

Feb. 8, 1938.

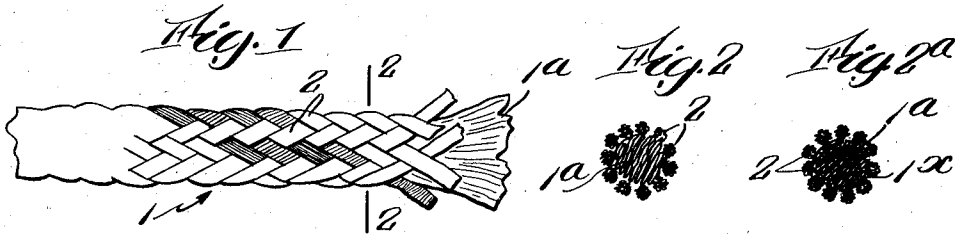
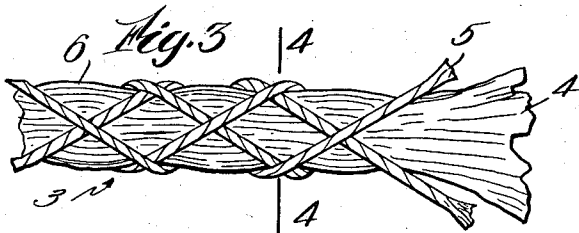
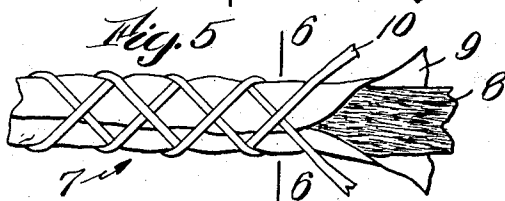
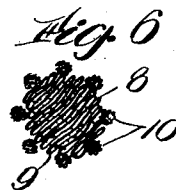
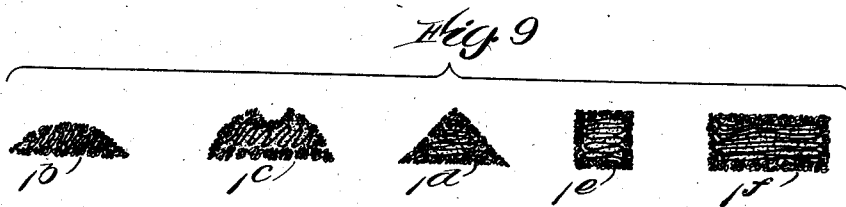
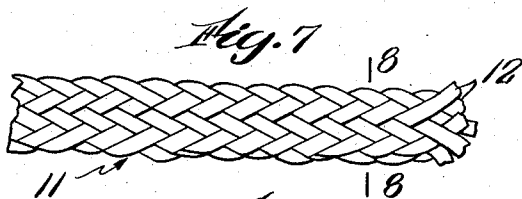
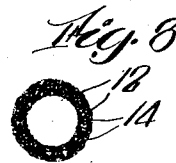
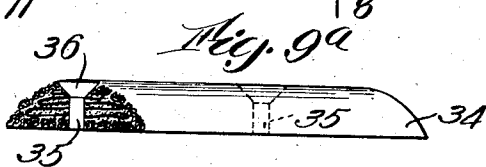
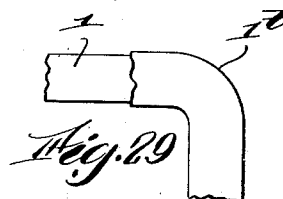
H. W. BUHLER

2,107,467

FINISHING WELT

Filed Nov. 23, 1934

3 Sheets-Sheet 1



Inventor
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Feb. 8, 1938.

