

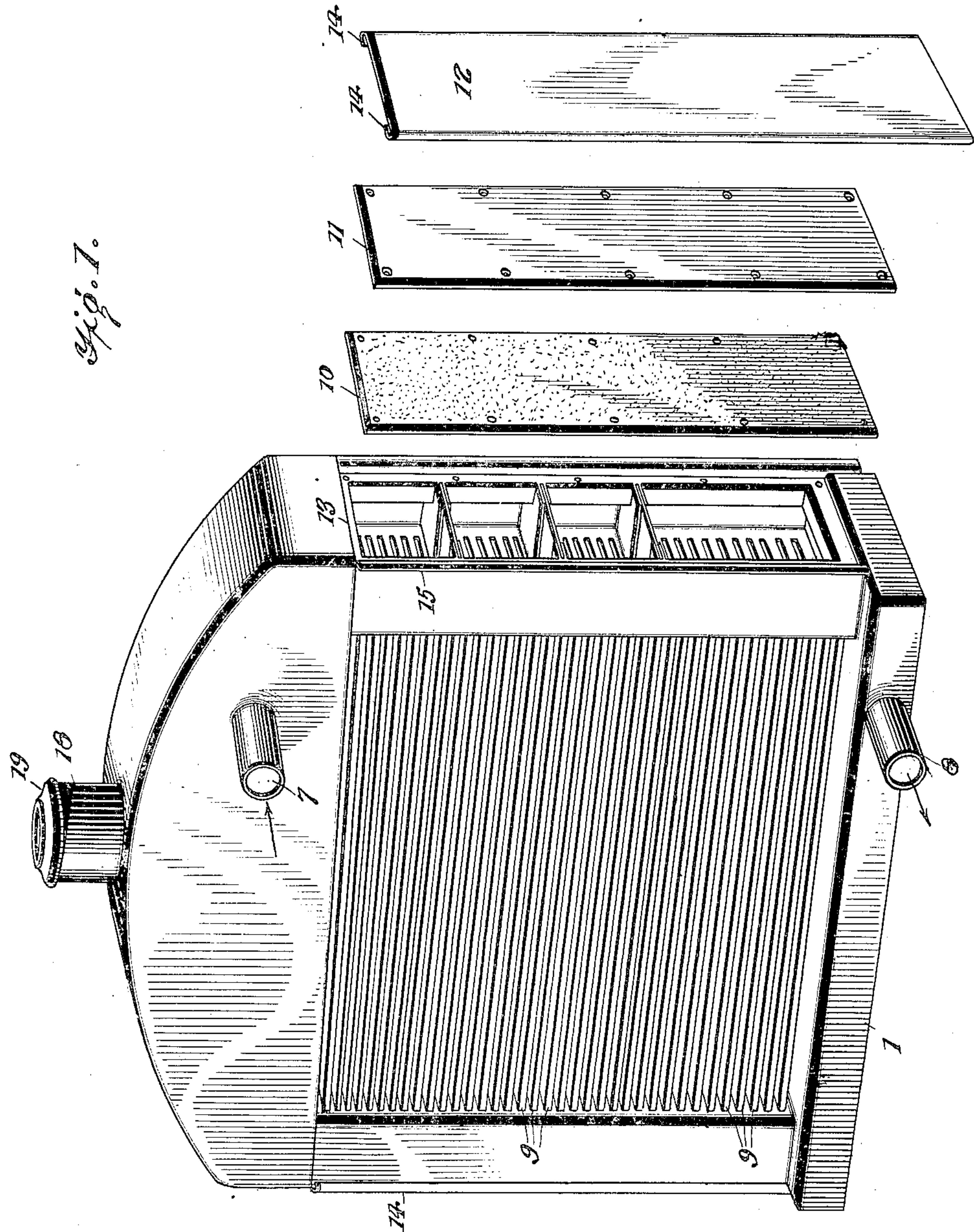
912,067.

O. T. BROWN.  
RADIATOR.

APPLICATION FILED AUG. 14, 1908.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 1.



