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(54) **DECORATIVE APPLIQUE REMOVER**

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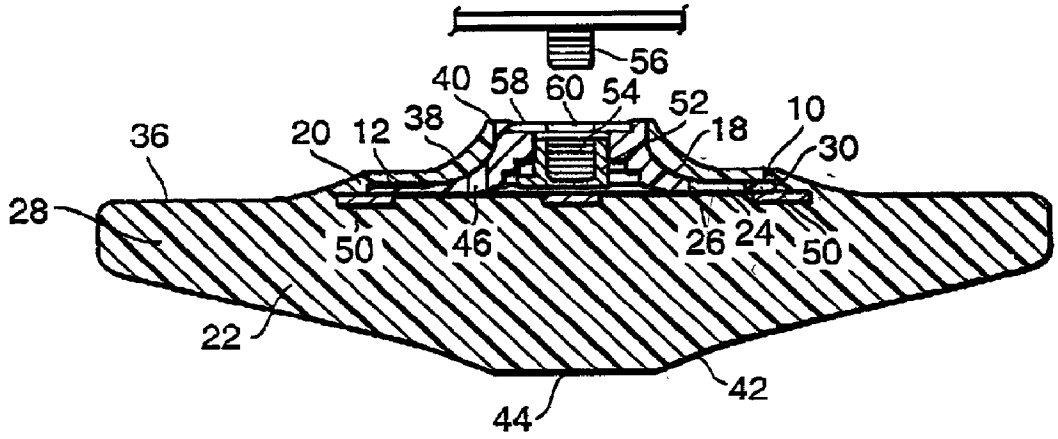
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(57) **ABSTRACT**

A decorative applique remover for removing an applique which has been relatively permanently applied, usually by an adhesive, to a substrate as, for example, an enlarged emblem or a pin stripping or other applique on an automotive vehicle or other substrate. The applique remover preferably exists in the form of an abrading disc which is specifically designed to physically engage, lift and remove the applique from the surface of the substrate, such as the surface of an automotive vehicle. The abrading disc is designed with a rubber-like surface capable of literally rubbing the applique from the surface of the substrate without marring or otherwise deleteriously affecting the surface of the substrate, such as the paint of an automotive vehicle surface.



