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POLISHING CLOTH AND PROCESS OF MAKING THE SAME

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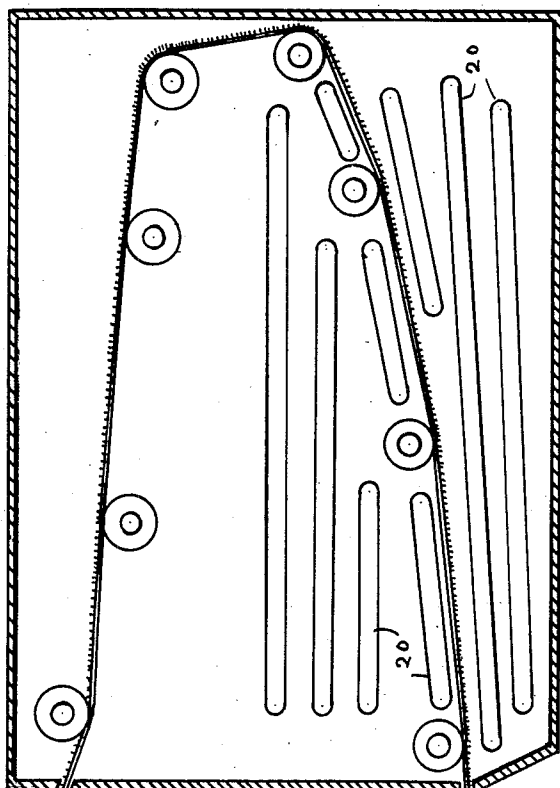
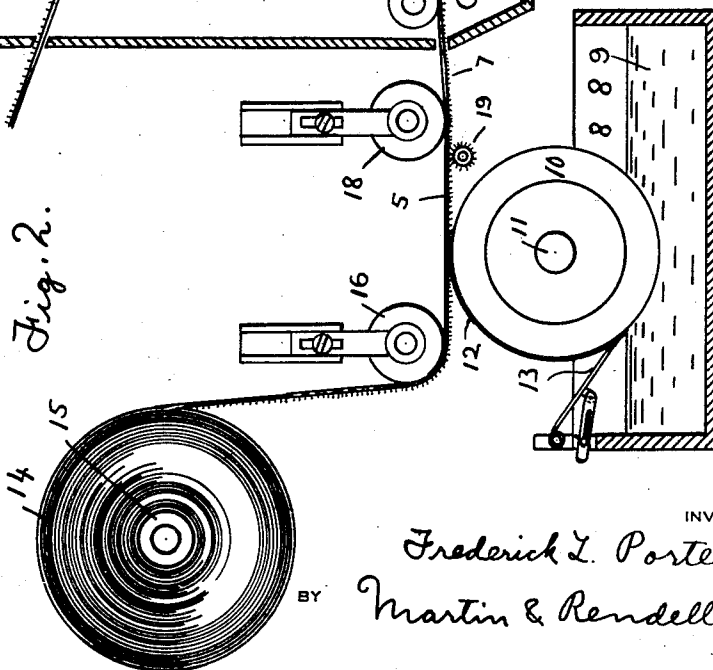


Fig. 1

Fig. 2.



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POLISHING CLOTH AND PROCESS OF MAKING THE SAME

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This invention relates to polishing cloths and the process of making the same.

The purpose of my present invention is to provide as a new article of manufacture a polishing cloth which is non-smearing, adapted to be used dry and of such new and improved construction and combination of its parts as to be soft and very pliable while still having thereon sufficient powdered or other fine abrasive as to make an effective polishing cloth.

Heretofore the polishing cloths usually employed by jewelers and others wishing to polish gold or silverware or other polished or plated articles have consisted of a piece of relatively soft cloth to which the jeweler or other operator at frequent intervals applies rouge or other abrasive material by rubbing a stick of the said rouge or other abrasive directly against the cloth until a sufficient amount of the abrasive is loaded onto the cloth. Such polishing cloths were fairly effective as far as the polishing operation itself was concerned, but the abrasive being so crudely and superficially applied to the cloth left the cloth about as easily as it was applied, resulting in a large part of the rouge or other abrasive coming off on the hands of the jeweler or other person using the polishing cloth. Such cloths also by reason of the freedom with which the abrasive would leave the cloth, left streaks or smear marks upon the articles being polished. A further objection to the use of this old type of polishing cloth was that the rouge or other polishing material had to be applied at frequent intervals and that such operation necessarily left considerable of the rouge or other powdered abrasive upon the person's hands and clothing.