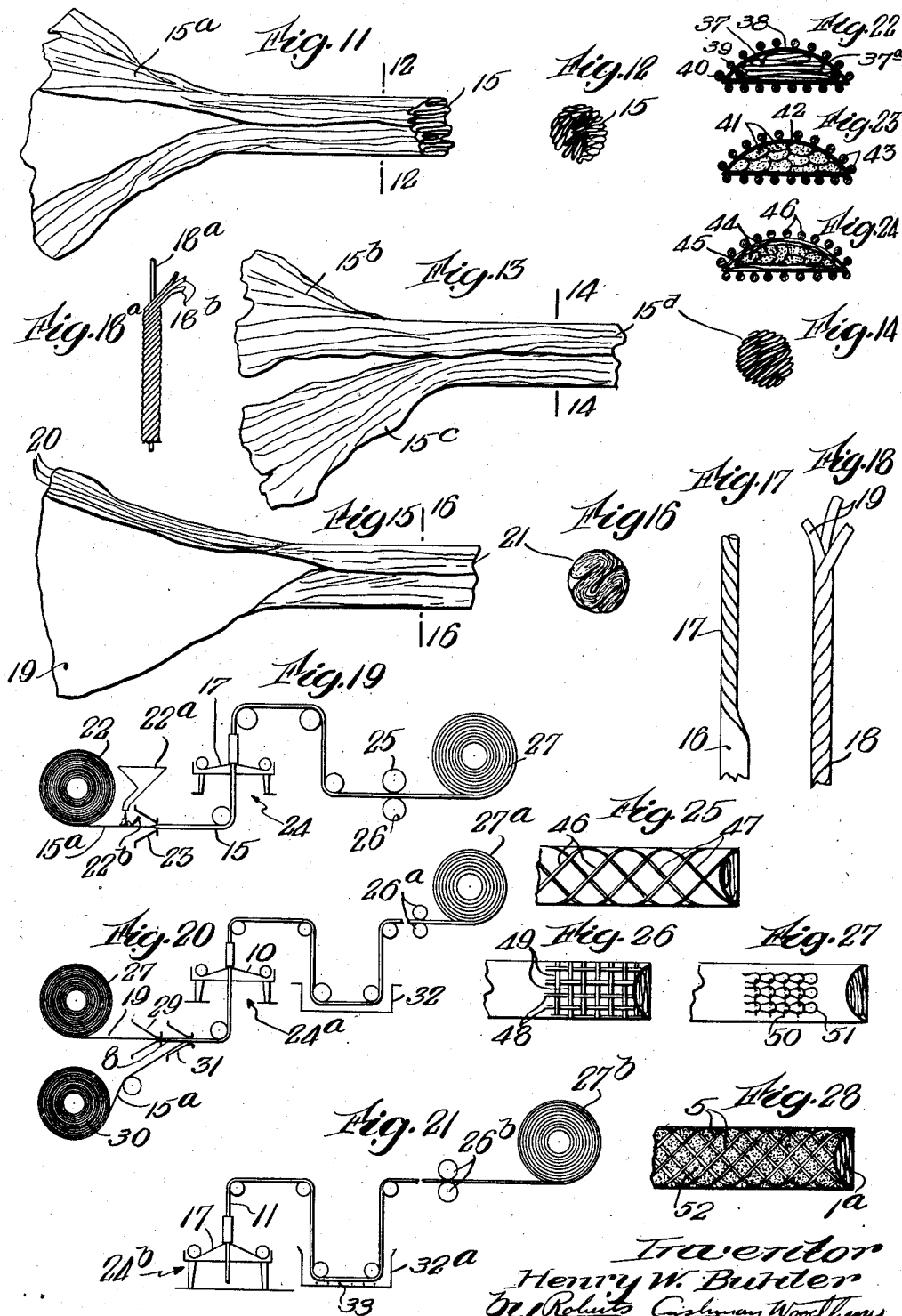
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2,107,467

FINISHING WELT

Filed Nov. 23, 1934

3 Sheets-Sheet 2



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Feb. 8, 1938.

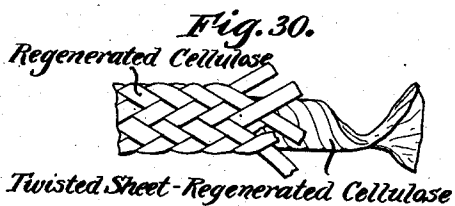
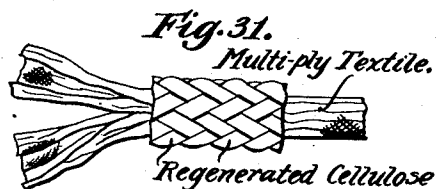
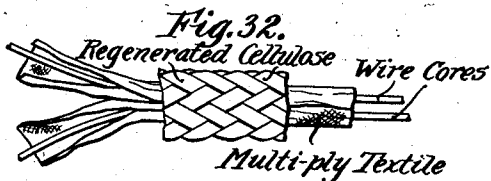
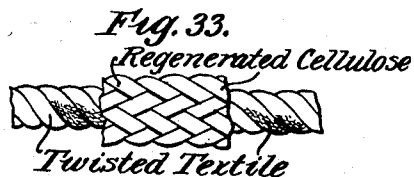
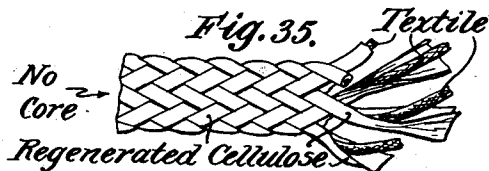
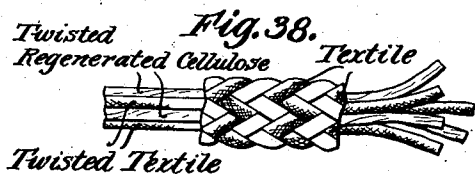
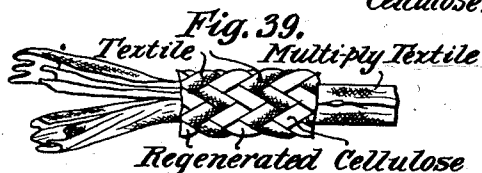
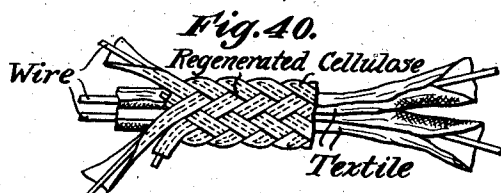
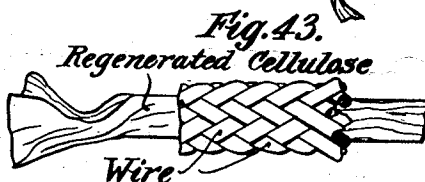
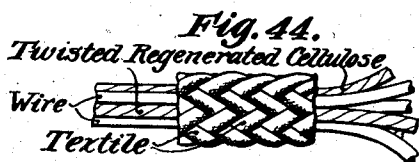
H. W. BUHLER

2,107,467

FINISHING WELT

Filed Nov. 23, 1934

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,107,467

FINISHING WELT

Henry W. Buhler, Gloucester, Mass.

