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ATTACHABLE CLEANING DEVICE

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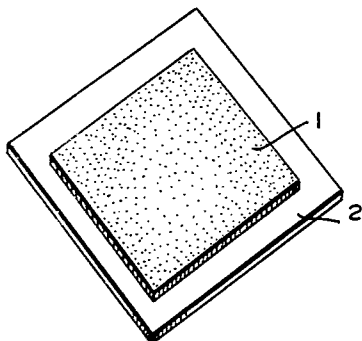


FIG. I



FIG. II

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3,149,364

ATTACHABLE CLEANING DEVICE

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This invention relates to an article of manufacture and a process for employing same. More particularly, the present invention discloses a macerating manufactured article of a pliable nature capable of removing foreign matter from various surfaces.

One object of the instant invention is to provide an inexpensive cleaning aid which, when applied as taught hereinafter, will substantially remove objectionable matter from household finishes.

Another object of this invention is to provide an article of manufacture capable of macerating dirt from diverse smooth planes with a minimum expenditure of energy.

Still another object of the present invention is a reusable commodity capable of cleansing smooth plane surfaces with the least possible expense of force or exercise.

A further object of this invention is to construct a device which upon the addition of a polar solvent forms a macerating solution capable of being sealed between the device and a soiled surface.

A still further object of the invention is to provide an inexpensive, disposable absorbent cleaning pad impregnated with a suitable detergent and having a liquid impermeable pliable backing of similar shape but with greater perimeter dimension than said pad, which upon the addition of a polar solvent for the detergent causes the peripheral adhesion of the backing to a smooth planar surface. Yet another object of the present invention is to make an article of manufacture comprising an impermeable pliable backing having an absorbent cleaning pad adhering thereto, said pad being of the same peripheral dimension as said backing and impregnated with a suitable detergent in combination with an adhesive compound.

Other objects and advantages of the immediate invention will become apparent from a reading of the specification hereinafter.

With the foregoing and sundry other still more particular objects and advantages in view, this invention comprises in essence the novel construction, combination, and adaptation of parts hereinafter more fully described, and a process for the utilization of the same.

Ordinary wash rags, scouring devices, sponges and the like, which are used to clean, for example, household surfaces and other smooth planar faces, require considerable expenditure of time and energy. For example, removal of soot from walls in juxtaposition with ordinary cooking stoves necessitates vigorous rubbing for relatively long periods in order to evidence a clean surface. Additionally, removal of stains, dirt, ink, and crayon or pencil marks from planar smooth surfaces made by children of tender age requires considerable rubbing with pressure for extended time intervals to obtain clean surfaces. These and other modern day household chores are substantially alleviated by the practice of our invention.

Prior art has disclosed a sponge pad comprising an absorbent pad one surface of which is treated with a soluble

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soap and a flexible waterproof sheet covering the opposite surface, said pad and said sheet being of the same peripheral dimension. See U.S. Patent 1,786,513. Such a sponge pad requires vigorous rubbing therewith to remove dirt or other foreign matter from a soiled surface.

It is well known today that cleaning of a surface is best accomplished if the surface be allowed to remain in contact with a detergent for extended periods of time. Such contact periods afford the dirt a chance to become loosened to the point where removal is accomplished readily and with the least energy expended.

The action of detergents is best understood in terms of the polarity of the molecules concerned, see "Fundamental Principles of Physical Chemistry," C. F. Prutton and S. H. Mahon, The MacMillan Co., New York, N.Y. 1949, pgs. 747-753. As used throughout this invention the term "detergent" means a molecule one end of which is polar and thus soluble in a polar material such as water while the other end of the molecule is non-polar and soluble in non-polar materials such as oils and greases. The result of the molecular structure of a detergent is that it tends to concentrate at the surface between water and oil.

