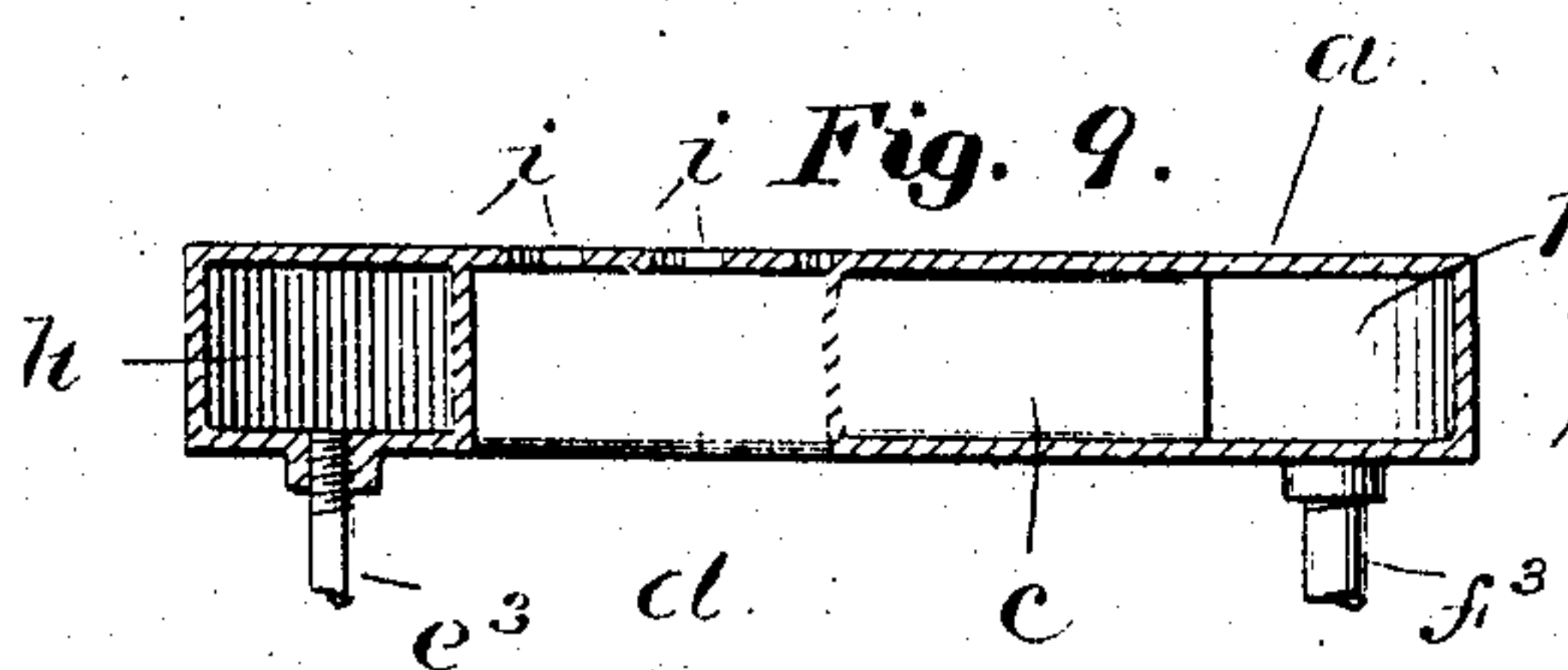