Application November 23, 1934, Serial No. 754,450

8 Claims. (Cl. 96—26)

This invention pertains to finishing welts, that is to say, to that type of trimming strip which is extensively used to cover the meeting edges of upholstery fabric of furniture, and to trim the edges of covering materials in automobile bodies and tops, and relates more particularly to trimming of substantially constant and uniform cross section and contour; capable of production in substantially unlimited lengths; and which is characterized by such plasticity as to permit it to be bent about curves or corners, or into angles without fracture or substantial deformation of its transverse contour. Such trimming is employed for a wide variety of uses, and includes such relatively soft or loosely constructed material as is used by dressmakers or milliners, as well as hard dense moulding useful in the structural arts, furniture making, or by automobile builders.

In accordance with one known prior procedure, such trimming has been made by braiding twisted strands of paper, and while trimming so made is ideal for certain purposes, it has little resiliency; usually necessitates the employment of a cementitious binder to hold its parts in proper relation; and it does not possess a pleasing texture or surface appearance such as to make it desirable in places where it must be exposed to view.

I have now discovered that by using regenerated cellulosic material in thin sheet form (for example, the material known to the trade as "Cellophane") either in making the stuffer of the strip trimming or the jacket thereof, or both, or to form a substantial portion of the stuffer and/or jacket material, greatly improved results are attained.

For example, if the stuffer consist of one or more strands of "Cellophane", either plain or creped, so gathered together, for example by passing the material through a trumpet guide as to form longitudinally extending folds or laminations, such stuffer is far more resilient than paper, showing a strong tendency under ordinary conditions to open out and leave a large percentage of intervening voids. Thus a stuffer of large effective bulk may be formed from a relatively small amount of the sheet material. This characteristic is quite desirable, not only when a light but bulky trim is required, but also when it is proposed to form a dense trim by impregnating the stuffer with a relatively large proportion of plastic or other filler, the included voids in the crumpled "Cellophane" readily taking up a large quantity of any coating or impregnating medium but without necessarily causing the "Cellophane" to lose its inherent resilient characteristics. By

"strands" as herein employed, I intend to include untwisted ribbons of sheet material (for example "Cellophane" which may readily be slit into narrow strips of the order of $\frac{1}{4}$ " width) as well as wide ribbons, folded sheets, twisted or spun single sheets, spun and/or twisted aggregates of fibers, or twisted or braided multiples of elementary strands, and whether the strands be of one material, or of a combination of materials, for example, wire or paper covered with "Cellophane" or other substance. If strands having the characteristics of "Cellophane" be employed in making, as for example, by braiding, a jacket and/or the stuffer, or combined with strands of other materials in making either of them, and/or if the assembled stuffer and jacket be subjected to heavy moulding pressure, the resulting trim will retain indefinitely the cross section imparted during assembly of the parts or imposed by moulding pressure, without recourse to the employment of an impregnant binder. Thus an acceptable strip trimming may be made without using a binder if desired, thereby reducing the cost of preparation and in particular reducing weight, so that the resulting trim becomes acceptable for certain purposes from which the paper trim is excluded. Moreover, this material provides a trim or a stuffer having a very smooth glossy surface which greatly facilitates the insertion of the trim into an outer casing or tubulature,—while by reason of the pleasing appearance which may be given to this new trim, as for example by employing stuffer or jacket-forming strands of contrasting color, it is possible to produce a trim having a surface finish such that it may be exposed to view without enclosure or without further treatment. Since regenerated cellulose is substantially transparent and may be obtained in many colors, it is possible to design a trim having very artistic and pleasing color effects, particularly as the stuffer may be exposed to view if desired, by making the outer jacket of a very loose and open texture. Obviously combinations of regenerated cellulose with other materials, for example, cotton, silk, wool, linen, paper, metal wire or the like, may be desirable for certain purposes. For certain effects, for example, I make the stuffer, at least in greater part, of regenerated cellulose by reason of the high resiliency of the latter under normal conditions, and the artistic effects obtainable from its use.

More specifically, among the advantageous combinations which may be made, within the purview of the invention is a tubular trim (de-

vold of a core or stuffer) in which all of the strands are of regenerated cellulose or in which a part of the strands are of regenerated cellulose and a part of the strands are of a textile substance or consist of metal wire or other materials;—or in which some or all of the strands are of regenerated cellulose enclosing a core of other material, for example, a textile substance or a metal wire.