A wide variety of detergents are used industrially and in household cleaning. Examples of operable detergents include, but are not limited to, alkyl benzene sulfonates, sugar esters of fatty acids and sodium or potassium salts of stearic, oleic or palmitic acids. These detergent materials in combination with a polar solvent having a boiling point in the range 100°-200° C., e.g. water, emulsify and disperse non-polar materials, that is materials which do not dissolve in the polar solvent, grease for example. This action of the detergent is due to the fact that one end of the molecule is attracted to the polar solvent, e.g. water, while the other end is attracted to the non-polar contaminating material. The result is that water or other polar solvent is able to penetrate, emulsify and loosen materials which it could not dissolve. Hence the essence of our invention is to provide a prolonged time period in which this penetration and emulsifying action can occur. It results, as shown in the examples, in a remarkable improvement in cleaning efficiency.

Thus, a long felt want of a device allowing a detergent to remain in contact with soiled areas for extended periods had readily been in evidence.

Surprisingly, it has been found possible to make a cleaning device which adheres to a soiled area which comprises a cleaning pad impregnated with a water-soluble adhesive compound and/or a detergent, said pad being bonded to an impermeable pliable backing material, e.g. a plastic material of similar shape having a perimeter at least equal to said pad. The addition of a polar solvent having a boiling point in the range 100°-200° C., e.g. water, to the cleaning device solubilizes the detergent and adhesive compound therein and allows the pad to adhere to smooth planar surfaces due to the adhesive compound, thereby permitting the device to macerate and clean the soiled surface adjacent the cleaning pad without a further substantial expenditure of energy.

In addition, it has been found that even greater adherence, and thus, longer cleansing periods can be obtained by designing the impermeable pliable backing material for the impregnated cleaning pad so that it is similar in shape but of greater all around perimeter than said impregnated cleaning pad. Such a design allows

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the border of the backing material in excess of the cleaning pad to tightly adhere to the surface due to the surface tension between the pliable backing material and the planar surface. Such surface tension excludes air thereby allowing the cleansing pad to remain in juxtaposition to a vertical planar surface for extended periods of time. This ability of the cleaning device to remain in position with the border in proximity to the surface to be cleansed, insures that the polar solvent in the cleaning solution, e.g. water, will not evaporate. Thus, it allows the cleaning solution to remain in contact with the soiled planar surface for long periods thereby loosening the dirt particles from the soiled surface. After a sufficient soaking period, the cleaning device is detached and the surface is restored to its cleansed condition. It may be necessary in certain instances to wipe the soiled surface after removing the attachable cleaning device. However, due to the prolonged soaking, the dirt is loose and readily removable with a minimum of effort.

In the accompanying drawing:

FIG. I is a perspective view of the attachable cleaning device.

FIG. II is a side elevation of the device.

Referring now more particularly to the reference numerals shown in the drawing, 1 comprises a cleaning pad of an absorbent, pliable porous material, e.g. blotting paper, paper towelling or cloth impregnated with a detergent in combination with a water soluble adhesive compound, e.g. polyvinyl, alcohol, said pad being attached to, 2, a backing sheet consisting essentially of a liquid impermeable pliable backing material, e.g. polyethylene or other plastic film, similar in shape and having at least equal all around perimeter to said cleaning pad.

The size of the cleaning pad employed can be varied within a wide range determined by the size of the soiled area. In the examples herein for ease of handling cleaning pads the size of conventional wash cloths or smaller were used. However, larger pads, e.g. of the size of a bed sheet or bigger are operable if the soiled area necessitates such magnitude.

One suitable process for preparing the attachable cleaning device of the present invention comprises the steps of causing the pliable, porous cleaning pad by means of driven rollers to be immersed in a solution containing a water soluble adhesive compound and/or a detergent, thereby impregnating the cleaning pad therewith, heating the thus-impregnated pad so as to drive off any liquid leaving the detergent and adhesive compound impregnated in the pad, coating one side of the dried impregnated cleaning pad with a waterproof adhesive such as rubber cement, cutting said coated cleaning pad to a predetermined size, and causing said coated side of said cut cleaning pad to adhere to a liquid impermeable pliable backing material with similar shape and of at least the same all around perimeter as said cut cleaning pad.

