

(No Model.)

3 Sheets—Sheet 1.

C. F. GESSERT.  
RADIATOR.

No. 486,400.

Patented Nov. 15, 1892.

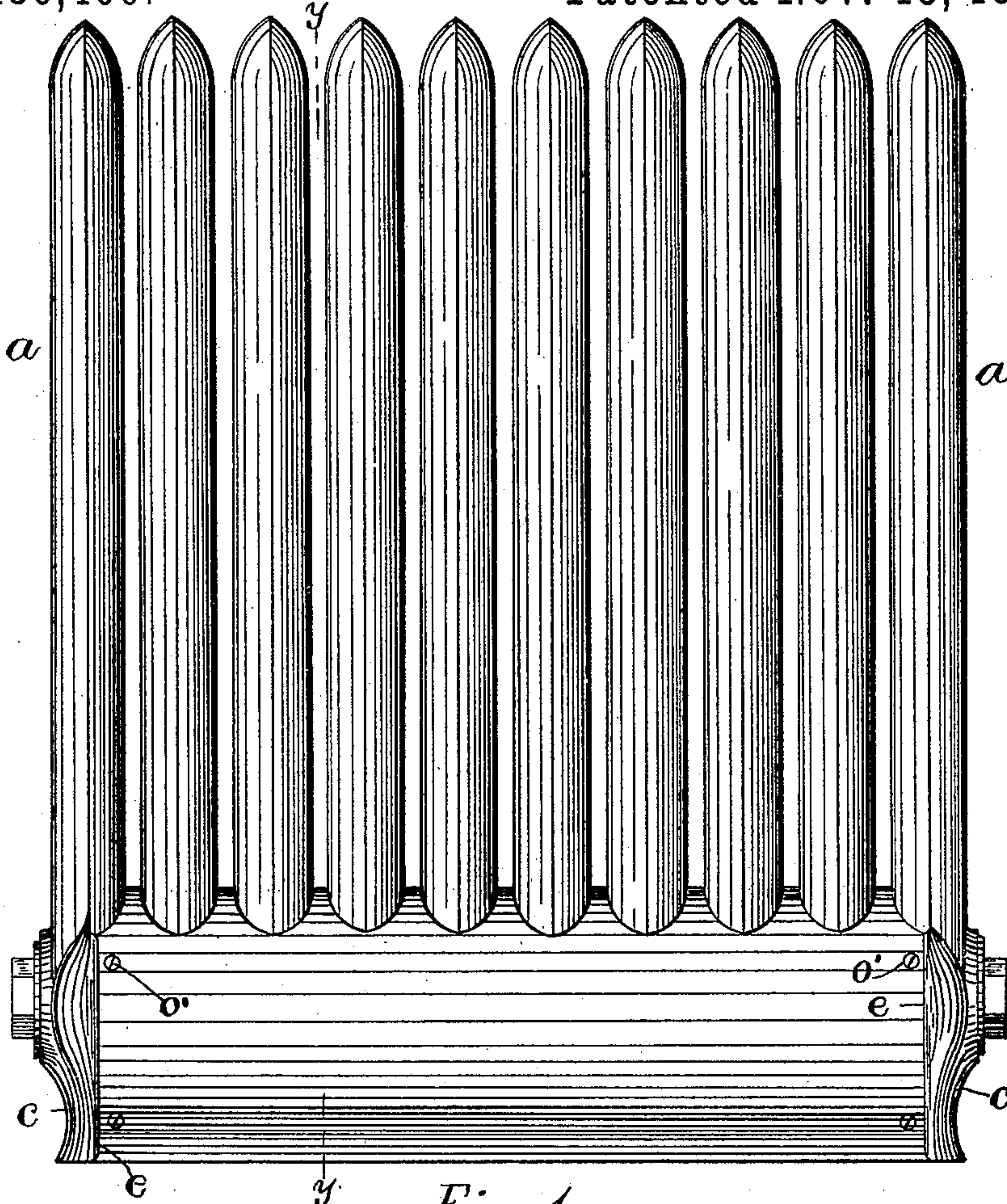
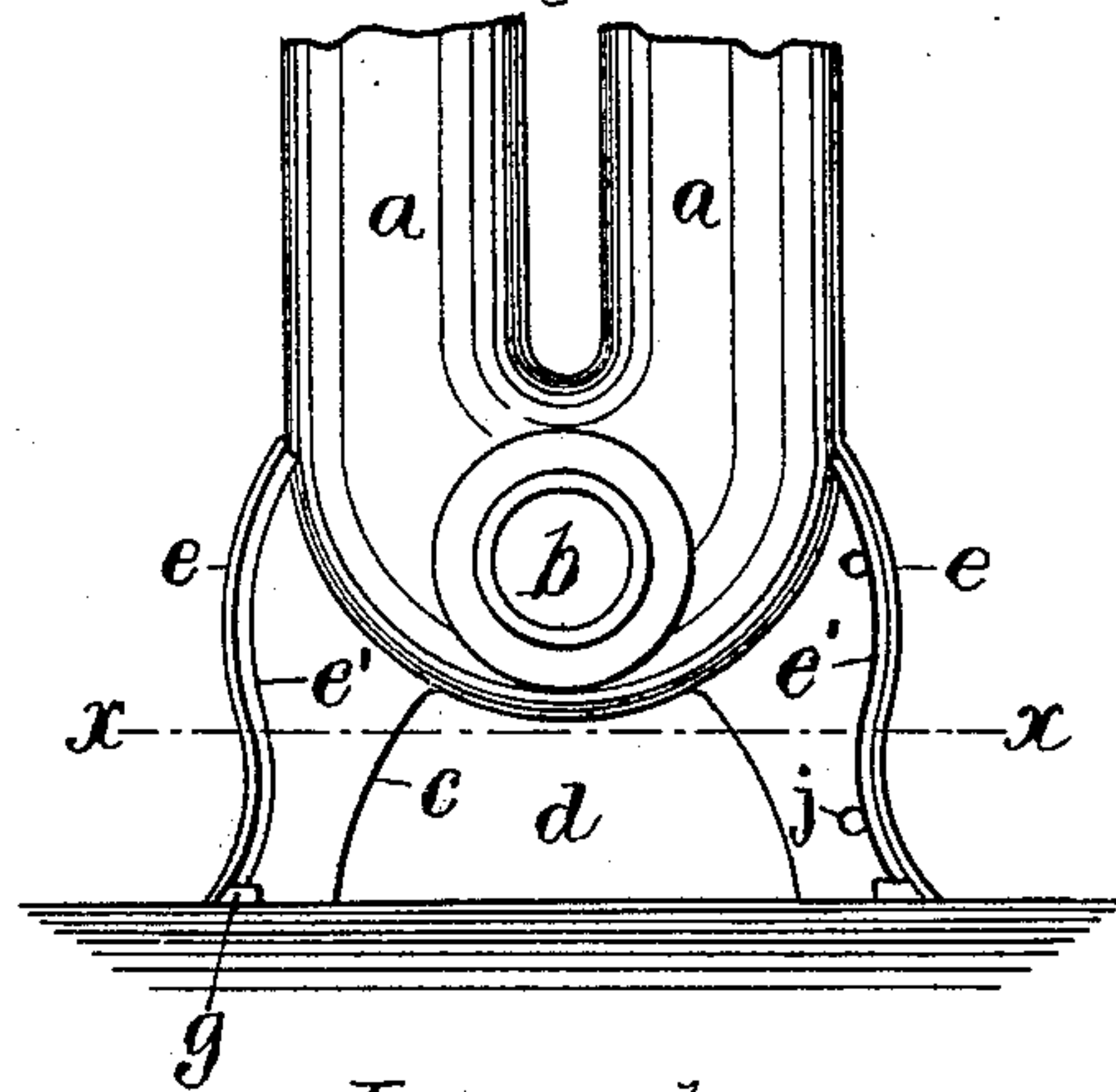
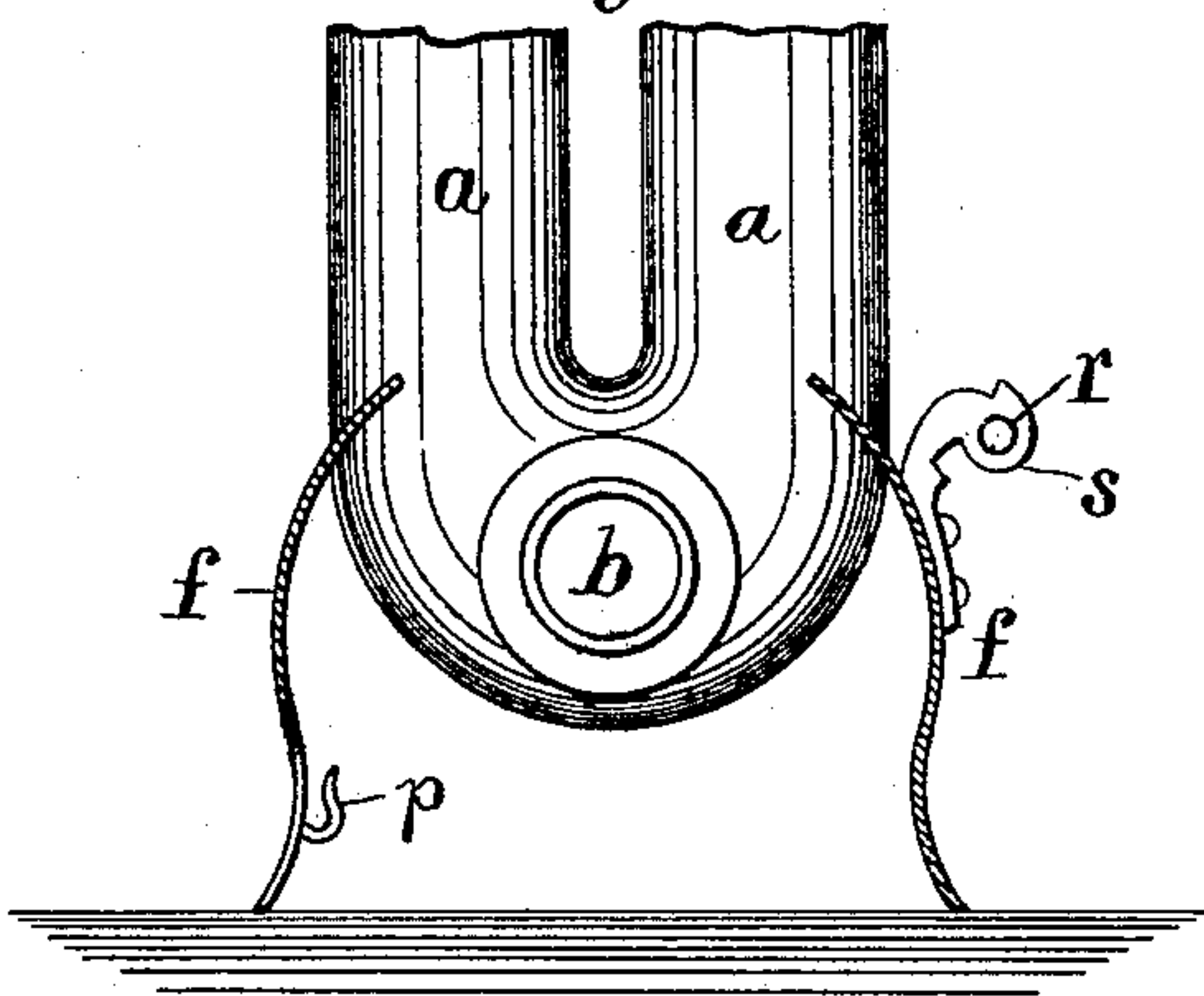


