

UNITED STATES PATENT OFFICE.

WILLIAM KANE, OF PHILADELPHIA, PENNSYLVANIA.

STEAM OR HOT-WATER RADIATOR.

933,371.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed September 11, 1908. Serial No. 452,633.

To all whom it may concern:

Be it known that I, WILLIAM KANE, a citizen of the United States, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in Steam or Hot-Water Radiators, of which the following is a specification.

My invention has reference to steam or hot water radiators and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings which form a part thereof.

The object of my invention is two-fold, namely, to provide a simple, cheap and efficient construction of radiator suitable for heating purposes by use of steam or hot water, and secondly, to so construct the radiator that it may be readily dismantled into its several parts and after shipment to its destination, set up or erected by any mechanic of ordinary intelligence. The particular advantage in this latter capacity lies in the fact that the parts of the radiator may be shipped by freight as unfinished goods at low cost and the radiator erected by the proper assemblage of its parts at place of use.

My invention consists of two hollow heads connected by pipes, and combined with detachable radiating sections clamped upon the tubes and located between the heads, said sections consisting of a semi-cylindrical hub having a series of thin parallel plates or ribs radiating from the hub.

My invention further consists of two hollow heads having apertures for supplying heating fluid thereto, combined with a plurality of connecting tubes having their ends screwed into heads for uniting them, one end of each of the tubes being provided with a short screw thread which forms a tight joint with one of the heads and the other end being provided with a long screw thread which forms an adjustable joint with the other head, packing around the long screw threads, and nuts screwed upon the long threads for compressing the packing between the head and nuts to make tight joints.

My invention also comprehends details of construction which, together with the features above specified, will be better understood by reference to the drawings, in which:

Figure 1 is a front elevation of a radiator embodying my invention; Fig. 2 is an end

elevation of the same; Fig. 3 is sectional plan view of a portion of the same; and Fig. 4 is a cross section of one of the tubes and radiator sections taken on line $x-x$ of Fig. 3.

2 are the hollow heads and are formed of cast metal. These heads are provided on the bottom with feet 3, on the outside with tubular hubs 5 at top and bottom and on the inside with a plurality of holes into which connecting tubes 4 are screwed. The general thickness of these heads may be small except where the hubs come, as indicated in Fig. 3. Ordinarily, there are two tubular hubs or ports on the outside of each head and one of these is closed by a plug 6 where the radiator is to be used alone. The steam and hot water may be supplied by these tubular hubs in any way desired and by shifting the plugs 6, the supply and return connections may be reversed or arranged on the same level.

The horizontal tubes 4 are of ordinary steam pipe and have one end formed with a short taper thread which is tightly screwed into the holes in the inner face of one of the heads 2 as shown at the right hand side of Fig. 1, and their other ends are provided with a long screw thread (Fig. 3) which are adjustably screwed into the holes upon the inner face of the other head 2. The joints in this latter case are made tight by a textile or other packing 14 and a compression nut 15 on the tube and by which the packing is compressed between the head and nut.

In uniting the heads by the tubes, the following operation is employed. The tubes 4, with their nuts 15 and packing washers 14 in place, are first screwed into the left hand head 2 a considerable distance; next, the other or right hand head 2 is placed in position and the short screw threaded ends of the tubes are then screwed into the holes in said right hand head, until they make a tight joint and during which operation they are being unscrewed from the left hand head; and the nuts 15 are then screwed toward the left hand head until they clamp the packing 14 tightly in place and form tight joints, as indicated in Fig. 3. The frame, so produced, is a tubular structure having vertical and horizontal tubular parts and may be used in this condition as a radiator. It has the disadvantage however of having too smooth an outer surface in contact with the

air and to overcome this, I provide removable cast metal radiating sections 8 which are clamped in position about the horizontal tubes 4. These radiating sections 8 consist of a long semi-cylindrical hub part 9 which is grooved to snugly fit the outer surface of the tubes 4 and said hub part is provided with a series of parallel radial plates or ribs 10. Two of such sections 8 may be clamped about the tube 4 to inclose it and provide it with radiating surfaces so necessary in steam or hot water radiators. The parts are so shaped that the plates 10 of two sections clamped upon one pipe form, as it were, a series of surrounding thin parallel radiating ribs thereby providing the greatest radiating surface possible. These sections 8 may be clamped together by bolts 13, passing through perforated flanges or webs 12 between the radial plates 10 as shown in Figs. 3 and 4. By making these sections 8 as separate castings, I am enabled to secure radiating plates or ribs 10 of great area and no machine work or expensive fitting is necessary in combining them with the tubes 4. On the two upper tubes 4, in Fig. 1, I have shown the sections 8 as of a length to fit between the heads 2, but on the lower tube I have shown the use of four sections each being in length approximately half the distance between the heads. By employing a large number of plates or ribs 10 and making them of considerable area I am enabled to cast the sections 8 of great length without warping or twisting, and may thus cover the tubes 4 with the fewest number of parts possible.

To increase the heating effect and also to improve the appearance of the radiator as a whole, I provide the heads 2 with ribs 7 upon opposite sides and at extreme top to correspond in shape and position with the plates or ribs 10 of the radiating sections 8.

I have shown a most inexpensive manner of attaching the sections 8 upon the tubes, but it is to be understood that they may be secured in position in any other convenient manner, if so desired. The two sections 8, when placed about the tube 4, preferably do not quite meet, so that the clamping screws 13 may be made to draw the parts together and tightly in contact with the smooth outer surface of the tubes 4 and thus avoid loss of radiation due to poor conducting contact between the parts 4 and 9.

It will now be evident that by removing the bolts 13 and loosening the nuts 15, the several parts of the radiator may be separated for shipment. Any mechanic of ordinary intelligence may assemble the parts to erect the radiator. The radiator here shown may be used as a unit or may be connected with similar radiators in the manner of the well known wall radiators, as the four tubular outlets 5 give provision for such use where desired.

I have shown my invention in the form in which I have found it most excellently adapted for commercial use and while I prefer the construction shown, the details thereof may be modified without departing from the spirit of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a radiator, the combination of the two tubular heads having a series of laterally projecting ribs 7, with connecting tubes screwed into the heads adjacent to the ribs thereof, and detachable radiating sections clamped upon the tubes and each consisting of hub portion fitting the tubes and provided with a plurality of integral radial parallel plates 10 corresponding to and in alinement with the ribs 7 on the heads.
2. A tubular head for a radiator consisting of the closed vertical tubular body 2 having feet 3 at one end, an aperture upon one face for supply of steam or hot water, a plurality of apertures on the other face, and lateral projecting ribs 7 extending from the sides of the body adjacent to the plurality of apertures.

3. A radiating section for a radiator consisting of a long grooved body 9 having a large number of parallel radial plates 10 cast integrally with the grooved body and extending therefrom on the side opposite to the groove and having a plurality of clamping flanges 12 each interposed between and integral with two radial plates and adjacent to the grooved body part so that they are shielded by the plates and the latter extend beyond the flanges.

In testimony of which invention, I have hereunto set my hand.

WILLIAM KANE.

Witnesses:

R. M. HUNTER,
R. M. KELLY.