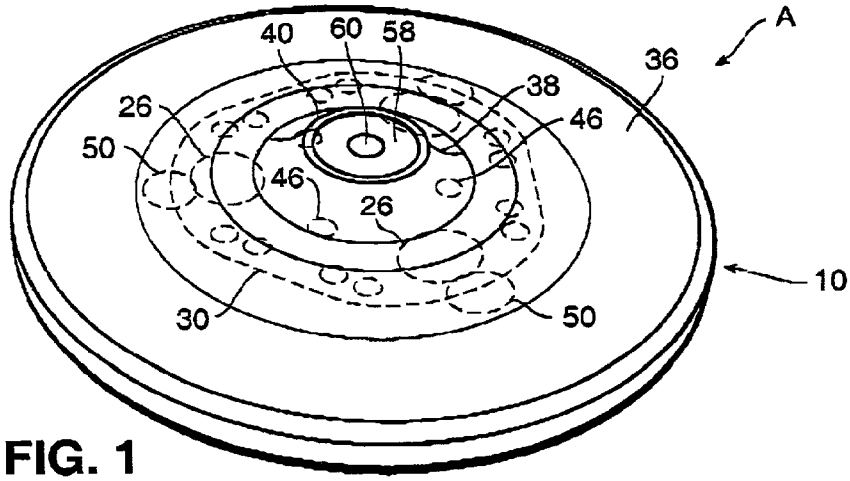


FIG. 1

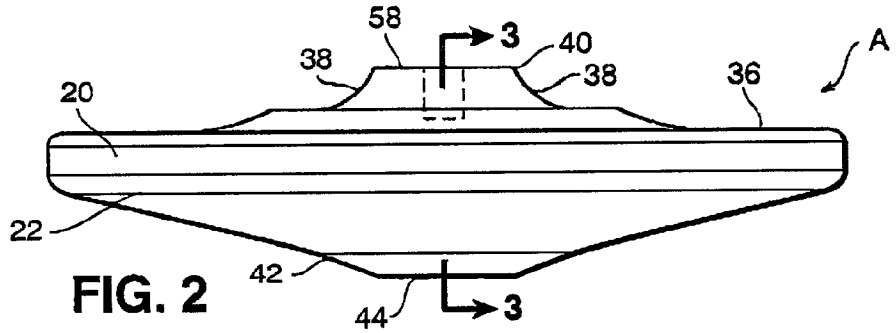


FIG. 2

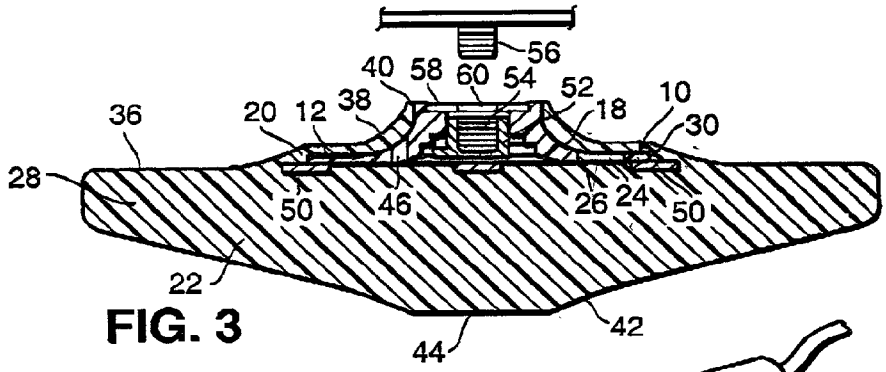


FIG. 3

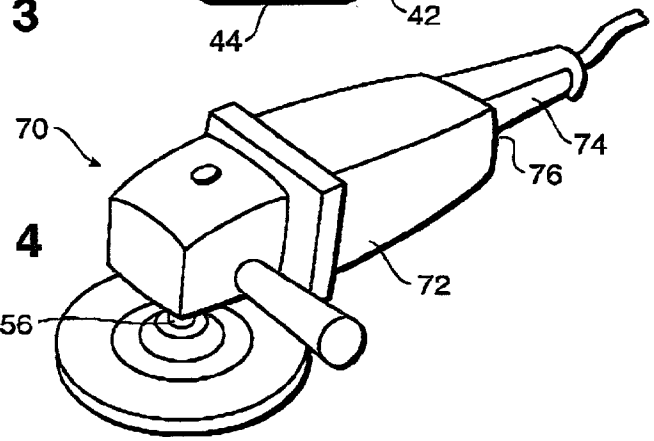


FIG. 4

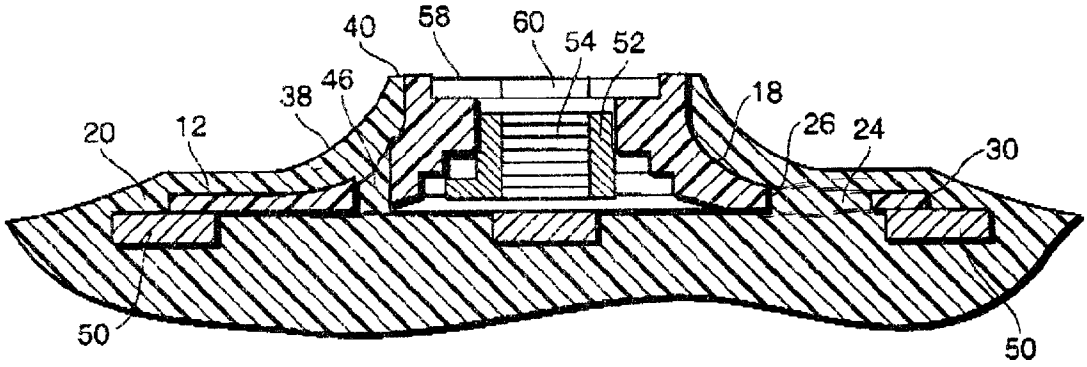


FIG. 5

DECORATIVE APPLIQUE REMOVER

SPECIFICATION

[0001] BE IT KNOWN THAT I, ROSS L. SHEPHERD, a citizen of the United States and resident of the City of Burbank, State of Calif., have invented a certain new and useful DECORATIVE APPLIQUE REMOVER of which the following is a specification containing the best mode of the invention known to me at the time of filing an application for Letters Patent therefore.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] This invention relates in general to certain new and useful improvements in decorative applique removers and, more particularly, to a decorative applique remover for removing an applique from the surface of a substrate without otherwise marring the surface finish of that substrate.

[0004] 2. Brief Description of Related Art

[0005] In recent years, it has become very common to apply applique strips to the side walls of passenger automotive vehicles. These appliques may adopt the form of various types decals which may be in the nature of informative decals, such as police insignia, or otherwise they can be advertising or promotional decals or merely just aesthetic decals. In addition, pins appliques in the form of pin stripping is also frequently applied to the side walls of passenger automotive vehicles.

[0006] Appliques, generally formed of vinyl and polyester materials, are also applied to a variety of other surfaces, such as signs, including metal and plastic signs, glass windows, and the like. Moreover, appliques of this type are frequently applied to such items, including surfboards, skateboards, and the like. It may be appreciated that after a period of time the applique becomes marred, particularly on the surfaces of skateboards and surfboards, and in order to refurbish the item, it may be necessary to remove the applique and apply a new one.

[0007] One of the main problems in the removal of the applique is that most appliques, particularly after any extended period of time, become exceedingly difficult to remove from the surface of the automotive vehicle or other substrate without damaging or marring that substrate. In addition, and in attempting to remove an applique, so as to avoid damage in or marring the substrate surface, intensive and substantial time consuming manual effort is involved to remove the applique and still avoid damage to the surface finish of the item from which it is removed. In the case of a surfboard, and particularly one formed of reinforced plastic surface, it may quite difficult, if not impossible, to correct a marred surface finish.

