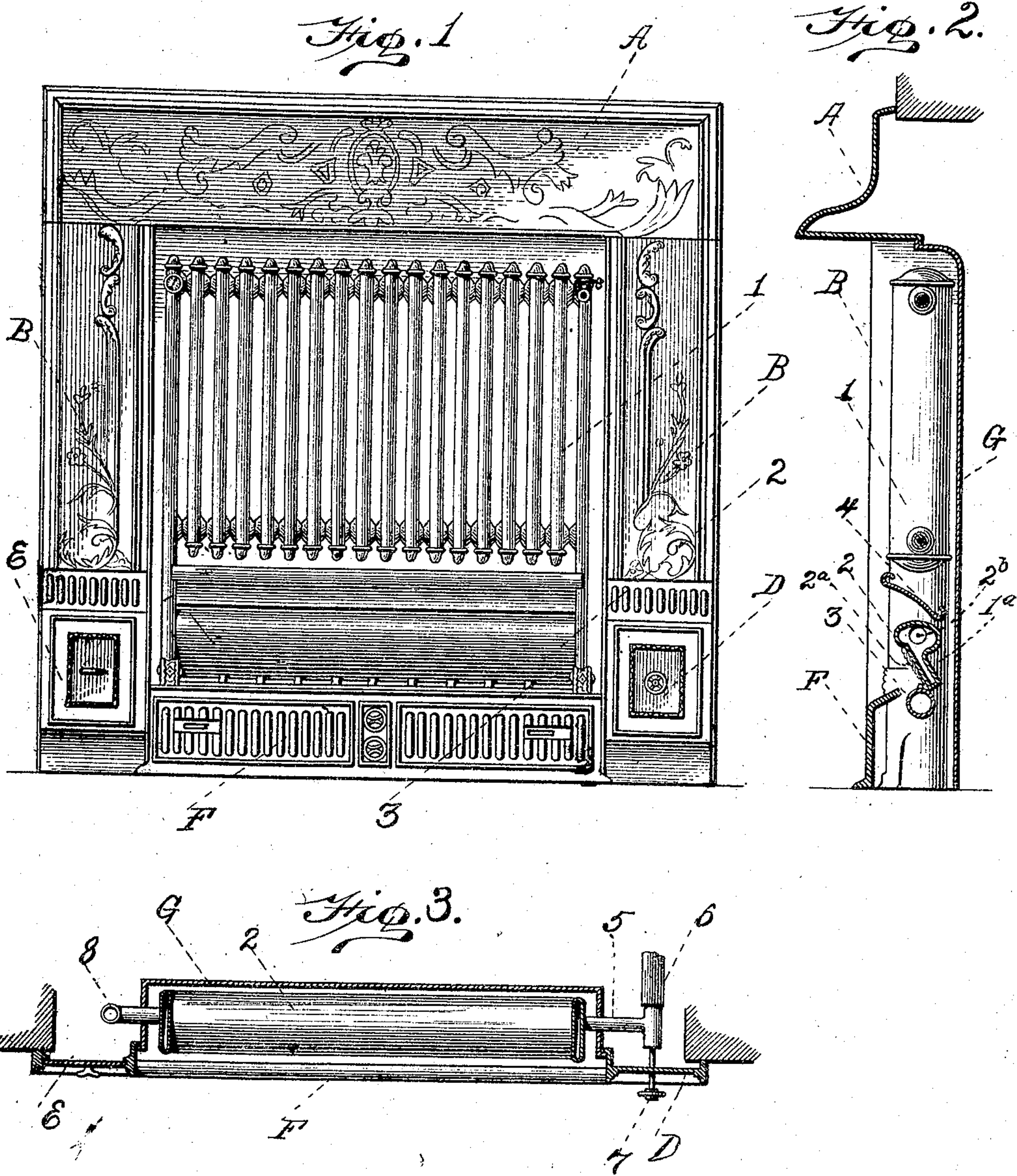


No. 894,445.

PATENTED JULY 28, 1908.

