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BUFFS AND BUFF FABRICS

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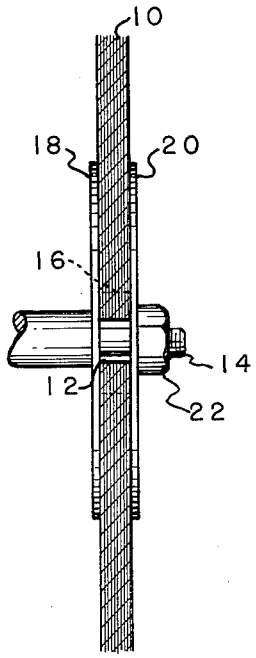


FIG.-2-

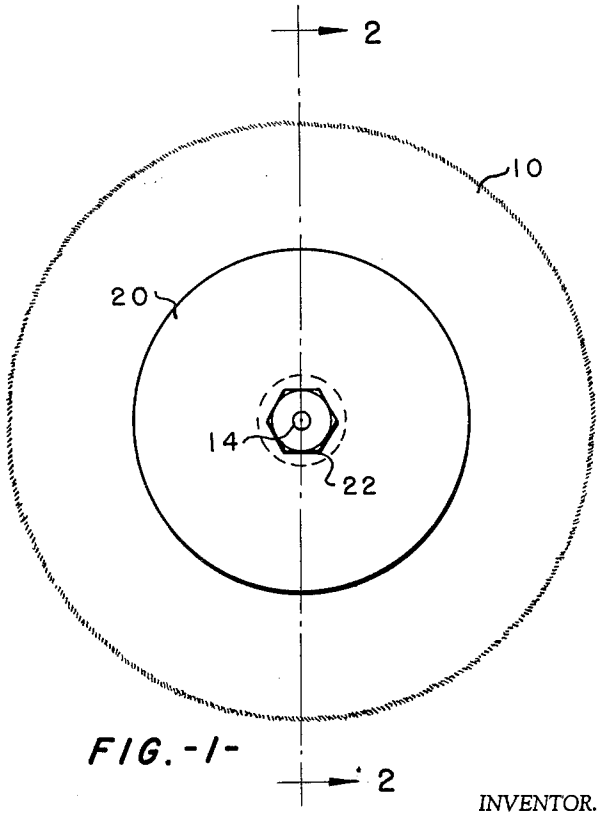


FIG.-1-

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BUFFS AND BUFF FABRICS

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This invention relates to buffs of the cloth type, to fabrics suitable for the manufacture of such buffs, and to methods for making such fabrics.

Buff wheels are widely employed for smoothing and polishing various metals and metal castings and in most instances comprise a disk-shaped member formed from a plurality of layers of fabric. The edges of the fabric layers in a buff are subjected to extreme heat and abrasion, and the wear life of buff wheels is strictly limited. Many efforts have heretofore been made to increase the wear life of cloth buffs, and such efforts have included applying various resinous or adhesive materials to the fabrics from which the buff is made to prevent raveling and have included the application of various lubricating materials to such fabrics in an effort to reduce the rapid deterioration of the peripheral edge of the buff wheel. For example, it has been previously suggested that the buff fabrics be impregnated with a mixture of polyethylene glycols, with drying oils, with alkyd resins or with phenolic resins, but these efforts have, in most instances, resulted in a shortened wear life rather than a prolonged wear life, and at the present time a majority of buffs are made from cotton fabrics without any treatment designed to prolong the wear life thereof.

A further difficulty which is encountered with cloth buffs is that the edge of the buff wears unevenly so that the buff wheel soon develops a ragged and pitted peripheral edge. After this happens it is impossible to produce an even finish when employing the buff.

It is accordingly a primary object of this invention to provide a cloth buff having a greatly increased wear life as compared to buffs heretofore available.

It is another object of the invention to provide a buff which has a smoother wearing peripheral surface that does not become pitted with use to the same objectionable extent as with buffs now available.

