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⑤④ **A roughened cleaning sponge particularly for delicate surfaces, and manufacturing method therefor.**

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Description

This invention relates to a roughened cleaning sponge particularly for delicate surfaces, and to a method of manufacturing it.

The roughened sponge of this invention is particularly useful for cleaning scratch vulnerable surfaces, such as the surfaces of stainless steel objects, or objects coated with a thin layer of plastics like cooking pots and pans, or motor vehicle windshields. Such objects, in fact, while having inherently hard surfaces, are quite vulnerable to scratching since this would jeopardize their proper use or operation.

It is a well known fact that scratches on stainless steel pots and pans or non-adherent plastic coatings, additionally to marring their appearance, may encourage food sticking during the cooking process, while in the instance of a windshield, any scratches are liable to interfere with a clear view, especially when driving in the rain or fog.

On the other hand, such objects do require periodic cleaning, and occasionally also removal of hard or stuck deposits.

For such cleaning purposes as specified above, either felt-like rags are currently utilized or sponges incorporating scraping fillers, e.g. diamond powders, as well as roughened sponges including a core of a sponge-like material and a roughening outer cover for kitchen applications, and those same abrasive filled sponges and known hard rubber scrapers for windshield cleaning applications.

It has been found in actual practice that prior sponges including abrasive fillers may indeed originate much feared scratches, whereas felt type rags may lack fretting ability and above all, owing to their substantially two-dimensional nature, do not lend themselves to the application of a large flat surface against the object to be cleaned. Such rags are, in fact, held rolled up in one hand, so that the surface to be cleaned is only engaged in practice by the crests of the individual folds thus formed in the rag.

Another disadvantage of such rags, as well as of prior abrasive filled sponges, is that they can present no stiff side or corner edge. Thus, they cannot be useful to carefully clean, for example, the peripheral corners of pot and pan bottoms, and any other areas having corners, ridges or recesses, such as the handles of pots and the like cooking utensils. Nor are known scrapers in the form of hard rubber blades, for cleaning windshields, devoid of problems. The same, in fact, where provided as individual cleaning tools both for scraping purposes and for wiping away washing water from a windshield, and form, therefore, primarily scraping and not cleaning tools, as against sponges, rags, and the like. Not even the sponge strip sometimes associated with the same can provide accurate cleaning, because the sponge strip is supported, like the hard rubber blade, in a rigid strip-like structure which cannot accommodate the windshield crowning. Further,

the provision of a handle on such scrapers makes them unwieldy.

The cited prior sponges including a roughened covering are essentially of two types. A first sponge type comprises a core formed from a non thermoplastic foamed material and a fabric portion, also formed from non-thermoplastic materials, which is wrapped and sewn around the core. This construction has the disadvantage of involving manual processing and being time consuming. The roughened sponges of the second type comprise a sponge-like core of a non-thermoplastic material and a fabric covering of a thermoplastic material. The fabric is here in the form of a tubing. Manufacture provides for manual introduction of the sponge-like insert into its outer sheath and sealing of its ends. The sealing is practically of a linear type and of somewhat limited strength owing to the small amount of thermoplastic material available for the purpose, in practice just that provided by the yarns of the roughening fabric. In addition to being slow to manufacture, such prior sponges tend in use to open up at the sealed ends which are constantly under stress from the sponge core tending to expand.

As mentioned above, such prior sponges with outer roughening fabrics lack any stiff side or corner edges.

GB—A—2 063 058 discloses scouring pads formed by an outer tubular cover member and an interior sponge core body consisting both of thermoplastic plastics. The cover member consists of a plurality of rows of knitted stitches, each of which defines an outwardly facing friction edge area. In its resting position outside the cover member, that is before to be inserted in said cover member, the sponge core has a cross section which is smaller than the cross section of the interior chamber of the cover member, so that when accommodated in the cover member the sponge core is not firmly biased against the latter. For achieving a biasing of the sponge core against the cover member—necessary for avoiding an excessive and differential wear of the cover member as well as for avoiding a distortion with adverse effects on the sponge core and on the working area of the cover member—said GB—A—2 063 058 teaches to press by means of an assembly compression the cover member accommodating the sponge core body for filling out said cover member with the sponge core and to connect or fuse the end wall areas of both the cover member and the sponge core body with lateral thin and flexible ribs or strips by means of integration elements. Said lateral strips should anchor therefore the cover member and the sponge core body together to prevent a relative shifting between said sponge core body and the cover when the pad is in use and afford access of the pad to inaccessible areas.