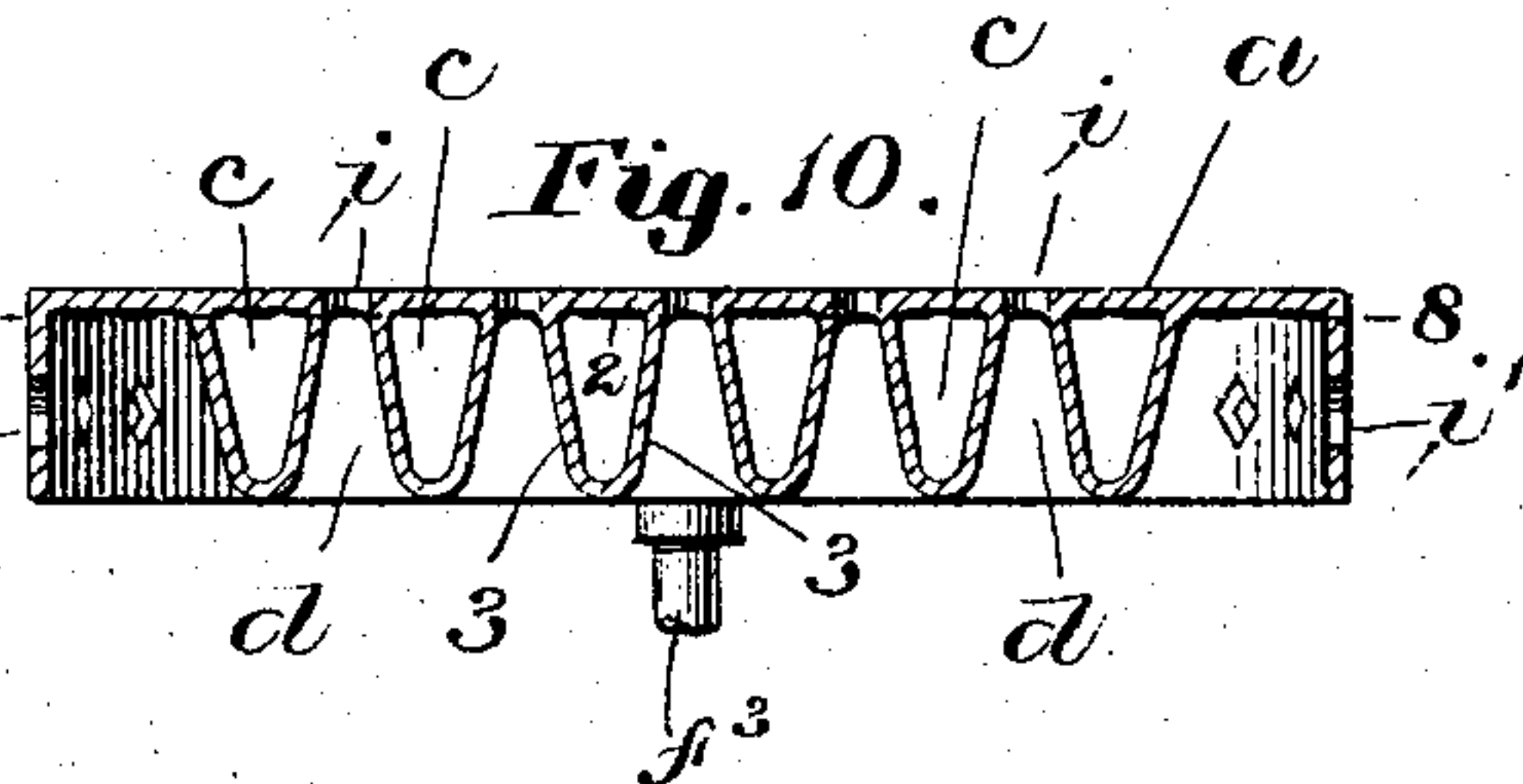


