(No Model.)

G. L. ALLEN.

CONSTRUCTION OF CAST IRON RADIATORS.

No. 485,757. Patented Nov. 8, 1892.

FIG. 1

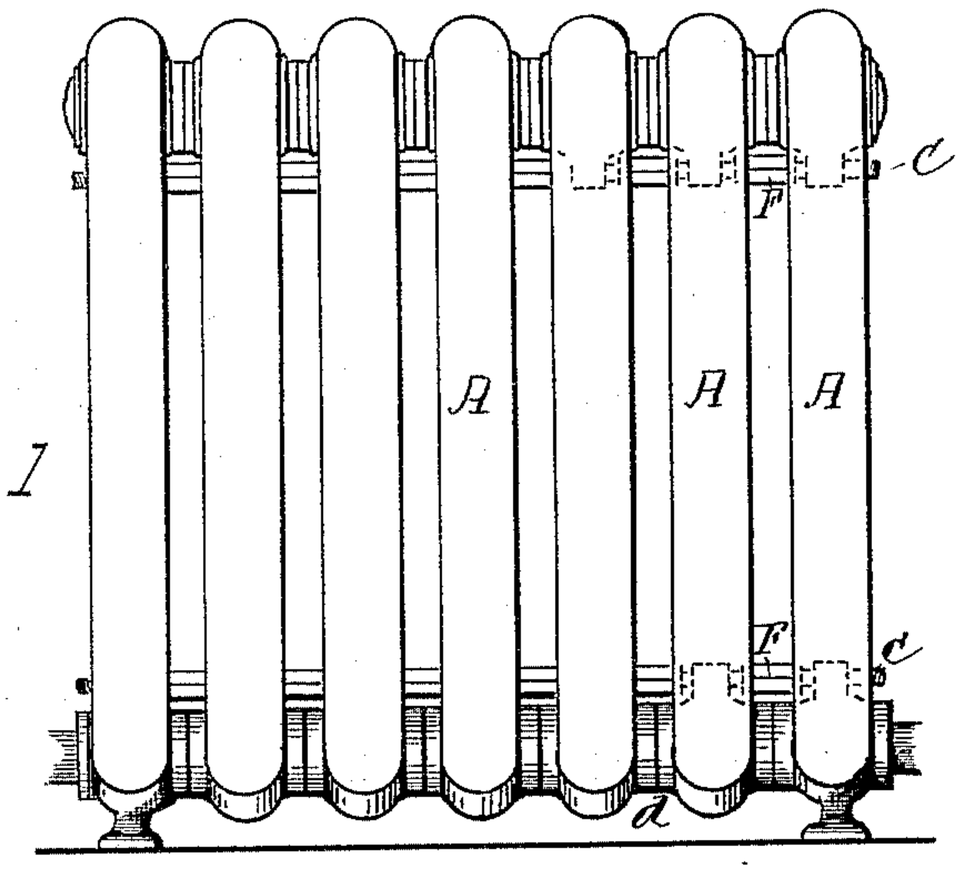


FIG. 2

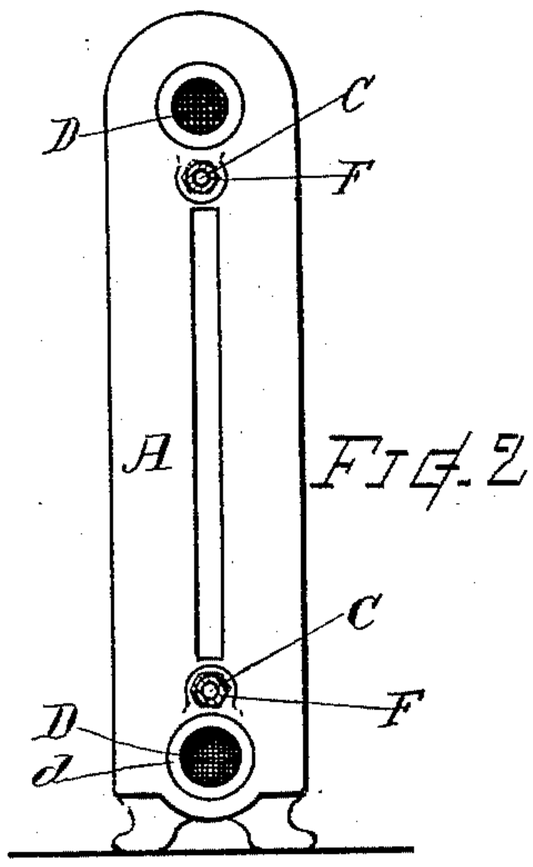
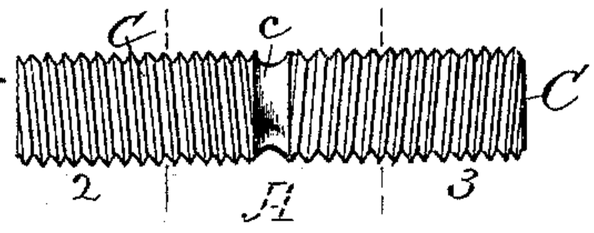