Due to the fact that said lateral strips or ribs are flexible and thin they are not fit for acting as efficient cleaning tools or scrapers, that is for removing hard or stuck deposits from the objects

to be cleaned. Due to the geometrical shape of said thin lateral ribs they are not even fit for cleaning areas having corners, recesses or ridged, as often occur in cooking utensils, in pot handles and so on.

The knitted stitches of the net-like web forming the cover member have a closed configuration and lie substantially in a plane, so that the cleaning efficiency is rather soft.

The disclosed manufacturing method starts with an insertion step for inserting the sponge core in the sleeve but it is silent about the manner how to carry out said insertion.

DE—A—1 503 794 discloses a cleaning pad comprising outer layers formed by non-woven fibers unregularly spread and fixed by means of an adhesive and an internal sponge layer with a thickness of about 3 mm, consisting of thermoplastic plastics and serving as thermosealing means for connecting the internal layer with the outer ones. For this reason it is necessary to form a perimetral band. For kitchenware is provided a rectangular form. The cleaning pads disclosed in said DE—A—1 503 794 have substantially a two-dimensional structure and therefore two large cleaning surfaces. Due to the low density of the spread non-woven fibers the cleaning effect is rather soft and the perimetral sealed bands must be narrow and thin in order to be flexible enough for permitting a flexibility of said cleaning pads. The use of non-woven fibers requires further the use of an adhesive for anchoring said fibers. The proposed manufacturing method involve compulsory a rather sensible quantity of waste material.

It is a primary object of this invention to provide a roughened cleaning sponge, which can retain unaltered its original shape, even after prolonged use, and incorporates a scraping means of its own.

Another object of this invention is to provide a method of manufacturing sponges according to the invention, which can afford a fast sponge production rate without waste, the sponges obtained with this method requiring no further processing or finishing steps.

Starting from a cleaning sponge of the general type outlined hereinabove and comprising a core of a sponge-like material, which is covered externally with a roughening fabric covering, the objects of this invention are achieved with a sponge with the features pointed out in the characterizing part of claim 1. The following specifications are those of particular embodiments of the inventive sponge.

According to the invention, the fabric tubing is a knit fabric, that is having a smooth weft and warp yarns projecting therefrom into loops of a given length and only protruding from one side with respect to the weft, a portion of the loops being cut off to provide two respective scraping piles. Said cut off portions of the loops amounting approximately to 40% of the total loop number.

Furthermore, according to the invention, the projecting loops are arranged to protrude inwardly of the tubular fabric blank.

Also according to this invention, the heat sealed end bands or strips have a crosswise dimension in the range from about 5 to 10 mm, this sealing providing for a compacting sealing application of compression under heat to both the thermoplastic material of the roughening fabric and thermoplastic material of the sponge-like core.

Advantageously, the width of said sealed strips would be about 7 mm. According to a further aspect of the invention, the outer edges of the heat sealed strips stand out of the roughened sponge longitudinal sides, in the finished condition of the sponge, thus affording full accessibility to the remotest of the areas or corners to be cleaned.

In actual practice, good results have been achieved by using a sponge core and roughening fabric which result in a heat sealed edge about 1 mm thick.

The method of this invention, for the manufacture of roughened cleaning sponges according to other aspects of the invention, is characterized by the steps set forth in the characterizing part of claim 6. The following specifications are those of particular embodiments of the inventive method.

Furthermore, according to the invention, on the half-jaws of the heat sealing head, the heat sealing receptacles or impressions are such as to form, during the heat sealing process, outer end corner edges which protrude from the longitudinal sides of the finished cleaning sponge.

In addition to incorporating to the roughened cleaning sponge a scraping means of compact configuration, which means also functions, advantageously, as a sealing means for the sponge itself, an advantage of this invention proposal resides in the provision of an extremely simple and rapid manufacturing procedure which requires no finishing steps for the manufactured sponges.