A further object of my invention is to provide a polishing cloth which will overcome the defects and disadvantages above mentioned and particularly to provide a polishing cloth which has the desired amount of rouge or other finely powdered light abrasive already applied at the factory to the polishing cloth in sufficient quantities and with sufficient permanence to last substantially the life of the cloth and yet be soft

and pliable in use and also have the rouge or other polishing abrasive material sufficiently exposed upon the cloth to be effective as a polishing agent; further to have the said abrasive attached with sufficient firmness that it will not come off upon the hands nor leave smear marks upon the surface being polished and in fact with sufficient permanence to allow the cloth to be washed repeatedly without removing the abrasive from the cloth nor affecting its efficiency as a polishing agent; and further to provide a polishing cloth wherein the abrasive, while affirmatively and strongly attached or secured to and in the cloth to accomplish the above purposes, still has the abrasive so applied to the cloth as to allow the cloth to be very soft and flexible so that it will not scratch the finest polished surfaces and so that the cloth may be used as a dry polishing cloth.

A still further object of the invention is to provide as a new article of manufacture a polishing cloth formed of pile fabric to the pile portions only of which there has been applied and affixed rouge or other finely powdered abrasive by means of suspending the rouge or other powdered abrasive in a suitable liquid vehicle or mixture of liquids, preferably a mixture of boiled linseed oil and turpentine, and then so treating and handling the said coated fabric as to dry the larger part of the turpentine and oil quickly out of the fabric and particularly so that neither the rouge nor the other abrasive nor the oil and turpentine or other liquid used as a vehicle will reach the body of the fabric sufficiently to carry any of said materials into the body or stiffen the body of the fabric.

A still further purpose is to point out a new and improved process or method of making polishing cloths of the type mentioned.

Further purposes and advantages of the invention will appear from the specification and claims herein.

Fig. 1 is a sectional view through a polishing cloth embodying my invention, said section showing the fabric greatly magnified and somewhat diagrammatic in order to more

clearly show the structure of the fabric and that the abrasive is carried only by the pile portion of the fabric.

Fig. 2 is a longitudinal vertical section through a machine that may be used to make polishing cloths embodying my invention which machine as herein described illustrates the different steps of the process or method of making such polishing cloths.

Polishing cloths embodying this invention have as their basis a piece of pile fabric 5 consisting of a body or basic web or weave 6 from one side of which projects the pile 7. As examples of suitable pile fabric there may be mentioned velveteen or costume velvet which are relatively inexpensive fabrics having when finished a smooth regular pile and provide a fabric having a body of suitable thickness and strength for the work in hand with a sufficiently close and long pile for the manufacture of the polishing cloths according to this invention.

According to my present invention, rouge, that is copperas oxide, of relatively fine powdered form is the best and the preferred abrasive material for manufacture of polishing cloths according to this invention. However, other sufficiently light and sufficiently powdered abrasive such as crocus (viz. red oxide of iron), white rouge, chalk or whiting may be used in place of or in combination with the rouge, but are not considered by me as effective in the polishing cloth nor as so well adapted for making polishing cloth of this sort.

The rouge or other powdered abrasive is not applied dry to the cloth but is first placed in a suitable liquid vehicle such as a mixture of linseed oil and turpentine or a banana solution or banana oil or other suitable oily vehicle and well mixed therewith and held in suspension therein by agitation or other means until the mixture is applied to the cloth. Proper proportions of these materials are about as follows: Linseed oil one quart, turpentine six quarts, powdered rouge, (that is copperas oxide) or crocus, chalk, whiting or white rouge, fourteen ounces. These proportions may be varied somewhat according to the freedom with which the abrasive is to be ultimately given off from the polishing cloth. For instance, if the cloth is to be very free in giving off the abrasive, the proportion of turpentine to the oil would be increased with the result that the abrasive will be less permanently secured to the cloth. On the other hand, if it is desired that the polishing cloth be less free in giving off the abrasive, the proportion of turpentine to the oil will be reduced.

