March 14, 1939. J. J. RAWLINGS 2,150,845

METHOD OF MANUFACTURING WALL AND LIKE PLUGS

Filed Sept. 22, 1937

Fig. 1.

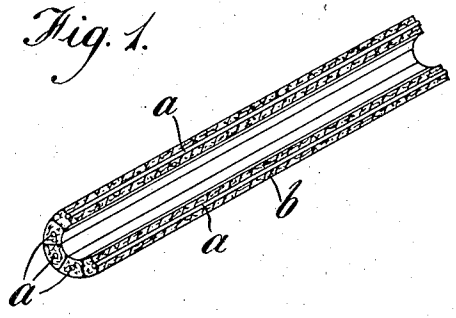


Fig. 2.

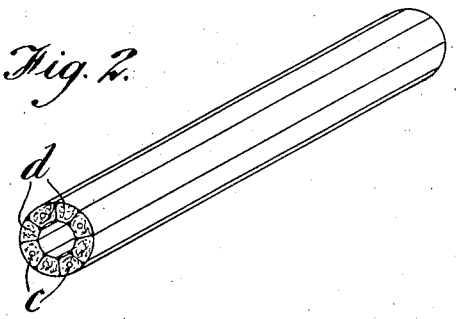
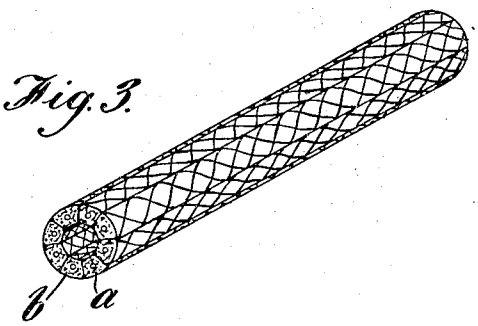


Fig. 3.



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METHOD OF MANUFACTURING WALL AND LIKE PLUGS

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Application September 22, 1937, Serial No. 165,179
In Great Britain October 8, 1936

1 Claim. (Cl. 154—2)

This invention relates to plugs of the kind that are adapted to be inserted in or forced into a recess or hole in a wall or the like and to hold securely therein a nail, screw or the like driven into the plug, by the expansion or splitting of the plug due to the insertion of the nail or screw.

According to this invention, a plug of the kind above specified is formed from a plurality of thin metal wires, for example, copper or iron wires, which have been coated, felted, twisted or wrapped with asbestos fibres.

The asbestos fibres may be applied to the supporting wire with the aid of heat and/or pressure, or they may be secured on the wire by means of an adhesive or in any other suitable manner.

The invention is carried into practice as shown in the accompanying drawing, in which

Figure 1 is a perspective view in central section of a wall plug formed of wires coated or felted with asbestos fibres and held in the form of a plug by means of an adhesive.

Figure 2 is a perspective view of a plug formed of alternate longitudinal strands of fibrous material and strands of asbestos-covered wire, and

Figure 3 is a perspective view of a plug as shown in Figure 1 or 2, having the fibrous materials plaited or braided on the exterior surface of the plug.

In the drawing, Figure 1, a wall plug is formed from a plurality of thin metal wires *a*, for example copper or iron wires, each of such wires being surrounded by a cylindrical layer *b* of asbestos fibres, which may be attached to or around the wires *a* in any convenient manner, for example, by twisting or wrapping the fibres around the wires or by coating the wires with a composition containing asbestos fibres and a suitable adhesive, with or without the addition of a filler or a loading material such as chalk.

Wall plugs in accordance with this invention, instead of being composed entirely of asbestos-covered wires, may be composed partly of such wires. For example, as shown in Figure 2, a plug may comprise one or more asbestos-covered wires *c* in conjunction with a number of cords or strands *d* of fibrous material, e. g. asbestos, arranged side by side, such wire or wires serving to strengthen or reinforce the plug longitudinally. It is sometimes advantageous to incorporate a small percentage of cotton with the asbestos fibre or with the cords or strings of asbestos or other fibrous material.

The asbestos-covered wires *a* arranged side by side as shown in Figure 1, and the asbestos-covered wires *c* and fibre strands *d* shown in Figure 2 may be held together by an adhesive, which may be incorporated with a filler such as chalk, lime or clay, or by a weak binding cord or yarn, or they may be plaited or interwoven.

As an adhesive there is advantageously employed a solution of sodium silicate, commercially known as water glass, as it has been found that on heating plugs formed by uniting together asbestos-covered wires with sodium silicate to a temperature over 150° C., a portion of the sodium silicate reacts with the asbestos and/or the filler to form insoluble silicates, and the unreacted sodium silicate becomes substantially insoluble in water at the temperatures and in the conditions to which wall plugs are normally subjected in use in wall or like fixtures, thus providing an efficient bonding of the fibrous strands.

The exterior surface of wall plugs manufactured in accordance with this invention may be coated with pumice, silica or other granular material to form a rough external layer which will aid in ensuring that the plug on expansion will become firmly gripped, keyed or held within the wall of a hole of appropriate size in which it is inserted.

Instead of or in addition to the exterior coating of pumice or other granular material, the outer surface of the plug may be provided with a rough external layer by plaiting or braiding the fibres, as shown in Figure 3, or by the provision of a cotton braiding woven or otherwise secured around the plug.

To facilitate entry of a screw or nail, into the plug, the interior surface of the plug is advantageously provided with a suitable lubricant, for example, graphite.

The use of asbestos-covered wires for the manufacture of wall plugs in accordance with this invention enables asbestos fibres of short staple to be employed and it is not necessary to make use of the more expensive long staple fibres. A plug formed as above provides for an easy entry of a screw or like fastening as the asbestos acts more or less as a lubricant while at the outer surface of the plug which comes into contact with the surface of the hole the lubricating character of the asbestos is counter-acted by the coating of abrasive or granular material.

I claim:

A method of manufacturing wall plugs, consisting in coating a plurality of thin metal wires with asbestos fibres and thereafter uniting the wires together in a tubular structure by means of a solution of sodium silicate and heating the plug thus formed.

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