As for the number of the opened, or cut off, loops, excellent results have been obtained with a number of cut off loops on the order of 40% of the loop total.

A further advantage of the sponges of this invention is that optimum filling of the roughening fabric with the sponge core is achieved, which positively avoids the formation of void pockets between the sponge and covering such as would result in unwanted wrinkles on the sponge surface in use.

This solid filling of the tubular fabric is achieved quite simply and easily through the use of the cited assembling lining tubing.

Further advantages, and details of the roughened sponge and related manufacturing method, according to the invention, will be more readily understood from the following description, with reference to the accompanying drawings, which illustrate schematically a preferred embodiment of the invention, and where:

Figure 1 is a perspective view of a roughened cleaning sponge incorporating a scraping means, according to this invention;

Figure 2 is a plan view of the same;

Figure 3 is a side elevation view of the sponge of Figure 1;

Figure 4 is a front view of the same;

Figure 5 is a sectional view taken along the line V—V in Figure 3;

Figure 6 is a sectional view taken through the tubular fabric employed for a roughening fabric;

Figure 7 is a longitudinal section view through a lining tubing or hose for sleeving and assembling the fabric, shown during a fabric sleeving step;

Figure 8 is a sectional view similar to Figure 7, with the roughening fabric sleeved;

Figure 9 is a sectional view similar to Figures 7 and 8 showing a sponge sectional blank introduced through the lining tubing;

Figure 10 is a similar sectional view taken through the lining tubing or hose, showing a starting blank already assembled at the leading portion thereof;

Figure 11 is a longitudinal section view through the completed starting blank; and

Figure 12 is a theoretical cross-sectional view illustrating the material displacement during the making of heat sealed end bands.

Making reference to the drawing figures, some of which are drawn to different scales, similar parts are designated with the same reference characters.

The cleaning sponge is generally indicated at 1 and comprises, in a manner known per se, a core 2 of a sponge-like or expanded material, and an outer fabric covering with roughening functions, indicated at 3.

According to the invention, both the sponge core 2 and roughening fabric 3 are formed from a thermoplastic plastics, that is one accepting heat sealing or ultrasonic welding. The thermoplastic material, both for the roughening fabric and sponge core, is selected to simultaneously provide for heat sealing of the ends and the formation of a scraping means directly from the materials utilized, without involving any insert or supporting elements.

The fabric employed is a tubular or hose fabric with looped warp yarns, or knit fabric, which loops, in the preferred embodiment indicated, are arranged to face inwards as shown in Figure 6. In a preferred example, polyester yarn has been used for the weft and polypropylene yarn for the warp, the yarns having a diameter on the order of 0.2 mm, while the loops had a height of about 3 mm and a length between the loop legs of about 1 mm. The number of opened, or cut off, loops amounted to about 40% of the loop total.

The height of the sponge core was 2.5 mm.

In this way, and as explained hereinafter, it has been possible to form a good heat sealed band with scraper functions. That heat sealed band has a considerable width, e.g. a width of 7 mm, and a thickness adequate to provide, on one side, optimum scraping rigidity, and on the other side, a favorable flexing ability in use of the sponge.

With the dimensions specified above, a favorable thickness on the order of about 1.3 mm and end displacements of the material are achieved,

said displacements resulting in the formation of end corner edges or flaps which stand slightly proud of the sponge longitudinal sides as clearly brought out by Figure 2. The heat sealed band is indicated at 4, and 4a designates the projecting end corner edges, while 4b designates the projecting end flaps and 4c the front scraping side. Owing to the very nature of the heat sealing process, the value specified should be regarded as an average value because thickness deviations may, of course, occur along the length of the sealed band 4.

The material displacements which result in the formation of the corner edges 4a and flaps 4b, protruding laterally, are accomplished forcibly on heat sealing through the use of correspondingly shaped receptacles or impressions in the heat sealing jaws, or alternatively, by changing the pressure value selected therefor.

According to the invention, for the manufacture of the proposed sponges, a preassembled blank of a considerable length, e.g. 5 m, is first provided.

