

No. 815,695.

PATENTED MAR. 20, 1906.

E. E. GOLD,
HEATER.

APPLICATION FILED JULY 16, 1904.

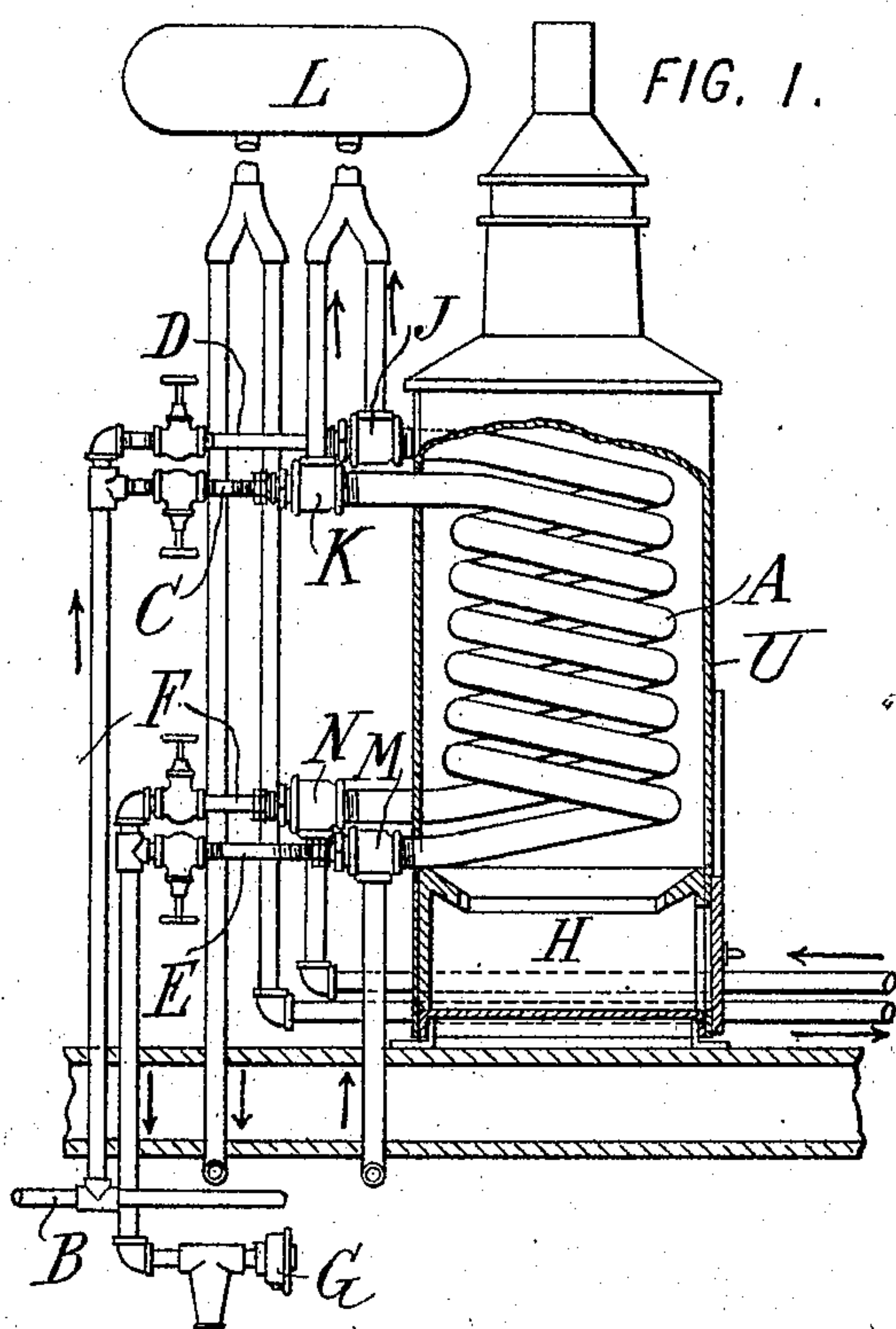


FIG. 1.