Fig. 10.



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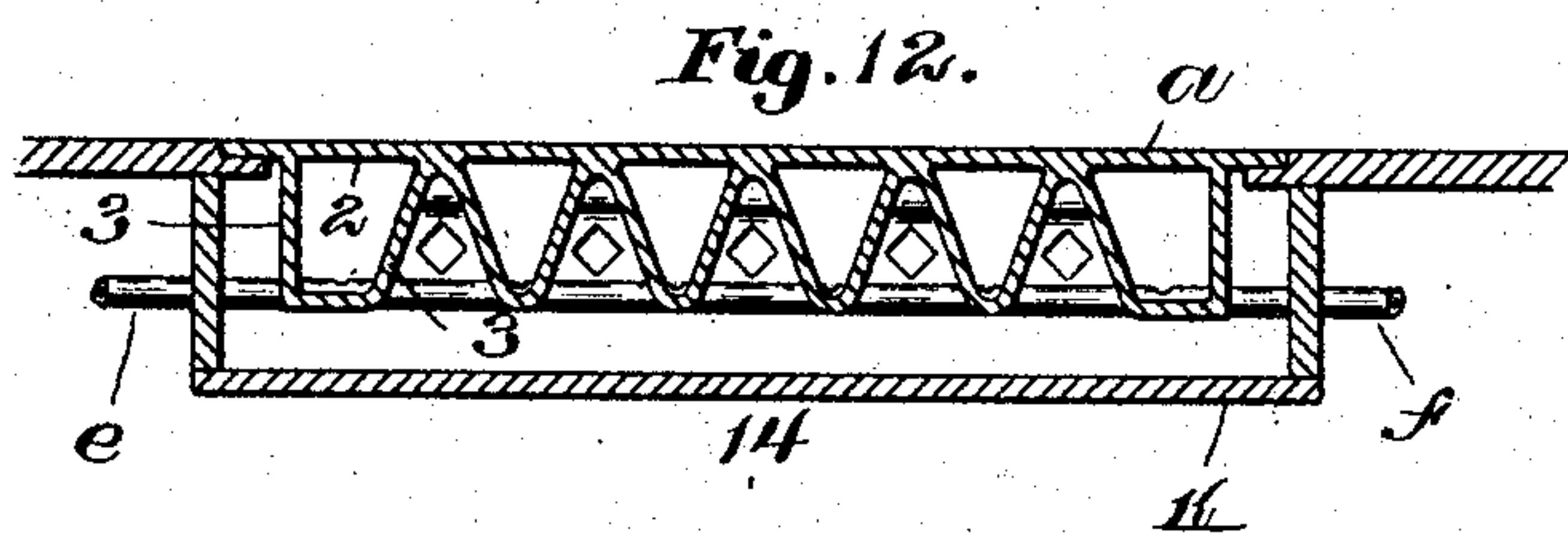
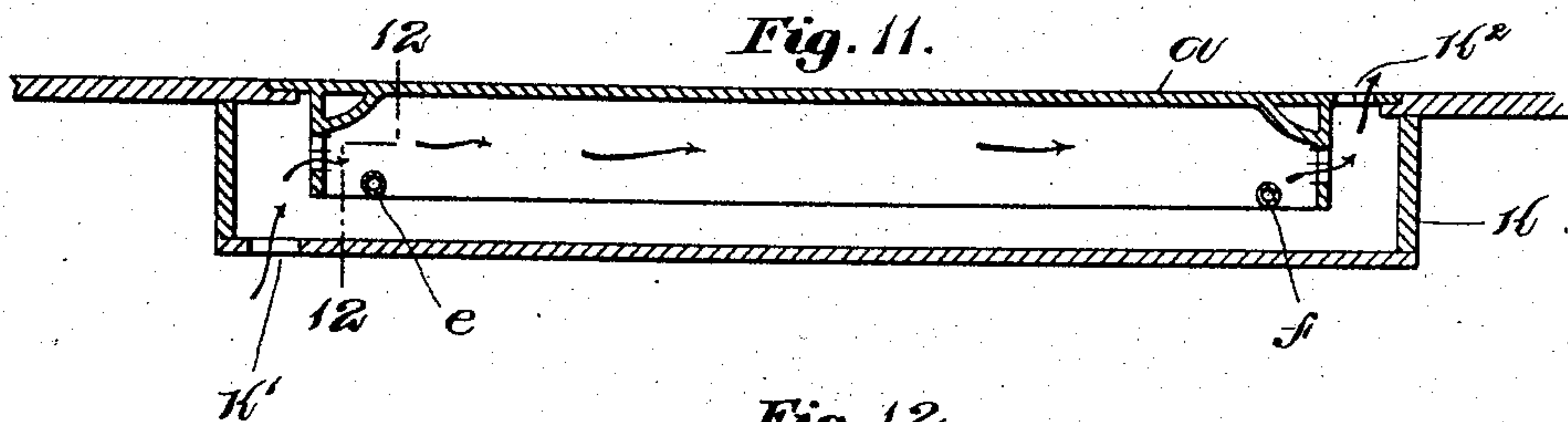
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RADIATOR.

