

July 4, 1933.

H. K. RADER

1,916,989

WIRE

Filed May 14, 1930

Fig. 1.

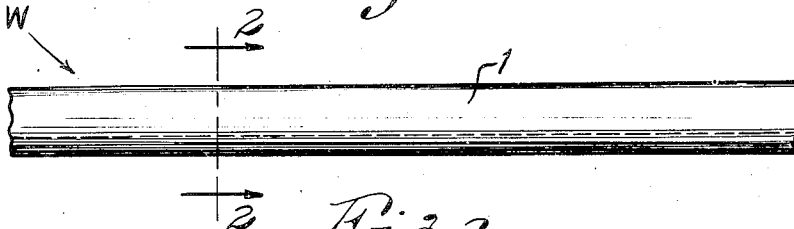


Fig. 2.



Fig. 3.

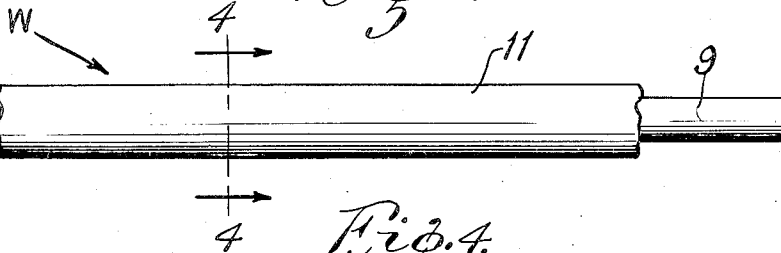


Fig. 4.

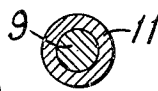


Fig. 5.

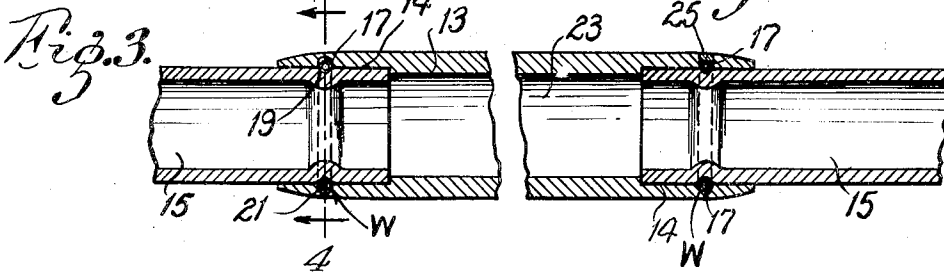


Fig. 4.

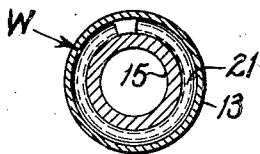
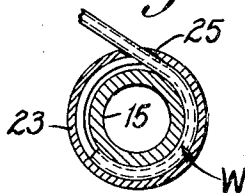


Fig. 6.



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UNITED STATES PATENT OFFICE

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WIRE

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This invention relates to wire and with regard to certain more specific features to a combination anchoring and soldering or sealing wire.

Among the several objects of the invention may be noted the provision of a type of wire which has a certain degree of stiffness or rigidity, whereby it may be used as an anchor or locking piece, but which at the same time carries therewith or therein a longitudinally placed supply of sealing material such as solder which ordinarily is not so rigid or stiff as the part of the wire with which it is connected; the provision of an article of the class described wherein the sealing material may be of a non-resilient nature without there resulting a non-resilient wire; and the provision of a product of the class described in which the sealing material when melted or soft is available exteriorly of said wire. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structure hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing, in which are illustrated several of various possible embodiments of the invention,

Fig. 1 is a side elevation of one form of the wire;

Fig. 2 is a cross section taken on line 2—2 of Fig. 1;

Fig. 3 is a fragmentary longitudinal section showing a joint with the wire applied therein;

Fig. 4 is a cross section taken on line 4—4 of Fig. 5;

Fig. 5 is a fragmentary longitudinal section showing another application of the invention; and,

Fig. 6 is a cross section showing the method of application to effect the connection of Fig. 5.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring now more particularly to Fig. 1 there is illustrated at numeral 1 a length of sheet copper or brass or the like formed into a partial ring or horseshoe (see also Fig. 2). This ring may be formed, drawn, either hard or soft temper and the size of the angle which subtends the opening 3 may be varied to suit different conditions. It will be seen that the general effect of the formation of the wire 1 is that of a channel or trough.