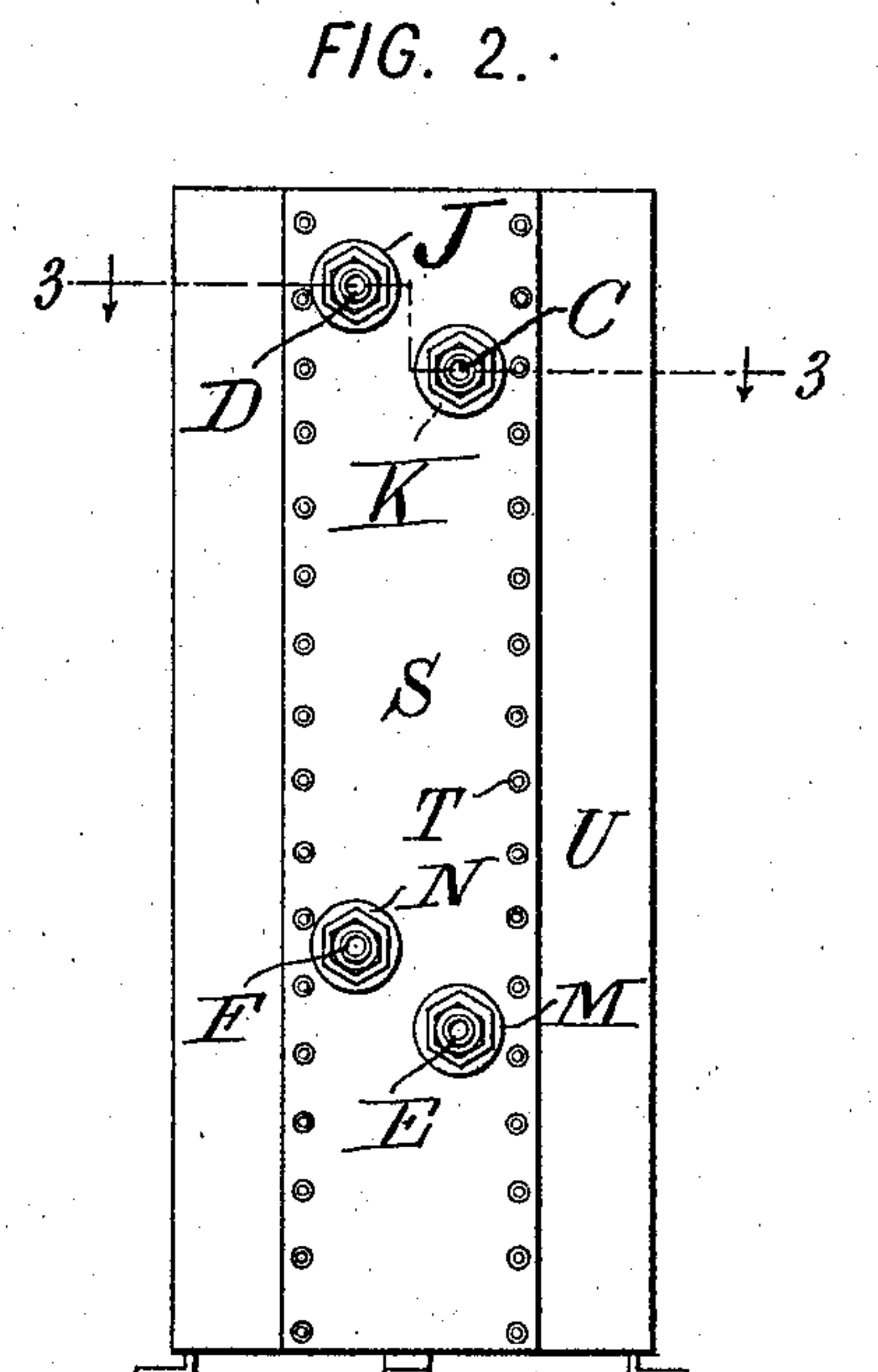


FIG. 2.