It is also within the purview of the invention to provide a trim comprising a tubular jacket enveloping a stuffer or core, in which the jacket comprises strands of the kind or kinds, and assembled in any of the ways just above referred to, or alternatively, wherein the jacket consists wholly of strands of a textile material or wholly of metallic wire or of any desired combinations thereof, or of any such materials associated with strands of regenerated cellulose, and in which the stuffer may consist wholly of regenerated cellulose, whether in the form of one or more elongate strands or strips of crumpled or folded multi-ply, or of rolled sheet material, or of one or more twisted or spun strands of similar material, and whether each individual strand is or some of them are provided with a core of a textile substance or metallic wire.

Further, the stuffer may comprise elongate strands or strips of regenerated cellulose in any of the forms just mentioned, associated with similar or differently formed strands of a textile substance or substances and/or with inclusions of metallic wire; or such a strand or strands of regenerated cellulose associated with one or more strands of metallic wire alone. For particular purposes the stuffer may comprise or consist of one or more elongate strands of textile material either in sheet form crumpled, folded, rolled, or multi-ply, or of spun or twisted strands with or without cores of metallic wire or cores of regenerated cellulose or with associated metallic wires.

In thus referring to "textile" substances I intend to include thereby such materials as cotton, silk, linen, wool, jute, hemp, sisal, paper, asbestos, or in fact any material capable of being spun, twisted, extruded, or otherwise brought into the form of an elongate, flexible strand, and whether such strand consists merely of a single aggregate of the primary fibers, or consists of fabric previously made from the primary fibers by usual textile processes.

The tubular trim or the jacket for the trim comprising the inner stuffer or core may be of close texture substantially devoid of visible openings or interstices or, on the other hand, the tubular trim or jacket may be of open texture of any degree of looseness desired. The stuffer material may be shaped approximately to the desired final cross section prior to or while forming the jacket; or the final cross section of the composite trim may be imposed while forming the jacket, or in part or wholly by subsequent moulding operation; the material may be impregnated, coated, colored, or otherwise subjected to any appropriate medium, reagent, or physical treatment either before, during, or after the association of the stuffer and jacket, or at any of such stages in the operation; the trim may be moulded to its final cross-sectional shape with or without such prior treatment; the trim may be provided with a tack-receiving groove or with holes for fasteners; and the material may be subjected to a plurality of successive moulding operations in reducing it to its final shape.

While I herein make specific reference by way

of illustration to braiding as one desirable mode of associating or assembling the jacket forming strands, I wish to emphasize the fact that these strands may be associated in other ways, as by weaving, knitting, winding, etc., and when herein I refer to associating the jacket forming strands, I expressly use this term as broadly inclusive of any appropriate method of bringing the several strands into such assembled relationship as to form a jacket structure comprising individual strands so concatenated, interlocked, interlaced, interlooped, intercrossed, or otherwise correlated as to form a flexible, mouldable and coherent structure.

Referring to the drawings, in which I have disclosed certain desirable embodiments of the invention by way of example,

Fig. 1 is a plan view of a short length of my improved strip trimming, illustrating an embodiment in which a resilient stuffer is enclosed in a closely braided jacket which retains the stuffer under compression, and which thus forms a dense and firm strip;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 2^a is a view similar to Fig. 2, but showing a filler material in the interstices of the stuffer;

Fig. 3 is a view similar to Fig. 1, but illustrating a strip trimming in which the stuffer is enclosed in a jacket or envelope of open texture;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a view similar to Fig. 1, but showing a further modified construction in which an inner stuffer of any appropriate material, but preferably resilient, is enclosed in a wrapping sheet which may be of the same or a different character from the stuffer, but preferably transparent, and which in turn is enclosed in an outer jacket of assembled strands;

Fig. 6 is a section on the line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 1, but illustrating a strip trimming devoid of the inner stuffer member and comprising closely interbraided strands;

Fig. 8 is a section on the line 8—8 of Fig. 7;

Fig. 9 is a diagrammatic view illustrating various cross-sectional contours which may be given the completed trim;

Fig. 9^a is a perspective view, partly in section, illustrating strip trimming of my improved type provided with holes for the reception of screws or nails by means of which it may be directly attached to the article to which it is to be applied;

Fig. 10 is a fragmentary plan view of a laminated stuffer strand useful in the practice of the present invention;

Fig. 11 is a perspective view showing how a piece of the thin resilient sheet material, which I prefer for the stuffer element, may be gathered together to form a stuffer strand;

Fig. 12 is a section on the line 12—12 of Fig. 11;

Fig. 13 is a view similar to Fig. 11, but illustrating the employment of a plurality of sheets of thin material in forming a single stuffer;

Fig. 14 is a section on the line 14—14 of Fig. 13;

Fig. 15 is a view similar to Fig. 11, but illustrating the employment of a lamellar sheet material in forming the stuffer;

Fig. 16 is a section on the line 16—16 of Fig. 15;

Fig. 17 is a fragmentary perspective view illustrating one mode of making the strands employed in constructing the enclosing jacket or covering member of the strip trimming;