WITNESSES

*L. H. Schmidt.*  
*O. E. Francis*

INVENTOR  
*ORLANDO T. BROWN,*  
BY *Mann & Co.*  
ATTORNEYS

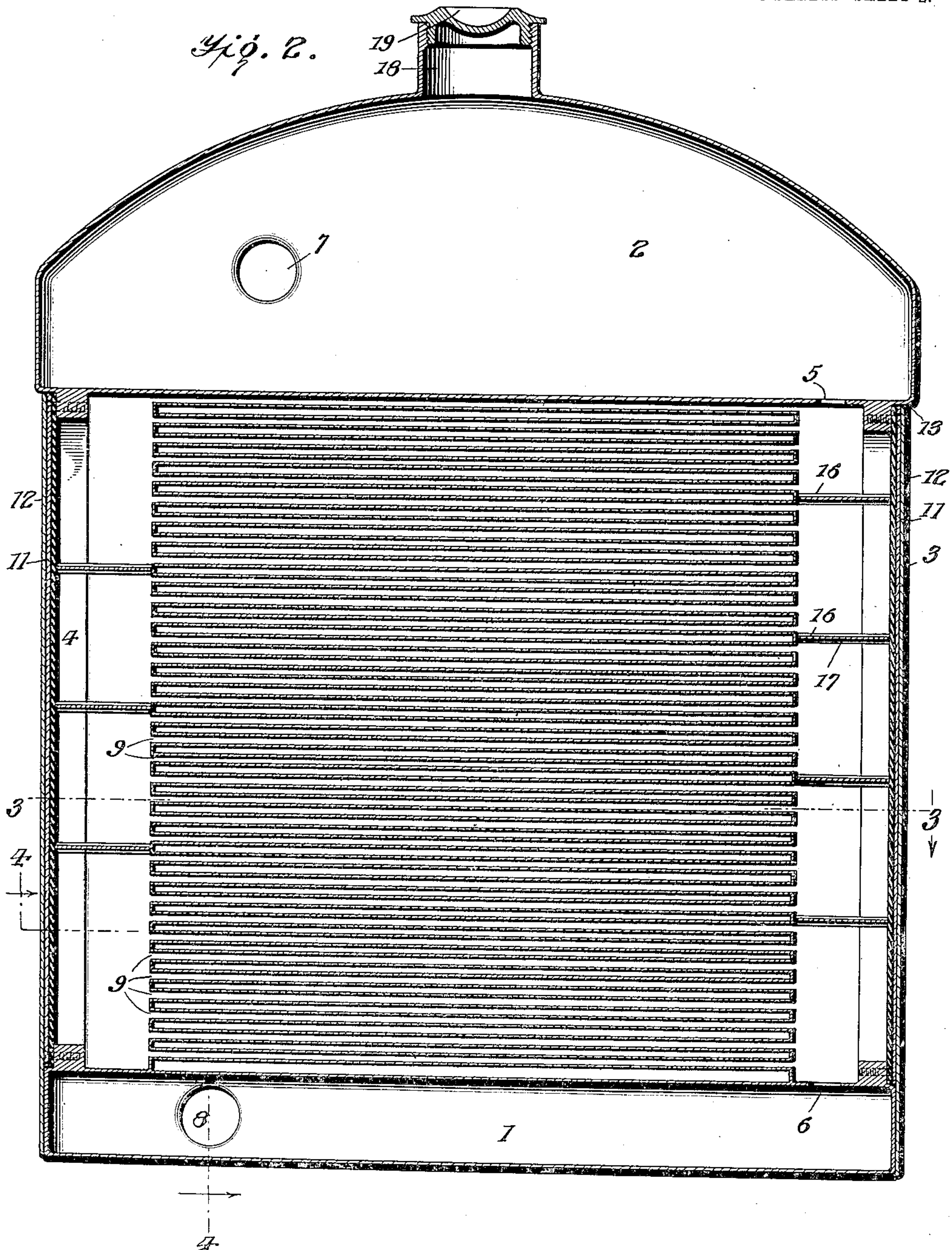
O. T. BROWN.  
RADIATOR.

APPLICATION FILED AUG. 14, 1908.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 2.

912,067.



WITNESSES

*L. H. Schmidt*  
*C. E. Fawcett*

INVENTOR

*ORLANDO T. BROWN,*

BY *Mumford & Co.*

ATTORNEYS.



912,067.

O. T. BROWN.  
RADIATOR.

APPLICATION FILED AUG. 14, 1908.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 3.

Fig. 5.

