H. C. EGERTON.

MAT, &c.

APPLICATION FILED OCT. 18, 1918.

1,352,733. Patented Sept. 14, 1920

Fig. 1,

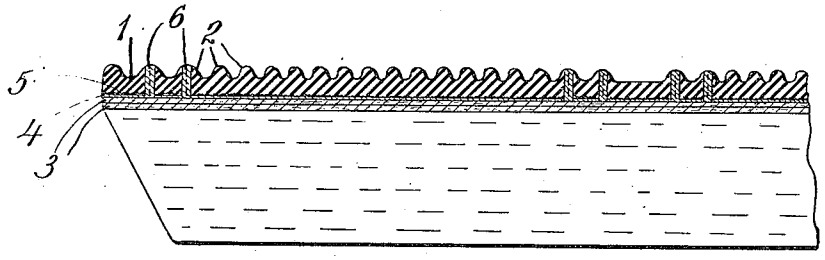


Fig. 2,

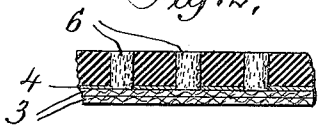


Fig. 3,

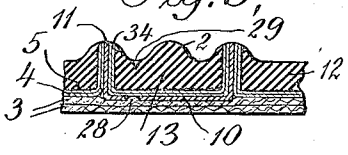


Fig. 4,

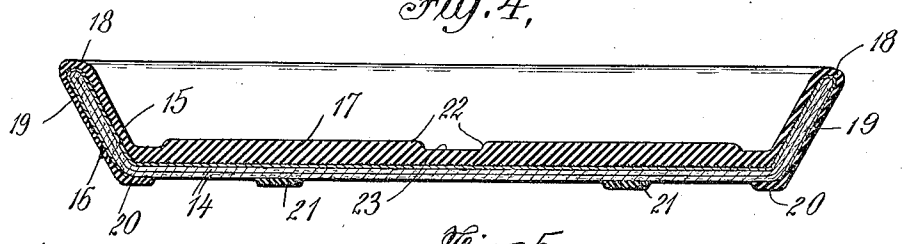
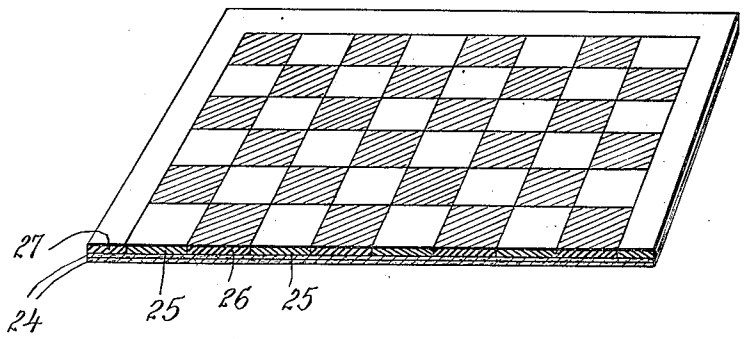


Fig. 5



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MAT, &c.

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Application filed October 18, 1918. Serial No. 258,741.

To all whom it may concern:

Be it known that I, HENRY C. EGERTON, a citizen of the United States, and resident of Ridgewood, county of Bergen, and State of New Jersey, have made a certain new and useful Invention Relating to Mats, &c., of which the following is a specification, taken in connection with the accompanying drawing.

This invention relates especially to floor and other mats and tread members which may have contact surfaces of vulcanized rubber or generally similar compositions formed with any suitable type of projecting ridges or other contact members. This rubber contact portion or body of the mat or other article may with advantage be secured to a stiffening backing member comprising one or more layers of canvas or other fabric or fibrous material carrying and preferably quite thoroughly impregnated with cured phenolic condensation cementing material, such as bakelite, condensite or redmanol varnish compositions, for instance. If desired suitable reinforcing members may be incorporated in the rubber body of the article and be secured or cemented to the backing member thereof so that portions of these reinforcing members project toward or to the contact surface to increase its local gripping action or prevent undesirable wear thereon.