[0008] In the case of public vehicles, such as police vehicles, these vehicles are frequently stripped of their radios, gun racks and the like and the exterior police identification must necessarily be removed before sale or other disposition of these vehicles, typically at municipal auctions therefor. Again, removal of a large applique which may extend across most of the side panel of a door must take place without marring or otherwise damaging the paint surface.

[0009] In the automotive industry, these appliques are frequently in the nature of stripes which are identified in that industry as pinstripes, as stated above. These pinstripes are of relatively narrow width and extend for a substantial distance across the length of the automotive vehicle. Appliques are also frequently applied to side walls of trucks, including both truck cabs, trailers and the like.

[0010] There have been various attempts to remove appliques from surfaces of automotive vehicles and other substrates and not the least of which is with the use of solvents. However, after an applique has been applied to a substrate for a period of time, the use of a solvent is not very effective. There have also been attempts to use various types of scrapers for literally prying the applique from the surface of the substrate. One of the techniques frequently used for removal of appliques is to apply heat to the applique. Typically, a torch, such as a gas fired torch, having a temperature of about 1200° F., is used to heat the applique causing a softening thereof and which is then removed with a scraper. However, it can be envisioned that, to the extent that the surface finish is not marred by the 1200° F. flame, it is frequently marred by the scraping of the vinyl from the surface of the vehicle or other substrate. The 1200° F. flame, if not used exceedingly carefully and if used on an automotive vehicle, will cause the paint on the vehicle to burn and this will again result in need for repainting of a portion of the vehicle. The inevitable result is that there is usually some scratching or other mar to the surface finish of the vehicle and this, of course, militates against and hampers the purchase price of that vehicle in a later sale.