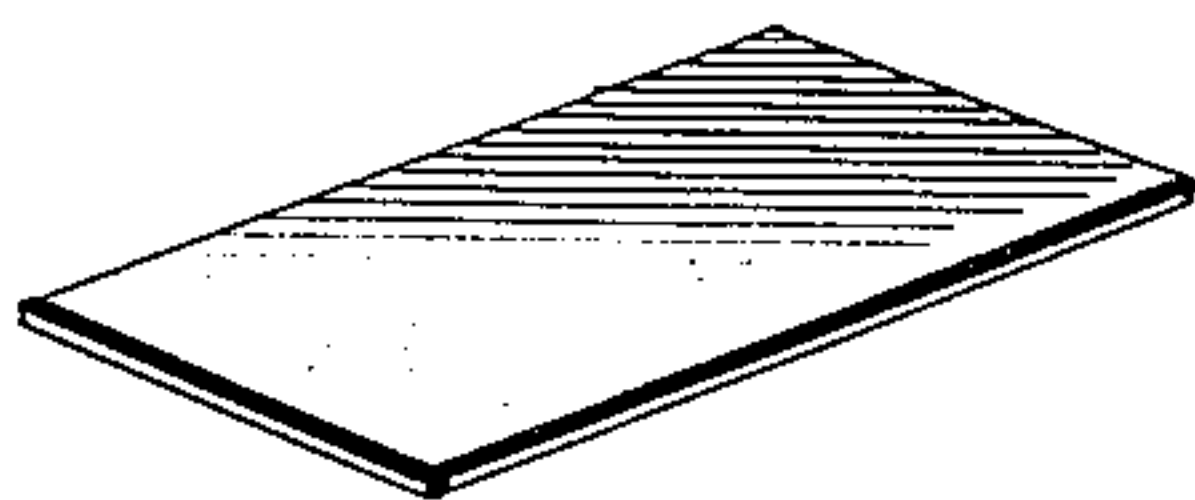


Fig. 4.

