

905,140.

Patented Dec. 1, 1908.

Fig. 1.

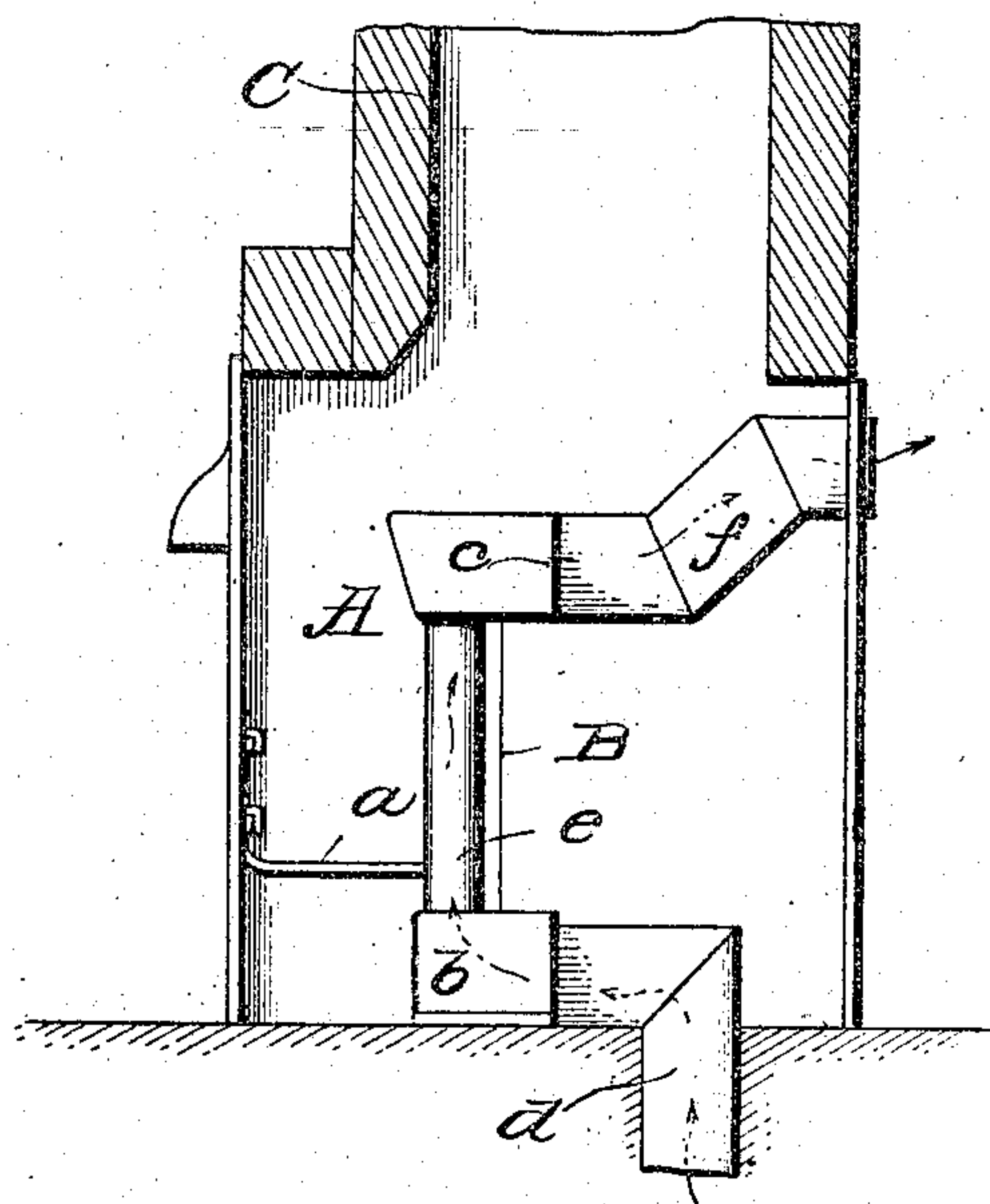


Fig. 2.