According to this invention the above as well as other objects are accomplished by the construction of a buff of fabrics the fibers of which have a surface coating comprising a urea and/or melamine derivative of a class to be subsequently described in detail. According to a preferred embodiment of the invention, a buff is formed from a fabric the fibers of which have a surface coating of an uncured polymeric or unpolymerized material capable of polymerization and containing a polymerization catalyst. The heat of friction developed during the use of such a buff and the presence of a catalyst, result in polymerization and curing of the coating material on the fibers which constitute the peripheral surface of the buff but do not result in the complete curing of the coating material on fibers centrally disposed within the buff, and during the entire use life of the buff one has a cured resin on those fibers which are actually being abraded and a relatively uncured polymerizable material on the fibers which are subjected to flexing but not appreciable abrasion. This is highly advantageous since the cured resin on the surface fibers increases their abrasion resistance and reduces shedding while the uncured material on the fibers disposed within the central fabric portions of the buff does not stiffen the fabric or lower its flex life.

While not all of the factors contributing to the greatly improved results which are obtained with buffs manufactured according to this invention are known, one important

factor is believed to be the cellulose incompatibility of the compositions employed. Cellulose is a hydrophilic material and is readily compatible with other hydrophilic materials but not so readily compatible with hydrophobic materials. The polymerizable materials employed according to this invention are hydrophobic and are not readily absorbed by cellulose fibers. Therefore, a process according to this invention results in a surface coating on the cellulose fibers, and not in the fibers being impregnated with a resin or a resin forming composition. A further factor is that the coating composition according to this invention is applied to cellulose fibers with the fibers in an unswollen condition and this also tends to limit the material to the fiber surfaces. Limiting the coating composition to the fiber surfaces is believed to be important for at least two reasons. A first reason is that a surface coating of resin increases the abrasion resistance of the cellulose fibers without greatly reducing their flex life, whereas impregnation of cellulose fibers with a resin almost invariably results in a material reduction in flex life. The fibers in a cloth buff are subjected to severe flexing and apparently the flex life of the fibers from which the buff is formed is as important as the abrasion resistance of the fibers. A second reason why limiting the coating material to the fiber surfaces is believed to be important is that by so doing a higher degree of fiber bonding with a given amount of resin can be achieved than when the resin or resin forming composition penetrates into the fibers.

The invention will now be described with reference to the accompanying drawings in which:

FIGURE 1 is an elevational view of one type of buff wheel formed from a plurality of layers of fabric and illustrated as being mounted in a suitable arbor, and

FIGURE 2 is a cross sectional view of the buff wheel of FIGURE 1 taken substantially along the line 2—2.

With reference to the drawings in greater detail, there is illustrated a plurality of circular layers **10** of fabric formed of surface coated cellulose fibers and having, in each instance, a central aperture **12** for receiving a spindle **14**. The layers of fabric **10** may be stitched together in any suitable manner as indicated at **16** in FIGURE 2 of the drawings and are preferably arranged such that the weave of adjacent layers of fabric does not coincide since this prevents the wheel from becoming squared as a result of raveling.

The spindle **14** is provided with a fixed flange **18** which provides a measure of support for the buff, and the buff is held in position by means of a removable disk **20** and a nut **22** which is in thread-wise engagement with spindle **14**.

In operation, a buffing compound of any suitable type is applied to the peripheral edge of the buff and spindle **14** is rotated at a high rate. The work piece to be buffed is then brought into contact with the peripheral edge of the buff and is abraded and polished by frictional contact therewith. At frequent intervals, additional buffing compound is applied to the peripheral edge of the buff to replace that which is lost in operation.

Buff wheels according to this invention may be conventional in construction except for the surface coating on the fibers of the fabric layers thereof and may be of any conventional type. For example, buff wheels according to this invention may be of the full-disk-muslin type, supercut or pleated type, sewed-piece type, folded type, bias type, or ventilated type. Likewise, buffs according to this invention may be loose buffs, packed buffs or sewed buffs in which the stitching takes any conventional form as illustrated by a radially extending spiral or a plurality of radially extending rows of stitches. The invention is of particular interest with respect to high tempera-

ture, high speed buffs, but is also of interest with respect to buffs intended to be employed in lower speed operations.