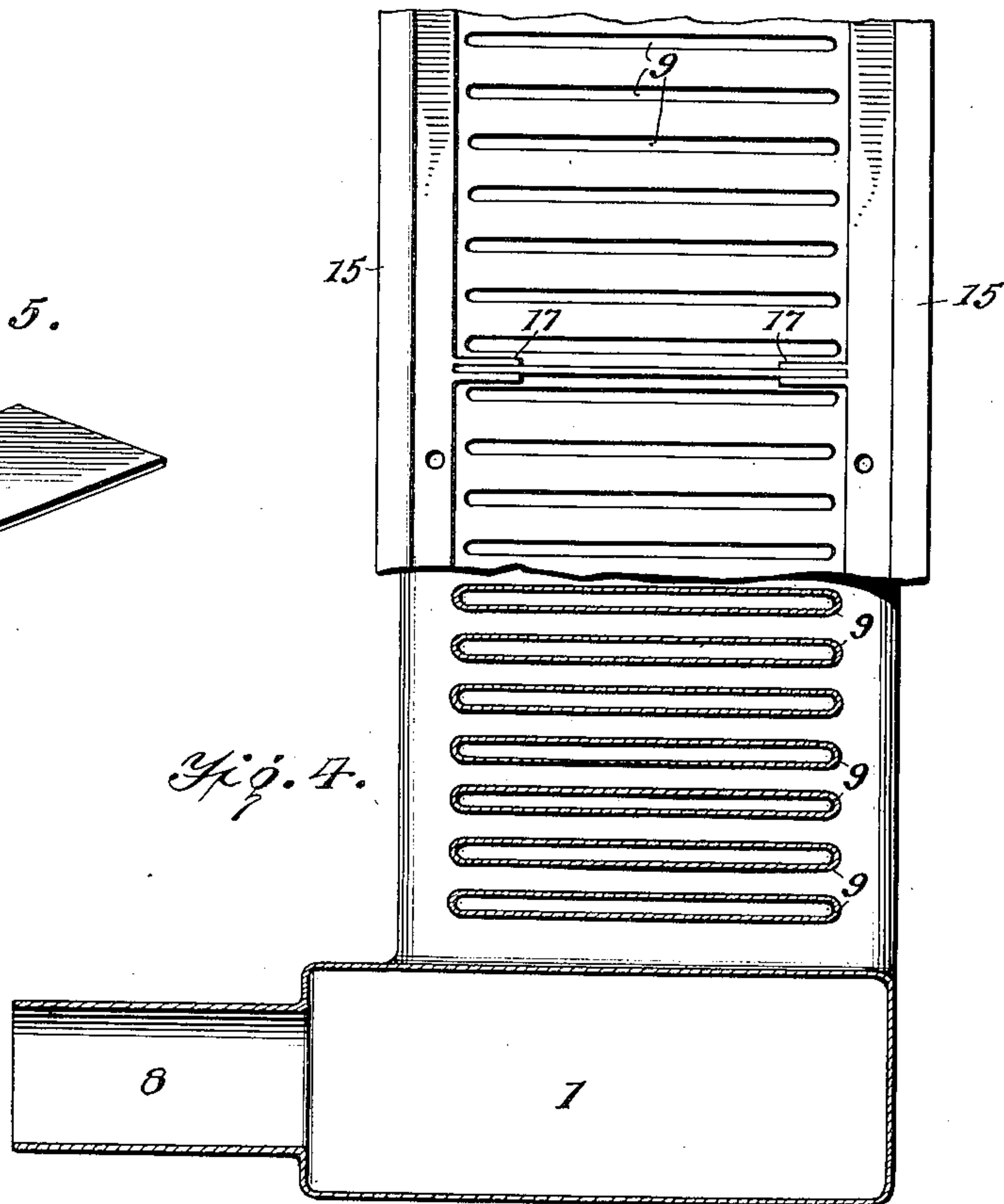
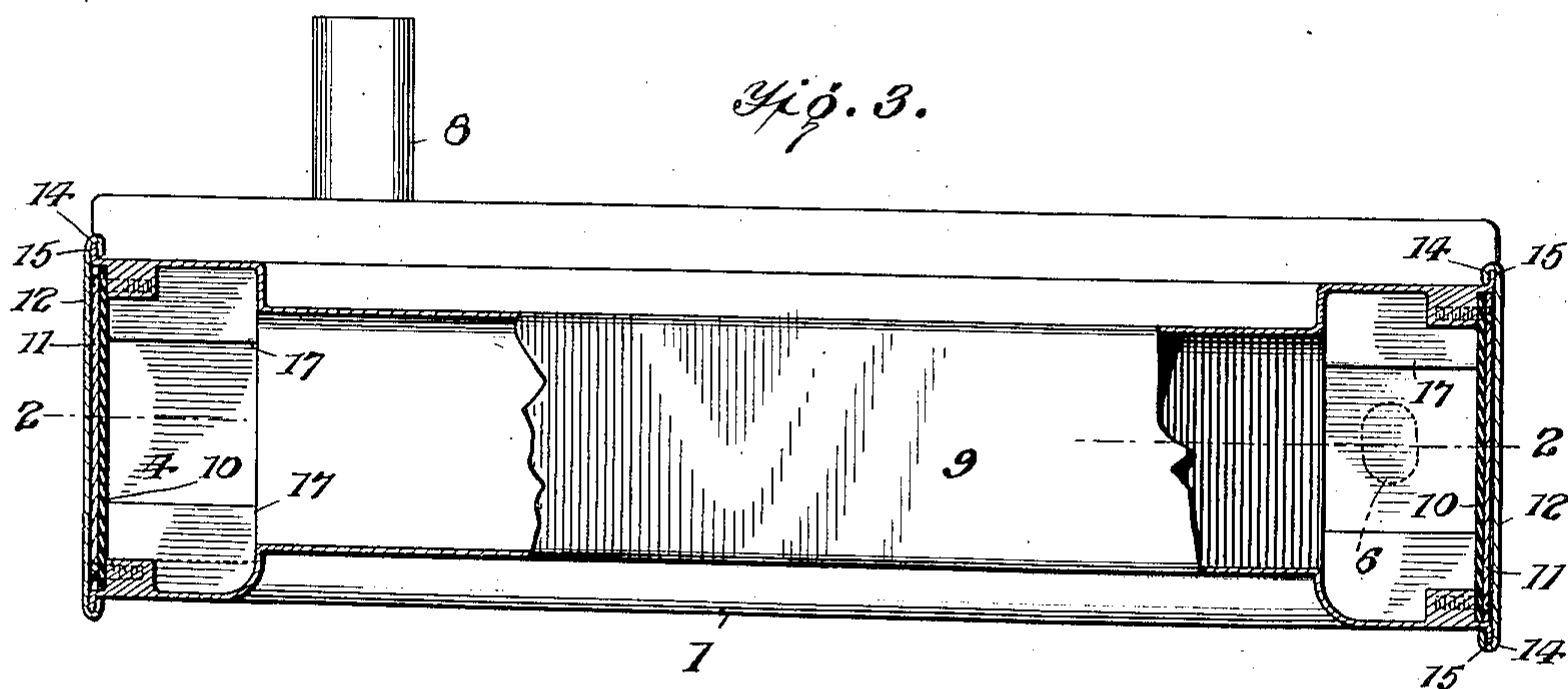


Fig. 3.



WITNESSES

L. H. Schmidt.  
C. E. Framer

INVENTOR  
ORLANDO T. BROWN,  
BY *Munn & Co.*  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ORLANDO THEODORE BROWN, OF NEW VIENNA, OHIO.

## RADIATOR.

No. 912,067.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed August 14, 1908. Serial No. 448,461.