[0011] There have also been attempts to use solvents for softening and otherwise removing, if not completely dissolving, the vinyl applique on a finished surface. However, relatively strong solvents are needed to attack a vinyl material. Consequently, very strong solvents, such as carbon tetrachloride or carbonticholoride can be used for this purpose. However, these solvents also have a tendency to soften the surface of the finish and to discolor the surface of the substrate. Moreover, the strong solvents are not only environmentally unfriendly, but they can be quite hazardous to human personnel who are required to use same. Disposal of these solvents also becomes a critical problem with present governmental regulations.

[0012] Another one of the present techniques which has been widely used for removal of an applique from a substrate is that of an abrading disc. However, and here again, the commercially available abrading discs or so-called wheels are not very effective in removing the applique without removing a portion of the surface finish. If the abrading disc is designed so as to avoid damage to a paint finish, then it is not effective as a remover of the applique.

[0013] Heretofore, there has not been an effective means to remove an applique from a substrate, such as an automotive vehicle or other substrate and, particularly, a metal substrate having a surface finish thereon.

OBJECTS OF THE INVENTION

[0014] It is, therefore, one of the primary objects of the present invention to provide a device for removing an applique from a surface of an substrate without otherwise damaging the surface finish of that substrate.

[0015] It is another object of the present invention to provide an abrading disc which can be used for lifting and removing an applique from a surface of a metal substrate without otherwise marring or damaging the surface finish of that substrate.

[0016] It is a further object of the present invention to provide an abrading disc of the type stated in which the wheel of the disc is constructed so that it can be mounted to a drive, such as a motor, for rotating same without enabling other components of that abrading disc to come into contact with the surface of the substrate from which an applique is being removed.

[0017] It is an additional object of the present invention to provide an abrading disc of the type stated which is constructed of a material which is effective to remove various sizes and shapes of appliques from the surface of an automotive vehicle without damaging the surface finish of that automotive vehicle.

[0018] It is another salient object of the present invention to provide a method of removing an applique from the surface of a substrate quickly, easily and effectively without consuming a substantial amount of manual labor and which does not otherwise mar the surface finish of the substrate from which the applique is being removed.

[0019] With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement and combination of parts and components present described and points out in the claims.

BRIEF SUMMARY OF THE INVENTION

[0020] A decorative applique remover for removing an applique from a surface of a substrate and, particularly, a metal or reinforced composite substrate. More particularly, in one embodiment, the invention relates to the removal of an applique from an automotive vehicle. The appliques which are normally applied to automotive vehicles are generally decorative in nature. However, in many cases, the appliques are provided for functional purposes, such as identifying an ambulance, police vehicle, etc. Nevertheless, these appliques are still decorative in nature and, hence, the term "decorative applique" in accordance with the present invention will include appliques which have more of a functional purpose to them.

[0021] The appliques which are generally applied to the surface of automotive vehicles and other substrates are generally formed of thin plastics, although they may be formed of plasticized paper materials. The thin plastics are preferred, since they are generally resistant to degradation from weathering and readily and easily accept an adhesive for application to the surface of a substrate, such as a wall of an automotive vehicle. The exact nature of the applique is not critical in accordance with the present invention. However, it is pointed out that the applique usually has a very thin wall construction and, hence, it is difficult to remove by buffing from the wall of an automotive vehicle without otherwise damaging the underlying surface paint.

[0022] The present invention provides an abrading disc which can be rotated, such as by a hand held buffer-grinder or a sander, or the like, at required speeds to effectively lift and remove the applique from the surface of the substrate. Surprisingly, with the device of the prevent invention, this disc does not mar or damage the surface of the substrate to which the applique has been provided without marring a substrate.

[0023] It should be understood in connection with the present invention that the applique remover is described in connection with removal of appliques from automotive vehicles, since these appliques are widely applied to automotive vehicles. However, it should also be understood that the present invention is not so limited and the applique remover can be used for removal of appliques from essentially any type of substrate where it is necessary to remove the applique without otherwise damaging the surface finish of that substrate.