The fabric from which buff wheels according to this invention are made can be any type of cellulose fabric which, in an unmodified form, has been conventionally employed in the manufacture of buffs. Muslin fabrics are particularly well suited for the manufacture of buffs according to this invention and may have any standard thread count. For example, the fabric may be a 48 by 48, a 64 by 64, or a 86 by 93 weave fabric. As a general rule, the higher count fabrics are desirable since their higher initial cost is generally offset by increased wear life. The weight of the fabric employed in making buffs according to this invention may also vary within wide limits, and the fabrics used in this invention may be conventional in this respect. For example, fabrics having a weight varying from about 2 to 4 pounds per yard have been found to be quite satisfactory for making buffs according to this invention, and in some instances it is desirable to employ a fabric having a weight outside this range since, as a general rule, the stiffness of the buff varies directly with the weight of the fabric used in its manufacture and for certain applications a very flexible or a very stiff buff is highly desirable.

Fabrics formed from cellulose fibers derived from substantially any source are suitable for use in forming buffs according to this invention, and the fibers in such fabrics may be either natural or regenerated cellulose. Examples of suitable fabrics for use in this invention include cotton fabrics, viscose rayon fabrics, and linen fabrics. It is an advantage of the invention that viscose rayon fabrics may be employed with excellent results because such fabrics are more heat resistant and generally slightly less expensive than corresponding fabrics made from cotton. Viscose rayon fabrics are not now widely employed in the manufacture of buffs because excessive raveling and/or fiber shedding is generally encountered, but buffs made according to this invention from viscose rayon fabrics do not deteriorate as a result of raveling or fiber shedding to an appreciably greater extent than do buffs made of cotton fabrics.

The fabric employed in the manufacture of buffs according to this invention may be either bleached or unbleached or sized or desized, and it is an advantage of the invention that desizing is not required since this is usually an expensive operation. Not only is desizing not required but the sizes sometimes present in cellulose fabrics actually appear to slightly improve the operating characteristics of buff wheels manufactured according to this invention. It is also an advantage of the invention that unbleached fabrics can be employed since bleaching generally results in a loss of strength by the fabric.

The fiber coating material, to be suitable for application to buff fabrics according to this invention, must be selected from the group consisting of butylated methylol ureas and polymers thereof, butylated methylol melamines and polymers thereof, and mixtures and copolymers of butylated methylol urea and butylated methylol melamines. Butylated methylol melamines, or polymers thereof, give results which are generally superior to those obtainable with butylated methylol ureas, but have the disadvantage of being more expensive. It is, therefore, both surprising and economically advantageous that copolymers or mixtures of butylated methylol ureas and butylated methylol melamines give results which are superior to those obtainable with butylated methylol melamines alone.

The derivative of melamine and/or urea must contain butyl ether groups, but this does not mean that it must be fully butylated, and this is particularly true in the case of materials containing triazine nuclei. In other words, some of the methylol groups may be unsubstituted or may be etherified with other alcohols. Of course, if the number of butyl ether groups is too low, the full advantages of this invention will not be achieved, and, as a general rule, at least about 5% of the weight of the fiber coating material should be due to the presence of butyl ether groups, and the number of butyl groups should be at least sufficient to render the product water insoluble. The remainder of the methylol groups in the product can either be unmodified or can be etherified with lower alkyl monohydric alcohols, but, as a general rule, a sufficiently large percentage of the methylol groups should be etherified to result in the product having a reasonable degree of stability, i.e. the product should be substantially stable for at least about 6 hours at room temperature. Among the alcohols which may be employed in forming such ether linkages (sometimes referred to as half-formal linkages) may be mentioned methyl alcohol, isopropanol, and ethyl alcohol. The resin should be substantially free of ether linkages formed from alcohols having a chain length of more than 4 carbon atoms, since such groups destroy the effectiveness of the resin, and, as a general rule, the presence of ether groups of any type other than butyl is not advantageous except in instances where the number of butyl ether groups is insufficient to result in a product having a satisfactory degree of stability. The maximum number of butyl ether groups which may be present is determined solely by the chemical characteristics of the compound or compounds employed in the making of the fiber coating material, and the material can have the maximum possible number of butyl ether groups.

