

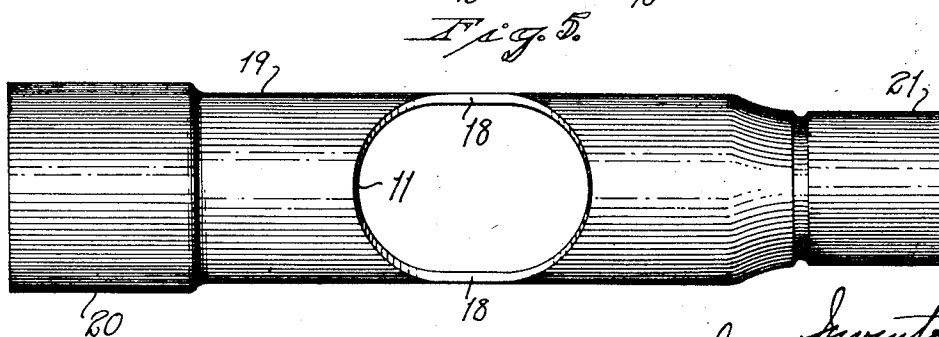
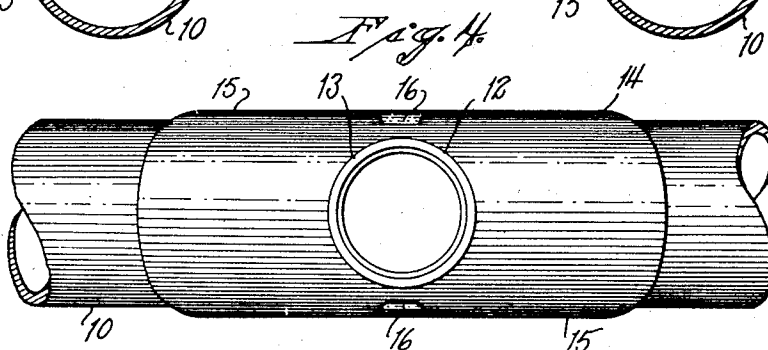
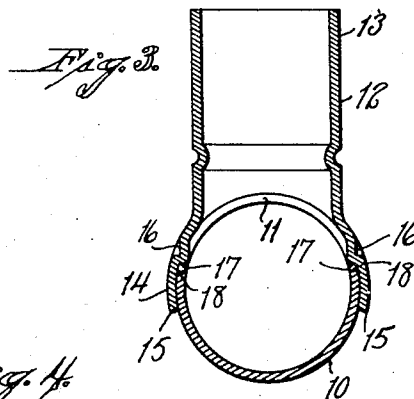
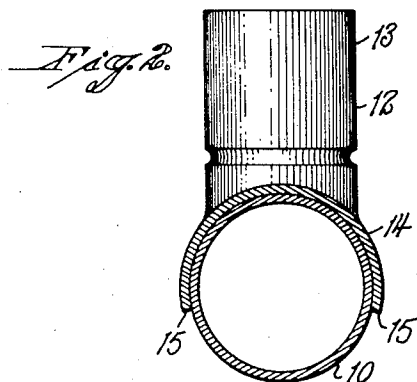
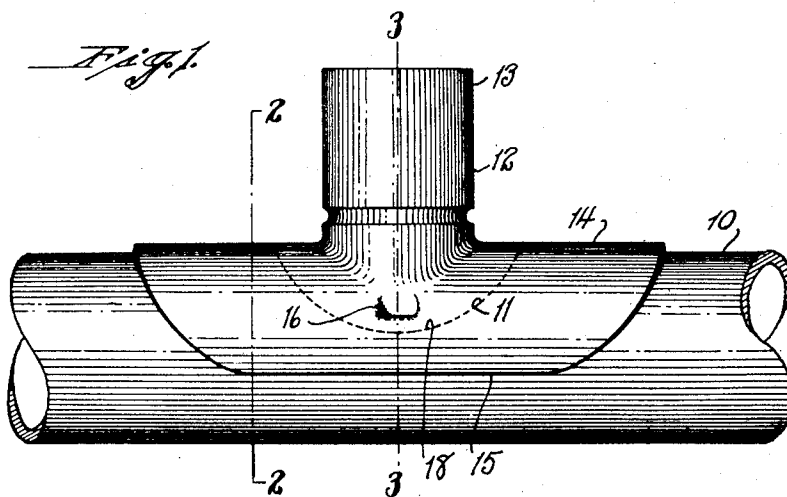
Oct. 16, 1934.