The same is prepared using a lining tubing, indicated at 5. First the tubular fabric 3 is inserted therethrough, and then the tubular fabric is reversed onto the outer surface of the lining tubing 5, as shown in Figure 7. At this point, the tubular fabric 3 is severed at the opposed end 5b of the lining tubing 5 to the inlet end 5a, and the fabric portion is withdrawn from the interior of the tubing 5. Thus, the condition of Figure 8 is established. At this point, the sponge sectional blank 2, in the form of an elongate sectional blank, is inserted through the lining tubing 5, as shown in Figure 9, and the same is severed at the end 5a of the tubing. As brought out by the Figures, the loops of the fabric 3 will now be facing outwards. By grasping with one's hands, at the end 5b, both the fabric 3 and initial portion of the sponge sectional blank 2, a pulling force is applied to simultaneously withdraw from the lining tubing 5 both the outer fabric 3 and inner sponge sectional blank 2, which is automatically positioned within said fabric, as shown in Figure 10. The starting blank formed by the fabric 3 and sponge core 2 is indicated at 6 in Figure 11.

Shown schematically at 7 in Figure 12 are the lines of action of heat sealing jaws for the formation of the sealed bands 4. Indicated at 8 are the areas of fabric material 3 and sponge material 2 which, during the heat sealing step, are displaced and compressed into the sealed bands 4. The same may be produced either as single or double seams, or even simultaneously on two adjacent sponges. In the latter case, the common band, of double the thickness, will be separated by means of a blade element or the like.

It may be appreciated from the foregoing that with the teachings of this invention it becomes possible to effectively achieve the objects thereof, both in connection with the composite construction sponge and manufacturing method thereof.

In practicing the invention, it will be possible to replace the materials specified above with other

thermoplastic materials such as, for the weft yarn, polyamides, Nylon (R), Algodon (R), polyethylene, polypropylene, raffia, and the like, while for the warp yarn, polyethylene, Nylon (R), polyester, Algodon (R), etc., may be used, and deviations from the specified dimensions may be made. Substantial to the invention is the incorporation of the sponge within the roughened covering of scraping means, which advantageously provide for the sponge sealing. All this without involving any additional finishing steps.

Heat sealing could be replaced by an ultrasonic or any other suitable sealing process.

It is also contemplated, of course, by the invention that sponges may be provided with sealed bands having different profiles, as indicated in Figures 13, 14, or sponges be provided with peripherally extending sealed bands, as shown in Figure 15, or with intermediate sealed spots, as shown in Figure 16, or in the form of a padded element, etc.

The manufacturing method could be automated by replacing the manual withdrawal of the fabric and sponge core from the lining tubing with some automatic withdrawal procedure.

Claims

1. A roughened cleaning sponge particularly for delicate surfaces, comprising a core (2) formed from a sponge-like material consisting of thermoplastic plastics covered on the outside by a roughening fabric covering (3) consisting of thermoplastic plastics, whereby the cleaning sponge has sealed strip-like transverse end bands (4) characterized in that:

a) the fabric forming said covering (3) is knit fabric formed with a smooth weft wherefrom warp yarns stand out with loops of a given length only protruding from one side of the weft, some of said loops being cut off to form each two scraping piles, and

b) said sealed strip-like transverse end bands (4) form side flaps (4b) protruding laterally from the sponge longitudinal sides and are provided with outwards protruding corner edges (4a) which are adapted to act as scraping means.

2. A roughened cleaning sponge according to claim 1, characterized in that the cut off loops in the fabric forming the covering (3) amount to about 40% of the total loops.

3. A roughened cleaning sponge according to claim 1 and 2, characterized in that said sealed strip-like transverse end bands (4) have a cross-wise dimension in the range from 5 to 10 mm.

4. A roughened cleaning sponge according to claims 1 to 3, characterized in that said sealed strip-like transverse end bands (4) have a cross-wise dimension of about 7 mm.

5. A roughened cleaning sponge according to one or more of the preceding claims, wherein the thickness dimension of said sealed strip-like transverse bands (4) is on the order of about 1,3 mm.

