

Nov. 12, 1940.

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2,220,962

PERVIOUS RESILIENT MATERIAL

Filed Sept. 26, 1938

2 Sheets-Sheet 1

Fig. 1

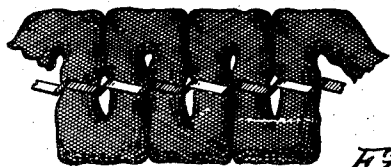
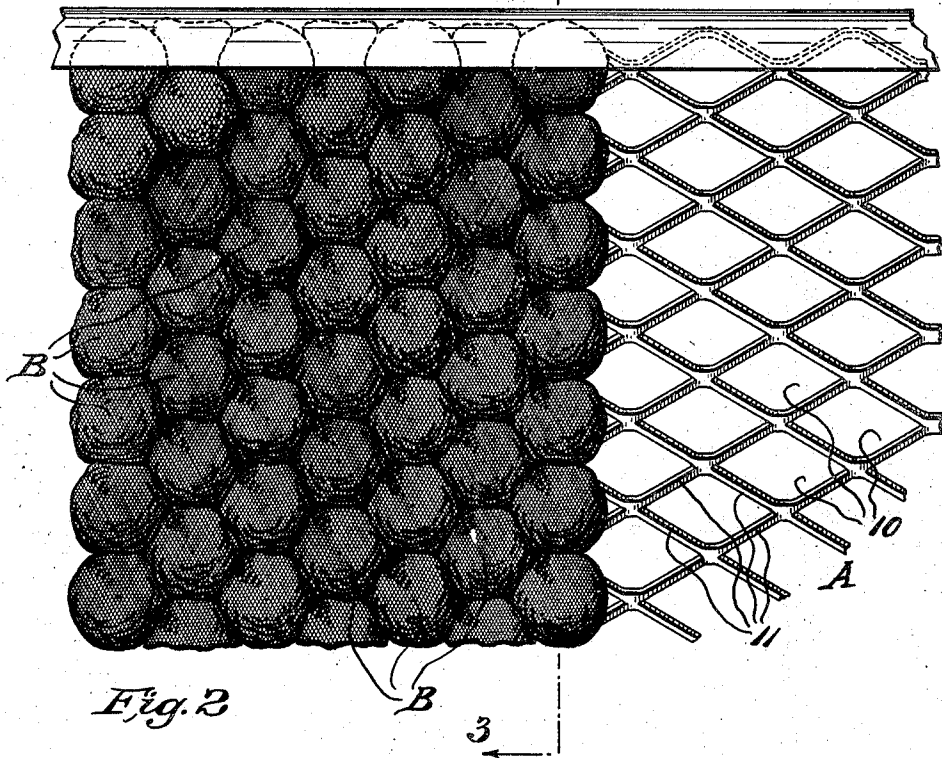
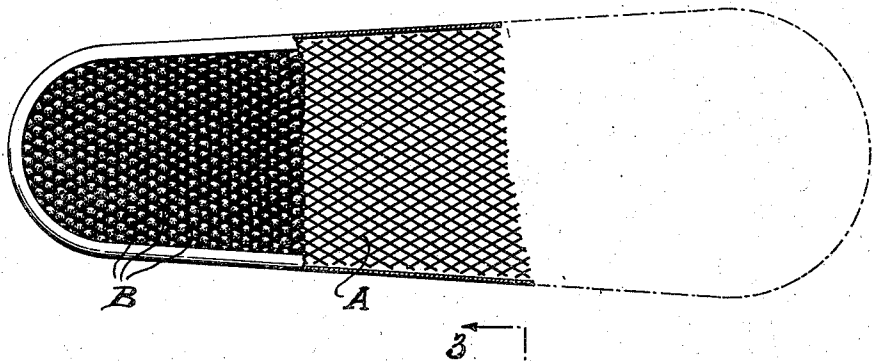


