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G. E. MIRFIELD

METHOD OF MANUFACTURING PIPE COUPLINGS

Filed April 22, 1922

Fig. 1.

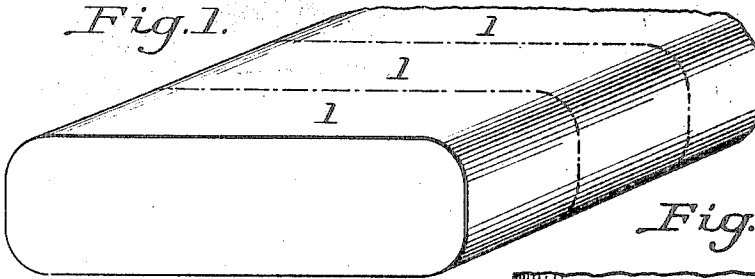


Fig. 2.

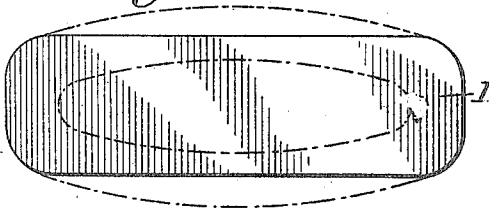


Fig. 3.

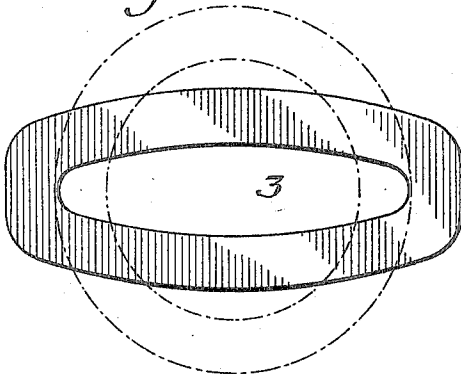


Fig. 6.

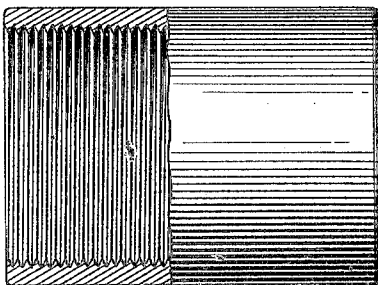


Fig. 4.

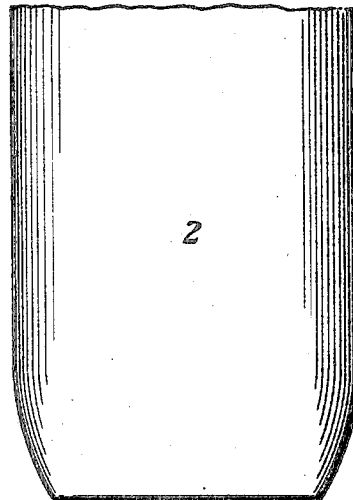
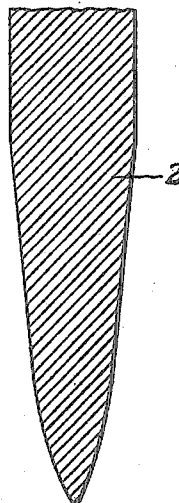


Fig. 5.



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METHOD OF MANUFACTURING PIPE COUPLINGS.

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My invention relates to hollow metal articles and method of making the same and is particularly useful in the manufacture of couplings. My invention will be better understood by reading the following description taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a piece of stock;

Figure 2 is an end view of a slab, the dotted lines indicating the position of the metal after the first step in the process;

Figure 3 is an end view of the slab with an opening therethrough, the dotted lines indicating the position of the metal when the opening has been rounded out;

Figure 4 is a side elevation of a part of the tool used in producing the opening in the blank;

Figure 5 is a vertical section of the tool shown in Figure 4, and

Figure 6 is a side elevation of a completed article partially in section.

The method is carried out by separating slabs 1 of the required length from the stock shown in Figure 1. This stock is usually made of steel which has been rolled to the required thickness and shape. A chisel 2 or other suitable tool is forced entirely through the slab preferably along the line of the fibers of the metal. This step of the process makes an opening 3 through the slab and the slab takes the form shown in full lines in Figure 3. The width of the tool is chosen relative to the size and shape of the slab so that the thickness of the metal on each edge of the opening is equivalent to the thickness of the metal on the sides of the opening so that the thickness of the material around the tool or opening is uniform. After the tool is removed a tapered circular mandrel or tool is placed in the opening and forced through the slab thereby rounding it out to the position shown in dotted lines in Figure 3. Obviously other shapes of tool may be used instead of the round mandrel if it is desired to produce other than a round opening through the slab.

After the slab is rounded or given any other desired shape it is subjected to internal and external drawing in the ordinary way so as to increase the diameter of the article to the required size. This operation will thin and elongate the metal proportionately. The size of the finished article and its wall thick-

ness will depend upon the width and thickness of the stock from which the slab is cut. The stock is preferably so cut that some drawing will be necessary as the drawing improves the quality of the metal and results in a stronger product.

If the article so made is to be used as a coupling, it is threaded in the ordinary way either at both ends or the thread may be run throughout the entire length of the article. The article may be threaded either externally or internally, as desired.

By the use of the method above explained a superior article is produced in that there is no welded joint and the fibers of the original stock have not been substantially mutilated or distorted as a result of which the article is much stronger for a given amount of material than articles heretofore made containing an equal amount of material, or articles of a given strength may be made containing less material than similar articles as heretofore constructed. By the use of the above method all waste of stock is eliminated and the method is much simpler than the methods heretofore used, with the result that the cost is reduced and production increased.

While I have disclosed a particular form of article, I desire it to be understood that the method described may be applied to many different kinds and shapes of articles and that the articles may be used for any desired purpose.

I claim:

1. A method for manufacturing pipe couplings which consists in initially cutting a length of metal from a relatively thin flat piece of rolled stock, punching an elongated slit in the length of metal so cut with the slit extending in the direction of the greatest width of the strip and maintaining the greatest width of the strip substantially the same, said slit being punched co-axially of the rolled length of the stock, then expanding the slit length of metal transversely of its width to develop a substantially cylindrical form, and then drawing the developed length to a suitable length and diameter.

2. A method for manufacturing pipe couplings which consists in initially cutting a length of metal from a relatively thin flat strip of material, then forcing a relatively thin flat splitting tool through the length of material so cut co-axially of the rolled length

thereof to thereby slightly slit the length of metal transversely of its width and produce a substantially elliptical form having a substantially uniform wall thickness and without materially stretching the metal or increasing its major axis, then expanding the resulting elliptical form into a substantially circular form by increasing the minor axis of the elliptical form and decreasing the major axis whereby the metal is shaped without being stretched, and then drawing the cylindrical length to the desired length and diameter. 10

In testimony whereof I have hereunto set my hand.

GEORGE E. MIRFIELD.