Fig. 18 is a view similar to Fig. 17, but showing a modified type of strand;

Fig. 18^a is a view similar to Fig. 18, but showing a further modification;

Fig. 19 is a diagram illustrating desirable steps which may be employed in forming a strip trimming such as illustrated in Fig. 1;

Fig. 20 is a diagram illustrating desirable steps which may be used in forming a strip trimming such as shown in Fig. 5;

Fig. 21 is a diagram illustrating desirable steps which may be employed in forming the strip trimming of Fig. 7;

Fig. 22 is a section to large scale illustrating trimming material having inclusions of metal wire in the stuffer and in the jacket, respectively;

Fig. 23 is a section to large scale showing a lamellar stuffer comprising a plurality of independent strands of textile material disposed within a jacket of twisted "Cellophane" strands;

Fig. 24 is a section to large scale showing trimming having a stuffer comprising folded cellophane in combination with textile strands, all enclosed in a jacket of associated strands of relatively small diameter;

Figs. 25, 26 and 27 are fragmentary perspectives illustrating trimming in accordance with the present invention, showing various types of jacket structure;

Fig. 28 is a fragmentary perspective showing a trimming such as illustrated in Fig. 3, but including coating material;

Fig. 29 is a fragmentary plan view showing my improved trimming strip employed as a core or filler for an enclosing tubulature; and

Figs. 30 to 44 inclusive, are diagrammatic views illustrating, by way of example, a few of the many possible combinations of regenerated cellulose with other materials in the practice of my invention.

Referring to the drawings, the numeral 1 designates a length of my improved strip trimming, such trimming comprising the stuffer cord 1^a and a jacket comprising the interbraided strands 2. The stuffer 1^a preferably consists, in whole or in major part at least, of one or more sheets of a thin cellulosic derivative, for example, a regenerated cellulose such as is known under the trade name "Cellophane". This material may be secured in sheets of desired width and substantially unlimited length and in such thicknesses and colors as may be desired. It is very tough and strong, substantially transparent, and when crinkled, doubled or folded upon itself, it exhibits a marked tendency to spring apart, due to its inherent resiliency, and thus more or less to resume its original position. Thus when such a sheet is condensed as by folding or crinkling, into small dimensions, it exerts a substantial pressure against any surrounding enclosing walls.

The strands 2 which form the jacket are also preferably made of cellulosic material of the type above referred to, although for some purposes I may prefer to employ other substances, in part or in whole, in making the jacket, for example cylindrical, ribbon-like, or other strands of paper, cotton fiber, linen, hemp, silk, artificial silk, wool or, in fact, any other animal or vegetable substance capable of being worked into strands of uniform character, transverse dimensions, and tensile elongation, or I may for some particular purposes use fine metallic wires in substitution for or in association with strands of fibrous and/or sheet organic material. The strands 2 forming the jacket are assembled under tension to form the jacket or cover, for example by a braiding operation. A braided jacket possesses certain de-

sirable characteristics which are not readily attained by the use of jackets of other type; for example, such a braided jacket powerfully resists any tendency to elongate under longitudinal stress if it be closely braided or if it enclose a stuffer or other filler element.

However, while I recommend the braided jacket, I contemplate that the jacket or covering for the stuffer may be made by weaving; or by a knitting operation, using one or more strands to form the courses of knitted loops; or that the jacket may be made by spirally wrapping a strand or strands about the stuffer. If spirally wrapped strands be employed, I preferably arrange sets of strands in helices of opposite hand to form a balanced structure.

The strip trim of the type illustrated in Figs. 1 and 2 may have any appropriate and desirable cross-sectional shape and contour, for example, round, as illustrated in Fig. 2. In Fig. 9 a semi-circular construction is illustrated at 1^b; a semi-circular section with a depression or tack groove in its curved face is shown at 1^c; a substantially triangular section is illustrated at 1^d; a substantially square section is shown at 1^e; and an elongate rectangular section is illustrated at 1^f. It is to be understood that the sections illustrated are merely by way of example and that substantially any cross-sectional shape desired may be imposed upon the trim, either during the assembly of the stuffer and jacket or subsequent thereto. For example, the desired cross-sectional shape may be approximated by passing the stuffer through a braiding machine die having an opening approximating the desired shape of the trimming,—it being possible by a braiding operation and by the use of such a shaped die opening to cause the braid to assume a cross-sectional contour substantially like that of the opening. However, after the braiding operation has been completed, the final shape desired may be imposed by passing the material through appropriate dies, heated if desired, and with the assistance, if necessary, of some suitable impregnant, coating, and/or binding material.

By reason of the resiliency of the folded stuffer material, it tends to spring apart and form a porous filler for the braided jacket, and thus by the use of such stuffer material in comparatively small quantity, it is possible to make a strip trimming of large diameter but comparatively light in weight. Moreover, the interstices of the stuffer as thus formed provide ready means whereby the stuffer may, if desired, take up a large proportion of a fluid filler, binder or plasticizer as illustrated at 1^x in Fig. 2^a, if for any reason such material be desired to impart its particular characteristics or properties to the completed trim.