In the trough formed by the horseshoe-shaped cross section of wire 1, there is introduced a sealing material 5 such as solder which is ordinarily used in sealing plumbing joints or the like. It is preferable that before the introduction of the solder 5 that the interior of the copper or brass sheath 1 be cleaned and fluxed so that said solder will stick therewith. It is also preferable, though not necessary, that the exterior face 7 of the solder 5 comprises a shape such that it is a continuation of the periphery of the copper channel 1.

From the above it will be seen that there is thus formed a wire having a core of solder carried in a stiffening jacket.

It is to be understood that the circular cross section is not to be limiting. Other shapes may be used without departing from the spirit of this invention. In general, the cross section of the sheath forms the outline of an open figure and the exterior surface of the solder or like sealing material comprises a continuation of the surface of the sheath to form a closed figure.

In Figs. 3 and 4 are shown an application of the invention wherein there is shown a fitting 13 counterbored at 14 to receive a length of pipe 15. In counterbore 14 there is provided a circular recess 17 which, when assembly of the fitting and the pipe is made lies opposite a corresponding recess 19 previously formed in the pipe 15. Prior to the application of the pipe 15, there is positioned in the recess 17 a snap ring 21 composed of said improved form of wire W described in connection with Figs. 1 and 2 which ring and channel 17 are so proportioned that when the pipe is entered into the fitting the ring expands over the pipe

and snaps back into the groove 19 as the groove 19 becomes juxtaposed to the groove 17. The above operation is performed in the cold condition of the wire.

5 After the parts have been assembled as shown in Fig. 3, a blow torch or the like is used to apply heat to the exterior of the joint, the joint having been previously cleaned before assembly. This results in the
10 solder 11 or 5, or other sealing material, melting and flowing by capillary or other attraction over the entire juxtaposed surfaces of the joint. Thereafter, the joint is permitted to cool and the solder hardens in place
15 with wire 9 or the jacket 1 or the like as the case may be, surrounded by solder. It will be noted that the wire functions both as a lock or key in the joint and as a vehicle for the solder which is to be introduced into the
20 joint.

In Figs. 5 and 6 is shown another method of applying the article to making a joint. In this case, the fitting 23 is counterbored and counter grooved as before, the same numerals applying. This is also true of the pipe
25 15. However the fitting 23 differs in one particular in that a tangential hole or opening 25 is made to communicate between the groove 17 and the exterior of the fitting. In
30 this application no spring ring is placed in the groove 17 but the pipe 15 is assembled with the fitting 23. Then a length of the wire W is driven into the tangential opening 25. This wire seeks its way around the
35 juxtaposed grooves 17, 19 until a complete circle of the same is formed, the wire having been cut off at a predetermined length so that it may be completely driven into the opening 25; or it may be cut off at the opening 25
40 from a spool of the wire. Thereafter it may be forced down with a punch or the like. The joint is heated as was the case in the

Figs. 3 and 4 form and the same results are attained after cooling. If found desirable, solder may be added at the opening 25 so as to fill the same and any crevices which might not be filled by the solder introduced by
70 means of the wire.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A wire comprising a sheath of resilient metal, the cross section of which comprises an incomplete circle, and solder positioned within said incomplete circle, the exterior surface of said solder comprising a continuation of the surface of said sheath to form a regular figure.

2. A wire comprising a sheath of resilient metal, the cross section of which comprises an incomplete circle, and solder positioned within said incomplete circle, the exterior surface of said solder comprising a continuation of the surface of said sheath to form a regular figure, comprising a circle.

3. A wire comprising a sheath of resilient metal, the cross section of which comprises an open figure, and solder positioned within said open figure, the exterior surface of said solder comprising a continuation of the surface of said sheath to form a closed figure.

In testimony whereof, I have signed my name to this specification this 5th day of May, 1930.

HAROLD K. RADER.