Dec. 12, 1933. J. S. COE 1,938,809

METHOD AND BLANK FOR PRODUCING PIPE FITTINGS

Filed Aug. 3, 1932

Fig. 1.

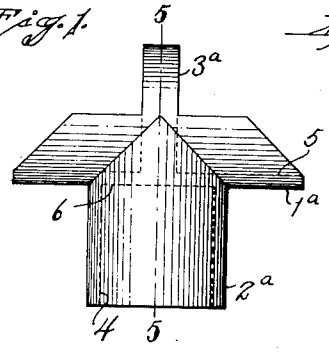


Fig. 2.

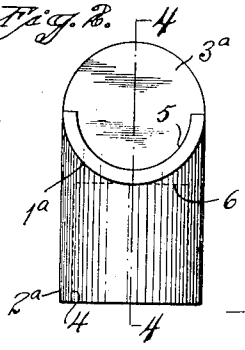


Fig. 3.

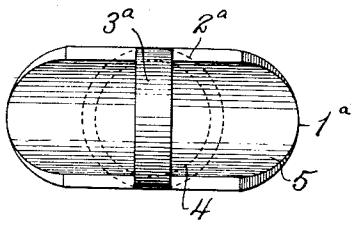


Fig. 10.

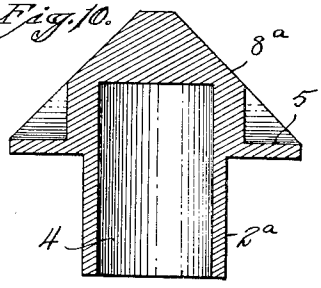


Fig. 4.

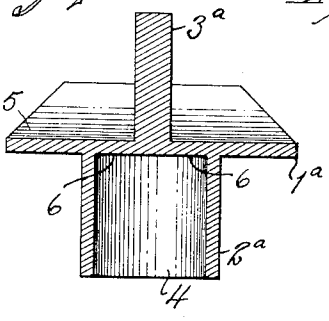


Fig. 5.

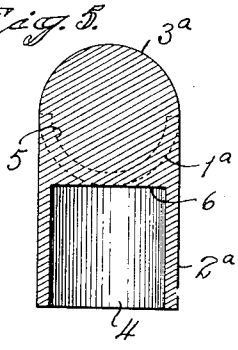


Fig. 11.

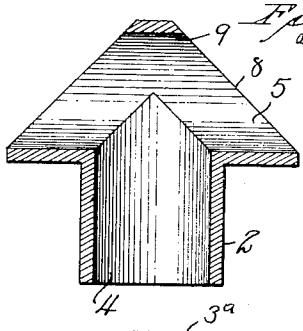


Fig. 6.

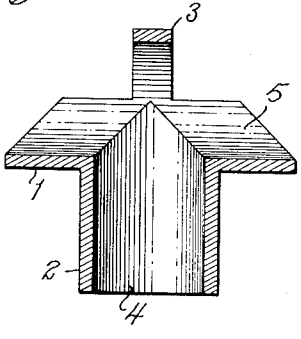


Fig. 7.

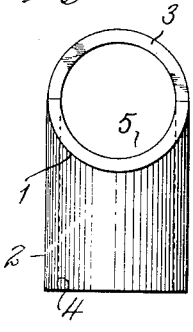


Fig. 12.

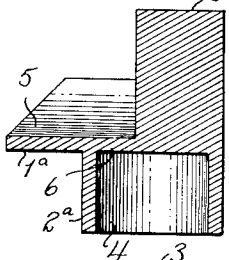


Fig. 8.

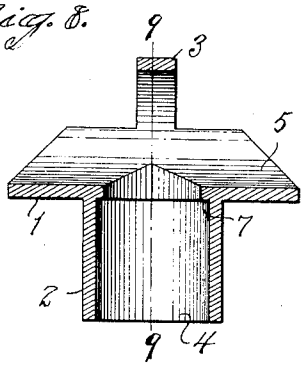


Fig. 9.

