

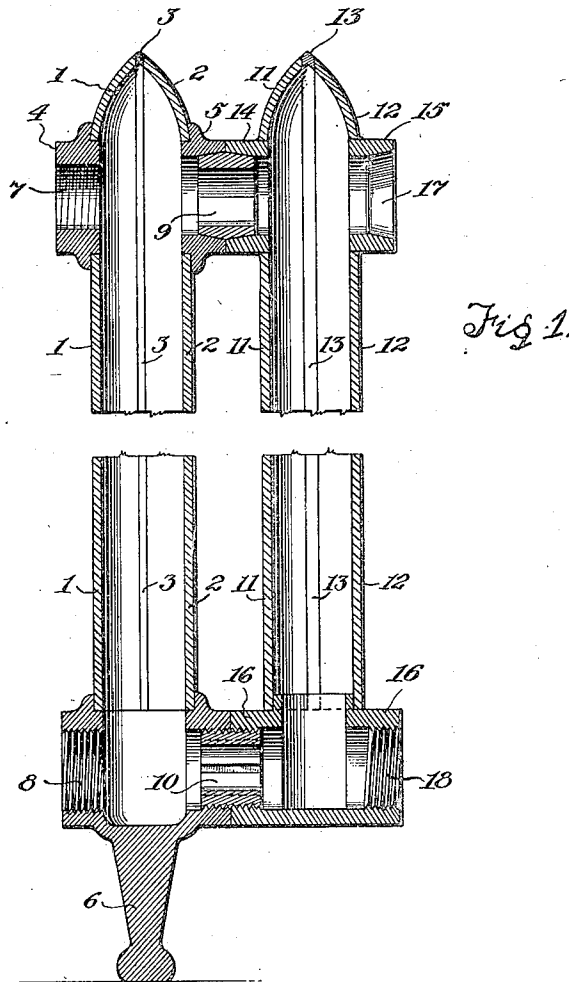
Nov. 13, 1923.

1,473,670

D. N. CROSTHWAIT, SR
METHOD OF FORMING RADIATORS

Filed Nov. 17, 1921

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

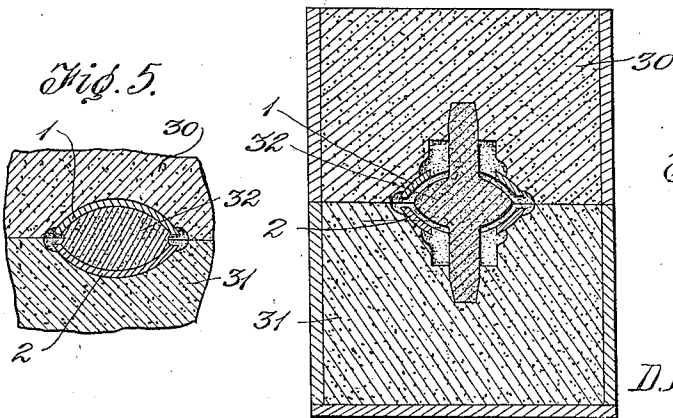
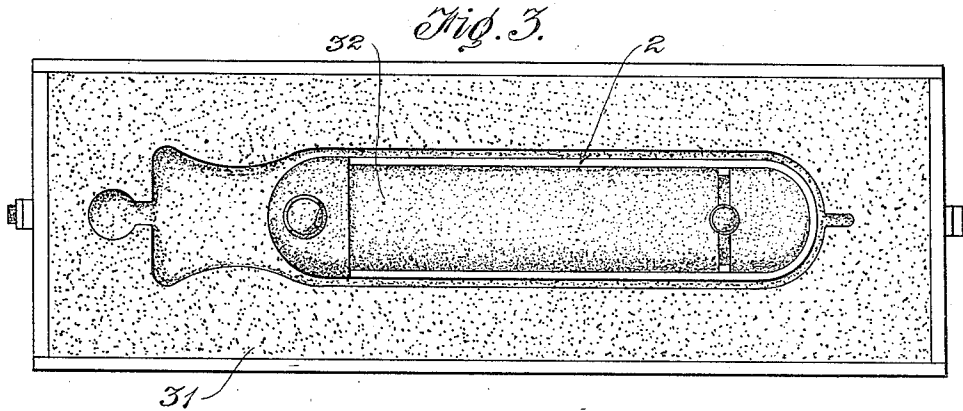
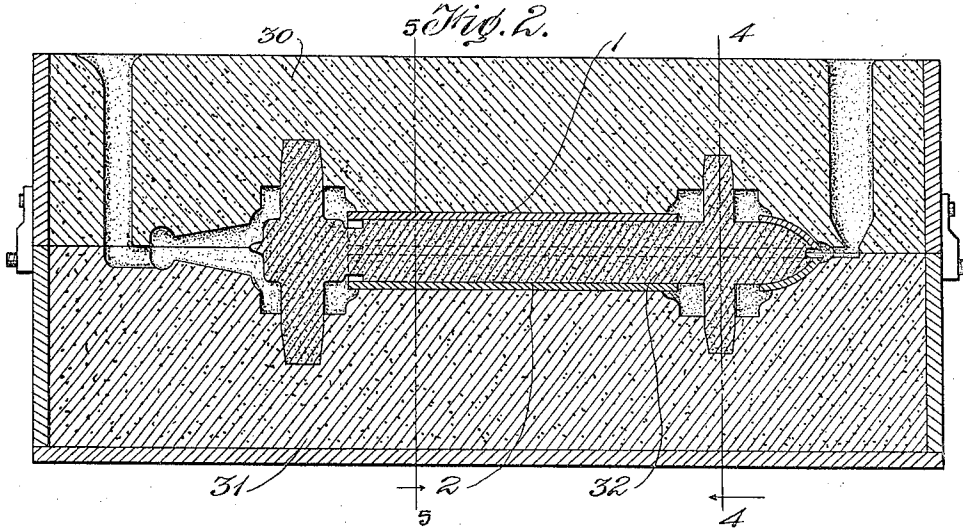


Fig. 4.