In the accompanying drawing showing in a somewhat diagrammatic way illustrative embodiments of this invention,

Figure 1 is a perspective view partly in section showing one type of mat or generally similar article.

Figs. 2 and 3 are enlarged sectional views showing details of construction.

Fig. 4 is a vertical section through such an article adapted for use as a flower pot mat, for instance; and

Fig. 5 is a perspective view partly in section showing another form of mat.

As indicated in Fig. 1, the mat may have a contact surface and body 1 of vulcanized rubber composition of any suitable character and any desired form and arrangement of projecting portions 2, such as knobs or separated projections, ridges or the like may be formed on this contact surface so as to give the character and extent of gripping action desired. These arrangements naturally vary according to the use to which the mat or tread device is to be put and for some purposes relatively yieldable isolated projections are desirable as in change mats, while for floor mats or stair treads the projecting contact portions are considerably heavier and stronger so as to have correspondingly increased wearing surface. For many purposes it is also desirable to incorporate suitable reinforcing members in the body of the mat or contact surface thereof and any desired arrangement may be used for these reinforcing members which for secure union with the vulcanized rubber body may advantageously be made of or comprise cord, fabric or other fibrous material which may be reinforced and stiffened by incorporating cured phenolic condensation cementing material therewith. It is also desirable to have the mat or similar article provided with stiffening or reinforcing backing members, which when formed of one or more sheets or layers 3 of canvas or other fabric or fibrous material preferably of a somewhat open loose texture, including suitable paper, may carry suitable phenolic condensation cementing material and be preferably quite thoroughly impregnated therewith so that when cured the backing is cemented together and greatly stiffened and strengthened. Such backing members may be directly united and vulcanized to the vulcanized rubber body of the mat or similar article, if desired, although it is usually more convenient to interpose a suitable connector member, such as a sheet of previously frictioned or rubberized fabric 4 having its rubber coating 5 adjacent the vulcanized rubber body of the mat. When these parts are forced together in the vulcanizing mold the vulcanizing heat simultaneously vulcanizes the rubber and cures the phenolic condensation cementing material incorporated in the fabric and also unites all of the parts so that a substantially integral article is secured having a high degree of stiffness and strength as compared to its weight and which may be rendered substantially waterproof throughout when the fabric members contain as much as forty or fifty per cent. by weight of such cured phenolic condensation cementing material as bakelite varnish compositions.

Where such fibrous reinforcing members as cord, rope or fabric sections 6 are incorporated in the mat body they may be con-