The detergent in the instant invention is present in an amount equal to 0.1-10.0% by weight based on the weight of the total solvent solution. Amounts in excess of this range are operable but are not recommended because of the difficulty encountered on subsequent removal of detergent from the surface being cleaned.

The water soluble adhesive is present in the composition of this invention in an amount in the range 0.01-5.0% by weight based on the weight of the total solvent solution. For best results it is preferred that the total non-volatile materials, i.e. detergent and water soluble adhesive, be present in an amount not more than 10% by weight based on the weight of the total solvent solution.

The following examples will aid in understanding the instant invention, but are not to be deemed as limiting in scope.

EXAMPLE 1

Twenty-five 2½" square pieces of cleaning pads constructed of paper towelling (thickness 15 mils) were cen-

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tered on 3" squares of polyethylene film (thickness ½ mil) and attached thereto. These sample cleaning pads with liquid impermeable polyethylene backing material of similar shape, but of greater all around perimeter than the cleaning pad were used in the following examples.

EXAMPLE 2

A test area consisting of a vertical sheet of painted metal having a soiled area evenly covered with blue crayon markings was set up. Cleaning pads from Example 1 were immersed in aqueous Ivory soap solutions of varying concentrations as shown in Table I, applied over small portions of the soiled area and held juxtaposed thereto by the surface tensions between the painted metal test area and the border of the polyethylene backing material extending beyond the cleaning pad. After removing the cleaning pads from the soiled area, the area was lightly rubbed 10 times. Percent removal of crayon markings was then ascertained for the treated squares. The results of the runs are given in Table I. The non-treated portion of the surface was 0% cleaned.

Table I

EFFECT OF DETERGENT CONCENTRATION ON REMOVAL OF CRAYON MARKS

Run No.	Detergent	Detergent concentration, percent	Contact time, hrs.	Percent removal of crayon
2a.....	Soap 1.....	1	3	95
2b.....	do.....	0.12	3	0
2c.....	do.....	0.015	3	0

¹ Ivory brand soap manufactured by Procter and Gamble.

The results in Table I show that it is necessary to use a very concentrated or saturated soap solution in order to remove crayon marks. Other detergents, such as alkyl benzene sulfonates, have been found effective in concentrations as low as 0.10% based on the total weight of the solvent solution.

EXAMPLE 3

The following runs were made to determine the amount of time necessary to remove crayon marks from a test area as described in Example 2. Five cleaning pads from Example 1 were water wetted and contacted by ten passes with a wet bar of Ivory brand soap manufactured by Procter and Gamble Co. The 2½" square wet soap-impregnated cleaning pads with a polyethylene backing material were applied to the soiled area and held in juxtaposition thereto by surface tension as in Example 2 for varying periods of time. After removing the cleaning pads from the soiled area, the area was rubbed lightly ten times. Percent crayon removal was then ascertained. The results of the runs are reported in Table II.

Table II

EFFECT OF CONTACT TIME ON REMOVAL OF CRAYON MARKS

Run No.	Detergent	Contact time, hrs.	Subsequent treatment	Percent of crayon mark removed
3a.....	Soap.....	0.5	Rubbed 10 times..	50
3b.....	do.....	1.5	do.....	90
3c.....	do.....	3.0	do.....	95
3d.....	do.....	5.0	do.....	85
3e.....	do.....	15.0	do.....	90
3f.....	Soap 1.....	0	do.....	0

¹ Control run—Wet soap impregnated cleaning pad prepared as in Example 3 rubbed on crayon soiled area 10 times.

The results of the run in Table II indicate that the use of this attachable cleaning device is fairly independent of time for crayon marks as long as it is allowed to act for at least 1½ hours. The results also show the amount of energy that is conserved by the practice of this invention.

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as compared to conventional rubbing (Run 3f) with a wetted soap impregnated cleaning pad.