W. R. KINNEAR.
PORTABLE STEAM RADIATOR HEATER.
APPLICATION FILED JULY 29, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

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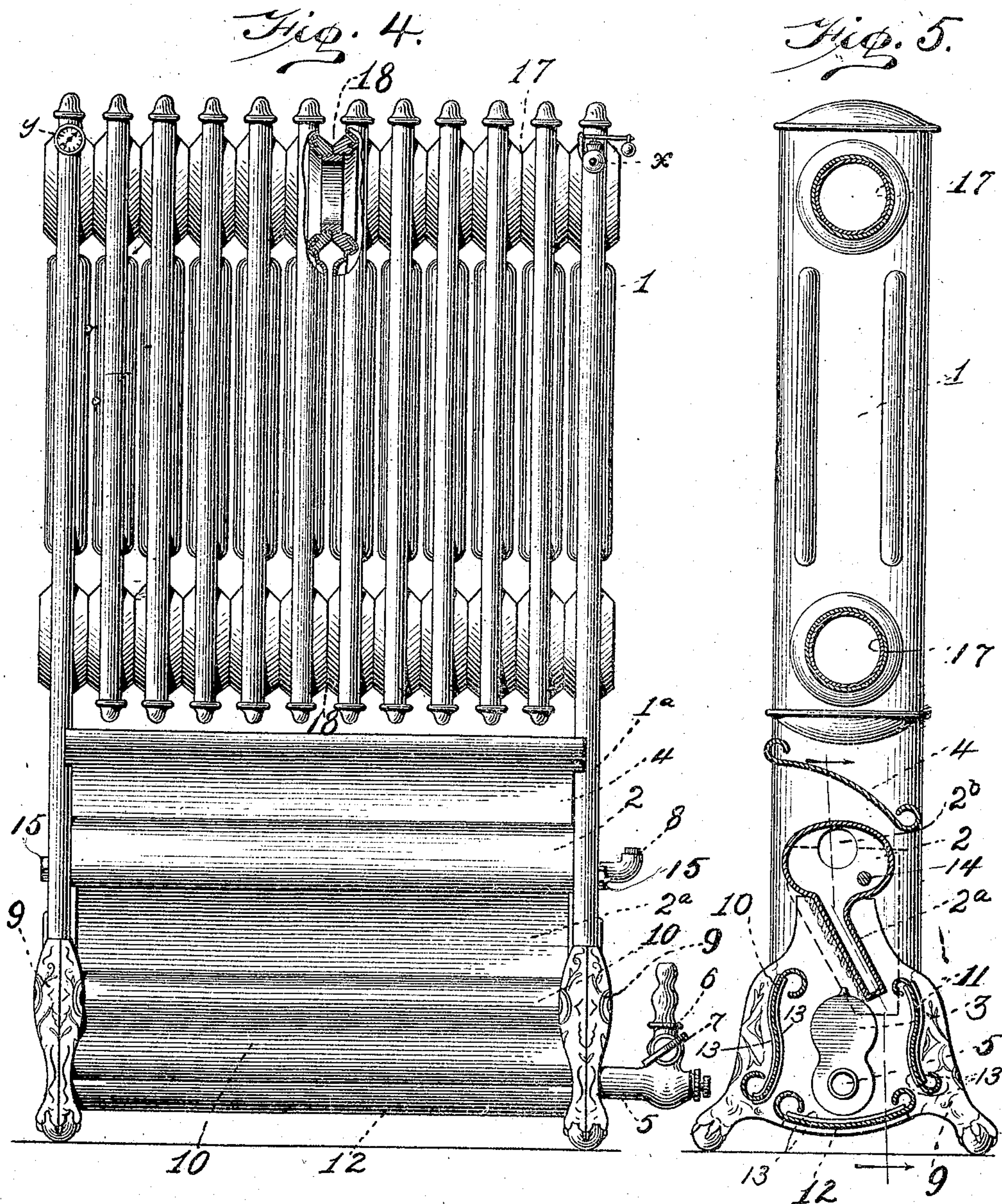
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3 SHEETS—SHEET 2.



