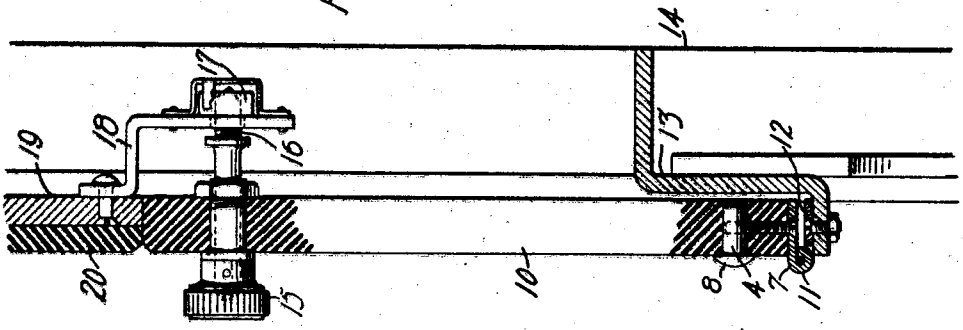
April 12, 1927. 1,624,595

A. HADDOCK

ATTACHMENT TO ELECTRIC INSULATION

Filed June 3, 1922

Fig. 3.



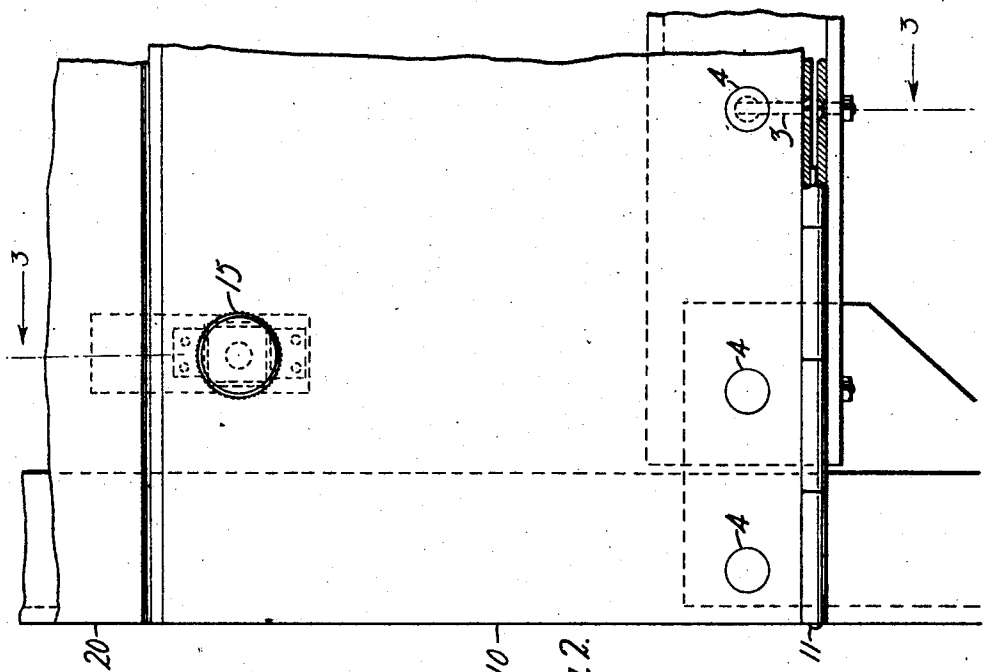
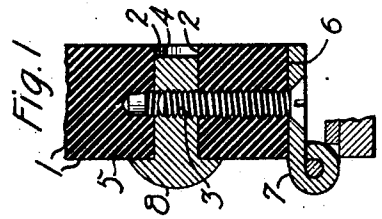


Fig. 2.

Fig. 1



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UNITED STATES PATENT OFFICE.

ARTHUR HADDOCK, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ATTACHMENT TO ELECTRIC INSULATION.

Application filed June 3, 1922. Serial No. 565,666.

This invention relates to means for attaching mechanical elements together and more particularly to means for attaching an element to material which is to some extent mechanically weak.

One of the objects of the invention is to provide means for attaching hinges or other elements subject to strain to electric insulating materials or other materials which are of inadequate strength to withstand ordinary strains on screw threads tapped therein. The materials may be weak due to brittleness, due to a laminated structure giving rise to differences in strength in different directions, or due to other reasons.

It is old in the art to employ metal inserts molded into electric insulating material and like materials for the purpose of providing screw threads of greater strength than that of the insulating material within which the metal is inserted. This expedient is not available, however, after the insulating or similar material has been made up in final form without the proper inserts.

One object of the present invention is to provide a simple and efficient means of attachment to finished materials, and at the same time substantially conceal the means by which the attachment is accomplished.

In accordance with the present invention, means are provided for securely attaching a hinge by means of screws to the edge of a door consisting of a panel of insulating material. A hole is drilled through the door from one side to the other in a direction perpendicular to that to be taken by the screw to be associated therewith. A cylindrical plug of brass or other suitable material is inserted to closely fit said hole and to entirely close an exposed end of the hole. Screw threads are then tapped from the edge of the door and extended into said plug. The hinge may now be firmly attached to the edge of the door by means of a screw threaded into said plug. The plug takes up any severe strains to which the hinge may be subjected and at the same time closes the exposed end of the plug hole at the front of the door, thus concealing from view the details of construction and presenting a finished appearance to the door. The plug may be provided with an expanded head to extend over the edges of the plug hole, thus adding to the ornamental appearance of the construction and further concealing from view the details of the construction. Additional attaching screws may be provided in the manner just described.