6. A method of producing roughened cleaning

sponges according to claim 1, including the steps of inserting said sponge-like core (2) in said fabric covering (3) for forming a starting blank (6), connecting under pressure and sealing action the transverse end areas (8) of the sponge by fusing together the covering (3) and core (2) transverse end areas (8) and forming said sealed strip-like transverse end bands (4) and trimming said connected strip-like transverse end bands (4) for separating the completed sponges, whereby the covering fabric has cut off loops only protruding from one side of said weft and comprising the following steps:

A) insertion of the roughening fabric (3) through a lining tubing (5) up to the emergence of said fabric (3) from the opposite end (5b) to the inlet end (5a) of said lining tubing (5);

B) turning said tubular fabric (3) inside out by backfitting said fabric over the outer surface of said lining tubing (5) substantially for the full length thereof;

C) severing of the fabric (3) in the proximity of the opposed end (5b) of the lining tubing (5) to the inlet end (5a) thereof, and subsequent withdrawal from within said lining tubing (5) of the tubular fabric covering (3) present therein;

D) introduction through said lining tubing (5), substantially for the full length thereof, of an extruded sectional core (2) of a sponge-like material, and severing of said core (2) to separation;

E) simultaneous withdrawal from said lining tubing (5) of both said outer fabric covering (3) and sponge-like material core (2) from said lining tubing (5), thereby said core (2) is positioned within said fabric covering (3) with roughening loops now facing outwardly and a continuous starting blank (6) of considerable length, e.g. five meter long, is formed.

7. A method according to claim 6, characterized in that on the half-jaws of the sealing head, the sealing recesses, if any, are configured, or the sealing pressure is set, such as to cause, during the sealing step, a displacement of thermoplastic material to form outer end corner edges (4a) and flaps (4b) protruding from the sponge longitudinal sides.

Patentansprüche

1. Rauher Reinigungsschwamm speziell für empfindliche Oberflächen, enthaltend einen Kern (2) aus einem schwammartigen Material, das aus einem thermoplastischen Plastikmaterial besteht, welcher Kern an der Außenseite von einer aufrauhen Stoffdecke (3) bedeckt ist, die aus thermoplastischem Plastikmaterial besteht, wobei der Reinigungsschwamm versiegelte streifenartige Querendbänder (4) aufweist, dadurch gekennzeichnet, daß:

a) der Stoff, der die genannte Decke (3) bildet, ein Strickstoff ist, der mit glattem Schuß ausgebildet ist, von dem Kettfäden mit Schleifen einer gegebenen Länge aufstehen, die nur von einer Seite des Schusses vorstehen, wobei einige der

Schleifen aufgeschnitten sind, um jeweils zwei Kratzpole auszubilden, und

b) die versiegelten streifenförmigen Querendbänder (4) Seitenlaschen (4b) bilden, die seitlich von den Schwammlängsseiten vorstehen und mit nach außen vorspringenden Eckrändern (4a) versehen sind, die dazu eingerichtet sind, als Kratzeinrichtungen zu wirken.

2. Aufgerauhter Reinigungsschwamm nach Anspruch 1, dadurch gekennzeichnet, daß die aufgeschnittenen Schleifen in dem die Decke (3) bildenden Stoff etwa 40% der gesamten Schleifen ausmachen.

3. Aufgerauhter Reinigungsschwamm nach Anspruch 1 und 2, dadurch gekennzeichnet, daß die versiegelten streifenartigen Querendbänder (4) eine Querabmessung im Bereich von 5 bis 10 mm haben.

4. Aufgerauhter Reinigungsschwamm nach den Ansprüchen 1 bis 3, dadurch gekennzeichnet, daß die versiegelten streifenartigen Querendbänder (4) eine Querabmessung von etwa 7 mm haben.

5. Aufgerauhter Reinigungsschwamm nach einem oder mehreren der vorhergehenden Ansprüche, bei dem die Dickenabmessung der versiegelten streifenartigen Querbänder (4) in der Größenordnung von etwa 1,3 mm liegt.