veniently extended toward or preferably in contact with the backing or connector members and when containing or impregnated with sufficient phenolic condensation cementing material this may serve to strongly cement or unite them to the fabric members in addition to their strong vulcanized union with the inclosing rubber of the mat body. In some cases such cords or projecting strips of fabric 6 may advantageously be arranged within the projections 2 of the contact surface of the article as shown in Fig. 1, or if desired, such elements may be arranged substantially flush within the mat body 7 of vulcanized rubber composition as indicated in Fig. 2. In some cases also metallic reinforcing members, such as metal plates, coiled or other wire or strip, may be incorporated preferably in connection with suitable fabric or fibrous material containing cured phenolic condensation cementing material to promote the strength of union or incorporation of such metallic reinforcements. As indicated in Fig. 3, the metallic reinforcement may be formed of sheet metal plate having a supporting member 10 and one or more upwardly turned reinforcing members 11 which may approach or reach the projecting contact portions of the article, in which case they are preferably formed with serrated or irregular edges to minimize slip. To facilitate the incorporation and union of such metallic members additional layers of canvas or other fabric coated or impregnated with such phenolic condensation cementing material may advantageously be used adjacent the metal which may also in some cases be previously coated with a cured or baked layer of metal enamel of this character, such as bakelite metal enamel, which increases the adherence of the metal to such cementing material as is carried by the adjacent fabric. As shown the metal supporting member 10 may rest upon the stiffening backing layer or layers 3 of impregnated fabric and may have one or more additional layers 34 arranged thereon and preferably brought up around the projecting reinforcing parts of the metal, an additional similarly impregnated or coated layer of fabric 4 being arranged, if desired, in contact with the reinforcing backing fabric and brought up in the form of an edgewise projecting strip on the other side of the metal reinforcements 11. If desired, connector layers such as 5, which may be previously rubberized on their exposed surface may be arranged between the vulcanized rubber body 12 and these stiffening fabric elements, suitable portions 13 of such vulcanizable rubber composition being of course arranged within the channel or other metallic reinforcing member and its adjacent fabric. All of these parts may of course be simultaneously cured, vulcanized and cemented together by molding them under pressure at suitable heat, such as 250° to 320° F. for an hour or so which is sufficient with most vulcanized rubber and phenolic condensation cementing materials of this character. If desired, suitable nailing or securing holes, such as 28, may be formed in the metallic supporting members and nailing indications or depressions, such as 29, may be formed in the upper contact surface of the mat or member in alinement therewith to guide the workman in nailing or screwing the mat in position where this is desired. Even where metallic reinforcements are not used the strong and relatively rigid stiffening backing member greatly facilitate the permanent nailing or securing of such mats in position and the strong adherence of the vulcanized rubber facing or body of the mats to such backing members is highly advantageous in this connection in preventing creep or blistering of the rubber surface under hard service. If desired also the bottom layer of the stiffened backing fabric may in some cases be in its natural unfilled or uncoated condition on its lower surface, so that any suitable gluing or cementing material may be used therewith to adhesively secure the mat in position.

As shown in Fig. 4, a mat of this general character may in some cases be provided with upstanding edge portions for various purposes and the desired degree of stiffness therein may in such cases be secured by incorporating sufficient fabric impregnated with such phenolic condensation cementing and strengthening material with or without suitable sheet metal or other metallic reinforcement. In this case the stiffening or backing member may be formed of any desired number of layers 14 of woven or knit fabric, heavy knit cotton fabric being desirable where a considerable convexity is necessary because of the increased elasticity possessed by such knit fabric. Such fabric may of course be thoroughly impregnated with bakelite varnish No. 1 or other suitable phenolic condensation cementing material which can then be dried at moderate temperatures of 160° to 200° F. more or less and preferably softened by moderate heating before being shaped up in the vulcanizing mold or by previous molding operations which may stamp up and simultaneously cement together in a preliminary way the various fabric portions used for an article. As indicated an inner connector layer 15 of previously rubberized fabric is preferably used and this may, if desired, be extended on the outside of the edge flange or projecting portion 18 of the article so as to form the layer 16 therein or a separate connector fabric may be provided at this point and promote adherence of the outer vulcanized rubber facing 19 which may, if desired, be

used at this point. The inner vulcanized rubber facing or body 17 of the article may be of any desired thickness, composition and color and may be formed with any suitable number and arrangement of projecting contact portions, such as ribs 22, indicated, which may have a more or less radical arrangement for flower pot mats to promote drainage toward the central portion 23 of the bottom. To give suitable supporting or contact surface for the article the outer vulcanized rubber portion may be extended into contact portions, such as 20, running either continuously around the bottom of the article or formed at separated points thereon and other contact members, such as 21, of vulcanized rubber; or fabric or fibrous material coated or impregnated with such phenolic condensation cementing material may be used at other points where necessary to carry the weight of the article. Fig. 5 shows another form of mat in which the stiffening backing member may comprise one or more layers 24 of any suitable fabric carrying such phenolic condensation cementing material in cured, solidified form united in any suitable way to a vulcanized rubber facing or body member which may be formed with a variegated or differently colored pattern for different aesthetic or useful purposes. As indicated this mat is given a checkerboard design, the squares or spaces 25 being formed of vulcanized rubber differently colored from the alternate squares 26 so as to be used for a game board if desired, and if desired an edging strip, such as 27, may be provided of suitable colored or textured composition.