Other objects of the invention will be apparent from the more detailed description of the invention which follows and in view of the drawings.

Fig. 1 is a cross sectional view of a modification of the invention showing means for attaching a hinge to insulating material by means of screws; Fig. 2 illustrates a door having a hinge attached thereto in accordance with the construction shown in Fig. 1; Fig. 3 is a partial sectional view of the door shown in Fig. 2 taken along the line 3—3, looking in the direction indicated by the arrows.

Referring to Fig. 1, the body 1 of electric insulating material consisting of phenol fibre or other phenol product, or other material which is of inadequate strength to withstand ordinary strains on screw threads tapped therein, is provided with a cylindrical hole 2 which passes through the body 1 at right angles to the direction to be taken by the screw 3. The cylindrical plug 4 of brass or other suitable material is fitted tightly into the hole 2 so that it closely fills the end of the hole 2 at the exposed surface 5 of the body 1. A hole is then drilled from the edge 6 of the body 1 and tapped through the body 1 and the plug 4. The hinge member or other element 7 is firmly attached to the edge 6 of the body 1 by means of the flat headed machine screw 3.

When the hinge member 7 is subjected to a force tending to detach it from the body 1, the screw 3 resists said force to a much greater degree than would be possible if the screw 3 were threaded merely into the body 1. The plug 4 not only furnishes a screw thread of much greater strength than that of the phenol fibre of which the body 1 may be composed, but distributes the force exerted by the screw 3 over a larger portion of the body 1 than would be possible if the screw 3 were threaded into the body 1 alone.

It is not necessary to provide threads in the body 1, and a clearance hole between the edge 6 and the plug 4 may be used instead of a tapped hole, although the thread-

ed hole in the body 1 provides a more rigid and satisfactory means for engaging the screw 3. The head 8 of the plug 4 may be expanded to extend over the exposed surface 5 of the body 1 and cover up the edge of the exposed end of the hole 2. Plug 4 is shown with a rounded head but it is obvious that any other suitable form of ornamental head may be provided on the plug 4. This head facilitates the assembly of the plug 4 in the body 1 as it provides a definite stop to determine how far the plug 4 is to be inserted within the hole 2 from the exposed surface 5. If desired, the hole 2 need only extend part way through the body 1 and in this case, only one end of the hole is exposed at the surface of the body 1.

Fig. 2 shows a door 10 of a switchboard panel composed of phenol fibre or similar material. The hinge 11 is attached to the door 10 by the same type of construction described in connection with Fig. 1. A plurality of plugs 4 are provided to permit of securing the hinge to the door 10 at a plurality of points.

Fig. 3 shows the method of applying the construction illustrated in Fig. 1 to the door 10. The hinge member 7 is supported by the complementary member 12 which in turn is supported from the downwardly extending metal support 13 which is secured to the main frame 14 of the switchboard panel. The door 10 is locked or unlocked in closed position by turning the knob 15, an extension 16 of which screws into or out from the nut 17 supported on the angular member 18 which in turn is supported from the panel 19 of steel or other suitable material which is covered by and reinforces the insulating panel 20.

Although the invention has been described in connection with means for attaching a hinge to a body of insulating material, it is to be understood that other elements than hinges may be attached in the manner described not only to the edge of a body but to any desired part of the body.

It will be obvious that the general principles herein disclosed may be embodied in many other arrangements widely different from those illustrated without departing from the invention as defined in the appended claims.

What is claimed is:

1. In combination, a body having an edge, said body being composed of material too weak to withstand a substantial strain on screw threads therein, an element attached to said edge, and means, including a circular plug having an expanded head completely filling an exposed end of a hole in said body, and a screw threaded into said plug at a substantial angle to the axis of said plug for clamping said element against said edge.

2. In combination, a body of electric insulating material, an element supported by said material, means comprising a circular lug having an expanded head for reenforcing said insulating material at the point of support and a screw for attaching said element to said insulating material, said screw being threaded both to said lug and to said insulating material.

3. In combination, a body having an edge, the material of which said body is composed being too weak to withstand a substantial strain on screw threads therein, an element attached to said edge, and means, including a cylindrical plug having an expanded head in close contact with the surface of said body substantially completely filling a cylindrical cavity extending from one side of said body to the other, and a screw threaded into said plug substantially at right angles to the axis of said plug, said screw having a head for clamping said element against said edge.

4. In combination, two bodies to be attached together, the material of one of said bodies being characterized by low tensile strength and elasticity, a cylindrical plug having a smooth surface inserted in a hole in one of said members, a member threaded to said material of low strength and to said plug and adapted to clamp said bodies firmly together, said plug having a head adapted to present a reenforcing surface to said body of low strength.

In witness whereof, I hereunto subscribe my name this 2nd day of June A. D., 1922.

ARTHUR HADDOCK