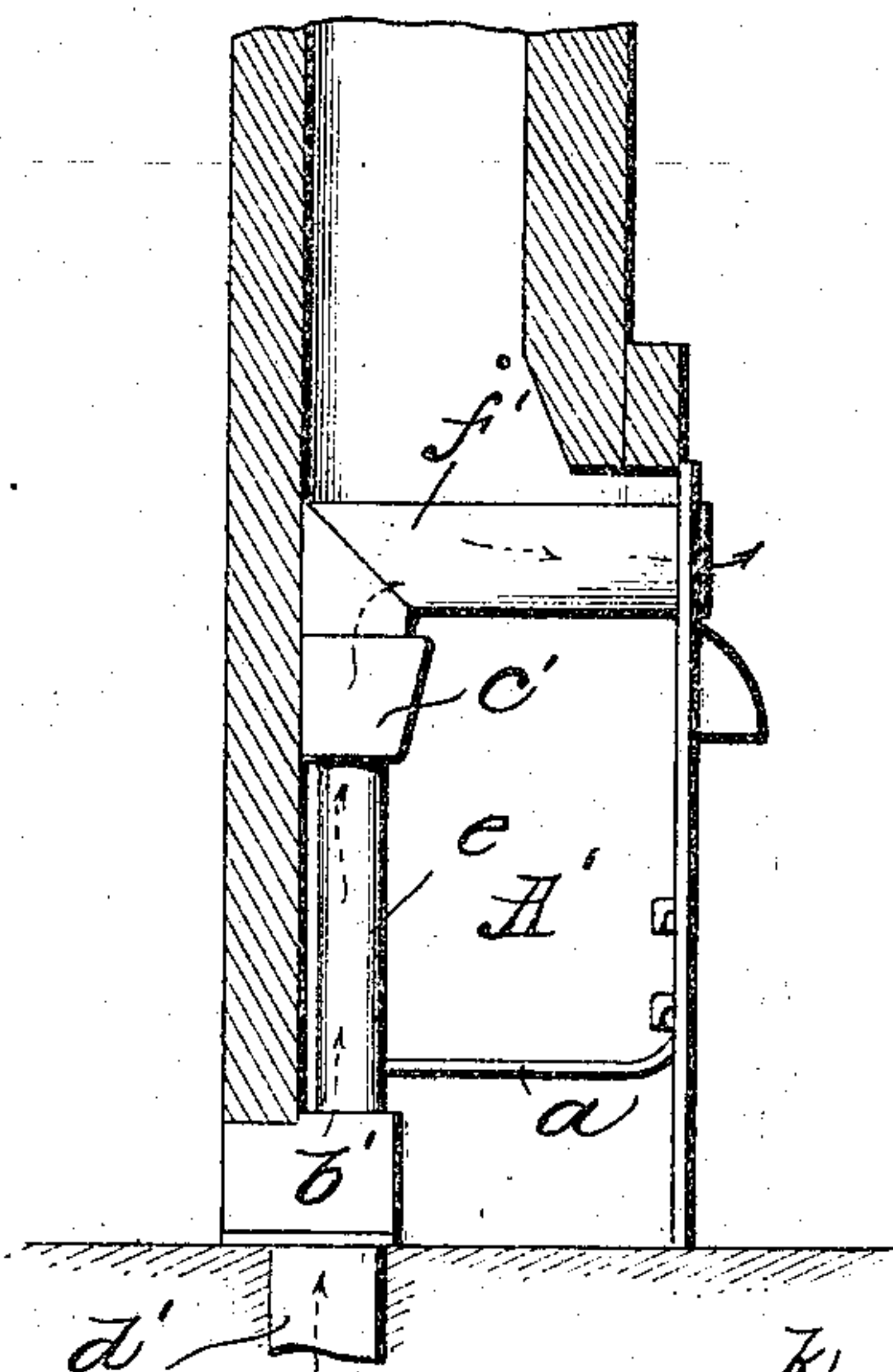


Fig. 4.