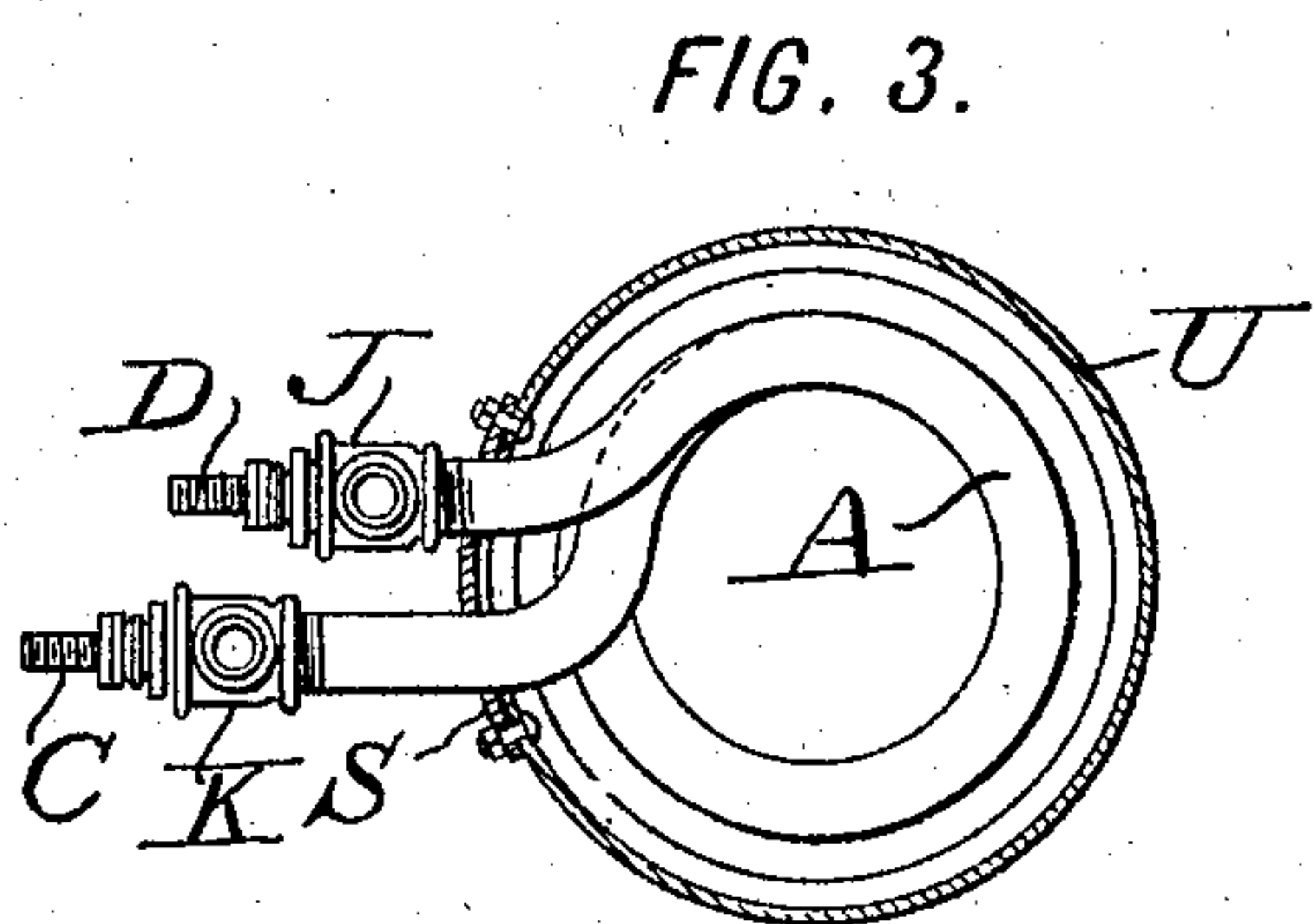


FIG. 3.