[0024] The term "abrading" is used in a broad sense and is not limited to a mere polishing or cleaning operation. It similarly does not encompass a hard brush-like action which would occur in many cleaning operations. Rather, the term is used in a sense which represents more than a simple buffing or polishing action to include the actual lifting of an applique from a substrate surface without a hard abrasion. This substrate surface may adopt the form of a metal surface, reinforced composite surface, a plastic surface, or the like.

[0025] The applique remover of the present invention comprises a disc in the nature of a buffing disc having an applique removal surface composition formed of an elastomer and, particularly, a blended urethane material. In accordance with the present invention, it has been found that the compositions used for making a normal pencil eraser is actually highly effective for removal of appliques from surfaces of automotive vehicles. Indeed, it would not be anticipated that one would expect to find a pencil eraser effective in the removal of a plastic applique from a metal surface. Nevertheless, tests have revealed that a material similar to an eraser is highly effective in not only lifting and removing the applique but does so without substantially any damage whatsoever to the paint finish or other finish on the surface of the vehicle.

[0026] It has also been found that when a solvent, including many known organic solvents, is first used to impregnate the applique, removal with the buffing disc of the present invention becomes more efficient. Well known solvents are highly effective for this purpose, although care must be taken to avoid any hazardous vapors from such solvents. If the solvent is applied merely by a hand applicator and allowed to penetrate into the applique, removing the applique becomes relatively simple and easy.

[0027] The present invention does utilize a solvent which can be employed to remove the vinyl applique after abrading thereof. The solvent which is employed is that known as a D-limoline solvent which is a citrus based solvent. This solvent does not otherwise affect the substrate.

[0028] It is possible to use many types of elastomer materials, such as eraser compositions, when modified to have proper resilience and hardness, as previously stated. However, the material must be sufficiently durable so that it does not quickly wear down requiring frequent replacement. It may be appreciated that if the abrading material wears unduly fast, an inattentive operator could allow other portions of the buffing instrument to contact the metal paint of the vehicle, such as a bare portion of the rotating disc or the like. This would indeed damage the surface finish of the

automotive vehicle. Further, undue wear of the abrading material would require frequent replacement and the attendant down time.

[0029] The abrading disc is constructed so that a metal plate having a hub for mounting on a rotatable shaft is provided. The hub is on the outer surface of the buffing wheel so that it does come into contact with the metal or other surface on which the applique exists. The metal plate and the side of the metal plate which would be used to remove the applique is entirely covered with the abrading material, such as the urethane material mentioned above. As a result, the only exposed portion of the abrading disc which could contact the surface of the automotive vehicle or other surface and the applique is that applied urethane buffing material. As indicated above, the hub is on the opposite side and therefore not accessible to be engaged with the surface of the automotive vehicle.

[0030] The plate is provided with a series of openings along its periphery so that the urethane or other buffing material when applied, particularly in a liquid form, will immediately bond to both sides of that plate and entirely cover the plate.

[0031] In addition, a red plastic alert element is incorporated in the urethane material adjacent to the metal plate. Thus, when the urethane material wears down to the point where the red warning element becomes visible, the user is effectively warned that the disk should be replaced. Otherwise, continued use thereof could result in damage to the surface finish of the item from which the applique is removed.

[0032] This invention possesses many other advantages and has other purposes which may be made more clearly apparent from a consideration of the forms in which it may be embodied. These forms are shown in the drawings forming a part of and accompanying the present specification. They will now be described in detail for purposes of illustrating the general principles of the invention. However, it is to be understood that the following detailed description and the accompanying drawings are not to be taken in a limiting sense.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] Having thus described the invention in general terms, reference will now be made to the accompanying drawings in which:

[0034] **FIG. 1** is a perspective view of a decorative applique abrading disc-type remover constructed in accordance with and embodying the present invention;

[0035] **FIG. 2** is a side elevational view of the decorative applique abrading disc-type remover of **FIG. 1**, partially in dotted lines;

[0036] **FIG. 3** is a vertical sectional view taken along **3-3** of **FIG. 2**;

[0037] **FIG. 4** is a perspective view of a hand held buffing instrument with which the decorative applique abrading disc-type remover may be used in accordance with the present invention; and

[0038] FIGS. **5** is an enlarged vertical sectional view taken through the upper portion of the disc-type remover of the present invention.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

[0039] Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of the present invention, A designates a decorative applique remover which can be used for removing a decorative applique from the surface of a substrate, such as a surface of an automotive vehicle.