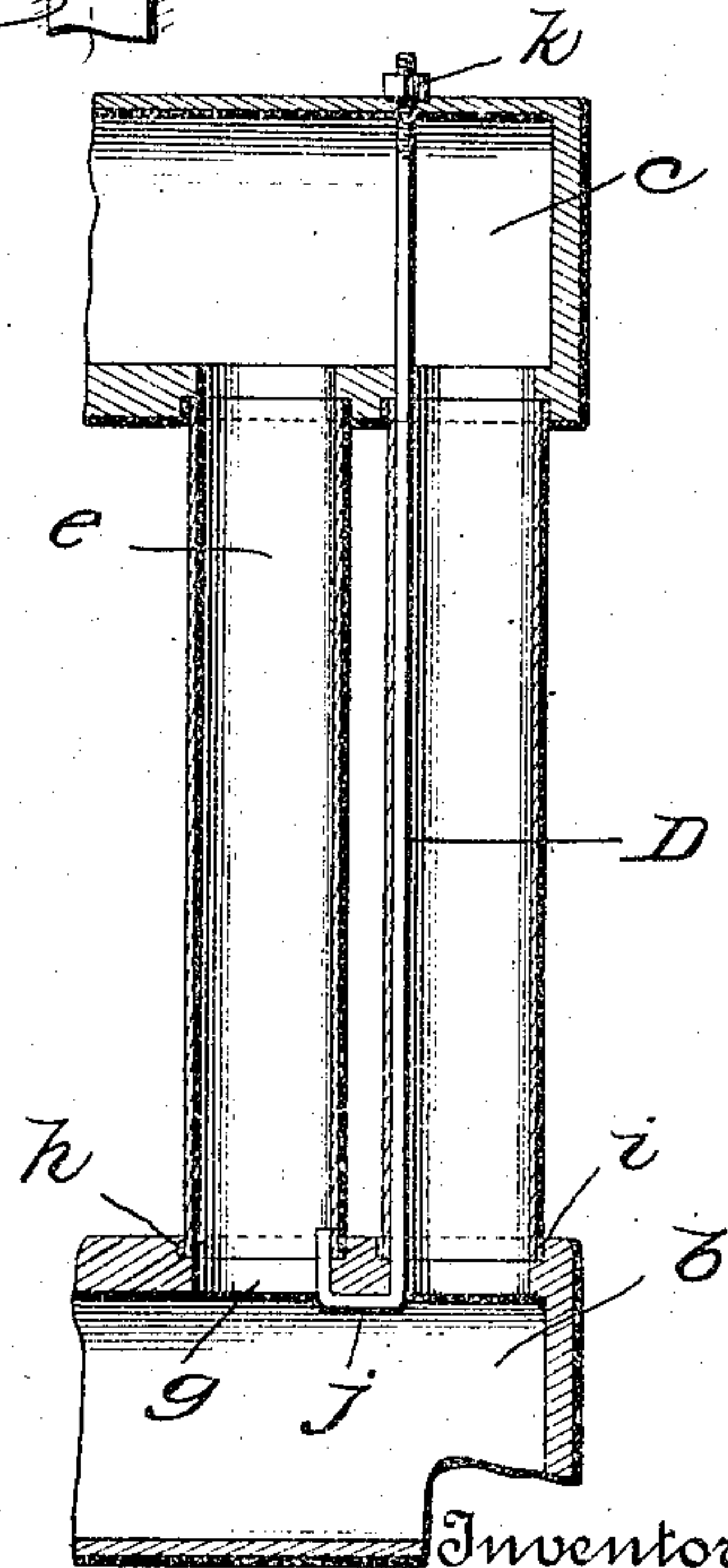
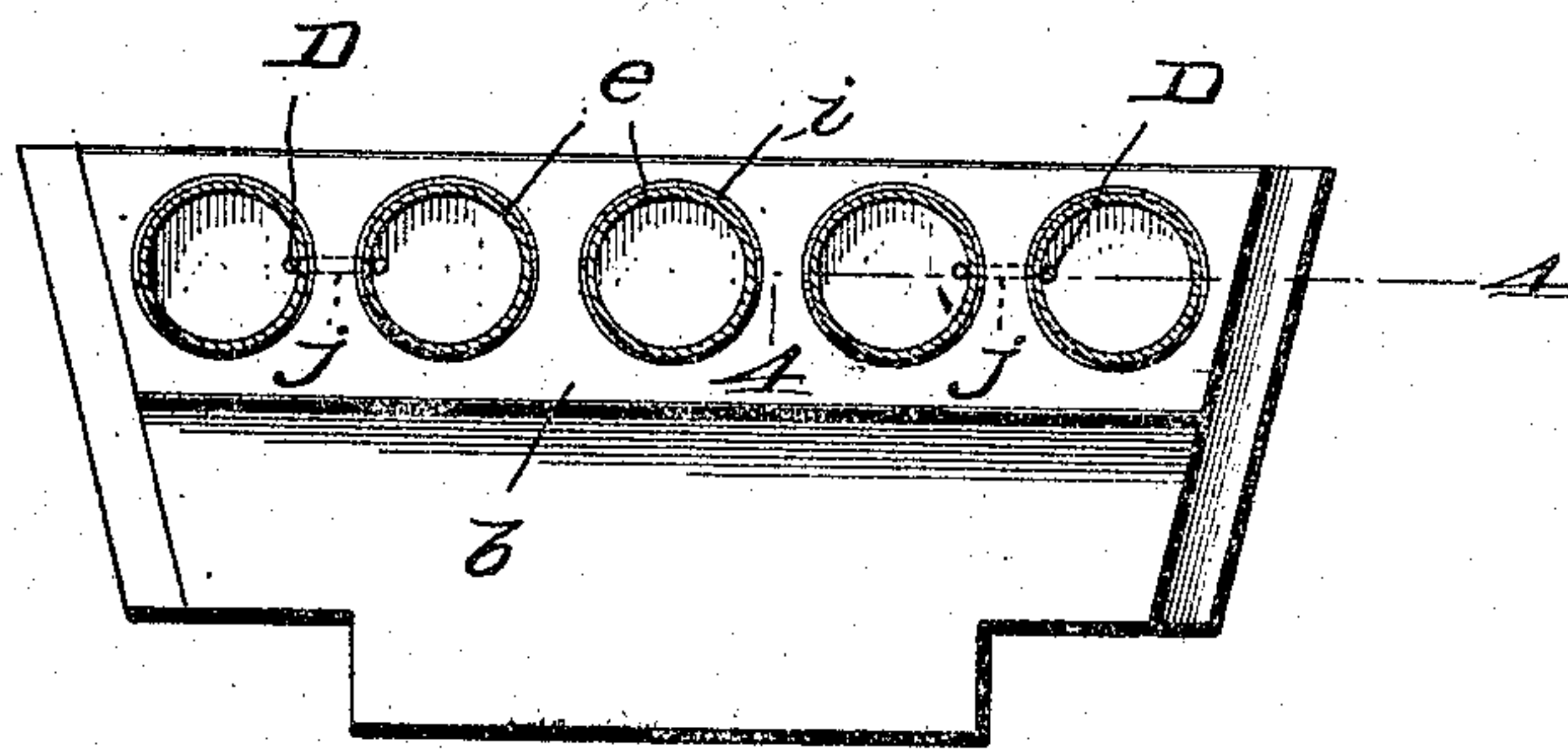