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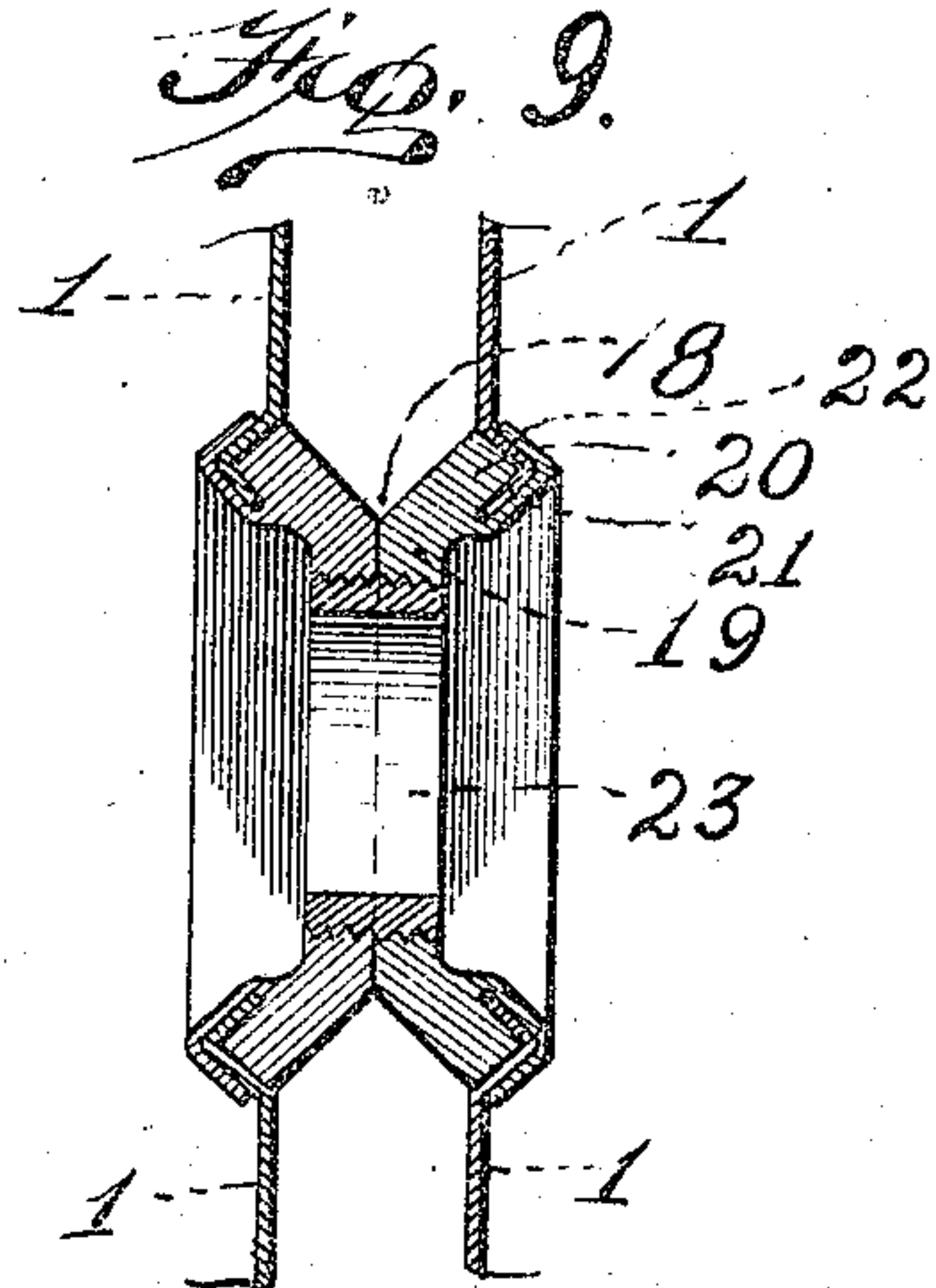