EXAMPLE 4

A 2½" square cleaning pad with 3" square polyethylene film backing attached as constructed in Example 1 was immersed in a saturated Ivory soap solution (1.0 g. soap/100 ml. H₂O). The cleaning pad was allowed to dry in air. The dry soap-impregnated cleaning pad was then immersed in water for a moment and applied to a vertical test surface soiled by red crayon markings. The cleaning pad was held in juxtaposition to the soiled area by means of surface tension between the test surface and the border of the polyethylene backing material extending beyond the surface area of the cleaning pad. Such an attaching arrangement not only keeps air out thus reducing evaporation to a minimum but also makes it possible for the soap solution to maintain contact with the soiled area thereby loosening the dirt thereon. After 2½ hours the cleaning pad was removed and the soiled surface was lightly rubbed 10 times with a damp cloth. Inspection of the soiled area showed that about 95% of the crayon markings were removed.

EXAMPLE 5

A control run for Example 4 consisting of rubbing the soiled surface using a 2½" square cleaning pad moistened with a saturated Ivory soap solution as in Example 4 required in excess of 100 strokes to remove the same amount of crayon marking.

EXAMPLE 6

Three cleaning pads were prepared as in Example 4. The wetted pads were applied respectively as in Example 4 to areas soiled by soft pencil, India ink and red crayon. After 2¾ hours the pads were removed and the soiled areas were each rubbed 10 times lightly with a damp cloth. All of the soft pencil mark and all of the India ink marks were removed. About 90% of the crayon mark was removed.

The crux of the invention is based on the principle that a detergent solution is much more efficient and effective if allowed to act on soiled surfaces over prolonged periods of time without allowing evaporation of the solution. Therefore, the invention is designed to allow extended contact periods between the cleaning solution and the soiled surface while at the same time insuring that the solution will not be subjected to an evaporating environment. This is best accomplished by insuring that the pliable backing material has a border extending all around the perimeter of the cleaning pad, of sufficient width to make a seal with the wall.

In some instances even though the fringe on the cleaning pad is adherent to the soiled area, maximum removal of dirt is not obtained due to the cleaning pad per se not maintaining the detergent solution in contact with the entire soiled area. This could happen for instance when cleaning a vertical surface, with a large heavy cleaning pad. Some parts of the pad would not be in firm contact with the surface, thus the cleaning action would be uneven. To overcome this difficulty, a soluble adhesive is admixed with the detergent solution on the cleaning pad thus insuring that the cleaning pad per se will remain in contact with the soiled area thus keeping it saturated with the detergent solution. However, it is not necessary that both the water-soluble adhesive compound in the cleaning pad and the excess border of the backing material be employed simultaneously to adhere the cleaning device to a soiled surface. Either method per se is sufficient to adhere the device to a soiled surface. Obviously, the strongest adherence is obtained when both methods are used simultaneously. Thus it is possible to make the cleaning device without impregnating the cleaning pad with the water-soluble adhesive compound if sufficient excess border of backing material is obtained and the cleaning pad

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is relatively small and light in construction. Conversely, if no excess border of backing material beyond the perimeter of the cleaning pad is produced, the water-soluble adhesive compound will hold the device firmly to the surface. In the preferred embodiment of this invention, both methods are employed simultaneously.

The water-soluble adhesive compound can consist of various materials. For example, a high polymer, e.g. polyvinyl alcohol soluble in water or any other liquid solvent for the cleaning agent can be used. Other polymers which are operable as water soluble adhesive compounds in the practice of this invention include but are not limited to polyethylene glycol, carboxymethyl cellulose, starch and starch derivatives, polyvinylpyrrolidone, gum arabic and the like.

The cleaning pad can be made of various materials. Materials having the qualities of absorbability, porosity, pliability, and not disintegrated by the cleaning solutions are useable in the invention as cleaning pads. Such materials include, but are not limited to, cloth, cheesecloth, blotting paper, paper towelling, felt, non-woven fabrics, and the like.

The backing material for the cleaning pad has the requisites of having high liquid impermeability, good flexibility and good adhesion properties. Materials such as wax paper, aluminum foil, plastic films such as polyethylene, dacron, cellophane, polyvinylidene chloride, and polypropylene, are employable as backing material in the instant invention.