In braiding the jacket from the strands 2,—highly ornamental effects may be produced by selecting strands of different colors, and in this way the jacket in its finished condition may show spots, lines or figures of artistic appearance which, together with the naturally glossy surface of the strand material renders the finished trim desirable for use in exposed positions.

While the closely braided jacket shown in Fig. 1 is desirable in many instances, particularly where a firm, moulding-like trim is desired, I prefer in some instances to make the jacket of more open construction. Thus as shown in Fig. 3, the trimming strip 3 comprises the stuffer 4 which may be of the same material as above described and having the same characteristic of high re-

silency,—while the jacket comprises strands 5 interbraided or otherwise assembled to provide an open-work texture, leaving large meshes or openings through which the stuffer material is exposed. Since the stuffer is placed under compression, either before or during the braiding operation, the material of the stuffer tends to bulge out, as shown at 6, through the openings in the net-like jacket, thus providing a surface configuration of ornamental appearance which may be enhanced by the use of contrasting colors in the stuffer and in the jacket-forming strands. Such a trimming strip may be made of very considerable bulk for a given weight of material, and though much softer than that having the closely braided jacket, finds utility both as an ornamental trim by itself, and also as a filler for tubulatures such as are used in certain furniture and other trim.

In Fig. 5 I have illustrated a further modification in which the trimming strip 7 comprises the stuffer 8 enclosed in an envelope 9 (for example, a single sheet of thin material wrapped about the stuffer) which in turn is enclosed in an outer jacket comprising the assembled strands 10. The enveloping sheet 9 may be of "Cellophane" or like material, preferably transparent, or of a character selected particularly for its waterproof or moisture-resistant qualities, while the stuffer 8 may be of crumpled "Cellophane", as above suggested, or, in whole or in part, of any other material, for example paper, selected for some particular quality. As a further example, this stuffer may be of a very soft, porous or bibulous material capable of absorbing large quantities of a fluid reagent, adhesive, or filler, or which may be left in a dry fluffy condition and protected from moisture by the enveloping sheet 9. Trimming of the kind shown in Fig. 5 may be desired where flexibility, large bulk, and extreme cheapness are requisite, as the stuffer 8 may be made of some extremely cheap material such as cotton linters, creped wadding, batting or the like, the latter being so encased in the wrapper 9 that its color or other characteristics are hidden from view.

In Fig. 7 I have illustrated a modified construction, useful under some conditions, in which the stuffer element is omitted entirely. In this trimming strip 11, the jacket strands 12 are interbraided to form a close, firm, tubular structure in which the braided strands bear against each other so as substantially to prevent collapse of the tube under radial compression. Preferably the strip thus formed by the braiding operation is then passed through some reagent material which causes the constituent strands 12 to unite integrally with one another, as indicated at 14 in Fig. 8. For example, if the strands 12 be of a nitro-cellulosic derivative, they may thus be integrated by passing the tubular braided material through a bath of acetone or similar solvent, the material being allowed to remain in the bath just long enough to cause the surfaces of the strands to become adhesive. Such a trim, if made from strands of contrasting colors, is very ornamental, strong, light in weight, and capable of many uses in which the strands with the enclosed stuffer are not so desirable.

In preparing trim such as shown in Figs. 1 to 5, for example, I preferably employ a laminated stuffer, as illustrated at 15 in Fig. 10. In thus referring to the stuffer as "laminated", I do not intend to indicate that it is necessarily made up of a plurality of independent layers, or that such

layers are of uniform dimensions, but rather to indicate that the stuffer comprises overlapping folds or plies of the material employed, whether such plies be all integral or not, or whether they consist of sheet material or are such things as rovings or the like arranged in bundles.

As illustrated in Fig. 11, I prefer to proceed by taking a sheet or strip 15^a of the selected material, such as "Cellophane", of proper thickness and color, and by gathering this sheet together, for example by passing it through a trumpet guide, causing it to assume more or less the desired cross-sectional contour for delivery to the braiding machine. As shown at 15 in Figs. 11 and 12, this sheet has been reduced to a cord or strand-like form of more or less circular section.

In Figs. 13 and 14 I have indicated more particularly how two or more sheets 15^b, 15^c of the same or unlike material, for example, a sheet of "Cellophane" and a sheet of paper, may be drawn together to form a strand-like member 15^d of desired section for delivery to the braiding machine.

Instead of using a single-ply sheet, as indicated at 15^a, I may, as shown in Fig. 15, employ sheet material 19 itself made up of a plurality of like or unlike plies or layers 20. For example, for some purposes, as for instance in making the trim of Fig. 5, the sheet material 19 may be a lamellar bat of sheeted fibrous material, such as cotton, cotton linters, kapoc, silk floss, wool, wood-pulp, creped wadding, alpha cellulose, or in fact any other desirable material, and this lamellar material 19 may comprise layers of different kinds, for example "Cellophane" and alpha cellulose, in alternation or other appropriate order. This material may in the same way as the material 15^a be gathered together to form a strand-like element 21 of selected cross section.