[0040] The term "automotive vehicle" is used in a broad sense to include both passenger automotive vehicles, pick-up trucks, truck cabs and trailers and the like. Essentially, the term is used to include essentially any type of road driven movable vehicle, whether or not a driven vehicle or one which is pulled in the nature of a trailer. It is to be understood, however, that the invention is not only limited to automotive vehicles, but can be used for removing appliques from other vehicles, such as boats, airplanes, and the like, as well as from other movable and stationary objects. The invention is also effective in removing appliques from a variety of other substrates including, for example, surfboards, refrigerators, truck trailers, and numerous other substrates.

[0041] The applique remover of the present invention exists in the form of an abrading disc, as aforesaid, and comprises an inner relatively rigid base plate **10** which serves as a structural element. The plate has a relatively flat upper surface **12** and a relatively lower surface **14**. The disc is also formed with an integral upstanding centrally located hub **18**, as best shown in **FIG. 3**. The plate **10** is preferably formed of a light weight relatively rigid plastic material, although it may be formed of an aluminum, steel or other structural material to provide rigidity and body to the disc.

[0042] Applied to both the upper surface **12** and the lower surface **14** of the disc **10**, as well as the central hub **18**, is an elastomeric material having an upper section **20** and a lower section **22**, in the manner as best shown in **FIG. 3** of the drawings. The upper section **20** is integrally connected to the lower section **22** by means of integral elastomeric projection sections **24** extending through openings **26** formed in the plate **10**. In this way, the upper elastomeric upper section **20** and lower elastomeric section **22** become integral with one another. In addition, the two portions **20** and **22** are bonded by a peripheral angularly extending end portion **28** of the same elastomeric material and extending around a peripheral edge **30** of the plate **10**. In effect, the upper and lower sections and end section therefore are really a single, integral piece of material which merely defines upper and lower layers and a peripheral layer on the disc itself. Thus, there is only one single elastomeric material.

[0043] In the embodiment of the invention as shown in **FIG. 3**, it can be observed that the elastomeric section is provided with a relatively flat upper surface **36** and an integrally formed upwardly and inwardly diverging arcuate side wall **38** which merges into a relatively flat top wall **40**. The lower section **22** similarly has an downwardly and inwardly projected truncated side wall **42** and a flat centrally located bottom surface **44**.

[0044] In the embodiment of the invention as shown in **FIG. 3**, it can be observed that the relatively flat side wall **42** is somewhat arcuately shaped and constitutes a relatively large surface area of the lower section **22**. This slightly

arcuate surface **42** actually serves as the preferred buffing surface. The relatively flat bottom surface **44** is relatively small, since it is not used in the buffing operation.

[**0045**] The disc **10** is provided with the enlarged openings **26**, as aforesaid. In the preferred embodiment, the plate **10** is somewhat pentagonal in shape with rounded corner portions, although other shapes could be used. The three such openings **26** are provided and are generally located at the apex of an imaginary equilateral triangle each of these three corner portions, as best shown in **FIG. 1** of the drawings.

[**0046**] Three additional smaller diameter openings **46** may also be formed in the plate **10** and in the central hub **18** in order to further provide for integral bonding of the upper and lower sections around the hub. Again, although three such openings **46** are illustrated, it should be understood that the number of openings and the exact location thereof is not critical in accordance with the present invention.

[**0047**] A plurality of brightly colored elements, three as shown, are also located in slightly spaced apart relationship to and preferably on the bottom surface **14** of the disk **10**. In place of the plurality of elements **50**, a bright plastic thin layer could be included for this purpose. Moreover, the thin layer or plurality of elements may be in the form of a relatively thin film and is completely incorporated within the resin material surrounding the disk **10**. However, the resin is somewhat translucent. Not withstanding, when a user of the device first observes the red colored layer **50**, which will become apparent when the abrading material has been removed or worn down to within a few mills of that layer, the user is alerted to the fact that he or she must change the abrading disk **10** for a new one in order to potentially avoid damage to the substrate surface.

