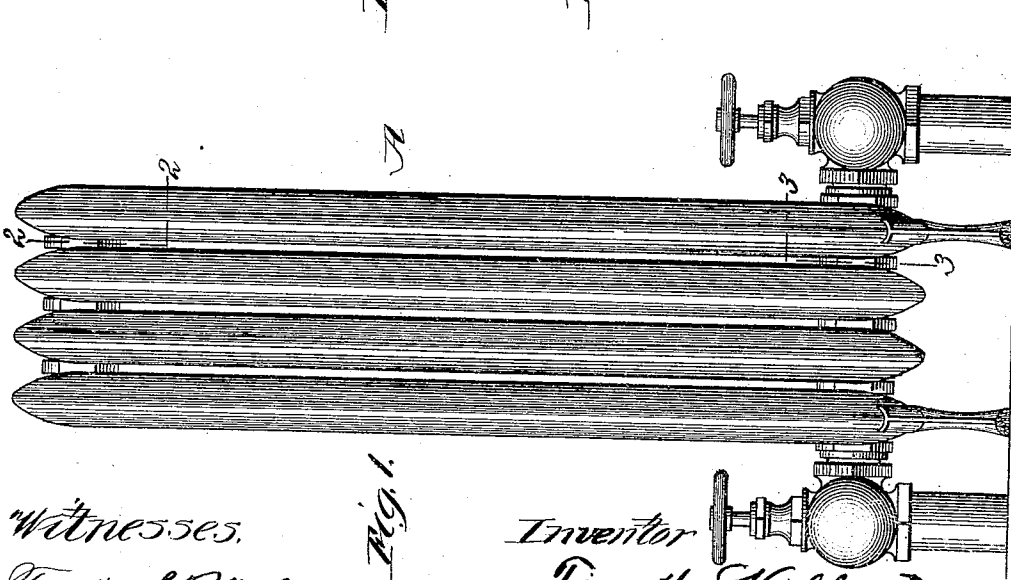
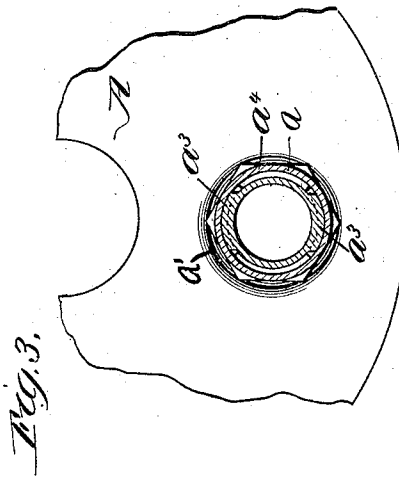
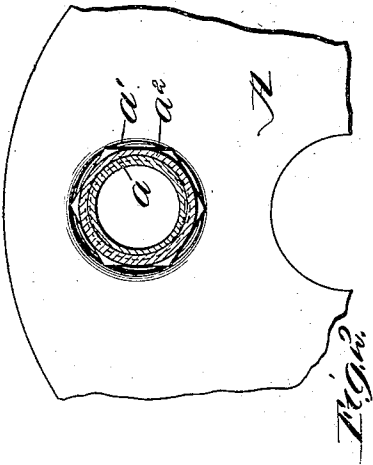
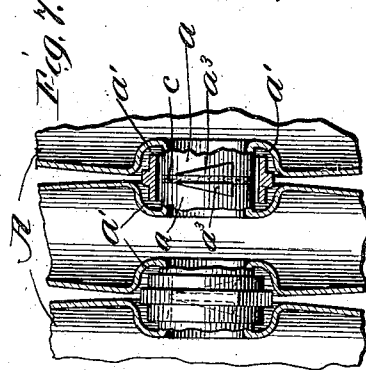
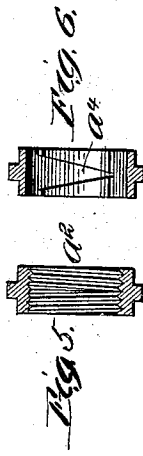
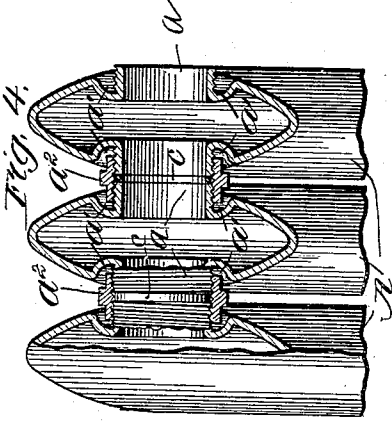


(No Model.)