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UNITED STATES PATENT OFFICE.

DAVID NELSON CROSTHWAIT, SR., OF KANSAS CITY, MISSOURI, ASSIGNOR TO DAVID NELSON CROSTHWAIT, JR., OF MARSHALLTOWN, IOWA.

METHOD OF FORMING RADIATORS.

Application filed November 17, 1921. Serial No. 515,824.

To all whom it may concern:

Be it known that I, DAVID N. CROSTHWAIT, Sr., a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Methods of Forming Radiators, of which the following is a full, clear, and exact description thereof.

My invention relates to sheet metal radiators and the method of constructing the same and has for its object the construction of a radiator which is light in weight, neat in appearance, and yet has strength and durability in operation.

Another object of the invention is the provision of a simple and cheap method of assembling and uniting the various elements entering into the construction of the radiator.

Other objects and advantages of the invention will be apparent from the following description when taken in connection with the accompanying drawing; it being understood that those skilled in the art may make many changes in the invention, without departing from the spirit thereof; and the drawing forming part of this specification is therefore to be considered merely as illustrative, and not in any limiting sense.

In the drawing;

Figure 1 represents a vertical section, partly broken away, through two sections of a radiator embodying my invention.

Figure 2 is a vertical section through a mold for forming a radiator section.

Figure 3 is a plan view of the lower portion of the mold with the core and one stamped metal plate in position.

Figure 4 is a transverse section taken on line 4—4 of Figure 2, and

Figure 5 is a fragmentary section taken on line 5—5 of Figure 2.

Referring to the drawing more in detail and especially to Figure 1, the numerals 1 and 2 designate two sheets of stamped metal which are joined together to form the end section of the radiator by means of the fused cast metal seam 3. Bosses 4 and 5 and the base and leg section 6 are provided with screw threads 7 and 8 for the necessary pipe connections or plugs. The boss 5 is arranged with a finished tapered opening so that it may be joined to an adjacent section

by a push nipple 9, although of course a threaded nipple could be used as indicated by the numeral 10 on the base and leg section 6.

The bosses 4 and 5 and the leg and base section 6 are constructed of cast metal and are joined onto the sheets 1 and 2 by fusion.

The second radiator section is composed of the two sheets of stamped metal 11 and 12, joined together by the fused cast metal seam 13. Bosses 14 and 15 are connected to the second section and are arranged to be joined to adjacent sections by means of push nipples. The numeral 17 indicates the tapered opening in boss 15 for receiving the push nipple.

The base portion of the second radiator section is indicated by numeral 16 and is provided with screw threads 18 for the purpose of connection with adjacent radiator sections. It should be here noted that the cast metal base extends upward sufficiently to maintain its upper edge above any water which might stand in the radiator when steam is used as the heating medium. It should also be noted that while I have shown and described both a push nipple and a screw nipple for connecting the radiator sections, this is merely for the purpose of indicating that either form may be used and not that both forms are necessary.

The method used in forming the above-described radiator sections consists in making a mold by using such a pattern as would be used if the radiator was to be made entirely of cast metal. Such a mold is disclosed in Figures 2, 3 and 4 of the drawings and is indicated by the numerals 30 and 31. The core 32 is then formed of green or baked sand, and after applying thereto the stamped sheet metal sections 1 and 2, the whole is placed in the lower section 31 of the mold and the core 32 is applied. The mold may be formed with one or more pouring gates and with a riser if found desirable. The molten metal is now poured in so as to form the cast parts which become attached to the stamped metal sheets by fusion.

In accordance with the patent statutes I have described what I now believe to be the best embodiment of the invention, but I do not wish to be understood thereby as limiting myself or the scope of the invention, as many changes and modifications may be

made without departing from the spirit of the invention; all such I aim to include in the scope of the appended claims.

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

1. The method of constructing a radiator section of stamped metal and cast metal, which includes stamping two complementary walls of the section from sheet metal, forming a mold and a core for the radiator section, assembling the stamped metal walls and core, and placing them in the mold, and then pouring in the molten metal.
2. The method of constructing a radiator section of stamped metal and cast metal, which includes stamping two complementary walls of the section from sheet metal, forming a mold having the shape of the complete radiator section, forming a core for the radiator section, assembling the walls and core with the edges of the walls slightly spaced, placing the parts thus assembled in the mold, and pouring in the molten metal.
3. The method of constructing a radiator section of stamped metal and cast metal, which includes stamping the walls of the section from sheet metal, forming a mold and a core for the radiator section, placing the stamped metal walls and core in the mold, and then pouring in the molten metal, whereby the stamped metal walls are united.

DAVID NELSON CROSTHWAIT, Sr.