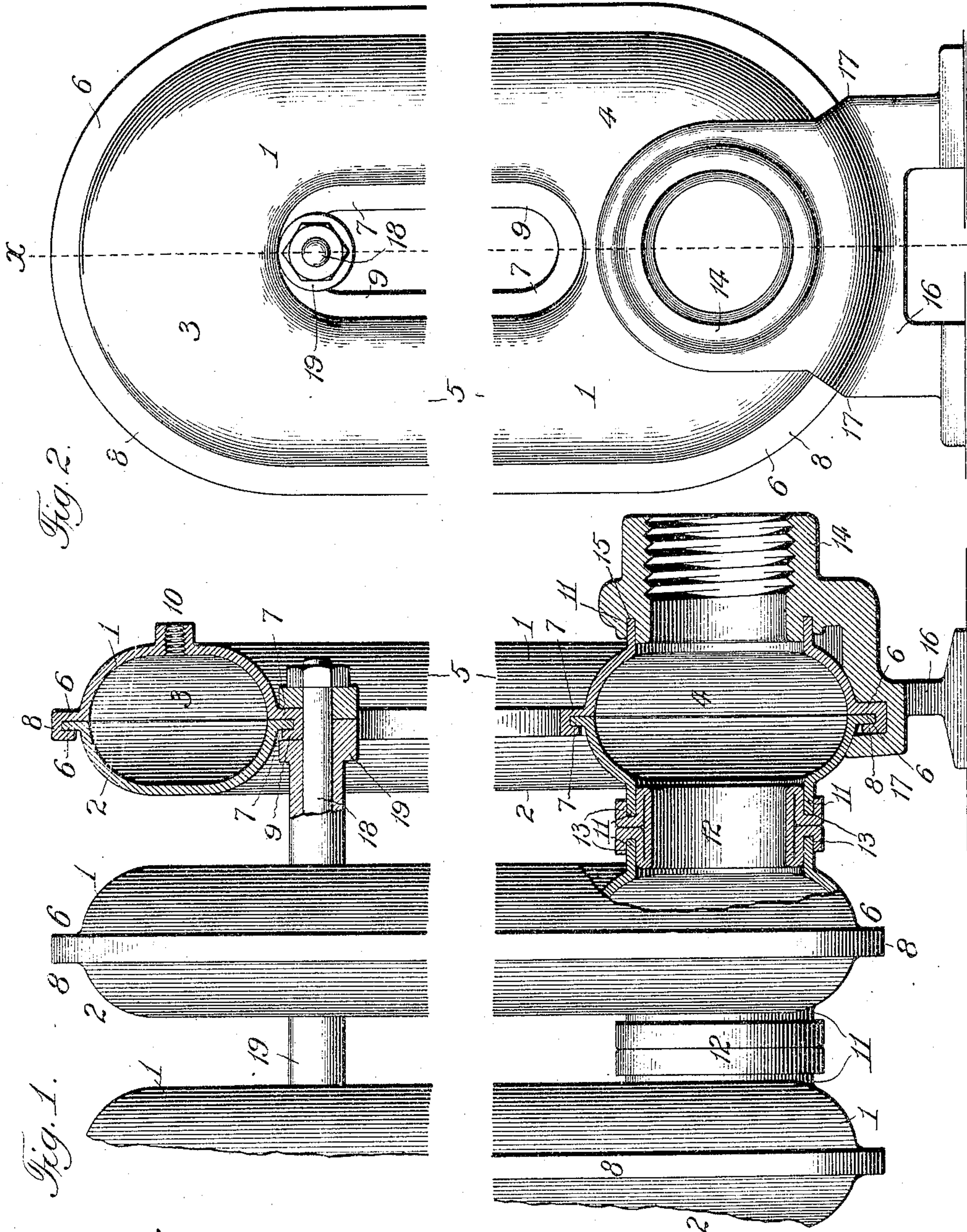


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A. MATHIS.  
RADIATOR.

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# UNITED STATES PATENT OFFICE.

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## RADIATOR.

SPECIFICATION forming part of Letters Patent No. 789,865, dated May 16, 1905.

Application filed April 25, 1904. Serial No. 204,739.

*To all whom it may concern:*

Be it known that I, AUGUST MATHIS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

The present invention relates to the manufacture of steam and hot-water radiators from plates of wrought metal, and has for its object to provide a simple and efficient structural formation and connection of parts whereby a steam-tight radiator construction is provided in a ready and economical manner, all as will hereinafter more fully appear and be more particularly pointed out in the claims.

In the accompanying drawings, illustrative of the present invention, Figure 1 is a fragmentary side elevation, partly in longitudinal section at line *x x*, Fig. 2, of a radiator involving the present improvement. Fig. 2 is an end elevation of the same.

Similar numerals of reference indicate like parts in both views.