It apparently makes little difference as to the nature of the butyl groups in the fiber coating material of this invention and the butyl group can be either normal, secondary, iso, or tertiary butyl groups. As a matter of actual practice, however, the butyl groups are in substantially all instances n-butyl groups. This is true for several reasons, but a primary reason is that it is quite difficult to prepare sec-butyl derivatives of methylol urea and methylol melamine compounds and even more difficult to prepare tertiary butyl methylol derivatives.

In addition to the above requirements, the fiber coating material according to this invention must be polymerizable and curable to a hard abrasion resistant resin. Preferably the coating material as it is applied to the buff fabrics is largely or at least partially in unpolymerized form so that substantially all of the polymerization is allowed to occur upon the buff fabric, but a polymeric material can also be employed in place of monomeric methylol compounds if the degree of polymerization is not so great that the polymerized material is insoluble in lower alkyl alcohols. It is necessary that the fiber coating material be soluble in lower alkyl alcohol solvents since otherwise it is impossible to obtain a sufficiently even deposition of the fiber coating material upon the fibers of the fabric to insure satisfactory results.

Conventional methods can be employed for making the fiber coating materials suitable for use in this invention, and a quite satisfactory method comprises introducing into a satisfactory excess quantity of n-butanol a quantity of paraformaldehyde or formalin, and a quantity of one or more of the following: melamine, a methylol melamine, a methylated methylol melamine, or the like; urea, a methylol urea, a methylated methylol urea, or other lower alkyl ether of a methylol urea. If desired, a suitable acid or acid forming catalyst can be initially added, but preferably the reaction in its initial stages is conducted in the absence of a catalyst, and best results are obtained if the reaction mixture is heated until it becomes clear before the catalyst is added. Following the addition of the catalyst, the reaction is conducted until the product becomes substantially water insoluble but for an insufficient period of time to result in the reaction product being insoluble in lower alkyl alcohol solvents. This step of the process is conducted under such conditions that water formed by the reaction is removed from the reaction mixture, and the mixture is retained as nearly free of water as

possible. When the degree of butylation of the reaction product has reached a suitable level as indicated by its solubility in water, the catalyst can, if desired, be neutralized with any suitable base as illustrated by triethylamine, but, while catalyst neutralization generally results in the reaction mixture being more stable, it is frequently advantageous in the manufacture of buffs according to this invention to retain the catalyst in active form. If desired, excess butanol or other solvent may, following completion of the reaction, be removed by distillation.

The fiber coating material may be applied to a fabric suitable for use in the manufacture of buff wheels by any suitable procedure, although it should be emphasized at this point that, contrary to instances in which resins are applied to textiles for crease resistance or similar purposes, the conditions of application in the process of this invention should be such that the fibers of the fabric are swollen as little as possible. In other words, a solvent which is capable of swelling cellulosic fibers should not be employed, and the fibers, immediately preceding the coating operation, should be in a dry and unswollen condition. The reason for this is believed to be that best results according to this invention are obtained when the conditions employed are such as to result in a surface coating on the cellulose fibers and not such as to result in impregnation of the fibers. In most instances the coating material can be prepared under such conditions that there remains in the reaction mixture a sufficient amount of butanol to provide a suitable viscosity for application to fabrics, but if the fluidity of the material to be applied is too low, a solvent as illustrated by n-butanol, ethyl alcohol, or methyl alcohol can be added to give a composition of suitable viscosity for application to fabrics. If desired, a material to act as a lubricant between the fabric fibers and the material to be buffed can also be added, and such lubricating materials can be illustrated by stearic acid and polyethyl glycol lubricants, but it is an advantage of the invention that no such lubricant is required. In fact, carefully controlled tests have indicated that the addition of a lubricant results in no noticeable prolongation in the wear life of buffs made according to this invention.