APPLICATION FILED APR. 1, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HENRY K. AUSTIN, OF READING, MASSACHUSETTS.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 772,858, dated October 18, 1904.

Application filed April 1, 1902. Serial No. 100,935. (No model.)

To all whom it may concern:

Be it known that I, HENRY K. AUSTIN, of Reading, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

This invention relates to radiators for heating by the use of a fluid heating medium, such as hot water and steam, and has for its object to provide a radiator adapted to present a substantially horizontal top surface to radiate or direct heat upwardly, said surface being when in use substantially parallel with the floor of the room in which the radiator is located and relatively close thereto, so that it may be used conveniently as a foot-warmer or as a heat-radiating base for a vertically-elongated radiator of ordinary form.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents an edge view of a radiator embodying my invention, a portion being shown in section, the section being on the line 1 1 of Fig. 2. Fig. 2 represents a top plan view, portions being shown in horizontal section on the plane of line 2 2, Fig. 1. Fig. 3 represents an end elevation. Fig. 4 represents a section on line 4 4, Fig. 2. Fig. 5 represents a view similar to Fig. 2, showing the radiator made triangular in form for use in the corner of a room. Fig. 6 represents a partial edge view and a partial vertical section of the radiator shown in Fig. 5, the section being on line 6 6 of Fig. 5. Fig. 7 represents an elevation showing my improved horizontal radiator adapted for use as the base of an ordinary radiator. Fig. 8 represents a partial top plan view and partial horizontal section showing my improved radiator made circular in form. Fig. 9 represents a section on line 9 9 of Fig. 8. Fig. 10 represents a section on line 10 10 of Fig. 8. Fig. 11 represents a vertical section showing a radiator embodying my invention arranged with its top surface flush with the floor of the room in which it is located, means being shown for conducting air through the radiator. Fig. 12 represents a section on line 12 12 of Fig. 11.

The same characters of reference indicate the same parts in all of the figures.

In carrying out my invention I provide a radiator having a substantially horizontal top *a*, having a considerable area of heating-surface adapted to radiate or direct heat upwardly into the room in which the radiator is located. Below said top I provide suitable means for circulating the heating fluid, such as hot water or steam, horizontally in contact with the top *a*, so as to provide for the efficient heating of said top and the radiation of heat upwardly therefrom. The said circulating means are formed to occupy a relatively shallow space under the top *a*, so that the entire structure is in such form that it can be placed upon the floor of a room with the top *a* substantially parallel with the floor and so close thereto as to permit the top *a* to be utilized as a foot-warming support or as a base or support for a superposed radiator or radiating structure *b* of ordinary construction. In the embodiment of my invention shown in Figs. 1 to 12, inclusive, the said circulating means comprise a series of horizontal heating-chambers *c c*, located under the top *a*, each chamber having a substantially flat upper side 2, forming a part of the top *a*, and vertical or inclined sides 3 3, connected at their lower ends. Between the chambers *c* are located air-spaces *d d*, the sides of which are formed by the sides 3 3 of the heating-chambers and the tops by portions of the horizontal top *a*, said air-chambers being preferably open at their bottom portions. The heating-chambers *c c* are provided with suitable connections, whereby the heating fluid may be introduced into and removed from the chambers. The heating fluid may be introduced into the chambers by means of a flow-pipe *e*, connected with the heater, said pipe passing horizontally through one end of the structure crosswise of the chambers *c* and having outlets *e'*, which deliver the heating fluid to the chambers *c*. The heating fluid may escape from the chambers *c* through a return-pipe *f*, arranged similarly to the pipe *e* and having orifices *f'*, which constitute the outlets of the chambers.