Fig. 2.

Fig. 1.

Fig. 3.



Attest:  
L. Lee.  
Edw. J. Kinsey

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Crane & Miller, Attys.

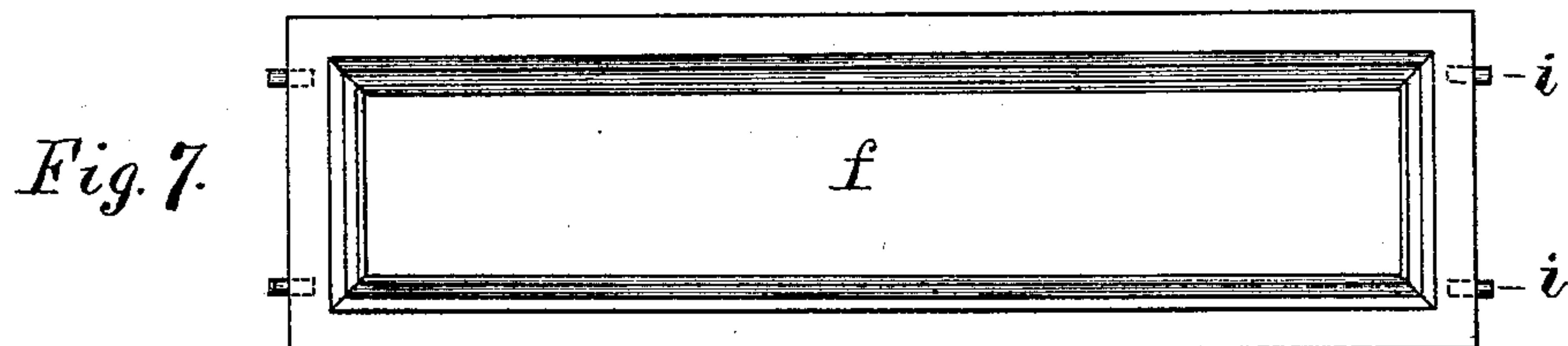
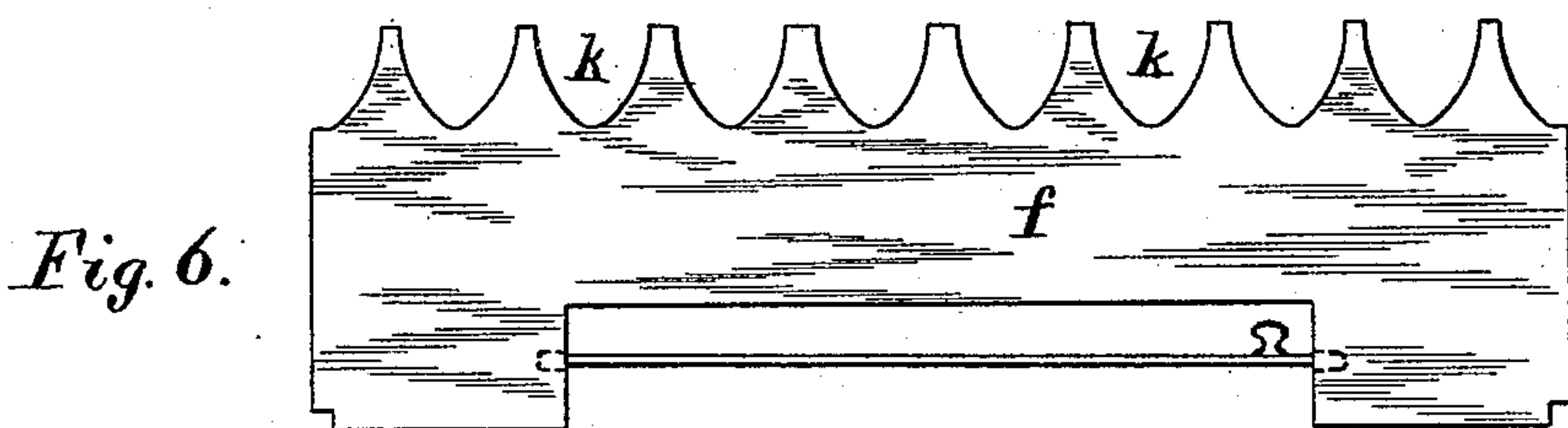
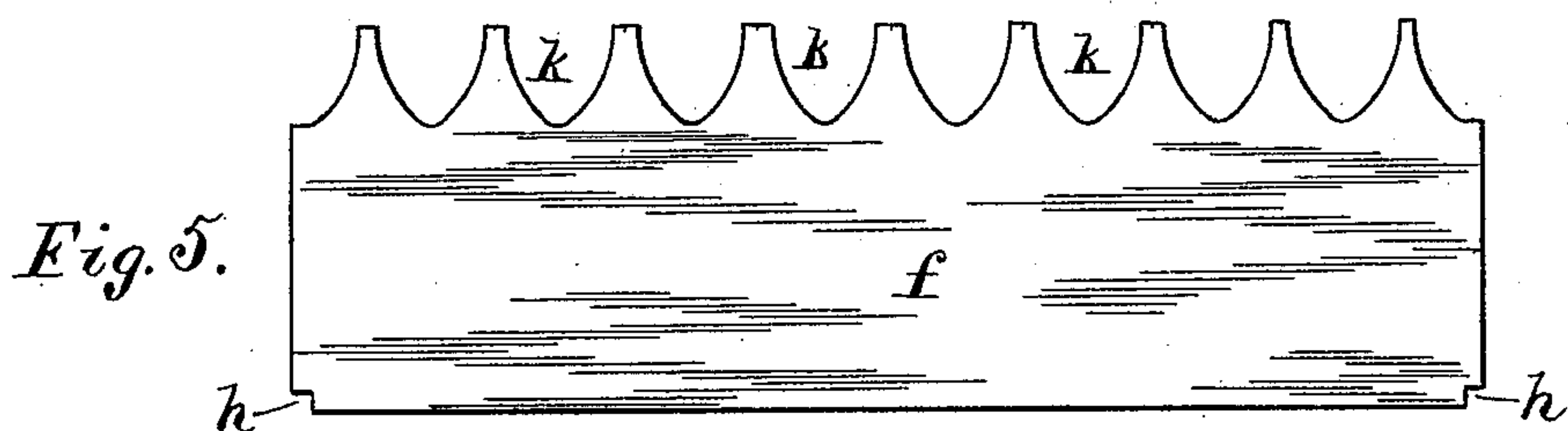
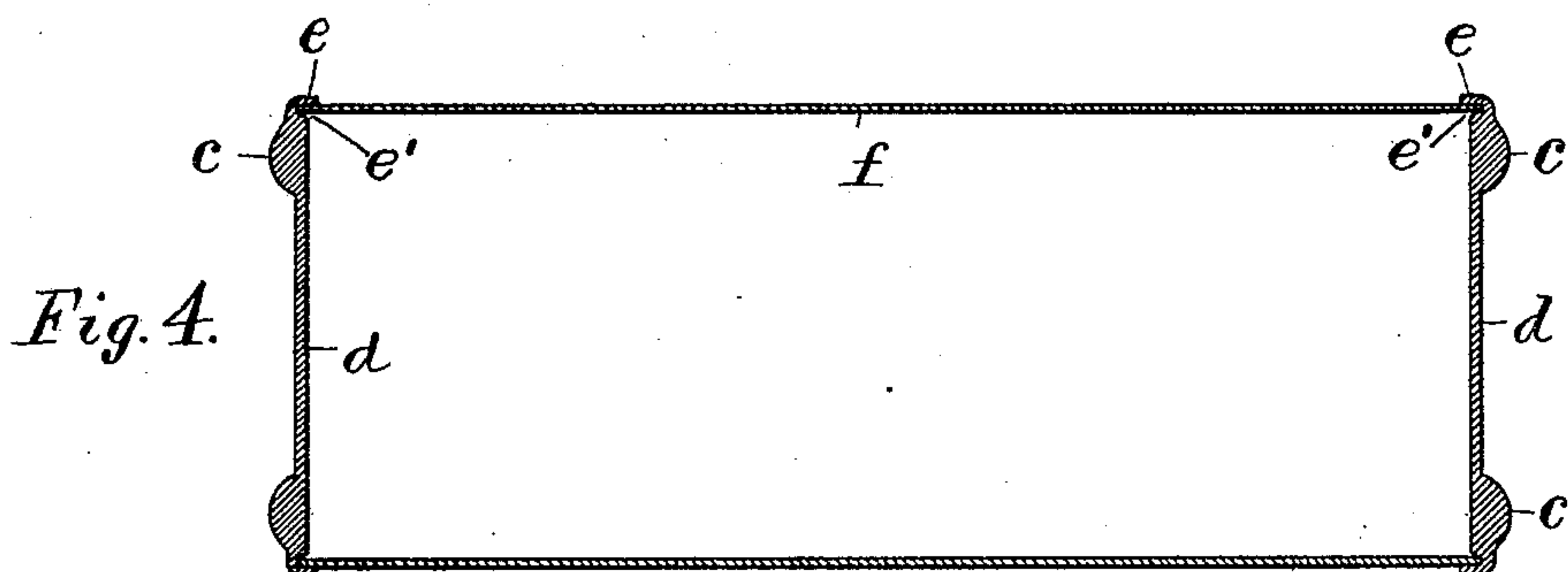