6. Verfahren zum Herstellen aufgerauhter Reinigungsschwämme nach Anspruch 1, enthaltend die Schritte: Einsetzen des schwammartigen Kerns (2) in die genannte Stoffdecke (3) zur Ausbildung eines Ausgangsrohrlings (6), Verbinden unter Druck- und Siegelungswirkung die Querendbereiche (8) des Schwamms durch Verschmelzen der Decke (3) mit den Querendbereichen (8) des Kerns (2) und Ausbilden der versiegelten streifenartigen Querendbänder (4) und Trimmen der verbundenen streifenartigen Querendbänder (4) zum Trennen der fertigen Schwämme voneinander, wobei der Deckstoff aufgeschnittene Schleifen aufweist, die nur von einer Seite der Kette vorstehen, und enthaltend die folgenden Schritte:

A) Einsetzen des aufrauhten Stoffes (3) durch ein Beschichtungsrohr (5) bis zum Austreten des Stoffes (3) von dem Einlaßende (5a) des Beschichtungsrohrs (5) entgegengesetzten Ende (5b);

B) Umwenden des schlauchförmigen Stoffes (3) mit der Innenseite nach außen durch Rückwärtsziehen des Stoffes über die Außenseite des Beschichtungsrohrs (5) im wesentlichen über die gesamte Länge desselben;

C) Abtrennen des Stoffes (3) in der Nähe des dem Einlaßende (5a) des Beschichtungsrohrs (5) entgegengesetzten Endes (5b) und anschließendes Abziehen der darin enthaltenen schlauchförmigen Stoffdecke (3) aus dem Beschichtungsrohr (5);

D) Einführen durch das genannte Beschichtungsrohr (5) im wesentlichen über die gesamte Länge desselben eines extrudierten Teilkerns (2) aus einem schwammartigen Material und Abtrennen des genannten Kerns (2) zur Abtrennung;

E) gleichzeitiges Abziehen von dem Beschich-

tungsrohr (5) sowohl der äußeren Stoffdecke (3) als auch des Kerns (2) aus schwammartigem Material von dem Beschichtungsrohr (5), wodurch der Kern (2) innerhalb der Stoffdecke (3) angeordnet wird, wobei die aufrauhten Schleifen nun nach außen weisen und ein zusammenhängender Ausgangsrohrling (6) beachtlicher Länge, z.B. 5 m lang, gebildet wird.

7. Verfahren nach Anspruch 6, dadurch gekennzeichnet, daß auf den Halbbacken des Versiegelungskopfes die Versiegelungsvertiefungen, sofern vorhanden, ausgebildet sind oder der Versiegelungsdruck so eingestellt ist, daß während des Versiegelungsschrittes eine Verschiebung, des thermoplastischen Materials hervorgerufen wird, um die äußeren Endekränder (4a) und die Laschen (4b) auszubilden, die von den Schwammlängsseiten vorstehen.

Revendications

1. Eponge nettoyante rendue rugueuse en particulier pour surfaces délicates, comprenant un noyau (2) en un matériau semblable à une éponge consistant en matière thermoplastique recouvert sur l'extérieur par un revêtement (3) en tissu destiné à conférer une rugosité consistant en matière thermoplastique, l'éponge nettoyante ayant des bandes terminales transversales scellées (4) analogues à des lanières, caractérisée en ce que:

a) Le tissu formant ledit revêtement (3) est un tissu à mailles formé avec une trame unie de laquelle dépassent des fils de chaîne avec des boucles d'une longueur donnée dépassant uniquement d'un côté de la trame, certaines desdites boucles étant coupées pour former chacune deux poils de raclage, et

b) Lesdites bandes terminales transversales scellées (4) analogues à des lanières forment des pattes latérales (4b) dépassant latéralement des côtés longitudinaux de l'éponge et sont munies de bords d'angles (4a) dépassant vers l'extérieur qui sont adaptés pour agir en tant que moyens de raclage.

2. Eponge nettoyante rendue rugueuse selon la revendication 1, caractérisée en ce que les boucles coupées dans le tissu formant le revêtement (3) représentent environ 40% de l'ensemble des boucles.

3. Eponge nettoyante rendue rugueuse selon les revendications 1 et 2, caractérisée en ce que lesdites bandes terminales transversales scellées (4) analogues à des lanières ont une dimension transversale dans le domaine de 5 à 10 mm.

4. Eponge nettoyante rendue rugueuse selon les revendications 1 à 3, caractérisée en ce que lesdites bandes terminales transversales scellées (4) analogues à des lanières ont une dimension transversale d'environ 7 mm.