T. HOLLAND.
RADIATOR.

No. 511,843.

Patented Jan. 2, 1894.



Witnesses.
Frank H. Wells.
Geo. A. Schwartz.

Inventor
Timothy Holland
By Jno. H. Whipple

W.H.

UNITED STATES PATENT OFFICE.

TIMOTHY HOLLAND, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE HOLLAND RADIATOR AND MANUFACTURING COMPANY, OF SAME PLACE.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 511,843, dated January 2, 1894.

Application filed April 23, 1892. Serial No. 430,293. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY HOLLAND, of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention relates to steam and hot water radiators and the object of my improvements is to simplify the means for compactly connecting the separate loops of the radiator. I attain this object by the means illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a hot water radiator containing my invention. Fig. 2 is a detail showing a fragment of an enlarged section on the line 2—2 of Fig. 1. Fig. 3 is an enlarged detail showing in fragment a section on the line 3—3. Fig. 4 is an enlarged detail showing the top part of a radiator containing three loops in fragment with their connections, some portions being shown in side elevation and others in section. Fig. 5 is a detail showing a central vertical section through a coupling nut. Fig. 6 is a similar view showing a modification. Fig. 7 is a detail showing a fragment of parts of three loops connected by the modification, an end view of the modified nipple used with this form, being shown in Fig. 3.

In the drawings, A designates the radiator loops all of which, but the two at the ends of the radiator, are provided with nipples a on opposite sides. The nipples are used at the top and bottom for water radiators and at the bottom only for steam radiators. Said nipples are hollow and communicate with the hollow of the loops at the bends, so as to form, when connected, openings for the passage of steam or water from loop to loop. A recess a' surrounds the base of each nipple; and the nipple on one loop is threaded with a right hand thread and that on the opposite loop with a left hand thread. The top of the nipple is leveled so that when the two on opposite loops are brought together they will fit. The nipples on opposite loops are connected by a thimble or nut a^2 which has a right hand thread in one part and a left hand thread in the opposite part so that when turned on the nipple threads, they will draw said nipples together, causing their leveled ends to meet.

The nuts enter the recesses a' surrounding the base of the nipples on both sides in order to bring the loops to the requisite proximity to one another, it being desirable to have them not more than a half inch apart. The loops with the threaded nipples on opposite sides can be cast integral so that the only finishing required to fit them for use is the leveling up of the ends of the nipples to make them fit as described. The nuts can also be cast with the threads ready for use. A gasket or packing ring c is applied between the leveled ends to form a sufficiently tight joint.

As an equivalent for the threads on the nipples and nuts, lugs a^3 may be used on the nipples, having oppositely inclined faces. The two lugs on opposite nipples when brought together form a divided wedge as seen in Fig. 7 which is adapted to enter a V-groove a^4 in a raised part of the interior of the thimble; there being a pair of said lugs meeting on opposite sides of the two nipples when brought together as described and two of said V-grooves arranged one on each side of the thimble, the part of the opening of the nut between said raised parts in which the V-grooves are formed, being large enough to pass over the lugs a^3 so that, when the nipples are entered, the thimble can be turned a quarter around to cause the said divided wedge to enter the V-groove and draw the opposite nipples together.

A thin wrench, adapted to be applied between the loops and to engage the nuts, is to be used to turn the same for connecting and disconnecting the loops. Such means for connecting the loops is intended to be used either at the bottom or top or at both bottom and top of the radiators as desired.

What I claim is—

1. A radiator composed of a series of cast metal loops each having a recess opposite to and facing its adjacent fellow and a hollow nipple rising out of the central part of such recess, peripheral projections on said nipples provided with acting faces having opposite inclination to the nipple axes, and coupling nuts provided with interior peripheral grooves in one end inclined to the right and in the opposite end inclined to the left, the ends of said nuts being adapted to enter the recesses

of said loops, substantially as and for the purpose specified.

2. A radiator composed of a series of cast metal loops each having a recess opposite to
5 and facing its adjacent fellow, a hollow nipple rising out of the central part of such recess, peripheral projections on said nipples provided with acting faces having opposite
10 inclination to the nipple axes, a gasket adapted to be applied between the ends of said nipples, and a coupling nut provided with

interior peripheral grooves adapted to the peripheral projections on said nipples, said grooves in one end of said nut being inclined to the left and in the opposite end to the right, 15 and the ends of said nuts being adapted to enter the recesses of the loop as and for the purpose specified.

TIMOTHY HOLLAND.

Witnesses:

WM. R. GRISWOLD, Jr.,
JOHN H. WHIPPLE.