The fiber coating materials according to this invention are polymerizable in the absence of an acid catalyst, but a catalyst does assist in the curing of the resin material and for this reason is generally advantageous. In many instances the acid catalyst employed in the butylation reaction necessary for formation of the coating material of this invention is also suitable as a polymerization catalyst to function after the coating material is applied to the buff fabric, and one can, if desired, allow the acid catalyst employed in the butylation reaction to remain in active form in the reaction mixture and thereafter apply the reaction mixture directly to the buff fabric. In instances where no acid catalyst is already present, a small amount, for example, up to 1% or 2% by weight of the fiber coating material, of an acid having a low volatility, or an acid forming compound can be added to the coating material. Suitable materials for this purpose include phosphoric acid, boric acid, and oxalic acid.

The amount of the fiber coating material applied according to this invention can be varied within reasonably wide limits, but, if the full benefits of this invention are to be obtained, the amount of coating solids applied to the fabric should generally be at least about 2% and preferably at least about 5% by weight of the fabric. On the other hand, if too much of the coating material is employed, the benefits of the invention are lost, and it is seldom advantageous to apply more than 30% to 50% solids, and in the case of certain fabrics, as illustrated by viscose rayon, no more than about 20% solids should be applied. As a general rule, the preferred range for the amount of coating material to be employed is from about 5% to 10% based upon the weight of the fabric. The coating composition can be applied to the fabric employing any suitable apparatus, and for example, the composition may be sprayed, wicked, applied with the aid of a knife edge, rolled onto the fabric, or, when a dilute solution of the coating material is employed, a pad box may be used to accomplish the application. The preferred apparatus for application of the coating material comprises a Scotch roll so constructed that the fabric may be passed open-width in contact with a segment of the peripheral surface of the roll while a second segment of the peripheral surface of the roll is supplied with the coating composition. The use of a Scotch roll is advantageous because it makes possible a reasonably level application of a relatively viscous solution and eliminates the necessity of subsequently evaporating large amounts of organic solvents from the fabric.

The coating composition can be applied to the fabric at any temperature below the boiling point of the solvent present therein, but elevated temperatures for application of the mixture are not usually advantageous and room temperature is preferred.

Following application of the fiber coating composition, the fabric can, if desired, be heated to remove excess solvent. In instances where a dilute solution is applied, solvent removal is generally advantageous and can be performed immediately after the coating composition has been applied. In instances where a highly concentrated solution is applied, solvent removal may be advantageous to prevent the fabric from having an undesirable odor characteristic of the solvent, but in such instances better results are generally obtained if the fabric is not heated to remove the solvent for several hours after application of the solution, since an ageing period provides time for the solution to diffuse evenly throughout the fabric and results in a more even deposition of the coating material. A convenient procedure when a concentrated solution is employed comprises rolling a fabric into a tight roll immediately after the application step and allowing the fabric to remain in a compacted condition for from 12 to 36 hours before it is heated to remove excess solvent. The solvent can then be removed by passing the fabric in open-width over a hot roll or through a drying oven.

The temperature of the solvent removal operation is preferably such that little or no curing of the coating material is obtained, and a preferred procedure comprises heating the fabric at a temperature not in excess of 125° C. Such a temperature is sufficient to result in a vaporization of excess butanol from the fabric, but is insufficient to result in objectionable curing of the coating material. It might first appear that little improvement in wear life could be expected if one fails to cure the coating material on the buff, but it has been found that the wear life of the buff is actually greater when the coating material is uncured than when a curing operation is conducted on the buff fabric. This is believed to be because a small amount of the coating material on the fiber surface constituting the periphery of the buff is cured during use as a result of the heat of friction generated by the rubbing of the buff wheel on the surface being buffed, so that during operation of the buff, only the fibers actually being abraded have a coating of a fully cured, abrasion resistant resin, and the remaining fibers are not embrittled to an appreciable extent. Some of the advantages of this invention can, however, be achieved by thoroughly curing the resin in the buff fabric before forming the same into buffs.