[**0048**] Again, it can be observed that the urethane buffing material and, particularly, the upper section **16** thereof, is disposed completely over the plate and fully encloses the plate **10**. The central hub **18** of the plate **10** is also provided with an opening to receive a fitting **52** and which is, in turn, provided with a threaded interior central bore **54** for receiving a shank of an instrument, such as that shank **56** illustrated in **FIG. 3** of the drawings. A washer **58** is disposed on the upper surface of the fitting **52** and is similarly provided with an opening **60** matching the opening **54** to thereby allow receipt of the shank **56**. Moreover, and by further reference to **FIG. 3**, it can observed that the washer **58** is flush with the upper surface **40** and is retentively held in place by the urethane material.

[**0049**] The driving instrument on which the disc of the present invention is used may adopt the form of a hand held buffer, grinder or sander. One such instrument **70** is more fully illustrated in **FIG. 4** of the drawings. In this case, it can be observed that the instrument **70** is provided with an elongate hand holding section **72**, a pistol grip handle **74**, with an actuating trigger **76**. The forward end of the instrument **70** is provided with an externally threaded shaft **56** which is adapted to fit within the aligned openings **54** and **60**. In this way, the disc may be threadedly secured to the shank **56**.

[**0050**] The urethane material, which is hereinafter described in the more detail, is typically applied to the disc in a die. When the plate **10** is provided, it is inserted into a die and the urethane is effectively introduced into the die cavity and secured to the disc in the manner as previously described. Moreover, and in accordance with this construction, it is possible to insure that the abrading material covers the lower portion of the disc and to insure a sufficient thickness of buffing material is formed on the plate **10**.

[**0051**] The material, which is applied to the disc, is preferably initially in liquid form. Typically, the material must be heated until the urethane or other material achieves a liquid temperature. Formation in a die is almost always preferred, since it is possible to control the amount of time that the disc remains in the die and to insure that the abrading material fully covers the disc in the desired locations and it insures a sufficient thickness of buffing material on the surface of the applique remover.

[**0052**] As indicated previously, urethane materials are highly effective for use as the abrading material. Some of those abrading materials which have been found to be highly effective in the present invention include the elastomeric polyurethanes and, particularly, those urethanes with a polyether polyol and a urethane elastomer. Some of these urethanes may be formed with a hydroxy terminated polyol, such as, for example, oxyalkylene.

[**0053**] Other elastomeric compounds which can be used are chosen from suitable polycarbonates, polyethylene therephthalate, polypropylene, polyesters, polyamides, polyimides, polyvinyl chloride, acrylic resins, alkyd resins, and the like. These urethanes approach the feel and characteristics of a paper eraser, but have been found to be highly effective in the removal of vinyl like products.

[**0054**] Thus, there has been illustrated and described a unique and novel decorative applique remover and which thereby fulfills all of the objects and advantages which have been sought. It should be understood that many changes, modifications, variations and other uses and applications which will become apparent to those skilled in the art after considering the specification and the accompanying drawings. Therefore, any and all such changes, modifications, variations and other uses and applications which do not depart from the spirit and scope of the invention are deemed to be covered by the invention.

Having thus described the invention, what we desire to claim and secure by letters patent is:

1. An abrading disc for removal of an applique on a finished surface of a substrate without marring the surface finish of that substrate, said abrading disc comprising:

a) a relatively rigid structural plate having a top side and a bottom side as well as a peripheral edge;

b) a hub extending upwardly from said plate and having means for attachment to a rotatable drive shaft for causing rotation of the abrading disc;

c) an elastomeric material covering both sides of said plate and the edge of said plate so as to preclude contact of the rigid plate with the finished surface of said substrate; and

d) said elastomeric material being sufficiently soft so as to engage a plastic film applique and effectively rub same from the surface of said substrate and which is yet sufficiently rigid so as to be relatively durable and not quickly worn in applique removing operations.