If a banana solution or banana oil is used as the vehicle it will not need to be thinned down as much as the linseed oil is thinned by the turpentine in the above given proportions for apparently the banana solution when

it dries out does not provide as strong a binder to hold the abrasive to the pile portion of the fabric as is the case with the linseed oil. For most purposes the proportions when using a banana solution or banana oil will be about as follows: Fourteen ounces of rouge or other light powdered abrasive, about four quarts of banana solution or banana oil and about four quarts of benzene.

The rouge or other desired powdered abrasive thoroughly mixed with the proper amount of turpentine and boiled linseed oil or other suitable liquid vehicle and constantly held in suspension in said liquid is then applied to the pile portion 7 of the fabric 5. During and subsequent to such application care must be taken that the mixture of abrasive and oil and turpentine or other vehicle is not allowed to reach the body 6 of the fabric to any appreciable extent.

As a means to so insuring the application of the rouge, turpentine and oil or other vehicle only to the pile portion, the portion of the fabric to which the abrasive and other materials are being applied will be held or supported with the pile 7 extending downwardly from the body 6 of the fabric 5. By applying the abrasive and liquid materials to the fabric while it is in this position, the abrasive suspended in the liquid does not run down or flow down upon the separate threads of the pile towards the body of the fabric, but as far as the weight of said abrasive and liquids are concerned the flowing is downward and away from the body of the fabric. Preferably, after the abrasive and such liquid vehicles as are used as already mentioned are applied to the pile side of the fabric, the said pile side of the fabric already coated or plated with the abrasive and said liquids will be given a gentle but decided brushing or agitation so as to insure a thorough saturation or impregnation of the fibers of the pile portion with the abrasive and the liquid. This operation also aids in thoroughly distributing the abrasive covering up any portions too scantily provided with abrasive and the said liquid and distributing any excess abrasive and liquid from any portions or spots where too much rouge and liquid have been applied. It will be noted from the proportions of rouge or other abrasive used relative to the turpentine and linseed oil or other vehicle that the weight of the abrasive is only about a sixtieth part by weight of the liquids used so that the mixed materials when applied to the fabric form a very liquid or thin mixture and not at all of the nature of paste nor of thick paint. The liquids mentioned act as a vehicle to carry onto and into the threads of the pile as much rouge or other abrasive as can be fairly taken on or absorbed by those threads, but the mixture of the said materials is too thin to allow the material to fill up the spaces between the threads of the pile with said mixture of abra-

sive and oil and turpentine or other vehicle.

Immediately after the said abrasive with the assistance of said liquids has been applied to the fabric and suitably spread thereover, the fabric with its said coating will be subjected to a rapid and effective drying operation, preferably by the use of a considerable degree of heat so as to expedite as far as possible the rapid drying or evaporation of the turpentine and also the drying of the relatively small portion of linseed oil or other oily vehicle used. During this drying process, the cloth is preferably held or supported with the pile side downward so as to prevent the liquids from running down into the body of the material and incidentally so as to prevent any unattached parts of the abrasive from dropping into and becoming imbedded in the body of the fabric while that body may be moist from the turpentine or oil having traveled up the threads of the pile by capillary attraction. The cloth will be held in this inverted position until the drying process has continued long enough in time and with sufficient heat to dry the polishing cloth to the proper point for safely handling and later for folding or rolling the same.