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY A. BIERMANN, OF NEW ORLEANS, LOUISIANA.

HEATING APPARATUS.

No. 905,140.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed June 25, 1908. Serial No. 440,269.

To all whom it may concern:

Be it known that I, HENRY A. BIERMANN, citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Heating Apparatus, of which the following is a specification.

My invention pertains to that type of heating apparatus in which an open-grate fire is utilized to heat air incidental to the passage of the air from the atmosphere into an apartment; and it consists in the peculiar and advantageous apparatus hereinafter described and particularly pointed out in the claim appended.

In the drawings, accompanying and forming part of this specification: Figure 1 is a view, partly in elevation and partly in section, showing an apparatus constructed in accordance with my invention and arranged to conduct heated air into the apartment which adjoins that in which the open-grate fire is arranged. Fig. 2 is a view similar to Fig. 1, but illustrating a form of apparatus arranged to conduct the heated air into the same apartment in which the open-grate fire is arranged. Fig. 3 is an enlarged horizontal section taken through the several vertical pipes of my apparatus in a plane slightly above the lower header thereof. Fig. 4 is a detail vertical section, taken in the plane indicated by the line 4-4 of Fig. 3 and illustrating important constructional details of the apparatus, hereinafter set forth in full.

Referring by letter to the said drawings, and more particularly to Figs. 1, 3 and 4, thereof:

A is an open fireplace having a grate *a* and the other conventional appurtenances.

B is the back wall of the fireplace which is built of fire resisting material in any manner consonant with the purposes of my invention, and C is a chimney or uptake through which the smoke and other products of combustion are conducted away from the fireplace.

