

J. J. RAWLINGS.
WALL AND LIKE PLUG OR SOCKET.
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1,059,209.

Patented Apr. 15, 1913.

Fig. 2.

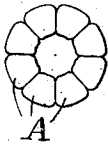


Fig. 1.

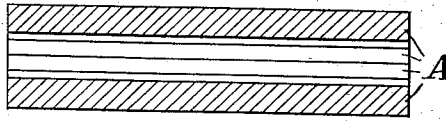


Fig. 5.

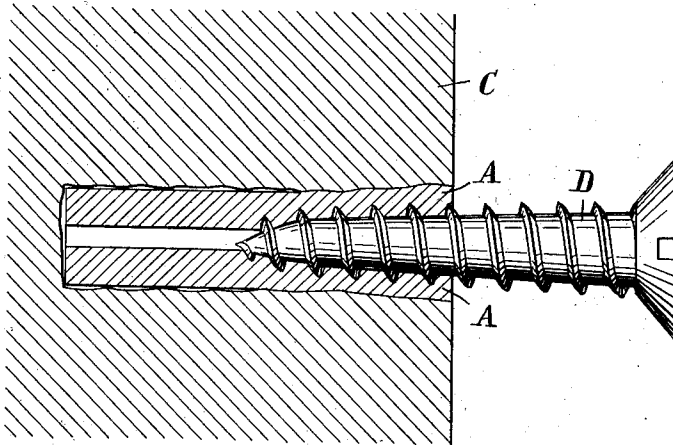


Fig. 6.

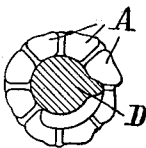


Fig. 4.

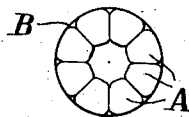
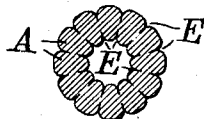


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN JOSEPH RAWLINGS, OF LONDON, ENGLAND.

WALL AND LIKE PLUG OR SOCKET.

1,059,209.

Specification of Letters Patent.

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Application filed December 23, 1912. Serial No. 738,317.

To all whom it may concern:

Be it known that I, JOHN JOSEPH RAWLINGS, a subject of the King of Great Britain, residing at London, England, have invented new and useful Improvements in Wall and Like Plugs or Sockets, of which the following is a specification.

This invention relates to plugs or sockets for enabling screws and other fittings to be secured in plaster, marble, metal and other materials by increasing the area and grip of the holding surfaces.

Heretofore such plugs or sockets have been made of wood and like hard materials, but these materials are not of a suitable nature to adapt themselves to the interstices between the particles of the material in which said plugs or sockets are to be placed.

According to the present invention there is employed for the purposes above mentioned a tube of soft material which is weak along longitudinal lines, such tube being built up or made integrally from vegetable, mineral or animal fibers and other substances or materials, for example, cotton, jute, hemp, asbestos, hair, paper pulp, hard rubber compositions, cardboard, paper, leather, skins or the like. Any of the said materials may be made into threads or strips which are packed longitudinally by a mandrel and die into the form of a tubular plug or socket. These threads or strips are joined or cemented together in the tubular form by means of tissue paper and glue, starch and the like, or by means of glue, starch or similar sticky compound alone. As an alternative such tube can be composed of semi stiff threads held together by a weak weaving of any of the above mentioned fibers, preferably a weak cotton weaving, or a tube may be formed by extruding pulp through a die provided with a suitable mandrel and with projections adapted to produce lines of weakening in the extruded tube. In this case, the pulpy material along the lines of weakening replaces the cement or the like used for binding together the threads or strips above mentioned. Whichever alternative is adopted the object of such tissue paper or cementing or weak weaving or other lines of weakening is that the tube may readily burst when expanded under the strain of the fixing screw. By this means the threads or strips are separated and adapt themselves to the interstices of the surrounding particles forming the walls of the

hole and thus give a more perfect grip throughout the entire length of all parts of the thread of the screw.

The preferred method of carrying out the manufacture of the above is to draw from reels the required number of threads or strips through a die in which is inserted a mandrel as aforesaid which arranges such threads in the form of a tube, the threads being held together by a coating of glue, cement, starch, wax, paste made from cereals, gum or other similar material. Such tube passes from aforesaid mandrel and die to drawing-in rollers and on its way to such rollers it may be dried by hot air or it may be dried on the said rollers by heating the interior of the same, or as a further alternative after passing the said rollers. The tube is afterward cut up into the lengths which it is desired the plug or socket should be by means of a rotary or other cutter. The thickness of the material composing the tubes can of course be varied, as also the length or circumference of the same as may be desired.

The article to be manufactured, and the preferred methods of carrying out such manufacture, are illustrated in the accompanying drawing, whereof:—

Figures 1 and 2 are respectively, a longitudinal section and an end view of a completed tubular plug or socket made from threads or strips; Fig. 3 is a transverse section of a plug made from pulp; Fig. 4 is an end view of a plug made from threads or strips connected together by tissue paper or by weaving; Fig. 5 is a vertical sectional view showing the expanding action of the screw upon the plug when the latter is in place; Fig. 6 is an end view of the plug, showing the same action, the screw appearing in transverse section.

Referring to said drawing, and more particularly to Figs. 1 and 2, there is shown a tubular plug or socket composed of segments A in the form of longitudinal threads or strips which are made of soft material, for instance, animal, vegetable or mineral fibers, or any of the other substances or materials previously mentioned. These threads or strips are packed longitudinally by means of a mandrel and die more particularly hereinafter mentioned. Where I use pulp, the die is formed as illustrated in Fig. 3 and the pulp is extruded under pressure through such die in the form of a tube which forms

the plug, or as an alternative the die can be of such a shape as will extrude the material in separate segments as threads which are afterward joined or cemented together. In all cases, of whatever material I make the said plug as aforesaid, the threads or strips are rendered stiff longitudinally by being coated with any suitable material such as gums, glue, starch, cereals and the like. Such stiffening can be applied simultaneously with the formation of the tube and constitutes part of the longitudinal cementing above mentioned which forms the threads into the tube. Where I use tissue paper or weaving the threads or strips are rendered stiff in the same manner and the paper or weaving is used in such a manner as to form the tube as illustrated in Fig. 4 where B indicates the tissue or weaving surrounding the segments A as in Fig. 2.

While I have described above a method of carrying out the manufacture which I prefer and which method I find satisfactory, I also find that it is not necessary to heat the rollers but to do the major part of the drying before reaching the rollers.

In Fig. 5 the plug is shown as inserted in a hole made in the wall C. The screw D is

partly driven into said plug to expand the walls thereof and to split the joints between the segments A, (Figs. 2, 3, 4 and 6). In Fig. 6 the expanding of the segments A and their breaking apart from each other under the influence of the taper screw are shown. In Fig. 3 previously referred to, it will be observed that provision is made between segments A by nicks E both inside and out, or the said nicks can be either inside or out, for the purpose of allowing the segments to separate readily at the nicks when subject to the pressure of the taper screw. In Fig. 4 the segments A are held together by a weak weaving of fiber or tissue paper B which must be of such character as to readily burst or strain open to allow the segments A being expanded as before mentioned.

What I claim is:

A socket to receive screws and like fittings consisting of fibers arranged longitudinally in the form of a tube and held together in such form by means of a weak cement.

JOHN JOSEPH RAWLINGS.

Witnesses:

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CONRAD K. VAL RENSTEIN.