5. Eponge nettoyante rendue rugueuse selon une ou plusieurs des revendications précédentes, dans laquelle la dimension d'épaisseur desdites bandes transversales scellées (4) analogues à des lanières est de l'ordre d'environ 1,3 mm.

6. Procédé de production d'éponges nettoyantes rendues rugueuses selon é la revendication 1, comprenant les étapes d'insertion dudit noyau (2) analogue à une éponge dans ledit revêtement de tissu (3) pour former une ébauche initiale (6), de réunir sous pression et par action de scellage les zones terminales transversales (8) de l'éponge en faisant fondre ensemble le revêtement (3) et les zones terminales transversales (8) du noyau (2) et de former lesdites bandes terminales transversales scellées (4) analogues à des lanières et de couper lesdites bandes terminales transversales (4) analogues à des lanières réunies pour séparer les éponges terminées, le tissu de revêtement ayant des boucles coupées dépassant uniquement d'un côté de ladite trame, et comprenant les étapes suivantes:

A) D'insertion du tissu (3) destiné à conférer une rugosité dans un tube doublé (5) jusqu'à l'émergence dudit tissu (3) de l'extrémité (5b) opposée à l'extrémité d'introduction (5a) dudit tube doublé (5);

B) De tourner l'intérieur dudit tissu tubulaire (3) vers l'extérieur en faisant revenir ledit tissu sur la surface externe dudit tube doublé (5) sensiblement sur toute la longueur de celui-ci;

C) De couper le tissu (3) à proximité de l'extré-

mité (5b) du tube doublé (5) opposée a l'extrémité d'introduction (5a) de celui-ci, et de retirer ensuite de l'intérieur dudit tube doublé (5) le revêtement tubulaire en tissu (3) présent à l'intérieur;

5 D) D'introduction dans ledit tube doublé (5), sensiblement sur toute la longueur de celui-ci, d'un noyau profilé extrudé (2) d'un matériau analogue à une éponge, et de couper ledit noyau (2) en vue de sa séparation;

10 E) De retirer simultanément dudit tube doublé (5) ledit revêtement externe en tissu (3) et le noyau (2) en matière analogue à une éponge dudit tube doublé (5), ledit noyau (2) étant positionné à l'intérieur dudit revêtement en tissu (3) et les boucles destinées à conférer une rugosité étant maintenant tournées vers l'extérieur, et une ébauche initiale continue (6) de longueur considérable, par exemple cinq mètres, étant formée.

20 7. Procédé selon la revendication 6, caractérisé en ce que sur les demi-mâchoires de la tête de scellage, les évidements de scellage, s'ils existent, sont configurés, ou la pression de scellage est réglée, de façon à entraîner, au cours de l'étape de scellage, un déplacement de matériau thermoplastique pour former des bords d'angles terminaux externes (4a) et des pattes (4b) faisant saillie des côtés longitudinaux de l'éponge.