The bonding agent used to bond the cleaning pad to the impermeable back material can be various compounds well known in the art. Bonding agents operable in the instant invention include adhesives such as Du Pont Duco Cement, Allstate Rubber Cement #1050 and the like. Also, staples may be used or the parts sewn together.

The detergent can be any of several compounds without deviating from the scope of this invention. The detergent is preferably a solid or a non-volatile liquid at room temperature. It could also be a solvent for the dirt or foreign matter to be removed. Thus the cleaning pad could be soaked with ordinary commercial car cleaner and the invention could be used to clean automobiles in preparation for waxing. Obviously, if the detergent is a liquid it will be necessary to package the attachable cleaning device in some liquid impervious material such as a plastic film to insure that the liquid doesn't evaporate prior to use. It is also within the scope of this invention to maintain the detergent separate from the attachable cleaning device until just prior to use and then impregnate the cleaning pad therewith.

Various other modifications which are not set forth in detail as the preferred construction are possible herein and are not considered a departure from the spirit of this invention.

To show the superior adhesion of the article of manufacture of the instant invention as compared to the prior art, the following runs were made.

EXAMPLE 7

Four commercially available 30 cm. x 30 cm. white wash cloths, herein labelled cleaning pads A, B, C, and D each bearing the trademark "Cannon" and weighing 28 g. were used as cleaning pads as follows:

Pads A and B were glued to a backing consisting of a polyethylene film (0.5 ml. thickness) of equal size and dimension.

Pads C and D were glued to a backing consisting of a polyethylene film (0.5 ml. thickness) extending 2 cm. beyond the edge of the cleaning pad, said backing thus having dimensions of 34 cm. x 34 cm.

Pads A and C were immersed in an aqueous saturated Ivory soap solution, i.e. 1.0 g. soap/100 ml. H₂O. Pads B and D were immersed in an aqueous saturated Ivory soap solution containing 13 ml./100 ml. H₂O of Linit brand liquid starch manufactured by Corn Products Co.

The four pads were placed in contact with a vertical painted metal surface soiled with red crayon markings to test the adhesive and cleansing properties of the cleaning devices. The results in Table III show the superior adhering power and cleaning action of the three pads B, C, and D which are all embodiments of this invention over that of the prior art, i.e., pad A. Since it has previously been shown, see Example 3, and Table II that adhesion to the soiled surface for 1.5 hours is sufficient time to loosen ordinary dirt to the point where they can be easily removed, pads B, C, and D in Table III are all operable in performing this invention.

Table III

Pad	Adhesion time (hrs.)	Cleaning action
A-----	Less than 10 secs.-----	None.
B-----	1.5-----	Good (80 % removal).
C-----	1.5-----	Moderate.
D-----	1.5-----	Good (90% removal).

The following runs were made to show the relative percent dirt removal obtained by the use of this invention.

EXAMPLE 8

2½" square cleaning pads consisting of paper towelling (15 mil thickness) were glued to backings of 0.5 ml. thick polyethylene film of at least equal dimension to form cleaning devices and immersed in either a saturated Ivory soap solution (1.0 g. Ivory soap/100 ml. H₂O). The cleaning devices were then placed in contact with a painted metal surface in a vertical plane which was evenly soiled with a No. 2 pencil and a red Crayola crayon manufactured by Binney and Smith Co. The results of the runs are shown in Table IV.

Table IV

Run No.	Type pad ¹	Cleaning solution ²	Contact time (hrs.)	Percent Dirt removal ³	
				Crayon	Pencil
8a-----	A-----	Y-----	1.5	95	90
8b-----	B-----	X-----	1.5	95	80
8c-----	B-----	Y-----	1.5	100	90
8d-----	C-----	X-----	0	4 95	4 80

¹ A=2½" square paper towelling (15 mil thick) cleaning pad glued to 2½" square polyethylene film (0.5 mil thick).

B=2½" square paper towelling (15 mil thick) cleaning pad glue to 2½" square polyethylene film (0.5 mil thick). Hence ½" plastic border for adhesion around edge of cleaning pad.