The above-described arrangement for introducing and removing the heating fluid is

shown in Figs. 1, 2, 3, 4, 7, 11, and 12. In Figs. 5 and 6, which represent the radiator made triangular in form for use in the corner of a room, I show a flow-pipe e^2 , which
 5 supplies water to one end of each of the series of heating-chambers c . The opposite ends of said chambers are connected by a passage g with a flow-pipe f^2 . In the construction shown in Figs. 8, 9, and 10, which show a cir-
 10 cular radiator, the chambers c open at their ends into chambers h , which form parts of the fluid-circulating means, one of said chambers being connected with a flow-pipe e^3 and the other with a return-pipe f^3 .

15 Means are provided for circulating air through the air-chambers d , so that the heat radiated from the sides 3 3 of the heating-chambers may be conducted from the radiator and utilized. To this end I have shown air-
 20 passages i , formed in the horizontal top a , said passages communicating with the chambers d and permitting the upward flow of heated air from said chambers through the top a , the air entering the open lower por-
 25 tions of the chambers. The structure is preferably raised from the floor by short legs j sufficiently to permit the free entrance of air under the radiators and into the air-spaces d . If desired, orifices i' may be formed in the
 30 vertical walls of the radiator at the ends of the air-passages to permit the air to flow horizontally into the air-passages, and, if desired, the passages i' may constitute the sole means of admitting air to the air-chambers, the bot-
 35 tom of the radiator resting directly upon the floor instead of being separated therefrom by the legs j .

It will be seen that by the above-described construction I have provided a substantially
 40 horizontal radiating-surface a , which is located substantially parallel with the floor and in such close proximity thereto that the said radiating-surface or horizontal top a may be utilized as a foot-warmer or as an auxiliary
 45 radiator, located beneath an ordinary radiator b . When the horizontal top a forms a part of a radiator-base, as shown in Fig. 7, I prefer to extend said top so that the margin will project outside of the margin of the bases of
 50 the radiators a b , thus forming a convenient rest for foot-warming purposes.

In Figs. 11 and 12 I show a radiator of the general form above described adapted for use in indirect heating or radiation, the top a being
 55 located substantially flush with the floor and the fluid-circulating means located below the floor. As already stated, the fluid-circulating means shown in Figs. 11 and 12 are substan-

tially such as those shown in Figs. 1, 2, 3, and 4. In Figs. 11 and 12 I also show the casing k , 60 which incloses the air-space surrounding the main portion of the radiator, said casing having an air-inlet k' in its bottom and one or more air-outlets k'' in its top, the arrangement being such that air from an external source 65 is supplied through the radiator, heated thereby, and allowed to escape into the room above the radiator.

The radiator shown in Fig. 7 may be so connected with the top radiator b that the heat- 70 ing fluid will pass first through and radiate heat from the horizontal radiator before entering the top radiator, or the fluid may pass first to the top radiator and may return to the heating apparatus through the horizontal 75 radiator.

I claim—

1. A radiator comprising a series of heating-chambers, horizontally arranged, means for circulating a heating medium horizontally 80 through said chambers, and a series of air-spaces alternating with said chambers, the radiator having a substantially horizontal perforated heat-radiating top covering the said chambers, the walls between said chambers 85 and air-spaces being inclined, the air-spaces tapering toward the top and communicating with the perforations of the top.

2. A radiator comprising a series of heating-chambers horizontally arranged, means 90 for circulating a heating medium horizontally through said chambers, and a series of air-spaces alternating with said chambers and separated therefrom by inclined walls, the radiator having a substantially horizontal heat- 95 radiating top covering the said chambers, and provided with air-passages communicating with said air-spaces, the said air-spaces tapering toward the top.

3. A radiator comprising a plurality of 100 heating-chambers arranged side by side in a horizontal series, fluid-circulating connections between said chambers, air-spaces between the chambers, and separated therefrom by inclined walls, a substantially horizontal heat-radiating 105 top covering the chambers and air-spaces, and having openings to permit the upward passage of air heated in the air-spaces by the sides of the heating-chambers, the said air-spaces tapering toward the top. 110

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

HENRY K. AUSTIN.

Witnesses:

R. M. PIERSON,

C. F. BROWN.