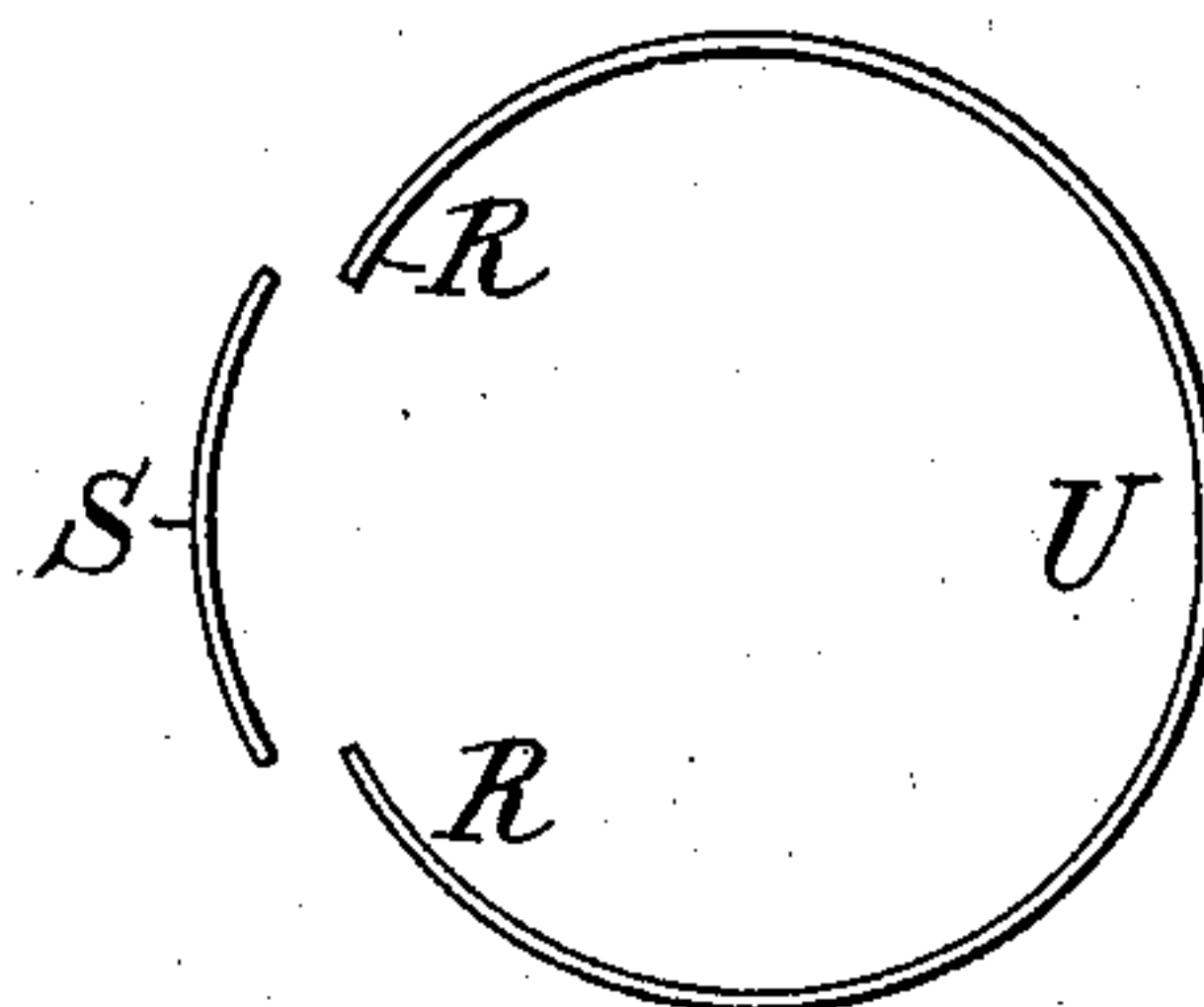
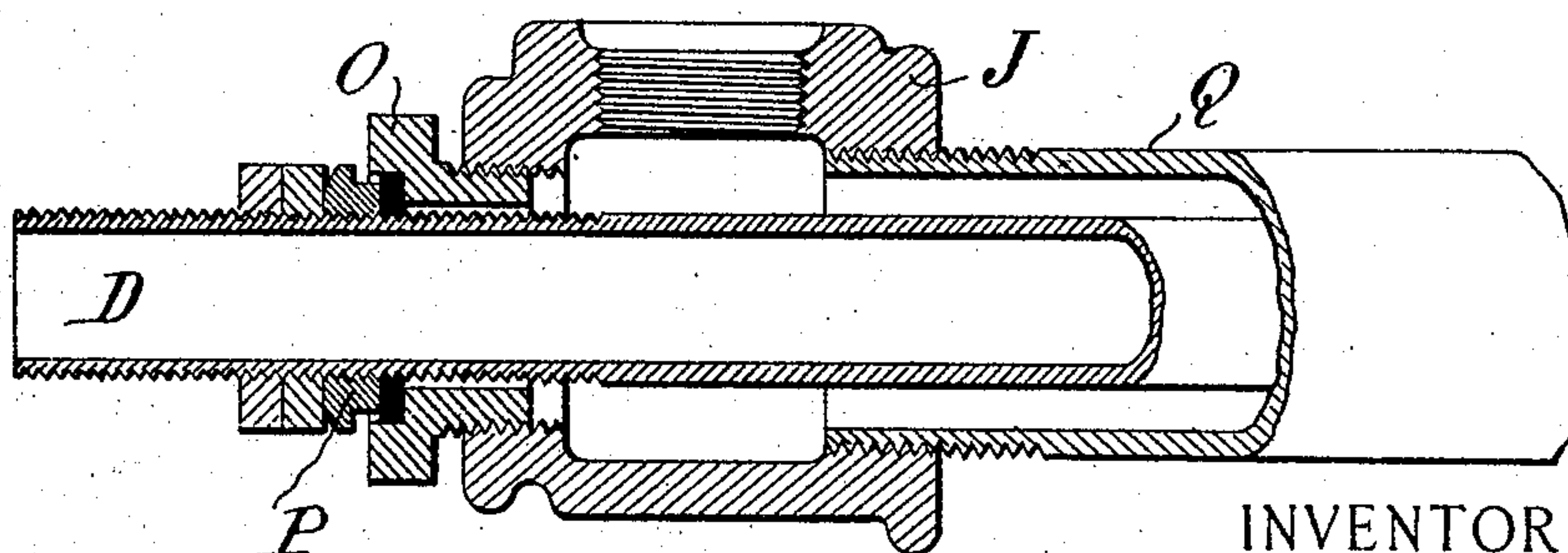