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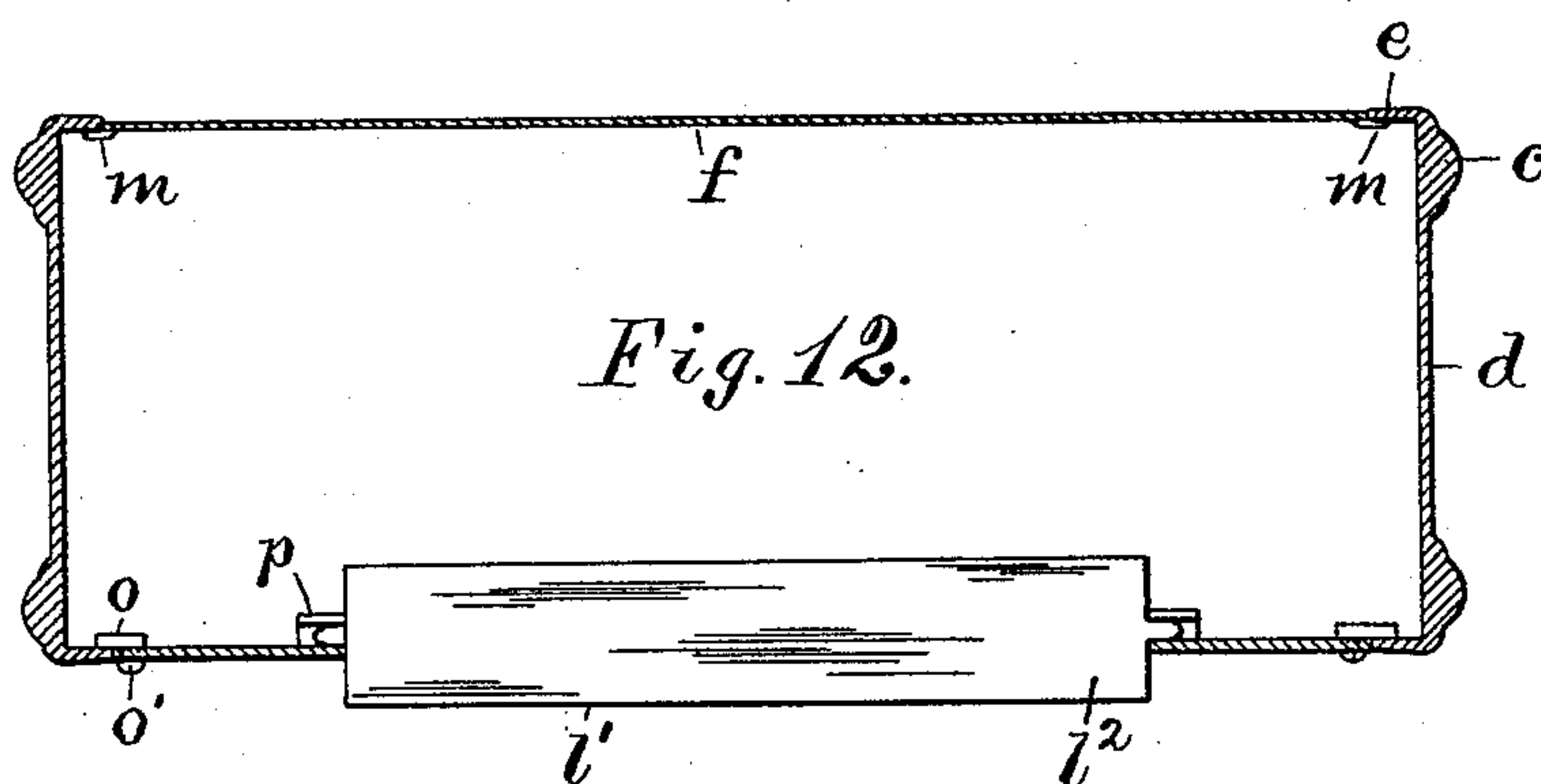
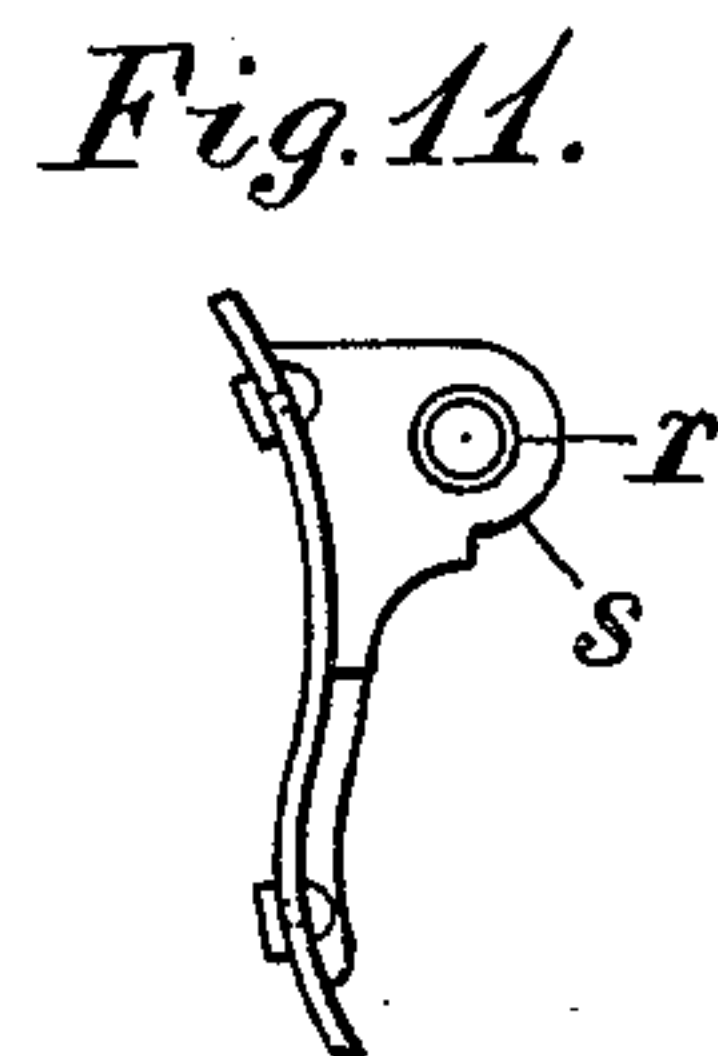
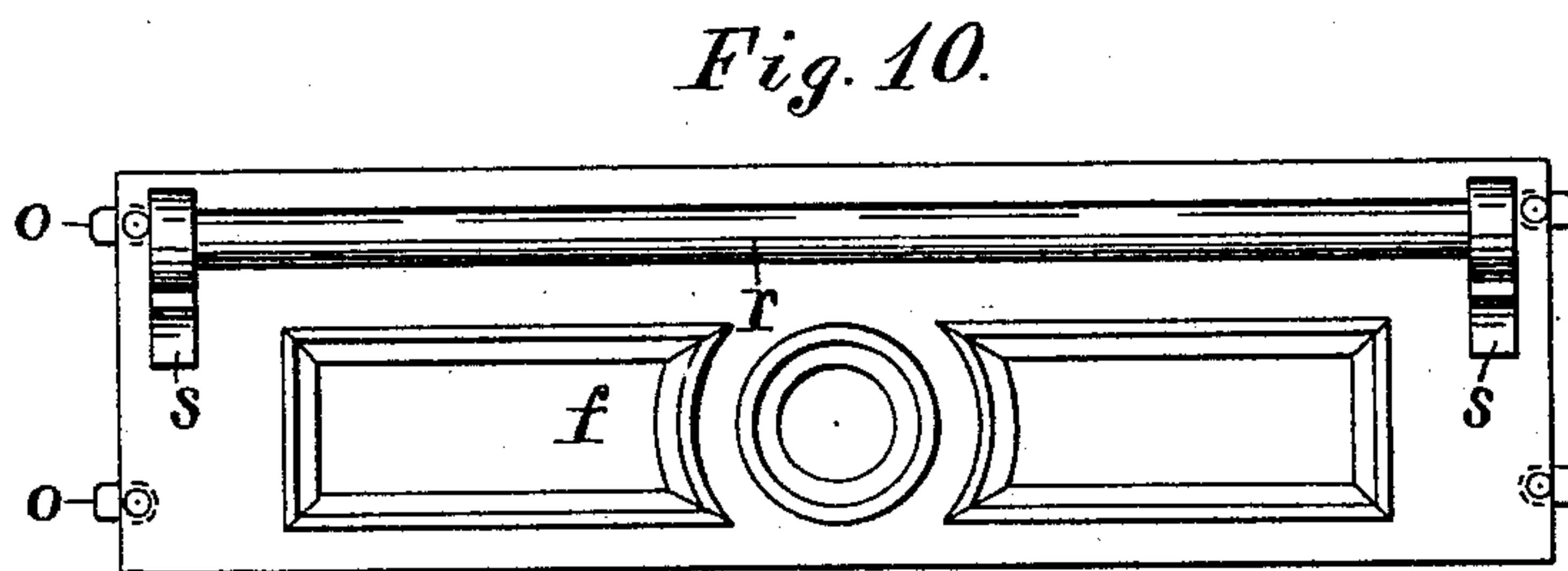