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1,977,112

BRANCH FITTING FOR TUBES AND THE LIKE

Filed April 6, 1933



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UNITED STATES PATENT OFFICE

1,977,112

BRANCH-FITTING FOR TUBES AND
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Application April 6, 1933, Serial No. 664,739

6 Claims. (Cl. 285—106)

This invention relates to improvements in branch-fittings for tubes and the like.

One object of this invention is to provide a branch-member which can be properly, readily and conveniently installed upon a continuous tube from which it is desired to provide a branch line, without requiring severance of the tube.

A further object of this invention is to provide such a branch-member with means adapted to engage edge-portions of a lateral port formed in a tube, line-member of a branch-fitting, or the like by a cut-away portion, so as to properly position the port relatively to the opening of a branch-member.

A still further object of this invention is to provide such a branch-member both with the above-mentioned port-positioning means in combination with a saddle-portion of the branch-member, with such characteristics as to frictionally grip the tube, line-member or the like to hold the branch-member in place prior to and during the operation of securing the branch-member in place by soldering or the like.

The above and other objects will appear from the following description, accompanying drawing and appended claims forming a part of this specification.

In the accompanying drawing, in which certain ways of carrying out the invention are shown for illustrative purposes:

Fig. 1 is a side elevation illustrating one embodiment of the invention;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of Fig. 1; and

Fig. 5 is a plan view of a line-member provided with a lateral port like the lateral port which is provided in the tube illustrated in Figs. 1 and 4, but with the branch-member omitted.

Referring to the drawing, the cylindrical tube 10 which may be of copper, brass or other suitable metal, has a portion cut away to provide a lateral port 11. The branch-member 12 comprises the tubular branch-portion 13 provided at its lower end or base with a diverging saddle-portion 14 of arcuate form as shown. The branch-member 12 is preferably formed from sheet-metal which may be made of copper, brass or other suitable metal, and is preformed independently of the tube 10.

The saddle-portion 14 extends only slightly in excess of a semicircle and before it is applied in position on the tube 10, the side edges 15 of the saddle-portion are closer together than the outer diameter of the tube 10, so that when the branch-member is forced into position upon the tube 10, the side edges 15 are spread apart as they travel down into position on the tube 10.

The saddle-portion 14 has resilience and during this assembling operation of forcing it into position on the tube, the edge-portions 15 first spread apart and then contract to cause the saddle-member to snap in place and frictionally grip the tube to hold the branch-member in place, prior to and during the final operation of joining the parts together by soldering, brazing, or the like, which will be referred to by such terms as "solder" or "soldering".

The saddle-portion 14 extends entirely around the base of the tubular portion of the branch-member and overlaps and fits a portion of the cylindrical periphery of the tube 10 entirely surrounding the lateral port 11 to provide an adequate complete area for the solder to join the parts together with sufficient mechanical strength and to provide a perfect liquid- and gas-tight joint.

Opposite sides of the branch-member are provided with pressed-in, inwardly-extending, port-positioning lugs 16, each having a surface-portion 17 adapted to engage or abut against one of the opposite abutments or edge-portions 18 of the lateral port 11 of the tube 10.

The surfaces 17 preferably do not simultaneously contact against the edges 18 of the lateral port, but may be spaced somewhat therefrom, as shown in Fig. 3, in order to provide for variations of the lugs 16 in the manufacture of branch-members and also variations in the depth of cut in forming the lateral port 11. The lugs 16, however, provide a very readily manufactured means enabling the workmen to readily and correctly position the branch-member to bring the lateral port 11 in register with the opening of the tubular portion 13 of the branch-member 12.

As will be obvious, the branch-members 12 may have the tubular portions 13 made of any desired sizes to provide for telescopically receiving branch-line tubes of corresponding sizes.