The invention will now be illustrated by the following specific examples in which all parts are by weight unless otherwise indicated:

Example I

In a suitable closed reaction vessel fitted with a rotary stirrer and a trap for the collection of evolved water, there are placed 74 parts of n-butanol, 30 parts of paraformaldehyde, and 20 parts of urea. The reaction mixture is heated with agitation to 120° C. and is then held at this temperature until the mixture becomes clear and

homogeneous and until two parts of water are removed. There are then added one part of acetic acid and 30 parts of benzene, and the heating is continued until about 20 parts of water are removed and collected and until no further water is being collected in the trap. Fifty parts of solvent are then removed by distillation to give a yield of 110 parts of a water clear solution containing 65% non-volatiles. This solution of butylated methylol ureas and lower polymers thereof is substantially stable to storage for two months at room temperature.

The above solution is applied by means of a Scotch roller to an 80 square weave cotton muslin fabric such that 10% by weight of solids are deposited on the fabric. Following its contact with the Scotch roll, the fabric is collected on a suitable core and allowed to remain for 24 hours at room temperature. The fabric is then passed open width in contact with a dry can having a surface temperature of approximately 120° C. to remove excess solvent and is thereafter formed into biased buffs. These buffs have a greatly increased wear life as compared to buffs formed from identical fabric to which no fiber coating material has been applied, hold a nice head, and wear evenly without pitting.

Example II

Into a suitable reaction vessel equipped with a condenser, Stark-Deane moisture trap, mercury sealed stirrer, and thermometer, there are placed 126 parts of melamine, 190 parts of paraformaldehyde, and 500 parts of n-butanol. The reaction mixture is then heated to 120° C., held at this temperature until substantially homogeneous, and then cooled to 70° C. There are then added 100 parts benzene and 3 parts of phosphoric acid, and the reaction mixture is heated until about 54 parts of water are removed and collected in the trap. Two hundred parts of solvent are then removed by distillation to give about 690 parts of a viscous, clear solution containing about 57% non-volatile materials. This solution of butylated methylol melamines and lower polymers thereof is stable for more than 6 months when stored at room temperature.

To a cotton muslin fabric, having 92 picks per inch in the warp and 62 picks per inch in the weft, there is applied by the procedure of Example I, 7% by weight of the above solution, and the fabric is then collected in a roll and allowed to remain for 36 hours at room temperature. The fabric is then passed in open width over a heated cylinder having a surface temperature of 125° C. and is formed into pleated buffs. These buffs show an even greater improvement over untreated buffs than the buffs of Example I and generally give an improved wear life in excess of 35% as compared to any similar buffs presently known to be available.

Example III

In a suitable reaction vessel, equipped as in Example II, there are placed 155 parts of n-butanol, 21.2 parts of an aqueous tri-methoxymethyl melamine mixture containing 60% solids by weight, 52 parts of paraformaldehyde, and 42 parts of urea. The reaction mixture is heated to 110° C. and then cooled to 60° C. There are then slowly added with stirring 30 parts of benzene and one part of 85% phosphoric acid. The reaction mixture is then heated to 82° C. and held at a temperature to result in fluxing of the benzene solvent through the Stark-Deane trap for 20 hours, and at the end of this period about 42 parts of water and methanol have been removed from the reaction. The temperature of the reaction mixture is then raised to 122° C. to result in the removal of 43 parts of solvent by distillation to give 213 parts of a water clear solution which is approximately 65% solids and is stable for two months at 32° C. The solids in this solution are a mixture of several products. In the first place, not 100% of the methoxymethyl groups are transformed to butoxymethyl groups, and secondly, not 100% of the methylol groups in the starting material were methylated, and the reaction product also contains methylol groups. One has in the reaction product, therefore, melamine substituted with hydroxymethyl, butoxymethyl, and methoxymethyl groups. In addition to butoxymethyl melamines having, in some instances, methoxymethyl and/or hydroxymethyl groups, the solution also contains butoxymethyl ureas and low molecular weight polymers and copolymers of these types of materials.