As represented in the drawings, the radiator will comprise any required number of sections connected together in the usual vertical and separated relation and each section having an upper and a lower subchamber connected together by vertical connecting ducts or passages, as usual in the present type of radiators. In the present improvement the radiator-sections aforesaid are formed of sheets of wrought metal and have a structural formation and arrangement as follows: 1 and 2 are two substantially counterpart halves which when joined together as hereinafter set forth constitute one of the series of radiator-sections. Each of said halves comprises a plate of wrought metal formed in a suitable forming-press with an endless channel or depression, comprising in turn upper and lower concavities 3 and 4, connected together by a pair of separated vertical concavities 5, and with flat marginal attaching-flanges 6 and 7 at the inner and outer margins of the said concavities. In the present construction the marginal flanges of one of said halves will be of

greater width than the corresponding flanges of the companion half in order to afford material from which folds 8 and 9 are formed in seaming or joining the two halves together in a steam and water tight manner, and when so desired the seams or joints so formed can be brazed in any usual manner to afford greater tightness to the seams or joints. 10 is a neck formed at the upper end of one of the halves for the attachment of the air-valve usually employed on steam and like radiators. 11 represents central necks formed by the usual drawing process upon the lower portions of the halves 1 and 2 aforesaid to afford means for coupling the lower end of adjacent radiator-sections together, as well as for the attachment of the inlet and outlet necks of the radiator.

12 represents couplings formed of sections of wrought-metal tubing, the ends of which are folded in the manner shown in Fig. 1 of the drawings to form annular end sockets 13 for the reception of the necks 12 aforesaid, and in which sockets the said necks are permanently secured by brazing or other equivalent attaching means.

14 is an internally-screw-threaded neck formed with an annular end socket 15 for the reception of the outer central neck 12 of an outer radiator-section, and in which socket the said neck is permanently secured by brazing or other usual means.

16 is a supporting-foot for an end of the radiator and which in the preferred form of the present invention is made an integral part of the neck 14 and formed with a stirrup extension 17, in which the outer radiator-section rests to afford a substantial support to such end of the radiator. A like formation will be employed at the other end of the radiator, the one constituting the radiator-inlet and the other the radiator-outlet.

18 is a central tie-bolt extending longitudinally in a plane beneath the inner seams of the radiator-sections.

19 represents distance-collars arranged on the tie-bolt 18 and adapted to have endwise bearing against the depending flanges of the



radiator-sections, as shown in Fig. 1, to maintain the upper ends thereof in proper relative position.

The scope of the present invention involves the omission of the folded joint or seam 9 at the inner part of the radiator-sections and a continuation of the flanges 7 of the respective halves to form central webs which meet along their inner surfaces and are riveted or otherwise secured together.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A radiator comprising a series of sections, each in turn comprising two plate-metal halves formed with upper and lower concavities, a pair of vertical connecting-concavities, marginal flanges one of which is folded upon the other to form a connecting-seam, and central necks at the lower part of the said halves, and a wrought-metal coupling-sleeve folded to form annular end sockets for the reception of adjacent central necks, substantially as set forth.

2. A radiator comprising a series of sections, each in turn comprising two plate-metal halves formed with upper and lower concavities, a pair of vertical connecting-concavities, marginal inner and outer flanges folded upon each other to form inner and outer connecting-seams, and central necks at the lower part of said halves, and a wrought-metal coupling-sleeve folded to form annular end sockets for the reception of adjacent central necks, substantially as set forth.

3. A radiator comprising a series of sections, each in turn comprising two plate-metal halves formed with upper and lower concavities, a pair of vertical connecting-concavities, marginal flanges one of which is folded upon the other to form a connecting-seam, and central necks at the lower part of the said halves, means for coupling said central necks together, an internally-screw-threaded sleeve formed

with an end socket for the reception of a central neck at the outer side of an outer radiator-section, and a supporting-foot formed integrally with said sleeve, and provided with a stirrup portion for the reception of the lower end of a radiator-section, substantially as set forth.

4. A radiator comprising a series of sections, each in turn comprising two plate-metal halves formed with upper and lower concavities, a pair of vertical connecting-concavities, marginal inner and outer flanges folded upon each other to form inner and outer connecting-seams, and central necks at the lower part of said halves, means for coupling said central necks together, an internally-screw-threaded sleeve formed with an end socket for the reception of a central neck at the outer side of an outer radiator-section, and a supporting-foot formed integrally with said sleeve and provided with a stirrup portion for the reception of the lower end of a radiator-section, substantially as set forth.

5. A radiator comprising a series of sections, each in turn comprising two plate-metal halves formed with upper and lower concavities, a pair of vertical connecting-concavities, marginal inner and outer flanges folded upon each other to form inner and outer connecting-seams, and central necks at the lower part of said halves, means for coupling said central necks together, a central longitudinal tie-bolt arranged near the upper end of the radiator-sections, and distance-collars on said tie-bolt having recesses on their upper meeting edges for receiving the depending seams of the radiator-sections, substantially as set forth.

Signed at Chicago, Illinois, this 20th day of April, 1904.

AUGUST MATHIS.

Witnesses:

ROBERT BURNS,  
M. H. HOLMES.