C=Control run—30 cm. x 30 cm. wash cloth (trademark "Cannon") immersed in solution X and vigorously hand rubbed over same soiled area until comparable percent dirt removal obtained.

² X=Saturated soap solution, i.e. 1 g. Ivory flakes/ 100 ml. H₂O.

Y=Saturated soap solution as in X containing in addition 13 ml. Linit liquid soluble starch per 100 ml. H₂O.

³ Percent dirt removal observed after soiled area wiped once with H₂O damp cloth.

⁴ Required 20 to 30 wipes to obtain dirt removal equal to Run No. 8b.

As can readily be seen in Table IV, a comparison of Run No. 8d with Run Numbers 8a, b, or c shows that at least 20 times as much rubbing effort is used in present cleaning methods to obtain comparable percent dirt removal as is used in the present invention.

EXAMPLE 9

The procedure of Example 8 was followed except that the soiled surface was varnished wood. The results are reported in Table V.

Table V

Run No.	Type pad ¹	Cleaning solution ²	Contact time (hrs.)	Percent Dirt removal ³	
				Crayon	Pencil
5					
9a-----	A-----	Y-----	1.5	95	100
9b-----	B-----	X-----	1.5	60	90
9c-----	B-----	Y-----	1.5	95	100
9d-----	C-----	X-----	1.5	80	95
10	9e-----	D-----	0	4 50	4 100

¹ A=2½" square paper towelling (15 mil thick) cleaning pad glued to a 2½" square polyethylene film (0.5 mil thick).

B=2½" square paper towelling (15 mil thick) cleaning pad glued to a 2½" square polyethylene film (0.5 mil thick). Hence ½" plastic border for adhesion around edge of cleaning pad.

C=4¾" square knit cotton cloth double thickness (1 g./10 cm.) sewed to a 5¾" square polyethylene film (0.5 mil thick).

D=Control run—30 cm. x 30 cm. wash cloth (trademark "Cannon") immersed in solution X and vigorously hand rubbed over same soiled area until comparable percent dirt removal obtained.

² X=Saturated soap solution, i.e. 1 g. Ivory flakes/100 ml. H₂O.

Y=X containing in addition, 13 ml. Linit liquid soluble 100 ml. H₂O.

³ Percent dirt removal observed after soiled area wiped once with H₂O damp cloth.

⁴ Required 50 wipes to obtain percent dirt removal shown.

The results in Table V show that the use of the invention is equally operable on painted wooden surfaces as well as other surfaces.

EXAMPLE 10

Four cleaning pads were made up as follows:

Pads A and B: 11.8" x 11.8" commercial washcloth ("Cannon") was glued to the center of a backing consisting of commercial polyethylene (14" x 14" x 1 mil) leaving 1.1" fringe of polyethylene around the washcloth. The cloth was glued with "Testers" brand cement manufactured by Tester Corp., Rockville, Illinois.

Pads C and D: 11.8" x 11.8" commercial washcloth ("Cannon") was glued to the center of a backing of equal peripheral dimension consisting of commercial polyethylene (11.8" x 11.8" x 1 mil) with Testers brand cement manufactured by Testers Corp., Rockville, Illinois.

Pads A and C were moistened in an aqueous Ivory soap solution (1.0 grams soap/100 ml. of H₂O), the excess moisture was squeezed out of the pads and the pads were placed in contact with a painted metal surface in a vertical plane, which was evenly soiled with a #2 pencil and a red crayon with the brand name, Crayola, manufactured by Binney and Smith Co.

Pads B and D were immersed in an aqueous solution containing 1 g. Ivory soap/100 ml. H₂O and 13 ml. Linit brand liquid starch/100 ml. H₂O. Pads B and D were also squeezed in the same way and affixed to the same soiled metal surface in a vertical plane as were pads A and C.

After 1½ hours the pads remaining affixed to the surface were removed and the whole area wiped twice lightly with a water-damp cloth. The results of the test are reported in Table VI.