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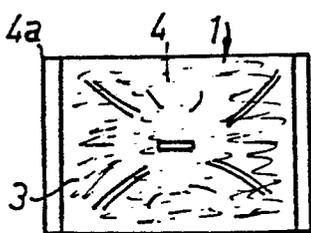
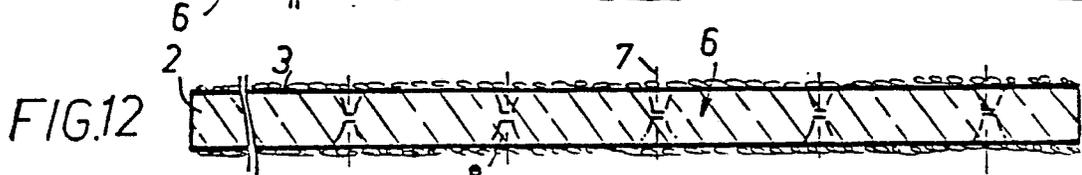
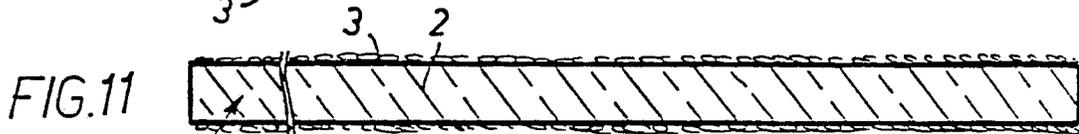
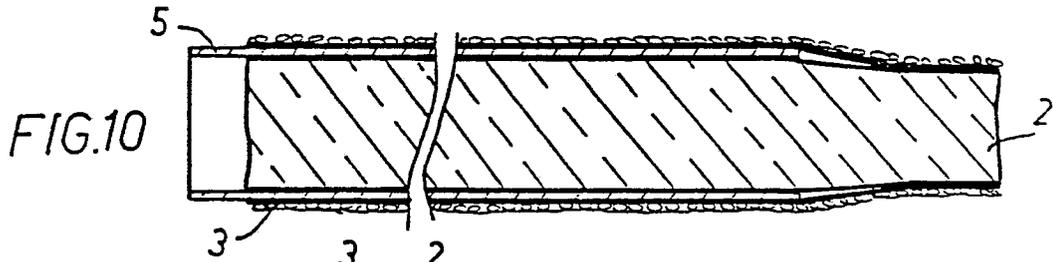
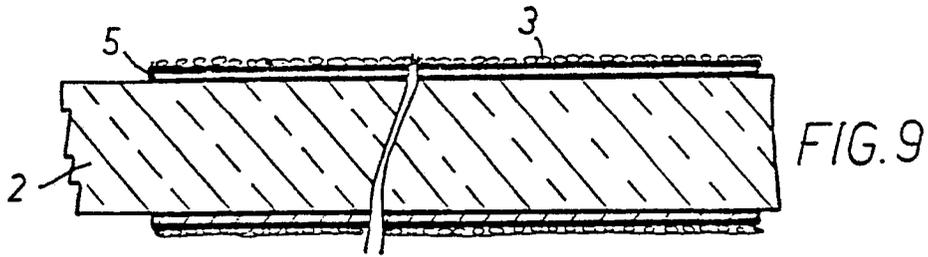
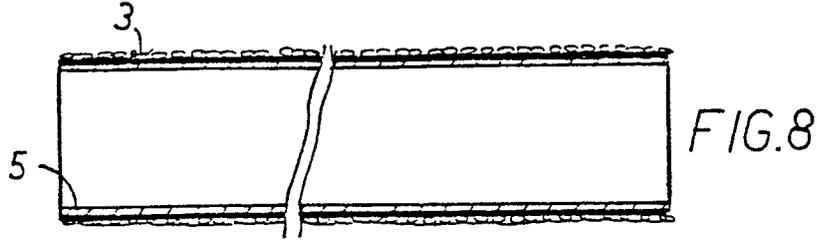
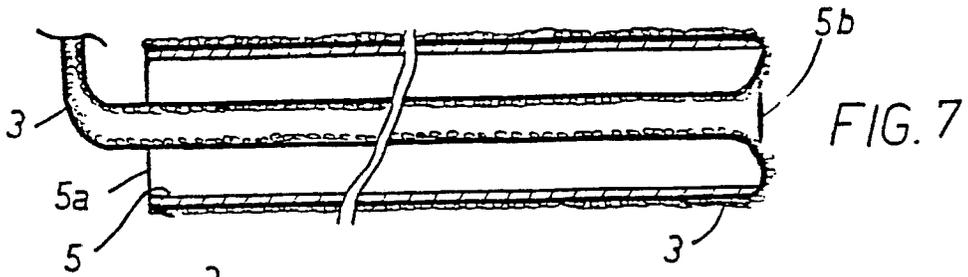


FIG. 16

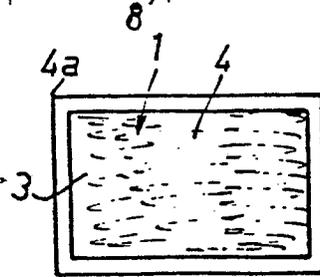


FIG. 15

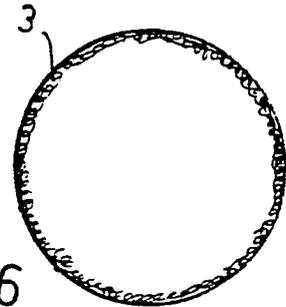


FIG. 6