Fig. 8

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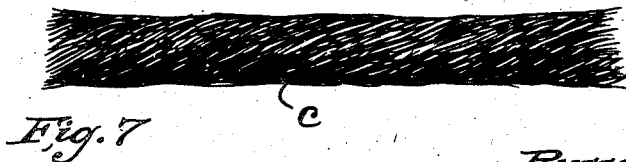
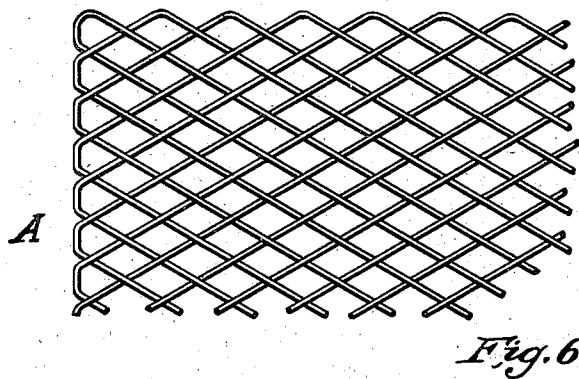
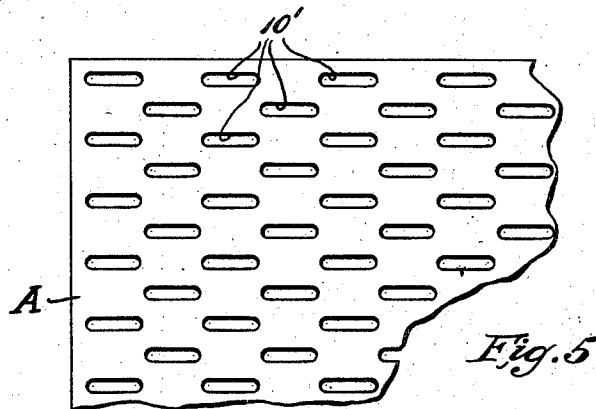
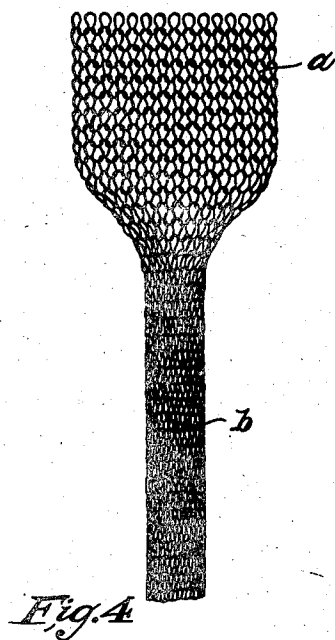
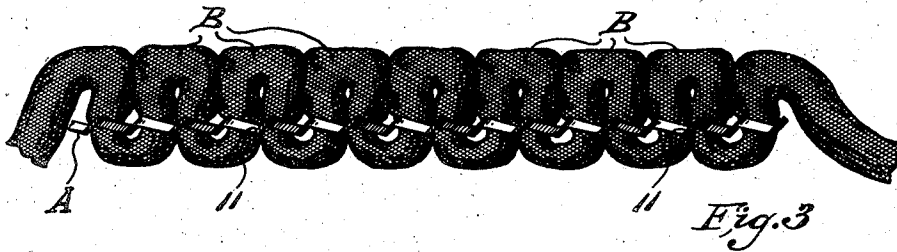
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2 Sheets-Sheet 2



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PERVIOUS RESILIENT MATERIAL

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Application September 26, 1938, Serial No. 231,723

4 Claims. (Cl. 35—66)

This invention relates to improvements in pervious resilient material.

The invention has for an object to provide a novel pervious resilient material suitable to serve as a padding body for various purposes; and for use in many other connections wherein a resilient or porous or resilient and porous body is required or desired; and especially for uses wherein a pervious or porous resilient body is desired, that will yield to locally applied pressure without "float", i. e. one which is substantially non-stretching in any direction parallel to its face plane but which is readily yieldable or compressible in directions more or less perpendicular to its face plane.

It is a more specific object of this invention to provide an improved pervious but non-absorbent resilient metallic padding for facing ironing boards, pressing machine bucks or rolls of garment pressing and laundry ironing apparatus, and the like. To this end the novel padding material of this invention is constructed to provide resilient characteristics adapting the same to smoothly support the material being pressed in opposition to the applied pressure of ironing or smoothing operations, while at the same time yielding locally and conformably without "float" (i. e. with little or no lateral stretch or deformation) to protuberances such as buttons, seams, welts or the like possessed by the material being pressed; the novel padding material being also constructed to provide pervious characteristics whereby it quickly passes, without restriction, moisture, steam or air to and through the supported material being smoothed or pressed to moisten or dry the latter as required, while at the same time providing a pervious material which is non-absorbent and free from tendency to saturate or collect undue moisture.

Other objects of this invention, not at this time more particularly enumerated, will be understood from the following detailed description of the same.

Illustrative embodiments of this invention are shown in the accompanying drawings, in which:

Fig. 1 shows a plan view, with parts broken away, of an ironing pad formed by the novel pervious resilient material according to this invention; Fig. 2 is an enlarged fragmentary plan view of the novel pervious resilient material with parts broken away to show supporting core or base frame structure thereof; and Fig. 3 is a fragmentary cross sectional view, taken on line 3—3 in Fig. 2.