To an 80 square muslin fabric there is added 10 parts by weight of the above solution by the procedure of Example I, and the fabric is formed into a roll and stored at room temperature for 24 hours. The fabric is thereafter passed over a dry can having a surface temperature of 135° C. to remove excess solvent, and is then formed into full-disk muslin buffs. The resulting buffs give a 65% improvement in wear life over full-disk muslin buffs now commercially available and formed of an equivalent weight cotton fabric.

Example IV

Example III is repeated except that 63 parts of paraformaldehyde are employed and 6.5 parts of melamine are substituted for tri-methoxymethyl melamine employed in Example III. The results are substantially the same.

In place of the melamine employed in this example, one can substitute an equal molar quantity of tri-ethoxymethyl melamine, tri-, tetra-, penta-, or hexa-methylol melamine, tri-methoxymethyl melamine or a mixture of such compounds. Except for the small number of lower alkyl ether groups other than butyl groups that are present in the reaction product when the starting material is an alkylated methylol melamine, the reaction product is substantially the same regardless which one of the above materials is selected as the triazine component of the reaction mixture. Likewise, for the urea employed in this example, one can substitute equal molar quantities of mono-, or di-methylol urea without appreciably changing the results obtained.

Having thus described my invention, what I desire to claim and secure by Letters Patent is:

1. A method for making a cloth buff which comprises applying to a base cellulose fiber material, in which the fibers are in a dry and unswollen condition, a viscous substantially anhydrous organic solution of a water-insoluble, hydrophobic, butylated amine-formaldehyde condensation product, the degree of butylation of said condensation product being such that at least 5% of the weight of said condensation product is attributable to butyl groups, said condensation product having a sufficiently low degree of polymerization as to be lower alkyl alcohol-soluble, said amine being selected from a group consisting of urea, melamine and mixtures thereof and the organic solvent in said solution being one which has substantially no swelling action on cellulose fibers, forming said cellulose material into a roll, and retaining said cellulose material in roll form until said solution has distributed itself uniformly throughout said cellulose material to provide a surface coating only on the fibers of 5 to 10% by weight of the condensation product, affixing a plurality of layers of said cellulose fiber material to form a generally circular cloth buff, said cloth buff being characterized by a susceptibility to polymerization at its peripheral surface upon generation of heat of friction at said surface during its use.

2. A cloth buff comprising a plurality of layers of fabric formed of cellulosic fibers and having a peripheral surface of generally circular configuration, the fibers of said fabrics having a surface coating only of a butylated, water-insoluble condensation product of formaldehyde and an amine selected from the group consisting of urea, melamine and mixtures thereof, the degree of butylation of said condensation product being such that at least 5% of the weight of the condensation product is attributable

to butyl groups; said condensation product having a sufficiently low degree of polymerization as to be lower alkyl alcohol-soluble, so that upon generation of frictional heat at the peripheral surface of said cloth buff the condensation product coating the fibers at this surface will be polymerized to a higher degree to provide an abrasive resistant condensation product at the peripheral surface only.

3. The cloth buff of claim 2, wherein the condensation product is a monomer.

4. The cloth buff of claim 2, wherein the condensation product contains an acid polymerization catalyst.

5. A cloth buff according to claim 2 wherein the amount of said condensation product deposited on said cellulose fibers is equal to from 5% to 10% of the weight of said fibers.

6. A buff according to claim 4 wherein said acid polymerization catalyst is phosphoric acid.

7. A cloth buff according to claim 2 wherein said condensation product is a condensation product of urea.

8. A cloth buff according to claim 2 wherein said condensation product is a condensation product of melamine.

9. A cloth buff according to claim 2 wherein said condensation product is a condensation product of a mixture of urea and melamine.

10. A cloth buff according to claim 2 wherein said fabric is a cotton muslin fabric.

11. A cloth buff according to claim 2 wherein said fabric is composed of regenerated cellulose fibers.

12. A cloth buff according to claim 2 wherein said fabric is composed of cotton and regenerated cellulose fibers.

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