FIG. 4.

FIG. 5.



WITNESSES:
Ired White
René Bruine

INVENTOR:
Edward E. Gold,
By Attorneys,
Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

EDWARD E. GOLD, OF NEW YORK, N. Y.

HEATER.

No. 815,695.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 16, 1904. Serial No. 216,909.

To all whom it may concern:

Be it known that I, EDWARD E. GOLD, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Heaters, of which the following is a specification.

This invention aims to provide certain improvements in the type of car-heaters indicated in my prior patents, Nos. 388,772, of August 28, 1888; 571,359, of November 17, 1896, and others. In this type of heater a coil is carried within a casing constituting, in effect, a stove, the ends of the coil being connected to the circulating radiating system extended throughout the car, the heating of the coil serving to cause the desired circulation. The circulating liquid in the coil and radiating system is arranged to be heated either by steam or by a fire built in the lower part of the casing or stove immediately under the coil. The invention, however, in its broadest conception is applicable to any heater in which a coil is carried in a casing fitting close around the coil, the improvement being in features of construction which facilitate the assembling of the parts and which make it possible to use for a given diameter of coil a casing considerably smaller than has been possible with the previous constructions and which presents certain other advantages referred to in detail hereinafter.

In previous constructions the casing has consisted of a cylinder or cone completely closed all around its circumference—that is to say, without an open vertical joint. The introduction into such a casing of a coil having its ends projecting sufficiently beyond the circumference of the helix to permit the making of the necessary outside pipe-joints has necessitated either that the coil be of such small diameter as compared with that of the casing as to permit the canting of the coil in introducing it and passing its ends out through the holes in the side of the casing or has necessitated the making of the connections at the end of the coil inside of the casing. In either case compactness has been sacrificed by making the casing of considerably larger diameter than the coil. According to the present invention the casing is formed with one or more open vertical joints,

so that a coil substantially filling the casing can be introduced with ease, its ends being arranged to project through the open vertical joint, which can be afterward closed. Preferably a complete section of the casing, such as a vertical strip thereof, is formed separately from the remainder, this section being passed over the ends of the coil and this section and the coil being then put into place at the same time and the section fastened to the remainder of the casing to complete it.

The accompanying drawings illustrate a heater embodying the invention.

Figure 1 is a sectional view of the heater, showing the coil and connected parts in elevation. Fig. 2 is a view at right angles to Fig. 1, on a slightly larger scale, showing the heater assembled and before connecting the circulating-pipes. Fig. 3 is a section of Fig. 2 on the line 3 3. Fig. 4 is a plan before the application of the coil. Fig. 5 is an enlarged sectional view of one end of a coil.

Referring to the embodiment illustrated, A represents as a whole a double duplex coil—that is to say, two separate coils each consisting of a duplex pipe having an inner small steam-pipe surrounded by an outer large water-pipe. The steam enters from the train-pipe B to one or both of the small pipes C and D to heat the water in one or both halves of the radiating system, the steam being exhausted from the small pipes E and F and the trap G, or when a fire is built in the fire-box H of the heater, there being no steam-supply, the water in the coils is heated and by a suitable system of valves is circulated through one or both halves of the radiating system, passing from T's J K to an overhead tank L, thence through the radiating system, and finally back into the coil by way of T's M N. This is the well-known operation.