Fig. 4 is a fragmentary view of one kind of

pervious metallic mesh material from which the body of the padding is made.

Fig. 5 is a fragmentary plan view of a modified form of the core or base frame element of the novel padding; and Fig. 6 is a similar fragmentary plan view of another modified form of the core or base frame element.

Fig. 7 is a fragmentary view of another kind of metallic material from which the body of the padding may be made.

Fig. 8 is a sectional view similar to that of Fig. 3, but showing resilient pile tufts projected from both faces of the core or base frame.

Similar characters of reference are employed in the above described views, to indicate corresponding parts.

In Figs. 1 to 3 inclusive is shown a preferred embodiment of the novel pervious resilient material according to this invention. This construction comprises a supporting core or base member A of reticulate or perforate material to provide rows of meshes or openings 10, preferably disposed so that the meshes or openings of one row occupy a staggered symmetrical relation to those of adjacent rows. One type of material adapted to provide the above-described characteristics is an expanded metal lath such as illustrated in detail in Figs. 2 and 3, wherein the meshes or openings 10 are of diamond shape bounded by interconnected reticulate bars 11. It will be obvious, however, that the core or base member A may comprise a great variety of forms, so long as rows of tuft supporting openings are provided thereby. Illustrative of this, there is shown in Fig. 5 a core or base member A consisting of sheet metal perforated to provide suitably disposed rows of tuft supporting openings 10'; and in Fig. 6 is shown a core or base member A made of woven wire. The shape and relative disposition of the openings of the core or base member A are also respectively subject to wide variation, and it is not absolutely essential, notwithstanding that it is preferable, that the meshes or openings of one row be in staggered symmetrical relation to those of adjacent rows. In some cases it may be desirable that the core or base member A be of substantially rigid character, while in other cases, as e. g. when the padding material is designed for application to the surfaces of rolls or other curved surfaces, it would be desirable that the core or base member A be of more or less flexible character.

The body of the novel pervious resilient material is made from flexible rope-like lengths, rolls or roves of metallic mesh, or roves of metallic

fibres, which are looped through the core or base member A to form pile tufts upstanding from a face plane of the latter. The rope-like rolls or roves may be produced from knitted or woven wire of a suitable metal, but preferably of a metal or metallic alloy which is substantially non-corrosive, and which is of sufficiently springy character to render the masses of tuft bodies formed therefrom compressibly resilient or yieldable. To illustrate one type of mesh material suitable for the formation of the required rope-like rolls or roves, there is shown in Fig. 4 a fragmentary length of tubular knitted wire mesh *a*, the lower portion *b* of which is suitably drawn, compacted or rolled into the requisite rope-like roll or rove ready to be applied to and operatively assembled with the core or base member A. The metallic rope-like roll or rove thus provided by the knitted wire mesh not only forms a compacted resilient mass, but also a mass which is adequately porous and therefore of desired pervious character. A rope-like roll or rove of knitted wire mesh is of considerable flexibility and consequently can be easily worked or manipulated to form the desired tuft bodies when applied to the core or base member A by looping the same through the meshes or openings of the latter. Other forms of metallic mesh fabric of either knitted or woven structure may be selectively employed and manipulated to provide the required substantially flexible rope-like rolls or roves. It will also be obvious that metallic materials other than knitted or woven mesh may be employed to form the required porous or pervious and resilient flexible rope-like rolls or roves. For example, as shown in Fig. 7, the rope-like rolls or roves may comprise masses of metallic fibres, such as steel or other metallic wool *c*, rolled or twisted into lengths of suitable cross-sectional diameter. Furthermore, in some cases the rope-like rolls or roves may be made of composite material, such as interwoven or inter knitted or otherwise combined metallic filaments or wires and vegetable filaments or yarns.

To form the body of the novel pervious resilient material or padding, a rope-like roll or rove of metallic body material is successively looped through the successive meshes or openings 10 of each row of the latter provided by the core or base member A. This is accomplished by doubling portions of the rope-like roll or rove upon themselves to form loops which are pushed upwardly through the core or base member meshes or openings 10 from the rear face or side of the core or base member, thereby forming pile tufts B which project in upstanding disposition from the front face or side of said core or base member. The doubled thickness of the roots of the pile tuft forming loops passed through the meshes or openings 10 will be constrictively squeezed or compacted by the limiting bounds of said meshes or openings provided by the bars 11 which define the latter. Since the material of the rolls or roves is resilient, the pile tufts B will expand laterally above and below said meshes or openings 10 and their defining bars 11, whereby said pile tufts will be self-maintaining or self-securing in their assembled relation to the core or base member A, so as to efficiently resist any tendency to displacement from their operative connected and upstanding relation to the core or base member. The diamond shape of the preferred form of core or base member meshes or openings is calculated to enhance immobility of the pile tuft roots relative to the core or base member by reason of the