*To all whom it may concern:*

Be it known that I, ORLANDO THEODORE BROWN, a citizen of the United States, and a resident of New Vienna, in the county of Clinton and State of Ohio, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention is an improvement in radiators, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of the improvement with one of the sides removed, Fig. 2 is a central longitudinal section, Fig. 3 is a section on the line 3—3 of Fig. 2, Fig. 4 is a section on the line 4—4 of Fig. 2, and Fig. 5 is a perspective view of one of the slides.

The present embodiment of the invention comprises an annular casing comprising a base 1, a top 2, and sides 3, 4, connecting the top with the base. The top 2 is connected by an opening 5 with the side chamber 3, and this chamber is connected with the base 1 by an opening 6. The chamber in the top 2 is provided with an inlet 7, and the chamber in the base is provided with an outlet 8. The sides 3 and 4, are connected by a plurality of flat tubes 9, the tubes being spaced apart from each other as shown in Figs. 2 and 5, and communicating at each end with the chambers in the sides 3 and 4. The outer sides of the side chambers 3 and 4 are open, and are normally closed by a cover, the cover consisting of an inner packing plate 10, an outer plate 11, and a sliding cover 12. The plates 10 and 11 are connected to the sides of the side chambers by screws 13, and the sliding cover 12 has its edges flanged as at 14, the flanged edges engaging lateral flanges 15 on the side walls. At intervals each of the side chambers is provided with transverse guide-ways 16, in which are movable slides 17 for a purpose to be presently described.

In operation, the fluid to be treated enters through the inlet 7, and passes from the chamber 2 through the opening 5 to the side chamber. The upper most slide 17 restrains the downward movement of the fluid constraining it to pass across through the tubes to the chamber 4, and the upper-most slide 17 in the chamber 4, constrains the fluid to return to the side chamber 3. The fluid is

thus compelled to travel backwards and forwards through the tubes until it reaches the bottom of the side chamber 3, and passes through the opening 6 into the base 1, leaving the radiator by the outlet 8. The radiator is provided with a nipple 18 at its top, in which is threaded a plug 19.

It will be evident from the description, that by changing the position of the slides 17, that the fluid may be caused to circulate through a greater or lesser travel. It is also evident that by properly arranging the slides, a portion of the tubes might be cut out from the direct travel of the fluid. The tubes are spaced apart from each other a sufficient distance, so that the air can circulate freely therebetween, and every part of the radiator is accessible without dismantling or disassembling the radiator. In case of breakage or damage to any one or more of the tubes, such tube can be closed without interfering with the flow of the fluid through the remaining tubes, thus permitting a closure of a leaking tube without loss of time in repairing.

I claim—

1. A radiator comprising a top and a bottom chamber, side chambers between the ends of the top and bottom chamber, a plurality of tubes extending between the side chambers, each of said side chambers having an open outer side, a cover normally closing the side, a plurality of guide-ways arranged transversely of each side chamber, and spaced apart from each other, and slides movable in the guide-ways for the purpose set forth, the top chamber being provided with an inlet, and the base chamber with an outlet, and a communication between the top and base chamber and one of the side chambers.

2. A radiator comprising a hollow annular frame, whose interior is divided into a plurality of chambers, tubes connecting opposite chambers in the frame, and removable slides in said opposite chamber for directing the fluid to be radiated through the various tubes.

3. A radiator comprising oppositely arranged chambers a plurality of tubes connecting the chambers with each other, guide-ways arranged transversely of the side chambers at spaced intervals, and slides movable in the guide-ways for the purpose set forth.

4. A radiator comprising oppositely arranged chambers, a plurality of tubes con-



necting the chambers, slides arranged transversely of the chambers at spaced intervals, the slides in one chamber being staggered with respect to the slides in the other chamber.

5 ber.  
5. A radiator comprising oppositely arranged chambers connected by a plurality of tubes, and means arranged transversely of the chambers at spaced intervals for preventing the passage of fluid through the  
10 chambers, said means in one chamber being staggered with respect to the means in the opposite chamber, said means being movable independently of each other for the purpose  
15 set forth.

6. A radiator comprising oppositely arranged chambers, a plurality of spaced tubes connecting the chambers, and means in the chambers for constraining the fluid to pass

from chamber to chamber through different  
20 sets of tubes, said means being movable independently of each other for the purpose set forth.

7. A radiator comprising a hollow substantially rectangular frame divided into  
25 pairs of oppositely arranged chambers, a plurality of tubes connecting the members of one pair of chambers, said chambers being provided with partitions for the purpose set forth, the partitions of one chamber  
30 being staggered with respect to the partitions of the other chamber and all of said partitions being independently removable for the purpose set forth.

ORLANDO THEODORE BROWN.

Witnesses:

A. B. DANIEL,  
S. W. DANIEL.