FIG. 5



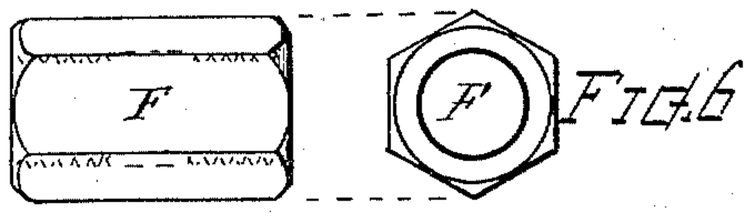


FIG. 6

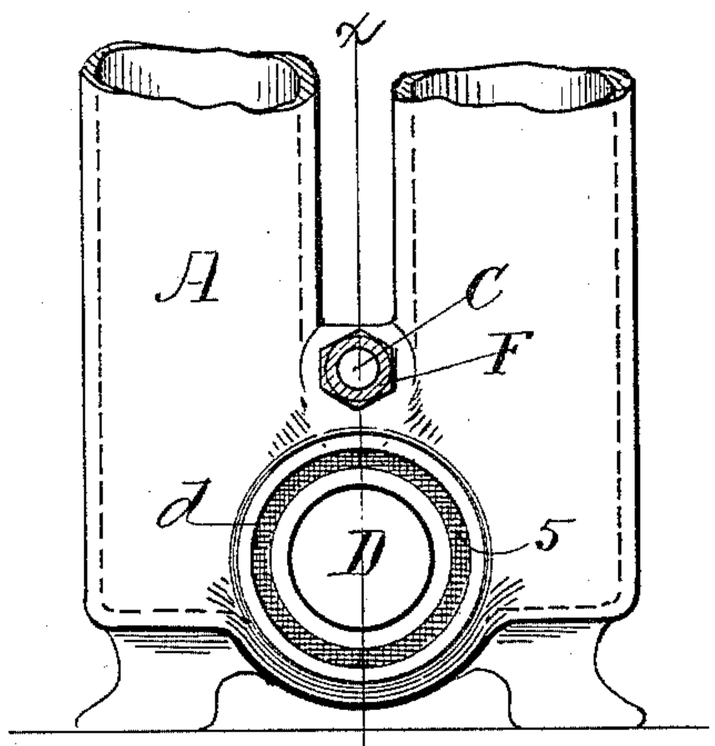


FIG. 3

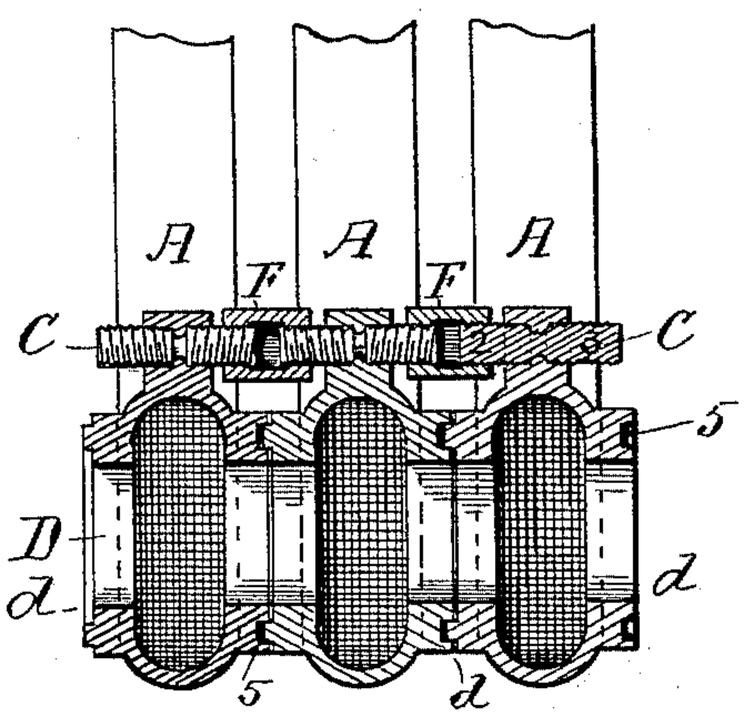


FIG. 4

Witnesses.