Table VI

Run No.	Type pad	Polyethylene fringe	Cleaning solution		Contact time (hrs.)	Percent dirt removal	
			Soap	Starch		Crayon	Pencil
60							
65							
10a-----	A	Yes	Yes	No	1.5	75	90
10b-----	B	Yes	Yes	Yes	1.5	85	95
10c-----	C	No	Yes	No	(1)	0	0
10d-----	D	No	Yes	Yes	1.5	90	100

¹ Less than 10 secs.

The results in Table VI show the necessity of having either a fringe of backing material or a soluble adhesive present in order for the cleaning pad to remain in contact with the soiled surface for sufficient time to cleanse the soiled area.

EXAMPLE 11

Three cleaning pads, A, B and C were constructed as in Example 1 and were impregnated as follows:

Pad A was covered with a portion of a uniform mixture prepared by mixing 42.5 g. of rosin and 9.0 g. of oleic acid with gently warming and stirring;

Pad B was covered with Pond's "Cold Cream," manufactured by Chesebrough-Pond's, Inc., New York;

Pad C was immersed in a saturated Ivory soap solution (1.0 g. Ivory soap/100 ml. H₂O).

Cleaning pads A, B and C were then placed in contact with a vertical painted metal test surface which was evenly soiled with a No. 2 pencil and a red "Crayola" crayon manufactured by Binney and Smith Co. After being in contact with the soiled surface for 3 hours, the pads were removed. The surface under pad A was covered with rosin. After the rosin was manually scraped away, the crayon and pencil marks were observed intact. Thus in practicing our invention rosin is definitely not a detergent or cleaning agent. The surface under pad B was wiped lightly 10 times with a damp towel then inspected. A considerable portion of the dirt, i.e. crayon and pencil marks, were removed, about 80%. However the whole area was smeared with cold cream so that it could not be considered cleaned. The surface under pad C was considered clean, i.e. 95% of the pencil and crayon marks were removed. The remaining marks were easily removed by lightly wiping the surface 5 times with a damp towel. No residue of the soluble starch or any other material was seen.

It has been found that the clearing device of the instant invention is operable on various types of soiled surfaces. All else being equal, non-porous surfaces such as metal, porcelain, glass, plastic, asphalt tile and the like, and smooth painted, lacquered or enamelled surfaces show the greatest improvement in dirt removal by the practice of this invention. However, even soiled porous surfaces such as ceramic and unpainted wood, plaster and dry wall can be cleaned to a lesser degree. In effect, any surface to which the cleaning device will adhere and which will not absorb all of the cleaning solution within the operable time period will show improved cleanliness after the use of this invention.

We claim:

1. An article of manufacture comprising a cleaning pad impregnated with, in combination, a detergent and an adhesive soluble in solvents for said detergent, said pad having attached thereto a backing material of at least equal dimension impermeable to said solvent for said detergent.

2. An article of manufacture comprising a cleaning pad impregnated with, in combination, a detergent and an adhesive soluble in solvents for said detergent, said pad having attached thereto a backing material of similar shape to said pad but of greater all around perimeter, said backing material being impermeable to said solvents for said detergent.

3. The article of claim 1 whereby the backing material is attached to the cleaning pad by sewing.

4. The article of claim 1 where the backing material is attached to the cleaning pad by a water-insoluble glue.

5. The article of claim 1 wherein the backing material is a plastic material and the cleaning pad is paper.

6. The article of claim 1 wherein the backing material is a plastic material and the cleaning pad is cloth.

7. An article of manufacture consisting essentially of a cleaning pad having attached thereto a liquid-impermeable backing material of at least equal dimensions, said pad being impregnated with a detergent, a soluble adhesive and a solvent for said detergent and adhesive, said solvent having a boiling point in the range 100-200° C., said detergent being present in an amount equal to 0.1-10% by weight of the total solvent solution and said adhesive being present in an amount equal to 0.01-5% by weight of the total solvent solution.

8. The article according to claim 7 wherein the solvent is water.

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