tendency of the pile tuft roots to wedge themselves in the acute angular portions of said meshes or openings. In some cases, however, it might be desirable to tie or wire the pile tuft roots to the core or base member should the character of the latter or the shape of its meshes or openings admit of any risk of accidental displacement of the pile tuft roots relative thereto.

The length of the pile tufts B, as determined by the distance or extent of upward projection thereof relative to the face of the core or base member A is selectively variable within reasonable limits, and the compressible resiliency of the padding body formed thereby will be modified accordingly; longer pile tufts tending to increase the resiliency of the padding body, and shorter pile tufts tending to decrease such resiliency.

Adjacent pile tufts B, as mounted on and projecting from the core or base member A, laterally abut each other with somewhat laterally compressive effect, whereby they mutually support each other against undue lateral displacement or yielding; this factor being enhanced when the pile tufts of one row are staggered relative to those of adjacent rows. By reason of this, and by reason of the fact that each pile tuft is freely yieldable axially, i. e. in direction angular to the face plane of the padding, the padding is readily adapted to yield to locally applied pressure without tendency to "float", i. e. without tendency to laterally transmit deforming stresses to other portions of the padding adjacently outlying from the locally compressed area. This factor is of very great advantage in resilient padding employed as work supporting means in ironing and pressing machines or apparatus. The mutual laterally supporting abutment of adjacent pile tufts also is of advantage in that it tends to laterally compact or close the pile tufts together so as to reduce to negligible degree any intermediate crevices or spaces therebetween, especially when the tops of the pile tufts are somewhat flattened or pressed down by pressure, and consequently a comparatively smooth and uninterrupted external or top padding surface is assured. As shown in Fig. 8 the pile tufts B may be disposed to project from both faces of the core or base member A.

When employing the novel pervious resilient material as a work supporting padding for ironing or pressing machines and like apparatus, the external or top surface thereof is covered with a suitable facing (not shown) of textile material, felt or the like in the well known manner. The advantages of the novel pervious resilient material as a padding for ironing or pressing machines, etc., have been already pointed out.

It will also be borne in mind that the novel material of this invention is adapted, by reason of its resilient characteristics, to serve many different purposes wherein a yieldable body or padding of stability and without tendency to "float" under locally applied pressure is desired.

I am aware that many changes or variations, in addition to those adverted to, could be made with respect to the novel pervious resilient material above described, and many apparently widely different embodiments of this invention could be made without departing from the scope thereof as defined by the following claims. It is therefore intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A material for the purposes described, com-

prising a base member having symmetrical openings therethrough, and a body material comprising porous roving formed into loops extending through the openings of said base member and frictionally bound in said openings to provide a multiplicity of laterally abutting pile tufts of substantial height upstanding from the front face of said base member and adapted to provide a resilient cushioning body substantially non-stretching in any direction parallel to its face plane but yieldable to pressure at any point in directions perpendicular to its face plane.

2. A material for the purposes described, comprising a reticulate base member, the meshes of adjacent rows thereof being disposed in staggered relation, and a body material comprising porous metallic roving formed into successive loops extending through and bound in successive meshes of successive mesh rows of said base member to provide a multiplicity of laterally abutting but relatively staggered axially compressible resilient pile tufts of substantial height upstanding from a face of said base member.

3. A material for the purposes described, comprising a reticulate base member providing rows

of staggered diamond shaped meshes, and a body material comprising flexible porous roving formed into successive loops extending through successive meshes of successive mesh rows to provide a multiplicity of laterally abutting pile tufts of substantial height upstanding from and covering a face of said base member, the roots of said pile tuft forming loops being constricted within the base member meshes and wedged in angles thereof to anchor said pile tufts against displacement.

4. A material for the purposes described, comprising a reticulate base member providing rows of staggered diamond shaped meshes, and a body material comprising flexible foraminous roving made of metallic mesh formed into successive loops extending through successive meshes of successive mesh rows to provide a multiplicity of laterally abutting axially and independently compressible resilient pile tufts of substantial height upstanding from and covering a face of said base member, the roots of said pile tuft forming loops being constricted within the base member meshes and wedged in angles thereof to anchor said pile tufts against displacement.

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