While the polishing cloth may be made as aforesaid by carrying out the steps mentioned by hand, it will be understood that in practice for cheapness and uniformity of quality and for the production of necessary quantities for economical use, the said polishing cloth will be made by the use of more or less machinery. Fig. 2 illustrates in longitudinal vertical section somewhat diagrammatically a machine that may be used in forming polishing cloth according to this invention and illustrating the steps of the process therefor. Into the vat 8 is placed the desired mixture of rouge or other powdered abrasive with the oil and turpentine or other vehicle thoroughly mixed therewith. Projecting down somewhat below the level of the said mixture 9 of rouge, oil and turpentine or other vehicle, there is provided a feed roller 10 mounted on a shaft 11 moved by suitable means so as to constantly carry upward on the periphery 12 of said feed roller 10 a layer of the mixture 9. As the machine is constructed and operated, this feed roller rotates clockwise. A little distance above the mixture 9 in said vat 8, there is placed close to the upwardly traveling side of the feed roller a scraping and distributing knife 13. This is mounted so as to be adjusted with precision relative to the adjacent surface of the feed roller so as to scrape off any excess amount of the mixture 9 and allow the same to drop back into the vat 8. As the remaining layer 12 of the mixture 9 is carried upwardly on the periphery of the feed roller, it is brought into engagement with the downwardly extending pile portion 7 of the fabric 5 which is being continuously carried past the upper

side of said feed roller with the said pile surface downwardly or towards said feed roller. The feeding of said fabric past the feed roller 10 may be accomplished by the fabric being drawn or fed from a large roll thereof 14 on shaft 15 downwardly past a guide roller 16 close to the left of the upper portion of the feed roller 10 and then to a similar guide roller 18 relatively close to the right of the upper portion of said feed roller. It will be understood that the guide rollers 16 and 18 are very accurately set and preferably adjustably mounted so as to carry the fabric 5 at just the right level relative to the upper side of the feed roller 10 and the layer 12 of the abrasive mixture as to apply said abrasive mixture sufficiently to the pile portion but not so strongly as to force the pile down into a mat and not so strongly as to force the abrasive mixture into the body of the fabric. Soon after the fabric leaves the feed roller 10 now carrying its coating of the mixture 9 on its downwardly facing pile portion the said pile surface of the fabric with its coating of said mixture will be subjected to a gentle but effective brushing and distributing of the material preferably crosswise of the fabric by the brush device 19 mounted and suitably moved just below the said fabric, preferably with a rotating and oscillating movement.

As soon as practical after this brushing has taken place and with the fabric still supported with the pile surface downwardly and of course with the fabric continuously traveling at the proper speed to the right the said fabric will be subjected to a drying process so as to quickly and thoroughly dry the liquid portion of the mixture applied to the pile surface. In the drawings, Fig. 2, this drying step is represented by the drying units 20 placed at intervals along the line of the fabric above and below the fabric. After the fabric has been sufficiently dried to prevent any danger of the liquid running down the pile portion into the body of the fabric the said fabric may be moved for a distance with its pile surface towards the top for its ultimate drying steps if desired. After the last drying has taken place, the fabric may be folded or rolled.

What I claim as new and desire to secure by Letters Patent is:

1. As a new article of manufacture, a dry-operating, non-smearing polishing cloth composed of a piece of pile fabric having its pile portion only impregnated with rouge or the like light powdered abrasive applied with boiled linseed oil and turpentine or other oily vehicle and then dried.

2. The process of forming a dry-operating and non-smearing polishing cloth which consists in applying to the pile portion only of a piece of pile fabric, an impregnating supply of powdered abrasive held in suspension in a mixture of linseed oil and turpentine or

other thin oily vehicle and then immediately drying the material without the liquid or abrasive reaching the body of the fabric.

3. A polishing cloth consisting of pile
5 fabric having the pile portion only impreg-
nated with rouge or similar light-weight
abrasive mixed with linseed oil and turpen-
tine in substantially the proportion of four-
teen ounces of rouge or similar abrasive, six
10 quarts of turpentine and one quart of boiled
linseed oil so that the abrasive is held in and
to the pile threads by the dried residue of the
oil and turpentine.

4. The process of making a dry-operating,
15 non-smearing, flexible polishing cloth which
consists of taking a piece of pile fabric, ap-
plying to the pile portion only a thin liquid
mixture consisting of and in substantially
the proportion of fourteen ounces of rouge
20 or similar powdered abrasive, six quarts of
turpentine and one quart of linseed oil, dry-
ing the fabric with a relatively high degree
of heat so that the liquid does not reach the
body of the fabric, and so that the abrasive
25 is held to and in the pile threads by the residue
of oil and turpentine.

In witness whereof I have affixed my sig-
nature this 16th day of February, 1931.

FREDERICK L. PORTE.

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