In making the relatively thin or fine strands which are used in forming the jacket, I prefer to take a ribbon 16 (Fig. 17) of the desired material, for example "Cellophane" or the like, and to twist it on itself, either dry or after treatment with a surface solvent or adhesive, to form a strand 17 which may be more or less circular in section,—although a single ribbon of such resilient sheet material tends, during the twisting or spinning operation, to assume a somewhat irregular section. This tendency, however, may, if desired, be avoided by employing a plurality of the ribbons 16 twisted or spun together or by appropriate spinning methods whereby the strand is reduced to substantially circular cross section. For some purposes strands which are not of true circular cross section at all points are to be preferred, for the reason that the irregular strands reflect light from their various facets, thus enhancing the ornamental character of the final product.

In twisting the ribbons 16 to form the strands 17, sufficient twist is preferably exerted to exceed the limit of elasticity of the material or the strands are held twisted and under such conditions that they acquire a permanent set so that the completed strands show little tendency to untwist. While I prefer to use strands such as 17, I may, if desired, employ spun or twisted strands 18 comprising constituent fibers 19 or yarn of any suitable textile material, including cotton, linen, silk, hemp, jute, paper, and the cellulose derivatives or, in fact, even metallic wires, and such strands 18 may be single-ply yarns, or braided or twisted multi-ply yarns, as

desired. As another possibility, these jacket-forming strands may have cores of twisted paper or the like, or, as illustrated in Fig. 18^a, comprise a metallic wire core 18^a, covered or wrapped with appropriate material, for example strands 18^b of textile or other material, or alternatively the core covering may be enamel or the like.

In Fig. 19 I have illustrated a useful procedure in making strip trimming such as shown in Fig. 1. Thus from a roll 22 of the sheet material 15^a I draw the sheet off and if desired coat it with an appropriate binder, surface-solvent, cement, plasticizer, coloring material, filler, or the like, in liquid, plastic, or powdered form, delivered for example from a reservoir 22^a and evenly spread by a doctor-blade 22^b, or applied by spraying or immersion.

The material now passes through a trumpet guide 23 where it is gathered into the strand 15. This strand is then passed through the die of the braiding machine 24, the die having an opening of any desired shape, either circular, or non-circular, and in passing through the braiding machine a jacket comprising strands 17 is applied to the stuffer strand 15. The stuffer with its enclosing jacket may then be passed between suitable moulding or die rolls 25 and 26 which impose upon the material the final desired cross-sectional contour. This contour may approximate that imposed by the braiding die or may be quite different, if desired, the braided jacket imposing little restraint to prevent proper moulding when suitable pressure is employed. After passing through the dies 25 and 26, the material may be coiled up to form the roll 27, or delivered to any other mechanism or process for further treatment.

In Fig. 20 I illustrate the steps of forming the trimming shown in Fig. 5. Thus a roll 27 of material such as shown at 19, for example, is passed through the trumpet guide 29, while material such as that shown at 15^a is delivered from a roll 30 to an exterior trumpet guide 31. This latter guide causes the material 15^a to wrap about or envelop the strand 3 formed from the material 19, and this composite stuffer, including its outer envelope of the material 15^a, is then delivered to the braiding machine 24^a where it receives the outer jacket formed of the strands 10. The material may, if desired, be passed through a receptacle 32 containing a bath of any desired reagent, for example, one which will cause the edges of the envelope material to become integrally or adhesively united. The material now passes between the die rolls 25^a and 26^a where it receives its final shape and then passes to the roll 27^a where it is wound up.

In Fig. 21 I have shown steps in the process of making the material illustrated in Fig. 7. In this instance the braiding machine 24^b associates the strands 17 to form the tubular structure 11 which then enters the receptacle 32^a provided, if desired, with heating coils 33, where the material is treated with a proper reagent, for example, one which causes the strands of the jacket to unite. The material may now be passed between the die rolls 26^b which may conform it to a true circular cross section, if desired, or may flatten it to any of the shapes shown, for example, in Fig. 9, or which may, in fact, collapse the tube to form a flat ribbon, after which it may be coiled or shown at 27^b.

For certain purposes where the strip trimming is to be exposed, I prefer to provide it with appropriate openings for the reception of fastener ele-

ments. Thus, as illustrated in Fig. 9^a, the substantially semi-circular trim 34 is furnished with the openings 35 adapted to receive screws or tacks whereby the trim may be attached directly to a supporting surface. Preferably these holes are furnished with countersunk ends 36 so that the heads of the attaching screws or tacks may be brought flush with the surface of the moulding.

In Fig. 22 I have shown in section a trimming strip comprising a stuffer 37 of lamellar sheet material and in association therewith a plurality of metallic wires 37^a shown as disposed in the angles of the strip where they assist in preserving the shape imposed upon the strip during the process of manufacture. The stuffer is shown as having an outer coating 38 of appropriate material, for example, a water-repellent film of rubber latex, and this stuffer is enclosed in a jacket comprising associated strands 39 and 40, the latter having metallic core wires.