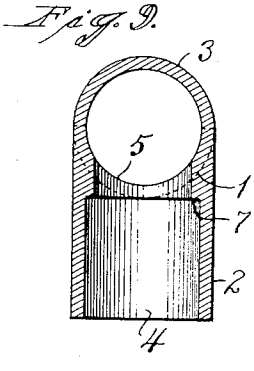
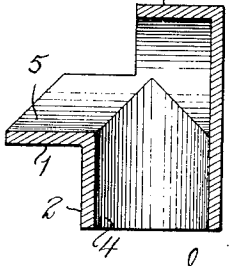


Fig. 13.



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METHOD AND BLANK FOR PRODUCING PIPE FITTINGS

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Application August 3, 1932. Serial No. 627,319

5 Claims. (Cl. 29—157)

This invention relates to pipe fittings, and particularly to a method of producing pipe fittings especially adapted for incorporation in installations of the now popular relatively-flexible pipe or tubing.

The object of the invention is to produce, by forging and boring operations, a fitting of the character referred to having all of the essential characteristics of those heretofore otherwise produced.

To this end the invention consists in a method of producing a forged blank having such characteristics and later so treated as to provide a fitting with two intersecting passages, the forged blank having these two intersecting passages partially preformed therein and capable of being completed by simple boring operations to produce the finished fitting, all as will be hereinafter described more fully and finally claimed.

In the accompanying drawing illustrating the invention, in the several figures of which like parts are similarly designated,

Figs. 1, 2 and 3 are, respectively, a side elevation, an end elevation and a top plan view of a blank produced in accordance with the invention;

Figs. 4 and 5 are sections of this blank, taken, respectively, upon the line 4—4 of Fig. 2 and the line 5—5 of Fig. 1;

Fig. 6 is a section similar to that of Fig. 4 but showing the finished fitting;

Fig. 7 is an end elevation of the finished fitting;

Fig. 8 is a view similar to Fig. 6 but illustrating a modification;

Fig. 9 is a section taken on the line 9—9 of Fig. 8;

Fig. 10 illustrates, in section, a modified form of blank;

Fig. 11 is a section similar to Fig. 10 but showing the fitting of such blank completed;

Fig. 12 is a sectional view of a blank of such form as, when finished, to produce an elbow fitting; and

Fig. 13 is a sectional view of the finished elbow fitting provided for in the blank of Fig. 12.

As illustrated in Figs. 1 to 7 inclusive, the fitting (and the blank therefor shown in these figures) is of the type to provide a branch fitting for a line member of a pipe installation. This fitting when completed, as shown in Figs. 6 and 7, comprises a saddle portion 1, a lateral tubular extension 2 and a strap 3 which latter is adapted to embrace the line member of the pipe installation to hold the branch fitting in place thereon during the sweating operation and for purposes of strengthening the connection of the branch member with the line member.

It will be obvious, from an inspection of the drawing, that all of the elements described as making up this branch fitting are formed in one integral piece from a forged blank comprising parts from which these elements may be formed. This blank, as shown particularly in Figs. 1 to 5, inclusive, includes the saddle portion 1^a, the tubular extension portion 2^a and a solid disk-like member 3^a from which the pipe-embracing strap may be formed.

The passages, hereinabove referred to as two intersecting passages, include the bore 4 of the tubular extension 2 and the bore 5 which provides the inner or pipe contacting surface of the saddle portion 1 and the strap 3, and these passages are partially preformed in the forged blank as shown but are separated by an intervening wall 6, the presence of which is necessary in the forging operation.

As shown, the disk-like member 3^a is preferably arranged midway of the length of the saddle portion 1 and substantially on the axis of the bore 4. This arrangement is preferred because it facilitates the forging operation, provides a symmetrical blank which is easily bored and locates the later-formed strap 3 in the most advantageous position relatively to the saddle portion 1.