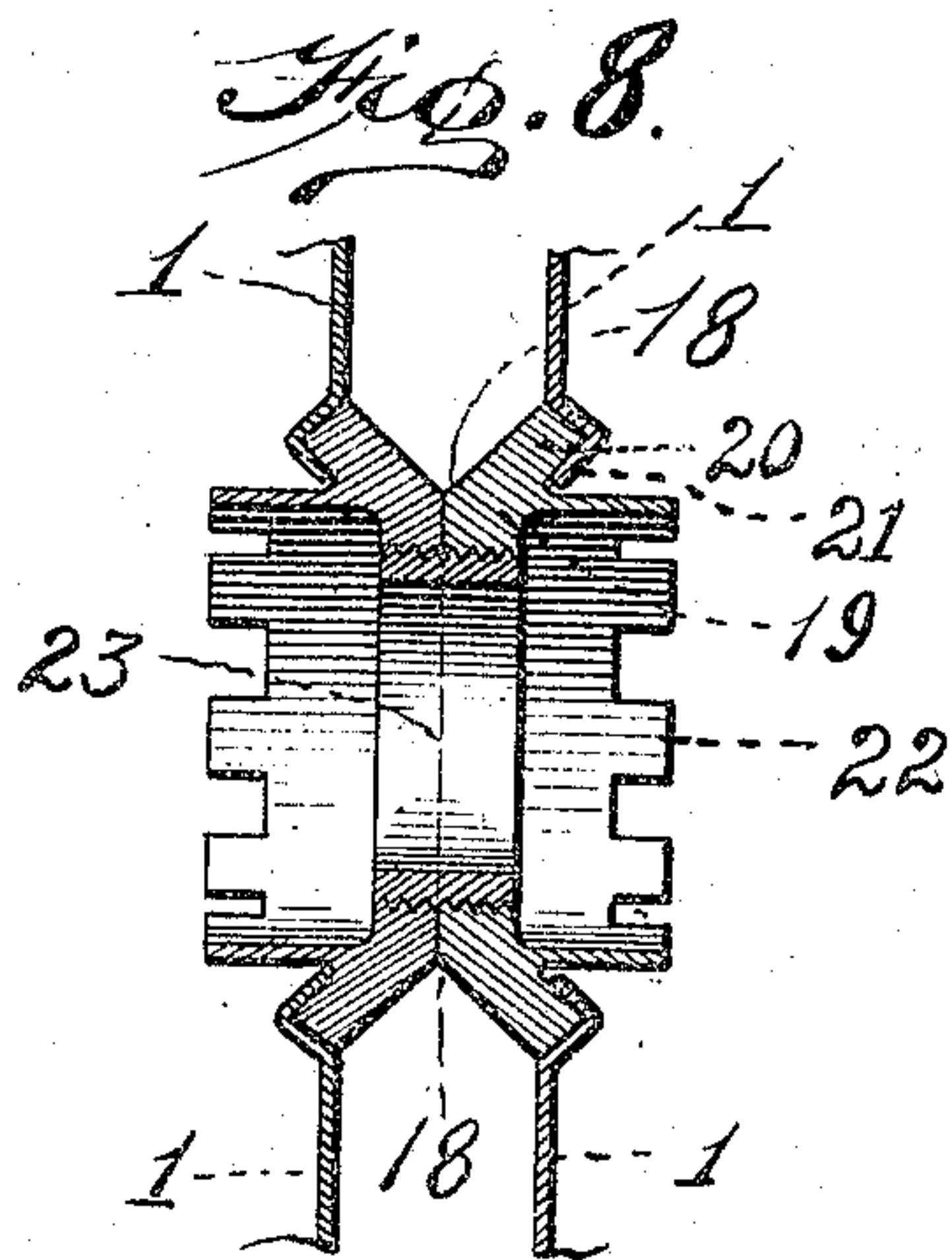
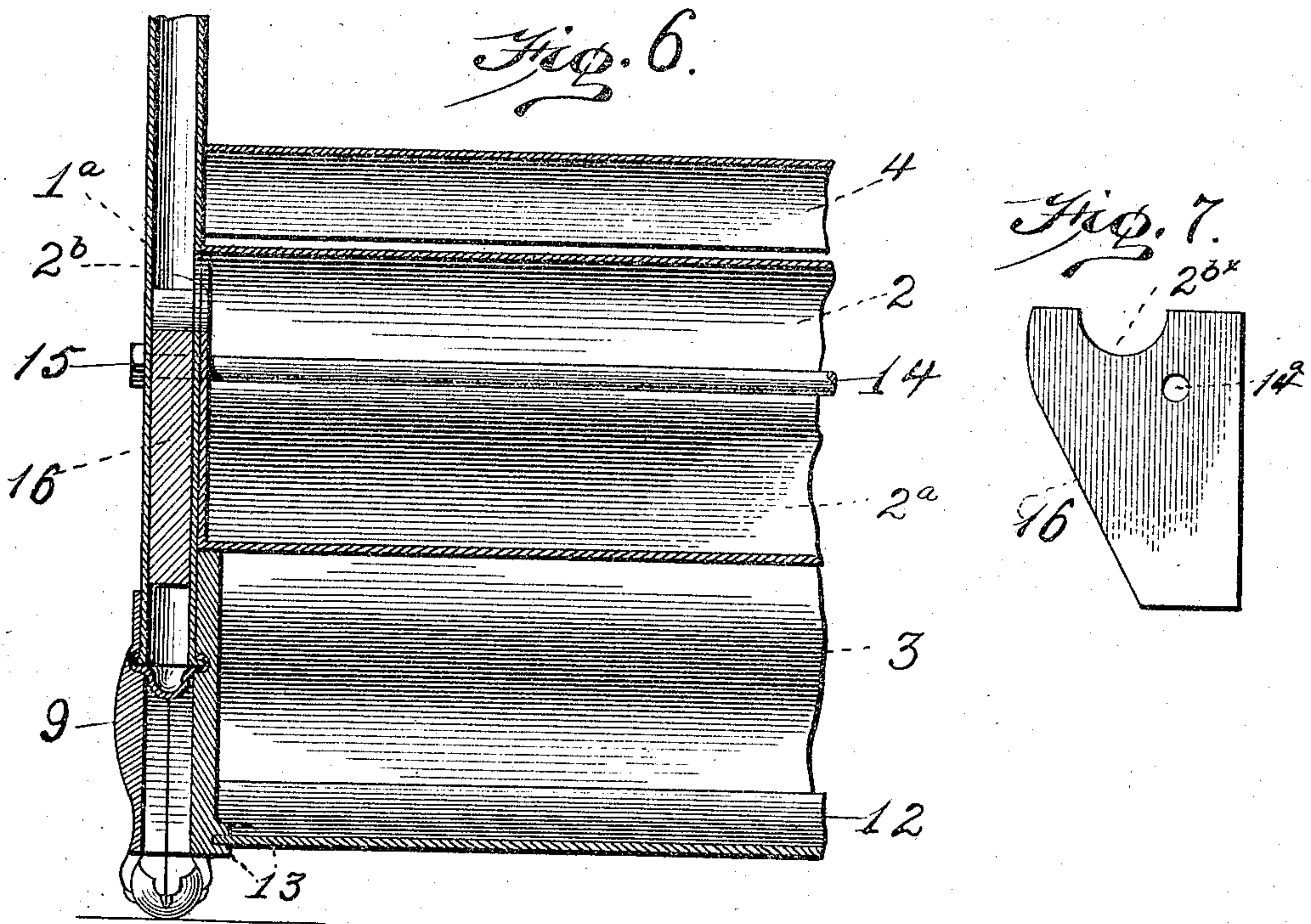
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM R. KINNEAR, OF NEW YORK, N. Y.