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CONSTRUCTION OF CAST-IRON RADIATORS.

SPECIFICATION forming part of Letters Patent No. 485,757, dated November 8, 1892.

Application filed April 26, 1892. Serial No. 430,470. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. ALLEN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in the Construction of Cast-Iron Radiators, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My present invention relates to that class of radiators for steam or water heating which are composed of a series of cast-iron sections or hollow loops disposed side by side and joined together in a group of greater or less numbers with communicating passages extending laterally from one section to another within the group, my invention being an improvement in the construction and arrangement of the devices whereby the adjacent sections are secured to each other, and consisting in the peculiar structure of the right and left threaded parts and the manner of combining the same with the sections and their intermatching joints, as shown and described.

The objects of my invention are to facilitate the manufacture and to reduce the labor and cost of production; also, to afford a better and more desirable means for connecting the sections together than heretofore employed.

In the drawings, Figure 1 is a side view of a radiator embracing my improvements. Fig. 2 is a section of the same. Fig. 3 is a transverse view of the lower part of a section on a somewhat larger scale. Fig. 4 is a longitudinal vertical section through the lower connecting-joints. Fig. 5 is a separate side view of the threaded stud on somewhat larger scale, and Fig. 6 shows a side and end of the coupling-sleeve.

In accordance with my improvements the sections A are each provided with a right and left threaded stud C, which is formed substantially as shown in Fig. 5, with a shoulder, depression, or groove *c* about its center between the threaded ends 2 and 3, and said stud is rigidly secured in the web of the section by having its grooved central part embedded in the casting, the cast metal embracing the groove and a portion of the threads, while the opposite ends 2 and 3 of the stud C project at either side of the section in the manner illustrated. The studs C are first formed and threaded and are then placed in the mold to be surrounded and held by the molten metal when casting the sections, thus making the studs practically integral with the body of the section. The joint-surfaces *d* around the openings or passways D where the sections A abut against each other are shaped to intermatch and have a groove to receive a packing 5, so as to form a tight joint between the faces without other fitting than the ordinary cleaning of the castings.

Internally right and left threaded couplings F are provided for securing and drawing the adjacent sections together when the sections are assembled to form the radiator. Said couplings screw onto the approaching ends 2 and 3 of the oppositely-projecting studs C in the manner shown and can readily be turned up tight by a suitable wrench or pipe-tongs inserted between the adjacent sections. The upper and lower ends of the sections can be connected in like manner, as indicated.

Among the advantages attained by the improved construction herein presented may be noted the practical efficiency of the connection and the ease and facility of manufacture. The fitting and threading is all performed on the small parts, studs, and couplings, which can easily be handled and readily shaped and fitted in ordinary lathes or in machines specially designed therefor before applying them to the sections. Then there is no drilling, tapping, or fitting required upon the sections before assembling. Consequently the handling of the heavy cast-iron sections is avoided and the labor and expense of production is thus greatly reduced. A very convenient, neat, and desirable connection is afforded, one that is practical for construction and assemblage without necessitating careful and accurate laying off and tapping out openings in the castings for the threads to insure proper closing together of the abutting joints, and there is no liability of subsequent leakage of the radiator occasioned by expansion and contraction when put to use.

I am aware that radiators have heretofore been made in which the sections were joined

together by right and left threaded nipples screwed into the connecting passages, also by right and left threaded solid bolts, the ends of which were screwed into tapped openings formed in the body of the radiator-sections. I do not, therefore, claim such constructions, nor the connection by right and left threads, except when the connecting parts are made in the peculiar and improved manner hereinbefore set forth.

I claim as my invention herein, to be secured by Letters Patent—

1. A radiator-section provided with the right and left threaded stud having its central portion rigidly fixed or embedded in the casting of the section and extending through the web in the manner set forth, with its right and left threaded ends projecting at either side thereof, in combination with the adjacent radiator-section and the tubular right and left threaded coupling joining said stud to the stud of the adjacent section, as shown and described.

2. The improvement in the construction of cast-iron radiators, which consists in the combination, with the cast sections having packing-joint surfaces about their openings, adapted for matching or abutting laterally against corresponding surfaces on the adjacent sections, of the oppositely-projecting right and left threaded studs having their central part embedded in the web or casting adjacent to the abutting joints and the internally-threaded couplings engaging the threaded ends of two adjacent studs, all substantially as and for the purpose shown and described.

Witness my hand this 15th day of April, A. D. 1892.

GEORGE L. ALLEN.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.