It will be evident from the foregoing that branch-connections can be readily made in tubes 10 of any length at any place or places desired by merely cutting out portions to provide lateral ports and snapping branch-members in position over such lateral ports, and securing them in position by applying solder and heating the parts to cause the solder to melt and join the parts in a manner well known. It will be clear, owing to the positioning-lugs 16 being formed in the sides of the branch-member to engage opposite edge-portions of the lateral port 11, that the lateral port and opening of the tubular portion of the branch-member can be readily brought into proper register without special provision of any kind being required to be applied to the tube 10. This is of great importance, especially in the case of the plumber on the job, as he is ordinarily not properly equipped with either the tools or skill to

readily provide positioning-lugs upon the tube 10. Furthermore, the fact that it is unnecessary to form any lugs or special abutments on the tube 10, under the difficulties which would be inherent therein, is a matter of considerable economy.

Branch-members made in accordance with this invention can both be applied to tubular line-members such as tubes 10 and, also to tubular line-members such as 19 in Fig. 5 to make branch-fittings. The line-member 19 is provided with a lateral port 11 the same as the lateral port 11 provided in the tube 10, and the manner of snapping a branch-member 12 in position upon the line-member 19 and joining it thereto by solder or the like is the same as has been described concerning joining the branch-member 12 to the tube 10. The branch-member 19 may be provided at its opposite ends with tube-receiving portions 20 and 21 suitable to fit tubes of any desired sizes.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are therefore to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. As an article of manufacture, a wrought metal branch-member preformed for subsequent joining by solder to the periphery of a tubular line-member for tube installations comprising: a tubular portion; a saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form; and lug-means integral with the branch-member and located adjacent the junction of the saddle-portion and tubular portion and well-spaced inwardly from the outside edge of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface toward the axis of said cylindrical surface.

2. As an article of manufacture, a wrought metal branch-member preformed for subsequent joining by solder to the periphery of a tubular line-member for tube installations comprising: a tubular portion; a saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form; and imperforate, pressed-in lugs formed in and integral with the branch-member and located adjacent opposite sides of the junction of the saddle-portion and tubular portion and well-spaced inwardly from the opposite lateral edges of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface toward the axis of said cylindrical surface.

3. As an article of manufacture, a wrought metal branch-member preformed for subsequent joining by solder to the periphery of a tubular line-member for tube installations comprising: a tubular portion; a resilient saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form; and imperforate, pressed-in lugs formed in and integral

with the branch-member and located adjacent opposite sides of the junction of the saddle-portion and tubular portion and well-spaced inwardly from the opposite lateral edges of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface toward the axis of said cylindrical surface, the cylindrical surface extending between said opposite lateral edges only slightly in excess of a semicircle.

4. A wrought metal branch-fitting comprising: a tubular line-member for tube installations, having a substantially-cylindrical portion provided with a cut-away lateral port; a branch-member having a tubular portion, and a saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form and fitting and joined to by solder, the outer cylindrical surface of the line-member underlying the saddle-portion and surrounding said lateral port; and lug-means integral and preformed with the branch-member and located adjacent the junction of the saddle-portion and tubular portion and well-spaced inwardly from the outside edge of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface and within said cut-away lateral port.

5. A wrought metal branch-fitting comprising: a tubular line-member for tube installations, having a substantially-cylindrical portion provided with a cut-away lateral port; a branch-member having a tubular portion, and a saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form and fitting and joined to by solder, the outer cylindrical surface of the line-member underlying the saddle-portion and surrounding said lateral port; and imperforate, pressed-in lugs preformed in and integral with the branch-member and located adjacent opposite sides of the junction of the saddle-portion and tubular portion and well-spaced inwardly from the opposite lateral edges of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface and within said cut-away lateral port and adjacent the lateral edges thereof.

6. A wrought metal branch-fitting comprising: a tubular line-member for tube installations, having a substantially-cylindrical portion provided with a cut-away lateral port; a branch-member having a tubular portion, and a saddle-portion surrounding and diverging outwardly from the base of the tubular portion and having its inner surface of substantially-cylindrical form and fitting and joined to by solder, the outer cylindrical surface of the line-member underlying the saddle-portion and surrounding said lateral port; and imperforate, pressed-in lugs preformed in and integral with the branch-member and located adjacent opposite sides of the junction of the saddle-portion and tubular portion and well-spaced inwardly from the opposite lateral edges of the saddle-portion, and projecting inwardly beyond the said inner cylindrical surface and within said cut-away lateral port and adjacent the lateral edges thereof, the cylindrical surface of the saddle-portion extending between the opposite lateral edges thereof only slightly in excess of a semicircle.

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