PORTABLE STEAM-RADIATOR HEATER.

No. 894,445.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed July 29, 1904. Serial No. 218,743.

To all whom it may concern:

Be it known that I, WILLIAM R. KINNEAR, a citizen of the United States, and resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Portable Steam-Radiator Heaters, of which the following is a specification.

My invention relates to a radiator heater, in which the heat conveying medium is steam supplied from a steam generator embodied in the construction of the apparatus, and the object of my invention is to provide a heater of this type which is of superior heating capacity, simple in construction and of sufficiently light weight to permit its being placed or shifted from place to place with ease.

Two embodiments of my invention are illustrated in the present application, one of which is designed more particularly as a fire place heater in which the gas supply used for heating the generator may be obtained through a permanent connection with the gas piping of the building in which the heater is used, whereas, the second embodiment of the invention, not differing materially in principle of construction, is designed more particularly for a detached heater that may be placed in a room or any part of a room at will, and connected with a suitable gas supply through a flexible or other connection.

In the accompanying drawings forming part of this specification, Figures 1, 2 and 3 illustrate the embodiment of my invention which is designed for a fire place heater, Fig. 1 being a front view; 2 a vertical section in a plane between two of the radiator units and Fig. 3 a horizontal section in a plane immediately above the steam generator. Figs. 4 and 5 show the embodiment of the invention designed more particularly as a portable or movable heater, Fig. 4 being a front elevation with one of the joints between two adjacent units of the radiator in axial section, and Fig. 5 being a vertical transverse section in a plane between two of the units of the radiator. Fig. 6 is a vertical longitudinal section on an enlarged scale through the lower portion of one end of my improved heater, showing internal construction of parts incident to both embodiments of the invention. Fig. 7 is a detailed view of a filling plate used to sustain the walls of the end sections of the radiator in the line of a tie rod employed for holding the lower portion of the radiator together. Figs. 8 and 9 are axial

sections through a joint employed to detachably connect groups of units in assembling a radiator which is composed of a multiple of such groups, said figures showing two steps followed in applying to the sheet metal walls, bushings employed in making such a joint.

Referring to Figs. 1 to 3, A and B represent the breast and sides of the fire place, said sides being preferably provided with lower panels D and E one or both of which may be made removable to give access to connections which have to be manipulated in operating the radiator. F represents a bottom front plate which may be ornamented in any suitable way and employed for obscuring the greater portion of the burner and the space below the same. G represents a housing which incloses the rear end of the radiator and deflects heat outward into the room. 1 represents a radiator composed of a plurality of units suitably connected together by joints forming circulating passages between them at least at their lower ends. The end units of this radiator are extended downwardly by extensions 1^a through which the main body of the radiator is supported in an elevated position while between these extensions 1^a and supported upon them, are provided a steam generator 2, having a lower reduced portion 2^a and connecting at 2^b with the end sections of the radiator, and a burner 3 which delivers a series of jets against the forwardly inclined front wall of the reduced portion of the generator, which is preferably provided with an asbestos or other finely divided refractory facing. Above the generator is a deflecting plate 4, while to one side of the radiator and extending through an end unit and into the burner 3, is a gas supply pipe 5, leading from a pipe 6 and controlled by valve 7. 8 represents a pipe through which water may be introduced into the steam generator.

Referring to Figs. 4 and 5 it will be seen that the arrangement is substantially the same as that described with reference to Figs. 1 to 3 like letters of reference connecting like parts. This portable form, however, is preferably provided with supporting legs 9, each of which is made in two parts suitably shaped to fit around and to be clamped on to the lower ends of the extensions 1^a. These legs support a front screen plate, 10, a rear plate 11, and a bottom plate 12, by means of grooves 13, formed on the

legs. They also provide seats or grooves into which the straight lower reduced portion 2^a of the steam generator fits and affords suitable support for the burner 3; all of these parts being securely locked in position between the legs or between the extensions of the radiator, by tie rod 14, which passes through the extensions, all of said parts being drawn tightly together by nuts 15 on the ends of said rod. In order to sustain the thin walls filling plates 16, are introduced between the walls of the extensions 1^a thus tying the parts together, said plates being provided with aperture 14^a for the rod 14 and with recesses 2^b to avoid obstructing the opening tube 2^b between the generator 2 and the extensions 1^a of the end units. In practice the generator will be connected with the end units by seam joints and said end units may also be provided with depressions in which the ends of the generator are made to seat.