In Fig. 23 the lamellar stuffer comprises a plurality of thick, soft rovings 41 disposed in a bundle with interposed coating films 42 of rubber latex or other appropriate binder (preferably of water-repellent character). This stuffer is enclosed in a jacket of associated strands 43, preferably twisted or braided from "Cellophane" or equivalent resilient material.

In Fig. 24 the lamellar stuffer comprises a bundle of rovings 44 enclosed in a multiple wrapping 45 of resilient "Cellophane" or other appropriate sheet material, preferably of a water-repellent or waterproof character, and all enclosed in a jacket comprising associated strands 35 preferably in whole or in part, of "Cellophane".

In Fig. 25 the trimming is shown as having a jacket comprising two sets 46 and 47 respectively, of helically wound strands, the two sets being of opposite pitch to provide a jacket of the desired balanced character, thereby to avoid tendency of the trimming to twist or curl.

In Fig. 26 the jacket is shown as consisting of sets 48 and 49 respectively, of interwoven warp and weft strands, while in Fig. 27 the jacket is illustrated as consisting of strands 50 and 51 interknitted to form successive courses of a knitted jacket.

Fig. 28 shows a trim, like that of Fig. 3, for example, after it has been moulded to non-circular shape, and comprising the stuffer 1^a enclosed in the open mesh jacket comprising the strands 5, and a coating or impregnating material 52 exposed between the strands of the jacket and covering the outer surface of the stuffer.

In Fig. 29 I have illustrated the utility of my improved strip material on a core or filler for a tubulature 1^b which may be of metal, rubber, paper, textile fabric, or any other material or compound.

In Figs. 30 to 44 inclusive, I have diagrammatically illustrated further combinations of regenerated cellulose, textile material, and wire, indicating the kind of material by appropriate legends. The structural arrangements are obvious from inspection.

While I have hereinabove suggested various desirable embodiments of the invention, by way of example, and have described certain procedures whereby the desired results may be attained, I wish it to be understood that the invention is not to be limited to the precise constructions herein shown but only by the scope of the appended claims, and that all equivalents, either

of materials or of process steps, such as fall within the scope of the claims, are to be regarded as a part of my invention.

I claim:

1. Hard-surfaced glossy decorative trimming of the class described which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending, comprising hard glossy strands of regenerated cellulose so concatenated as to form a flexible close-textured tubular jacket substantially devoid of tendency to twist, and a flexible stuffer of thin cellulosic sheet material filling said jacket and held in a state of radial compression by the jacket.

2. Trimming of the class described which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending and which has a glossy hard surface and which comprises strands of thin regenerated cellulose, so concatenated as to form a flexible, close-textured tubular jacket substantially devoid of tendency to twist, and a flexible stuffer comprising a plurality of laminations of thin resilient regenerated cellulose filling said jacket and held in a state of radial compression by the jacket.

3. Decorative trimming of the class described having a non-circular cross section and a glossy hard surface of pleasing appearance and color and which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending, said trimming comprising glossy strands of regenerated cellulose so interbraided as to form a flexible close-textured tube, and a flexible stuffer comprising laminated cellulosic sheet material filling said jacket and held in a state of radial compression by the latter.

4. A moulded trimming comprising a stuffer cord characterized by substantial uniformity of tensile elongation, radial compressibility and mass per unit of length, said cord consisting in major part at least of regenerated cellulose disposed in longitudinally extending plies with intervening voids, said voids being substantially filled with a plastic filler, and a hard-surfaced glossy tubular jacket of braided strands of regenerated cellulose embracing said cord and holding the latter in a state of radial compression, the trimming being of a non-circular cross section.

5. A moulded trimming comprising a stuffer cord consisting of assembled substantially parallel plies of regenerated cellulose, a tubular net-like jacket embracing said cord, said jacket comprising interbraided hard and glossy strands of regenerated cellulose so disposed as to leave areas of the cord exposed, the trimming having a moulded non-circular cross section which is substantially constant in respect to mass per unit of length and in respect to tensile elongation per unit of length.

6. Hard-surfaced glossy decorative trimming of the class described which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending, comprising hard glossy strands of regenerated cellulose so concatenated as to form a flexible tubular jacket substantially devoid of tendency to twist, and a flexible stuffer including a core comprising laminated cellulosic material enveloped in a wrapping of thin flexible sheet material, the stuffer filling the jacket and being held in a state of radial compression by the jacket.

7. Decorative trimming of the class described having a non-circular cross section and a glossy hard surface of pleasing appearance and color and which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending, said trimming comprising glossy strands of regenerated cellulose so interbraided as to form a flexible tube, and a flexible stuffer including a core of a normally soft and bulky cellulosic sheet material enveloped in a wrapping of thin regenerated cellulose, the stuffer filling the jacket and being held in a state of radial compression by the latter.

8. Trimming of the class described which is strong, flexible and capable of bending sharply without breaking and of retaining its shape after bending and which has a glossy hard surface and which comprises strands of thin regenerated cellulose, so concatenated as to form a flexible, close-textured tubular jacket substantially devoid of tendency to twist and a flexible stuffer comprising laminated cellulosic sheet material and one or more metal wires, said stuffer filling the jacket and being held in a state of radial compression by the latter.

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