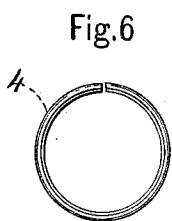
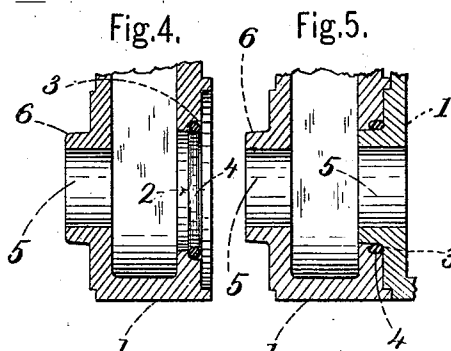
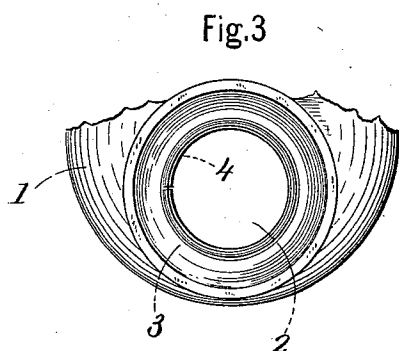
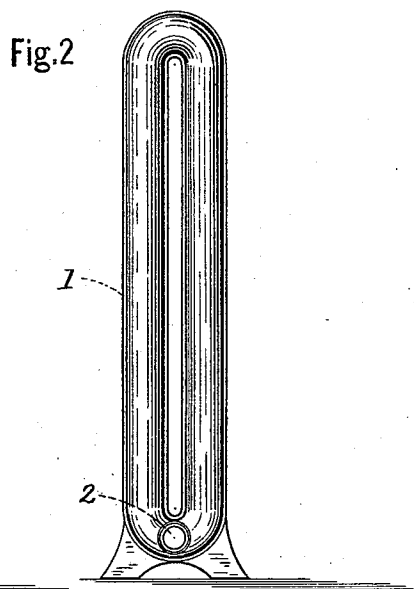
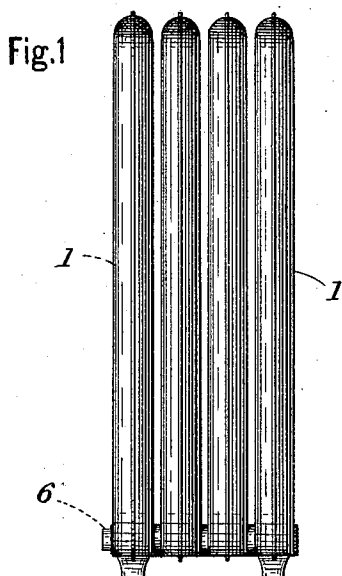


(No Model.)

W. F. BRYANT.
RADIATOR.

No. 563,357.

Patented July 7, 1896.



Witnesses.

H. C. Kern
J. M. Caldwell.

Walter F. Bryant, Inventor.
By *James Sangster*,
Attorney.

UNITED STATES PATENT OFFICE.

WALTER F. BRYANT, OF BUFFALO, NEW YORK, ASSIGNOR TO THE
BRYANT IRON WORKS COMPANY, OF SAME PLACE.

RADIATOR.

SPECIFICATION forming part of Letters Patent No. 563,357, dated July 7, 1896.

Application filed January 25, 1893. Serial No. 459,637. (No model.)

To all whom it may concern:

Be it known that I, WALTER F. BRYANT, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

My invention relates to an improved means for securing the sections of a radiator together, and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a series of radiator-sections put together by my improved means. Fig. 2 is an end elevation of Fig. 1, showing a side elevation of a radiator-section. Fig. 3 represents an enlarged portion of a radiator-section, showing the opening with an iron packing-ring in place preparatory to securing another section to it. Fig. 4 is a transverse central section through the lower portion of a radiator-section, cutting also through the packing-ring. Fig. 5 is a central section through the lower portion of one and through a portion of the lower part of another radiator-section, showing the mode or means for connecting two radiator-sections rigidly together. Fig. 6 represents a side elevation of a packing-ring.

The object of my invention is to provide a cheap and effectual means for rigidly securing the sections of steam-radiators together, and to that end I employ a packing-ring of a material as hard, or substantially so, as the material of which the radiator-sections are made.

Referring to said drawings, 1 represents the radiator-section, having an opening 2 on one side provided with a surrounding inner recess 3, into which an iron ring 4 is placed. This ring is round in cross-section. (Common iron wire may be used.) The object in making this ring of round wire is that a tight joint is formed by it, where a flat ring of even softer metal could not be made to operate. The opposite side of the section is provided with another opening 5, having an outwardly-projecting nipple 6, which is made tapering, so that the outer end is adapted to pass into the ring and opening of an adjacent section

and is then forced into place, as shown in Fig. 5, by hydraulic force or other suitable means, whereby the iron ring is compressed and flattened by the pressure, so that the parts are held firmly together. The projecting nipple is cast as smoothly as possible, as well as the other portions of the section, and without any further finishing they are all securely fastened together, as above mentioned.

To insure the nipple 6 being sufficiently hard and smooth, it is cast in a chill (of iron) at the same time the body is cast. The iron ring, being of round wire or substantially round in cross-section, renders it possible to use two similar metals of substantially the same hardness for this purpose, whereas a comparatively wide flat ring of similar material and of the same hardness could not be used to form a good joint without so great an increase of pressure as would be liable to injure the parts desired to be put together. The packing-ring and section being of the same material, the expansion and contraction is the same, so that the joint is very durable as well as strong. This is an important feature in my device. When the packing-ring is of soft metal and the parts to be joined are of hard metal, the joint cannot be as strong as it would be if the packing was of a similar metal of the same hardness.

It is well known that two dissimilar metals expand and shrink differently by such changes of temperature as a radiator is subjected to. Consequently the joint is liable by continued heating and cooling to become leaky and unfit for the use it was intended for. By making the parts to be joined together and the packing-ring of the same metal and substantially round in cross-section, the objections above mentioned are avoided.

I am aware that tapering nipples and corresponding tapering sockets have heretofore been used with a comparatively wide and flat packing ring of softer material than the point to be packed and the parts put together with heavy pressure. I therefore do not claim such construction; but

What I do claim is—

A radiator-section having on one side a tapering nipple and on the other side a cor-

responding opening, in combination with a
similar section having its nipple extending
into the said opening of the first section, and
a ring round in cross-section, surrounding said
5 nipple, and adapted to be compressed when
the two sections are united, the said ring
being composed of hard material and having

substantially the same coefficient of expan-
sibility as the radiator-sections.

WALTER F. BRYANT.

Witnesses:

JAMES SANGSTER,

JENNIE M. CALDWELL.