In carrying my invention into effect, I provide the apparatus illustrated in Figs. 1, 3 and 4, arranged as shown in Fig. 1, relative to the fireplace A, the wall B and the chimney C. The said apparatus is made up of a lower header *b*, preferably of cast-iron, an upper header *c*, preferably of the same material as the lower header, a conduit *d*, designed to lead from the atmosphere or any other suitable fresh-air supply and conduct

such air to the lower header at the middle or of the side thereof remote from the fireplace; a plurality, of preferably five, upright pipes *e*, of suitable metal, interposed between and effecting communication between the lower and upper headers, and a conduit *f* leading from the middle of the side of the upper header *c* that is remote from the fireplace to the apartment which adjoins that in which the fireplace A is arranged. By virtue of the construction and relative arrangement of parts just described, it will be manifest that the fire in the fireplace which opens into one of the apartments will directly heat the said apartment, and it will also be manifest that incidental to the passage of the fresh air through my novel apparatus and into the other apartment, the said air will be heated by the fire in the fireplace. From this it follows that the single fire in the fireplace A and the single chimney in combination with my novel apparatus suffice for the proper heating of the two apartments.

In the embodiment of my invention shown in Fig. 2, the construction is similar to the embodiment shown in Fig. 1 with the exception that the conduit *f'* leads from the upper side of the middle of the upper header *c'* to the same apartment in which the fireplace A' is arranged and this at a point above the fireplace so that my novel apparatus serves as an auxiliary to the fire in the fireplace A' to maintain the said apartment in a heated state. It will also be noted that in the arrangement shown in Fig. 2 the fresh-air supply pipe *d'* leads to the middle of the bottom of the lower header *b'*.

In both embodiments of the invention, the lower and upper headers are connected, and the upright pipes are arranged, relative to said headers, in the same manner, and for this reason a detailed description of the lower and upper headers, the vertical pipes, and the connections, shown in Figs. 3 and 4, will suffice to impart a definite understanding of the said parts irrespective of the embodiment in which the same are incorporated.

As shown best in Fig. 4, the lower and upper headers are provided in their adjacent walls with vertically disposed apertures *g* with which communicate countersinks *h*. In these countersinks and against the inner walls thereof the ends of the vertical pipes *e* are arranged and sealed by cement *i*, of fire resisting nature. Extending downwardly

through the upper header, the two end pipes *e* and into the lower header are two vertical rods *D*, each of which is threaded at its upper end to receive a nut *k*, and is provided at its lower end with a hook *j* which embraces the portion of the lower header between two of the apertures *g*. By virtue of this construction it will be manifest that when the nuts *k* are tightened, the lower and upper headers will be drawn tight against the lower and upper ends of the pipes *e*; also, that the lower and upper headers are strongly connected together, and this in such manner that when desired the lower and upper headers and the interposed pipes may be expeditiously and easily disassembled for purposes of repair or for other purposes. It will further be noticed in this connection that the connecting rods *D* are contained in the lower and upper headers and end pipes *e* and in the presence of the fresh air and isolated from the fire and the highly heated products of combustion. From this it follows that the efficiency of the rods *D* will not be affected by the fire or the heat, and hence the said rods will last and will strongly connect the headers for an indefinite period. The location of the nuts *k* above the upper header *e* makes said nuts readily accessible, and when said nuts are removed it follows from the construction described that the parts may be quickly and easily disassembled.

It will be gathered from the foregoing that the fresh air in both embodiments of my invention enters the middle of the lower header and is distributed among the several upright pipes by which it is discharged into

the upper header, and that from said upper header the heated fresh air is supplied to the discharge pipe or conduit leading from the middle of the upper header. This is practically advantageous inasmuch as it assures all the fresh air being uniformly heated precedent to the discharge of the same into the apartment to be maintained in a heated state.

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

In an apparatus for the purpose described, the combination of headers having sets of alined apertures in their adjacent walls and also having countersinks formed in the adjacent sides of said walls and communicating with the apertures, pipes extending between the headers and having their ends arranged in the said countersinks and against the inner walls of the countersinks, cement seals arranged in the countersinks and about the ends of the pipes, connecting rods extending through the upper header and the end pipes of the set and each having a hook at one end embracing the portion of the lower header that is between two pipes and also having a threaded portion extending above the upper header, and nuts mounted on said threaded portions of the rods.

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

HENRY A. BIERMANN.

Witnesses:

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