2. The abrading disc of claim 1 further characterized in that said plate is initially provided with a plurality of openings on the surface thereof to allow the elastomeric material to adhere to both sides of said plate and form an integral bond with elastomeric material on both sides of said plate.

3. The abrading disc of claim 2 further characterized in that said plate initially is provided with a plurality of additional openings in said plate extending between the top side and the bottom side thereof and surrounding said hub so that elastomeric material can also extend over a portion of said hub in proximity to the top side of said plate.

4. The abrading disc of claim 1 further characterized in that said plate is somewhat pentagonal in shape and the elastomeric material and said hub is circular in shape.

5. The abrading disc of claim 1 further characterized in that the means for allowing attachment to a rotating shaft comprises an insert adapted to receive a shaft from an electric motor.

6. The abrading disc of claim 1 further characterized in that an enlarged elastomeric protrusion is formed on a surface of said disc on the side thereof opposite said hub.

7. The abrading disc of claim 6 further characterized in that said protrusion is formed essentially only of elastomeric material and constitutes the primary abrading component of said abrading disc.

8. An abrading disc for removal of an applique on a finished surface of a substrate without marring the surface finish of that substrate, said abrading disc comprising:

a) a relatively rigid structural plate having a top side and a bottom side as well as a peripheral edge;

b) a hub extending upwardly from said plate and having means for attachment to a rotatable drive shaft for causing rotation to the abrading disc;

c) an elastomeric material formed on said plate and being sufficiently flexible so as to effectively lift and erase a plastic film applique from a surface of said substrate without substantially marring the surface finish of that substrate and which is yet sufficiently rigid to withstand several applique removal abrading operations; and

d) an enlarged section of elastomeric material extending outwardly from said plate on a surface thereof opposite said hub for engaging the plastic applique film and abrading same from the surface of said substrate when said disc is rotated.

9. The abrading disc of claim 8 further characterized in that said enlarged section is somewhat conically shaped and has a substantial depth with respect to the surface of the plate from which it extends at least greater than the thickness of said plate.

10. The abrading disc of claim 9 further characterized in that said enlarged section has a truncated surface and a bottom surface and said truncated surface is used to engage and abrade the plastic applique from the surface of said substrate.

11. The abrading disc of claim 8 further characterized in that said substrate is a portion of an automotive vehicle.

12. The abrading disc of claim 11 further characterized in that said portion of the automotive vehicle has a surface finish which is a paint finish.

13. The abrading disc of claim 8 further characterized in that said elastomeric material is a polyurethane.

14. A method for removing a plastic applique from a finished surface of a substrate without otherwise marring the substrate, said method comprising:

a) applying to said substrate an abrading disc having a surface formed of an elastomeric material and rotating said buffing wheel at a speed sufficient to cause an abrading of the applique without substantially marring the surface of said substrate, said elastomeric material being comprised primarily of a polyurethane.

15. The method of removing a plastic applique of claim 14 further characterized in that said method comprises engaging said applique with a portion of an extended section on said abrading disc to cause the abrading and removal of said applique.

16. The method of removing a plastic applique of claim 14 further characterized in that said elastomeric material is formulated with a urethane resin in a polyether polyol.

17. A method of making an abrading disc for removal of an applique on a substrate having a surface finish without otherwise substantially marring the surface finish, said method comprising:

a) providing a relatively flat plate having an outwardly projecting hub thereon;

b) forming in said plate apertures in the plate surrounding the hub;

c) forming apertures in said plate within a relatively flat portion of said plate located radially outwardly from the apertures surrounding said hub; and

d) applying to said plate an elastomeric compound while the latter is in a liquid or semi-liquid form and causing the elastomeric compound to bond to both of the opposite sides of said plate through said aperture.

18. The method of making the abrading disc of claim 17 further characterized in that said method comprises forming an elastomeric layer on said plate in a die with introduction of said elastomeric compound when said plate is in said die.

* * * * *