The manufacture of sheet metal radiators is greatly facilitated by permanently connecting a number of units into a group and thereafter building up radiators by utilizing multiples of this group. This involves a further advantage of permitting old stock to be again separated into such multiples if it is desired to utilize a radiator in a small room and to correspondingly reduce its capacity. To meet these requirements, another feature of my present invention consists in uniting a number of sheet metal units by striking up bosses thereon and seaming these bosses together and providing the end units of such groups with suitably constructed bushings which present the same external appearance as the bosses struck up on the units and are adapted to be connected at any time either with a pipe for supplying the heating medium or with a bushing in the end unit of an adjacent group by the use of a right and left threaded thimble. In order to accomplish this, a bushing 20, Fig. 8, having a frusto conical exterior, is provided with an angular inner face over which the sheet metal may be bent as at 21 and a longitudinal lip 22, which is adapted to be expanded upon the sheet metal at 21 and notched or otherwise divided up to adapt it to be folded over the shoulder formed on the sheet metal, after the lip has been thus expanded, so as to bring the parts into intimate interlocking relation as shown in Fig. 9. The bushings thus attached to the sheet metal are rendered steam and water tight by galvanizing and two adjacent bushings may then be connected at any time by a right and left thimble 23.

The idea of forming the units in groups and connecting the groups together, and the particular form of circulating connection, are not claimed herein but form the subject matter of a divisional application filed by me August 23, 1905.

Having thus described my invention the following is what I claim as new therein and desire to secure by Letters Patent:—

1. A portable radiator heating device, comprising a plurality of narrow vertical units spaced apart to form air spaces between them, connections between the units forming a circulating passage across the entire group, all of said units extending upwardly to form radiating bodies above the circulating passage and two of said units also extending downwardly below said circulating passage; and a suitable generating chamber unconnected with and arranged in spaced relation to the lower ends of the intermediate units located between and having circulating connection with the downward extensions below the circulating passage and provided with means for heating the circulating medium.

2. A portable radiator heating device comprising a plurality of narrow vertical radiator units; aligned connections at their lower ends establishing a circulating connection across the group; said units having their main radiating bodies extending above said circulating connection and connected together at their upper ends; two of said units being provided with extensions below said circulating connection; and a generating chamber unconnected with and arranged in spaced relation to the lower ends of the intermediate units located between and having circulating connection with the downward extensions and provided with means for heating the circulating medium therein.

3. In a portable radiator heating device, the combination of a horizontal series of vertically disposed radiator units, connections between the lower ends of the units, forming a circulating passage across the series of units; said units extending vertically above said circulating connection and two of said units having downward extensions below said circulating connection, and a generating chamber having means for heating the heat conveying medium therein unconnected with and arranged in spaced relation to the lower ends of the intermediate units, and located between and abutting and connected with said downward extensions; and a tie rod extending through the downward extensions and holding them in abutment with the heating chamber.

4. A radiator heating device comprising a plurality of radiator units, two of which have downward extensions provided with supporting feet, a heater for the circulating medium, supported between said extensions, deflectors adjacent to said heater, and grooves on the inner faces of the feet, in which the deflectors are supported.

5. A radiator heating device comprising a plurality of vertical radiator units, means establishing communication between said

units, a suitable generating chamber located below, connected to, and in communication with the end units, and spaced from the intermediate units, and a deflector arranged
5 between the intermediate units and the generating chamber.

6. A radiator heating device comprising a plurality of suitably connected radiator units, two of which have downward extensions, a heater for the circulating medium
10 supported between said extensions, a tie rod

drawing said extensions against the ends of the heater, and filling plates introduced into the extensions and supporting the walls thereof against the tension of the tie-rod. 15

The foregoing specification signed this 12 day of July 1904.

WILLIAM R. KINNEAR.

In presence of—

RAYMOND H. DUNNS,
HERBERT W. HOWELL.