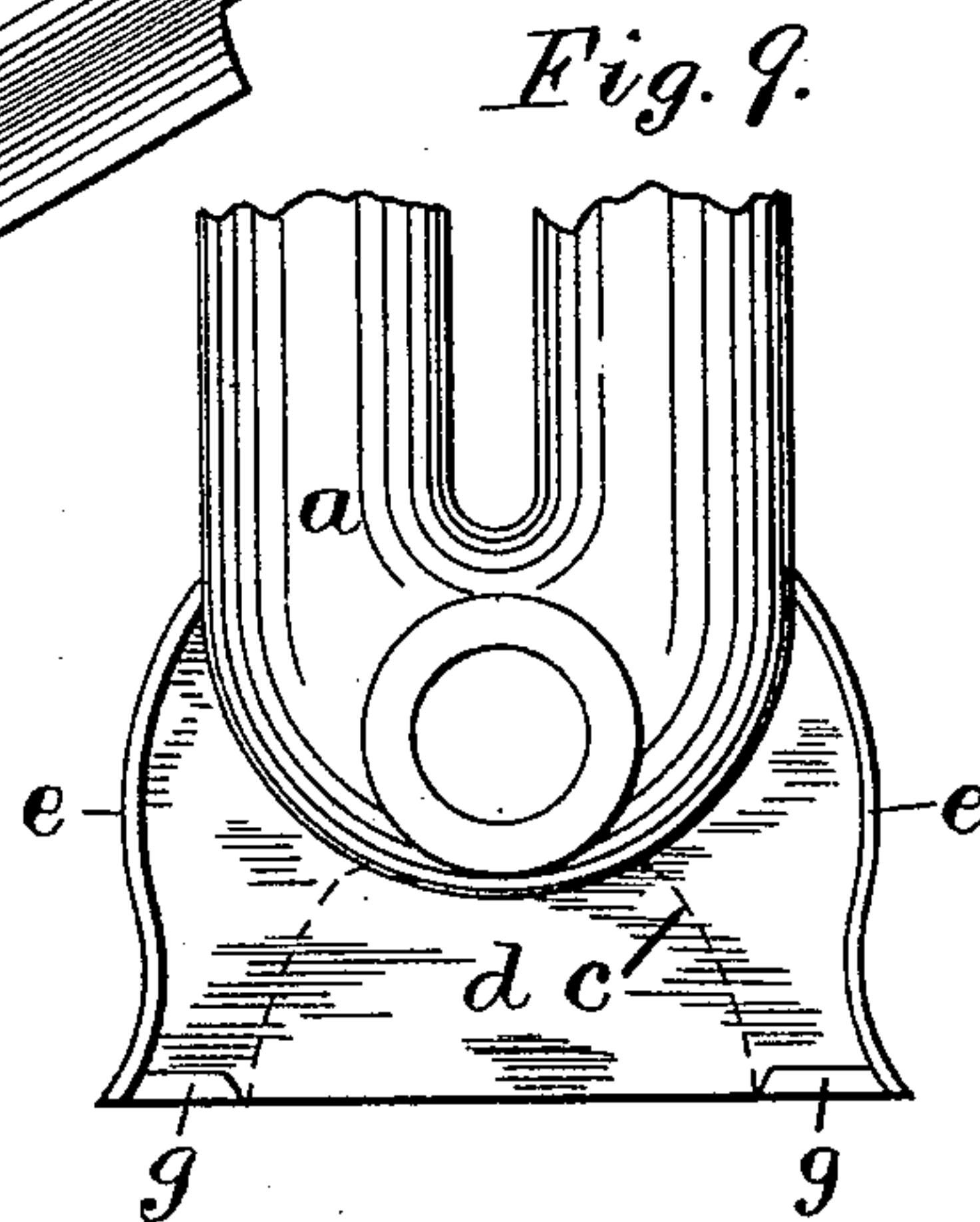
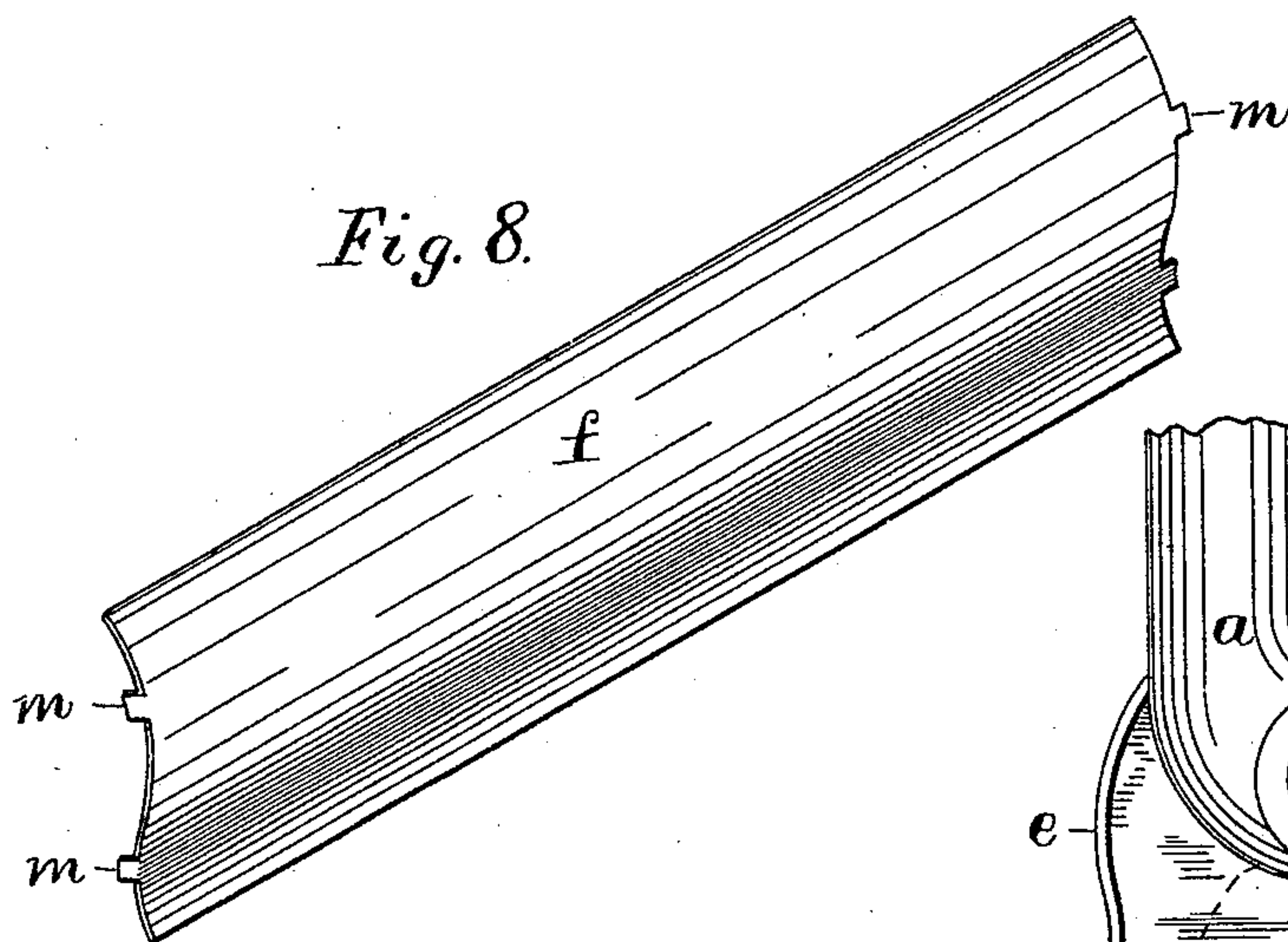
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*Attest:*