In order to complete the fitting from the blank described, it is merely necessary to complete the bores 4 and 5 by the successive application to the blank of a boring tool of appropriate diameter, the boring operation resulting in the fitting shown in Figs. 6 and 7.

It may, in some instances, be desirable to provide in the lateral extension 2 a stop shoulder 7 (Fig. 8) against which a branch pipe or tube inserted in the fitting may abut and its insertion thereby be limited to an appropriate extent.

In order to provide such a stop shoulder in a fitting formed from the blank illustrated in Figs. 1 to 5 inclusive, it is only necessary to use a boring tool for completing the bore 4 of less diameter than the portion of the bore preformed by the forging operation.

In some cases it is desirable to provide upon the fitting a saddle which tapers gradually at its sides as it encircles the pipe. For this purpose a blank having the characteristics illustrated at 8^a in Fig. 10 may be provided, this blank, when appropriately bored providing a fin-

ished fitting having a saddle portion 8 and strap 9 of the type desired, as illustrated in Fig. 11.

It is also possible to form elbow fittings by the method described, the forged blank of such an elbow fitting and the finished fitting being illustrated in Figs. 12 and 13.

It is necessary, for their use in pipe installations of the character referred to, that these fittings be made of some non-ferrous metal because, in their assembly in such installations, they are secured by brazing or soldering operations. They are, therefore, preferably made of a copper-base alloy for the reason that it is believed to be the most appropriate non-ferrous metal for forging.

In the drawing, only four types of fittings have been illustrated, but it is obvious that various other types of fittings might be produced by the method of the invention so long as they are of such shapes as will make possible their production by forging.

Various changes and modifications including and in addition to those particularly referred to are considered to be within the spirit of the invention and the scope of the following claims.

I claim:

1. A method of producing a branch fitting for pipe installations, said branch fitting including a saddle and pipe-embracing strap and a tubular extension, which comprises so forging a blank as to produce therein said saddle and said tubular extension and a member offstanding from and obstructing said saddle and substantially in alignment with said tubular extension and with said saddle and tubular extension separated by an intervening wall, and thereafter removing said wall and forming said offstanding member to ring shape by boring same upon the axes of the extension and strap.

2. A forged blank designed to be machined to form a pipe fitting having two intersecting passages and comprising: a first portion having a tubular passage; a second portion adjacent one end of said tubular passage and having an open-sided, concave passage whose axis extends transversely of the axis of said tubular passage; and a solid portion at or adjacent the intersection of the axes of said tubular passage and concave passage; the form and contour of the parts of said forged blank being such that said blank can be forged by a single-direction forging action.

3. A forged blank designed to be machined to form a pipe fitting having two intersecting passages and comprising: a first portion having a tubular passage; a second portion adjacent one end of said tubular passage and having an open-sided, concave passage whose axis extends transversely of the axis of said tubular passage; and a solid portion at or adjacent the intersection of the axes of said tubular passage and concave passage and larger than the diameter of curvature of said concave passage; the form and contour of the parts of said forged blank being such that said blank can be forged by a single-direction forging action.

4. A forged blank designed to be machined to form a pipe fitting having two intersecting passages and comprising: a first portion having a tubular passage; a second portion adjacent one end of said tubular passage and having an open-sided, concave passage whose axis extends transversely of the axis of said tubular passage; and a solid portion at or adjacent the intersection of the axes of said tubular passage and concave passage and intermediate the ends of, and larger than the diameter of curvature of, said concave passage; the form and contour of the parts of said forged blank being such that said blank can be forged by a single-direction forging action.

5. A forged blank designed to be machined to form a pipe fitting having two intersecting passages and comprising: a first portion having a tubular passage; a second portion adjacent one end of said tubular passage and having an open-sided, concave passage whose axis extends transversely of the axis of said tubular passage; and a solid portion at or adjacent the intersection of the axes of said tubular passage and concave passage and at one end of, and larger than the diameter of curvature of, said concave passage; the form and contour of the parts of said forged blank being such that said blank can be forged by a single-direction forging action.

JOHN S. COE.