The outer pipes of the coil are closed at the outer sides of the T's J, K, L, and M by means of annular plugs O, Fig. 5, and packing-glands P. The inner pipe D projects beyond the fitting J sufficiently to make an easy connection with the circulating system. With the former construction of an unbroken casing it has been impossible to project the inner pipe D so far beyond the outer pipe Q, and it was necessary to introduce a coupling on

the inner pipe within the pipe Q or within the fitting J, (the latter being applied afterward, of course.) The enlargement of the outer diameter of the inner pipe due to the coupling necessitated making this inner pipe quite small in order to leave a sufficient passage for water between the two pipes. With the arrangement shown in Fig. 5 of an unbroken inner pipe the latter can be made larger or the outer pipe can be made smaller than with the old arrangement.

Having an open vertical joint or space in the wall of the casing, the coil is introduced endwise and the length of the ends beyond the diameter of the coil is unlimited. In the construction shown the two free vertical edges R of the casing proper are sufficiently separated to accommodate freely the ends of the two coils alongside each other, as indicated in Fig. 3, and the space between the vertical edges R is bridged by a plate or section S, which is formed separately from the remainder of the casing and afterward bolted or otherwise attached thereto. For the sake of convenience the two upper ends of the coil come out at the same side as the two lower ones, the four ends being passed through suitable holes in the plate S. The plate S, with the attached coil, is then slid longitudinally into place and connected, as by bolts T, to the edges R R of the body U of the casing, the edges R being thus drawn together and joined by the plate.

It will be seen that this construction facilitates very much the assemblage of the parts and puts no limitation whatever upon the relative sizes of the coil and casing or upon the length of the ends of the coils or the arrangement of the connections. Consequently the joints are better made and the entire construction is cheaper. The repairing of joints whenever necessary is also facilitated by reason of their accessibility.

Though I have described with great particularity of detail an apparatus embodying the invention, yet it is not to be understood therefrom that the invention is limited to the specific apparatus disclosed.

Various modifications thereof may be made in detail and in the arrangement and combination of the parts by those skilled in the art without departure from the invention.

What I claim is—

1. A heater comprising in combination a casing, and a coil extending continuously substantially from top to bottom within said casing, the upper and lower ends of said coil being passed through the upper and lower portions of a side of said casing respectively, said casing having a longitudinal section through which the ends of the coil pass and which is formed separately from the remainder, said coil being entirely supported by said

separately-formed section, and said entire coil with said section attached thereto being adapted for insertion into place or removal by an endwise movement thereof with respect to the casing.

2. A heater comprising in combination a casing, and a coil extending continuously substantially from top to bottom within said casing, the upper and lower ends of said coil being continuous without joints inside the casing and being passed through the upper and lower portions of said casing respectively, said casing fitting substantially around said coil and having a vertical joint through which said ends pass, the entire coil being adapted for insertion into place or removal by an endwise movement thereof with respect to the casing.

3. A heater comprising in combination a casing, and a coil in said casing made of two pipes one within the other, said coil having an end passing through a suitable aperture in said casing with the smaller pipe projecting out of and beyond the end of the larger, and said casing having a vertical joint through which said end passes, whereby the projecting ends of said coil are unlimited in length by said casing, and said casing fitting substantially closely around said coil and having a smooth inner face, the entire coil being adapted for insertion into place or removal by an endwise movement thereof with respect to the casing.

4. A heater comprising in combination a casing comprising a body portion U forming nearly a complete circumference and having a pair of vertical edges, a separately-formed narrow section S joining said edges, and a coil in said casing having its ends passing through said section S, said casing fitting substantially closely around said coil and having a smooth inner face, whereby said coil and attached section may be introduced into place by an endwise movement relatively to said body portion.

5. A heater comprising in combination a casing comprising a body portion U having a pair of vertical edges, a separately-formed section S joining said edges, and a coil in said casing made of two pipes Q and D, the latter within the former, said coil having an end passing through said section S with the pipe D projecting out of and beyond the end of the pipe R, whereby the projecting ends of said coil are unlimited in length by the casing and said casing fitting substantially closely around said coil and having a smooth inner face, whereby said coil and attached section may be introduced into place by an endwise movement relatively to said body portion.

6. A heater comprising in combination a casing and a coil extending continuously substantially from top to bottom within said casing, the upper and lower ends of the coil

being passed through the upper and lower portions of said casing respectively, and said casing having a vertical section through which said ends pass, said section and coil
5 adapted to be inserted in place or removed by an endwise movement thereof with respect to the casing.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD E. GOLD.

Witnesses:

DOMINGO A. USINO,
FRED WHITE.