*L. Lee.*  
*Edw. F. Kinsey.*

*Inventor.*

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*Crane & Miller, attys.*



# UNITED STATES PATENT OFFICE.

CHARLES F. GESSERT, OF NEW YORK, N. Y., ASSIGNOR TO THE C. F. GESSERT COMPANY, OF NEW JERSEY.

## RADIATOR.

SPECIFICATION forming part of Letters Patent No. 486,400, dated November 15, 1892.

Application filed March 16, 1892. Serial No. 425,087. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. GESSERT, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Radiators, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a novel construction for direct-indirect radiators in which the interior of the radiator-sections is supplied with a current of fresh air, while the exterior of the sections heats the apartment by direct radiation.

The invention is applicable to radiators constructed with vertical sections which are provided in part only with supporting-legs; and the object of the invention is to furnish a means of employing the same sections for the construction of direct or direct-indirect radiators, which I effect by attaching suitable inclosing plates to the legs at the sides of the radiator-base.

It has been common heretofore in manufacturing direct-indirect radiators to provide each section with a cast-metal attachment extending downward to the floor for the purpose of inclosing the space beneath the sections, and special sections fitted with such attachments were therefore required to construct such a radiator. It is customary to carry in stock certain sections with legs attached to form the ends of the radiators, and in constructing a direct-indirect radiator by my invention it is only necessary to provide leg-sections of suitable character, as the sections intermediate to the ends may be the same as those used in a direct radiator. Where each section in the direct-indirect radiator has been heretofore formed with a cast-iron projection or extension piece to inclose the base, such extension-pieces are very much exposed to fracture in transportation, and when broken necessitate the substitution of an entirely-new loop or section, for which reason it has been common to make such extension-pieces much thicker and heavier than is required to perform their necessary function. As such extension-pieces are necessarily cast on edge, it has not been common to provide them with any ornaments; but my in-

vention furnishes a means for ornamenting the plate which incloses the base in any desired degree, and also permits its construction as light and thin as is desired and its transportation separate from the radiator, whereby it is preserved from breakage and is adapted to be attached to the legs of the radiator when erected.

The plates for the front and rear side of the radiator are preferably made interchangeable and only one of them ornamented. By this means the plainer plate may when the radiator is erected, be inserted in the side next to the wall, where it is out of sight, while the ornamented plate may be inserted in the front side of the radiator, where it is exposed to view. The plate may be made the means for carrying a foot-rest, damper, or other attachment, and the interchangeability of the plates permits the use of any of these attachments with the same radiator, as may be required by the purchaser.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a front elevation of a radiator of ten sections provided with my improvement. Fig. 2 is an elevation of the lower ends of the sections with the plate intersected on line *yy* in Fig. 1. Fig. 3 represents the inner side of the end section having the legs attached. Fig. 4 is a plan of the legs, taken in section on line *xx* in Fig. 3. Fig. 5 is an elevation of a sheet-iron plate detached from the front of a radiator. Fig. 6 represents the corresponding plate detached from the rear side of the radiator with an air-passage cut in its lower edge. Fig. 7 is an elevation of a cast-iron plate detached from the radiator. Fig. 8 is a perspective view of a sheet-metal plate with bent lugs upon the ends. Fig. 9 is an inside view of the leg provided with studs and recesses to fit such plate. Fig. 10 is an elevation of a cast-iron plate with pivoted buttons. Fig. 11 is an end view of the same, and Fig. 12 is a plan showing the engagement of the lugs or buttons with recesses in the legs.

*a* are radiator-sections of loop form containing two columns, which are represented of oval cross-section, as is partly indicated at the tops of the sections in Fig. 1. The sec-



tions are shown connected by couplings *b* in the bottom ends of the loops, and the end sections are formed with legs *c*, between which plates *d* are cast to close the ends of the air-chamber beneath the sections. The several loops are separated at the couplings, as is common in such constructions, sufficiently to form vertical air-passages *a'* between the different sections, as shown in Fig. 1, communicating with the air-chamber beneath the same. In the simplest construction the plate *f* is fitted at its ends when the sections are assembled to grooves or recesses upon the inner side of the legs. Such grooves are shown at *e'* in Figs. 3 and 4 with a rib *e* upon the outer side of the groove to cover the ends of the plate *f*. A lug *g* is shown at Fig. 3 at the bottom of the groove *e'*, to hold the plate from downward movement, and notches *h* are (shown in Figs. 5 and 6) upon the lower corners of the plate to fit over such lugs.

The plan in Fig. 4 shows the cross-section of the legs connected by the integral plates *d* at the ends of the radiator with the plates *f* at the front and rear of the radiator extending between the legs, thus inclosing the whole space beneath the sections. Such space may be supplied with fresh air by an air-inlet through the floor or by a notch *l* in the under edge of the rear plate, as indicated in Fig. 6, where a damper *l'* is shown pivoted at the ends of the notch and provided with a knob *l''* to turn the same. Open sockets *p* (shown in Fig. 2) may be formed upon the inner side of the plate to apply the damper in case one is required.

When the plate is made of cast-iron, it may be conveniently made with dowels *i*, (shown in Fig. 7,) which may be fitted to holes *j* upon the inner side of the legs, as shown in Fig. 3. Such dowels may be used with or without the groove *e'* and would obviate the use of the lugs *g*.

Where the contour of the radiator-sections adjacent to the top of the plate is of indented outline, the top edge of the plate may be formed of corresponding profile to fit the edges of the sections, and thus secure a more ornamental finish, as shown in Figs. 1, 5, and 6. The air entering the space or chamber beneath the sections has free access to the spaces *a'* between the several loops or sections, and is thus drawn upward by the heated currents developed in such spaces and discharged into the apartment as desired. The plates perform the same function of directing air upward within the radiator-sections if they are extended from the floor upward to the sides of the sections, and they may therefore be formed with straight upper edge, as shown in Figs. 7, 8, and 10. The fitting of the upper edge of the plate between the sections when the plate is notched is shown in Fig. 2; but it is obvious that the air would be deflected upward between the sections without the notching of such plates. A foot-rest may be readily

combined with the plate by casting a suitable projection thereon or attaching a foot-rod thereto by brackets, as shown in Figs. 10 and 11, on which the rod *r* extends across the top of the plate, and is secured to its ends by brackets *s*. The brackets in such case would be cast upon the plate and the rod subsequently inserted, and the brackets and rod may also be attached to the sheet-metal plates, as indicated by the rod *r* and brackets *s* in Fig. 2. The plates, if secured to the radiator-legs when first constructed, are liable to be damaged in transportation and may be made much lighter if they are made detachable, so as to be shipped apart from the radiator, as in such case they may be packed separately, and thus protected from injury. The plates may be made both removable and interchangeable by providing a flexible and pivoted lug upon the back of the plate and turn the same into a recess or behind a flange upon the edge of the leg. In such case the plate would be held in its position by the contact of its upper edge with the radiator-sections and at the bottom edge by studs *g*, formed inside the legs at the bottom. Lugs adapted to engage a rib or recess upon the leg are shown in Figs. 8, 11, and 12, Fig. 8 showing in perspective the end of a sheet-metal plate formed at one end with lugs *m* bent at right angles to the plate and at the opposite end with the lugs straightened out, as they would be bent when engaged with the leg.