This invention has been described in connection with a number of illustrative embodiments, forms, proportions, elements, parts, shapes, materials, compositions, and methods of preparation, production and use, to the details of which disclosure the invention is not of course to be limited, since what is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

1. The rubber faced mat having a contact surface of vulcanized rubber formed with projecting contact portions, a stiffening backing member formed of a plurality of layers of canvas fabric carrying and impregnated with cured phenolic condensation cementing material, reinforcing members comprising fabric fibrous material carrying cured phenolic condensation cementing material and incorporated sheet metal members cemented and secured to said backing member and projecting toward said contact surface and a fabric connector having a frictioned rubber coating engaging and vulcanized to said vulcanized rubber forming such contact surfaces.

2. The rubber faced mat having a contact surface of vulcanized rubber formed with projecting contact portions, a stiffening backing member comprising a plurality of layers of canvas fabric carrying and impregnated with cured phenolic condensation cementing material, reinforcing members comprising fabric fibrous material carrying cured phenolic condensation cementing material secured to said backing member and projecting toward said contact surface.

3. The rubber faced mat having a contact surface of vulcanized rubber formed with projecting contact portions, a stiffening backing member comprising fabric carrying and impregnated with cured phenolic condensation cementing material.

4. The mat or similar article having a body and a peripheral containing flange portion provided with a contact surface of vulcanized rubber formed with projecting contact portions, a connected stiffening backing member comprising fibrous material carrying and impregnated with cured phenolic condensation cementing material, and a fabric connector having a frictioned rubber coating engaging and vulcanized to said vulcanized rubber forming such contact surfaces.

5. The mat or similar article having a body and a pheripheral containing portion provided with a contact surface of vulcanized rubber, and a connected stiffening backing member comprising fibrous material carrying and impregnated with cured phenolic condensation cementing material.

6. The mat or similar article having a body and a pheripheral containing portion of vulcanized rubber, and a connected stiffening member comprising fibrous material carrying cured phenolic condensation cementing material.

7. The mat or similar article having a body and contact wearing surface of vulcanized rubber formed with projecting contact portions, a stiffening backing member securely connected thereto and comprising fabric carrying and impregnated with cured phenolic condensation cementing material and reinforcing members comprising metal members and connected fibrous material carrying cured phenolic condensation cementing material secured to said backing member and projecting toward said contact surface.

8. The mat or similar article having a body and contact wearing surface of vulcanized rubber, a stiffening backing member securely connected thereto and comprising fabric carrying cured phenolic condensation cementing material, and reinforcing members connected to said backing member and comprising metal members and con-

nected fibrous material carrying cured phenolic condensation cementing material projecting toward said contact surface.

9. The mat or similar article having a body and contact surface of vulcanized rubber, a stiffening backing member securely connected thereto and comprising fabric carrying cured phenolic condensation cementing material, and incorporated reinforcing members comprising fibrous material carrying cured phenolic condensation cementing material projecting toward said contact surface.

10. The mat having a body of vulcanized rubber and projecting portions including a projecting rim and a securely connected stiffening backing layer comprising fabric and impregnated with cured phenolic condensation cementing material.

11. The mat having a body of vulcanized rubber and projecting portions, and a securely connected and incorporated stiffening member comprising a layer of fabric carrying cured phenolic condensation cementing material.

12. The mat or generally similar article having a body of rubber and a securely connected stiffening member comprising fibrous material carrying cured phenolic condensation cementing material.

13. The rubber faced mat or generally similar article having a body of vulcanized rubber formed with projecting portions and a securely connected stiffening member comprising fabric carrying cured phenolic condensation cementing material and having exposed securing portions in substantially uncoated condition to facilitate adhesively gluing or securing the article to a support.

14. The rubber faced mat or generally similar article having a body of vulcanized rubber and a securely connected stiffening member comprising fibrous material carrying cured phenolic condensation cementing material and having exposed securing portions in substantially absorbent condition to facilitate adhesively securing the article to a support.

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