Figs. 10 and 11 show a cast-iron plate provided upon the rear side with pivoted lugs or buttons *o*, which are adapted to turn in behind the ribs *e*, the same as the flexible lugs *m*, by providing the button with an attached pivot having a notched head *o'*, to which a screw-driver may be applied, as shown in Figs. 1 and 12.

In Fig. 9 ribs *e* are shown upon the outer edges of the legs without any adjacent groove, and such rib is adapted to engage with either the flexible or pivoted lugs when the plate is set between the edges of the ribs and flush with their outer surface.

In Fig. 12 the plate illustrated in Fig. 8 is shown with the ends in contact with the edges of ribs *e* and the lugs *m* straightened out behind the ribs to hold the upper and lower edges of the plate in contact with the sections and with the lugs *g*. By the use of the flexible lugs *m* or of the buttons *o* the plates may be made removable, and by securing the plates upon both sides of the radiator-section by the same means the plates are made interchangeable, and may thus be used to furnish the radiator with a damper, foot-rest, or other attachment, as may be desired. An ornamental appearance combined with economy of construction may thus be secured by making one of the plates of plain sheet metal, which is the cheapest material that can be used, while the other plate may be made of sheet or cast metal ornamented in any desired degree.



By making the cast-metal plate separate from the radiator it can be cheaply ornamented in relief.

The sheet-metal plate may be readily cut by the pipe-fitter to provide an air-inlet of any desired size when erecting the radiator, and the front plate by its interchangeability affords the means of furnishing the radiator with a foot-rest or any other desired attachment that can be secured to the plate. The interchangeability of the plates also affords an opportunity when erecting the radiator to cut the undecorated plate or the plate provided with a damper upon whichever side of the radiator that is set against the wall.

It will be seen from the above description that it is immaterial how the plates are secured to the legs, provided they are made to engage one another to retain the plate in place. Each leg is shown flattened upon the inner side in the drawings; but any other design may be used, if preferred.

From the above description it will be seen that this invention affords the means of making up radiators for direct and for direct-indirect heating by the use of the same pattern for the intermediate sections in both kinds of radiator and by the provision of special sections for the ends of the radiators only. Such special section may be used for either kind of radiator, if desired.

It is obvious that my invention may be practiced by arranging the legs of the radiator at any suitable point beneath the sections. A long radiator may therefore have the legs set adjacent to the end sections instead of being formed upon such sections, as shown in Fig. 1 of the drawings, and a still longer radiator may be provided with a middle leg, in which case separate plates would be inserted between the middle and end legs and the entire construction would be a mere duplication of that shown in Fig. 1. The plates would in such case perform the same function in every respect as those described above, as they would avoid the necessity of casting a heavy base or of furnishing the radiator-sections separately with extension-pieces to form an air-chamber. The plates may in either case be made easily removable and interchangeable and may be ornamented, as described, and also provided with a foot-rest, damper, or other desired attachment. The invention furnishes a means of forming an air-chamber in the base of the radiator with less weight of material than any other construction and affords an opportunity of ornamenting the base in a variety of ways.

I do not claim the mere inclosing of a radiator-base to direct fresh air upward between the radiator-sections, as such results have been secured by different means before the date of my invention; but,

Having set forth the advantages of my construction, what I claim, and desire to secure by Letters Patent, is—

1. In a sectional radiator formed of verti-

cal sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-legs attached thereto, of the plates *f*, extended transversely across the sections and engaged with the supporting-legs and extended from the intermediate sections to the floor to inclose the space beneath the radiator, as set forth. 75

2. In a sectional radiator formed of vertical sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-legs attached thereto, of the ribs *e* upon the edges of the legs and the plates *f*, having their upper edges fitted to the intermediate sections, and their lower edges extended to the bottom of the legs and having their ends engaged with the ribs *e*, as set forth. 85

3. In a sectional radiator formed of vertical sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-legs attached thereto, of the ribs *e* upon the edges of the legs and the plates *f*, having their upper edges fitted to the intermediate sections and their lower edges extended to the bottom of the legs and having their ends fitted to the ribs *e* and secured detachably thereto, as by the button *o*, substantially as set forth. 95

4. In a sectional radiator formed of vertical sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-lugs attached thereto, of the plates *f*, fitted interchangeably at their ends to the legs upon the opposite sides of the radiator and provided with means, as lugs or buttons, for securing them detachably to the legs, and the plates being extended from the intermediate sections to the bottom of the legs, so as to inclose the space beneath the radiator, as set forth. 105

5. In a sectional radiator formed of vertical sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-legs attached thereto, of the plates *f*, fitted interchangeably at their ends to the legs upon the opposite sides of the radiator, and one of the plates being provided with an air-inlet and a damper applied thereto, substantially as set forth. 115

6. In a sectional radiator formed of vertical sections with air-spaces between the same, the combination, with the intermediate sections and with sections having supporting-legs attached thereto, of the plates *d*, cast between the legs to the bottom of the same, and the plates *f*, fitted interchangeably at their ends to the legs upon the opposite sides of the radiator and one of the plates being provided with an air-inlet and a damper applied thereto, substantially as herein set forth. 125

7. In a sectional radiator formed of vertical sections with air-spaces between the same,



the combination, with the intermediate sections and with sections having curved supporting-legs attached thereto, of the plates *f*, curved in cross-section and extended transversely across the sections and engaged with the supporting-legs and extended from the intermediate sections of the floor to inclose the space beneath the radiator, as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES F. GESSERT.

Witnesses:

JOSEPH M. STOUGHTON,  
THOMAS S. CRANE.