AUTOMOTIVE MAINTENANCE KNEELING PADS AND METHODS THEREOF

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Appl. No.: 12/478,138

Filed: Jun. 4, 2009

Related U.S. Application Data
Provisional application No. 61/058,763, filed on Jun. 4, 2008.

Publication Classification
Int. Cl.
A41D 13/06 (2006.01)

U.S. Cl. ............................................................................. 267/142

ABSTRACT
A portable maintenance assistance device in accordance with embodiments of the present invention includes at least one resilient material having one or more side edges between a pair of opposing substantially planar surfaces. The resilient material is substantially resistant to deterioration from exposure to one or more automotive chemicals.
AUTOMOTIVE MAINTENANCE KNEELING PADS AND METHODS THEREOF

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 61/058,763, filed Jun. 4, 2008, which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to kneeling pads for use in an automotive maintenance environment and methods thereof.

BACKGROUND

[0003] Typically, automotive working environments expose operators to varying environmental conditions and caustic automotive chemicals while working. These operators often have to kneel down and position themselves on cold, slippery and chemically coated floors. Often their productivity is tied to their health and comfort in these challenging work environments. Unfortunately, to date there are no durable portable devices which operators can easily use to provide them more comfort and safety in these work surroundings.

SUMMARY

[0004] A portable maintenance assistance device in accordance with embodiments of the present invention includes at least one resilient material having one or more side edges between a pair of opposing substantially planar surfaces. The resilient material is substantially resistant to deterioration from exposure to one or more automotive chemicals.

[0005] A method for making a portable maintenance assistance device in accordance with embodiments of the present invention includes obtaining at least one resilient material that is substantially resistant to deterioration from exposure to one or more automotive chemicals. The resilient material is formed to have at least one side edge between a pair of opposing substantially planar surfaces.

[0006] The present invention provides a number of advantages including providing more durable, easy to use and effective portable maintenance assistance devices for use in caustic surroundings and varying environmental conditions. The present invention is substantially resistant to any deterioration from automotive chemicals, such as coolants, brake fluid, transmission fluid, antifreeze, engine oil, appearance care products, such as waxes and cleaners, and supplemental additives to improve performance. Additionally, the present invention is substantially fluid proof to water, automotive chemicals, and other fluids to keep the operator dry. Further, the present invention is substantially resistant to tears and can be subjected to harsh use with tear damage. Even further, the present invention provides thermal insulation and even reflective insulation to help operators maintain body heat in harsh environmental working conditions, such as in automotive garages in winter. The present invention is also hygienic because it is resistant to mold, mildew, and bacteria which could affect an operator. Further, the present invention utilizes a rounded side edges and corners making it easy to reach under and grasp. The present invention also offers the operator protection from any objects, fragments, or other debris which may be on the floor, such as screws, metal fragments, or rocks.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a top perspective view of a portable maintenance assistance device in accordance with embodiments of the present invention which is not to scale; and

[0008] FIG. 2 is a side perspective view of a portion of the portable maintenance assistance device shown in FIG. 1 which is not to scale.

DETAILED DESCRIPTION

[0009] A portable maintenance assistance device 10 for use in an automotive maintenance and other environments in accordance with embodiments of the present invention is illustrated in FIGS. 1 and 2. The portable maintenance assistance device 10 includes a resilient layer of material 12 with side edges 14(1)-14(4) between a pair of opposing substantially planar surfaces 16(1) and 16(2), although the device can comprise other types and numbers of layers, elements and components in other configurations. The present invention provides a number of advantages including providing a more durable, easy to use and effective portable maintenance assistance devices for use in caustic surroundings and varying environmental conditions.

[0010] Referring more specifically to FIGS. 1-2, the portable maintenance assistance device 10 comprises a pad or cushion which has a substantially rectangular shape, although the device could have other types of shapes. In this particular embodiment the portable maintenance assistance device 10 is about 14" long, 12" wide, and 1.5" thick, although the device could have other dimensions.

[0011] The side edges 14(1)-14(4) of the resilient layer of material 12 extend around an outer periphery of and between a pair of opposing substantially planar surfaces 16(1) and 16(2) of the resilient layer of material 12, although the device could have other types and numbers of edges and surfaces in other configurations. The side edges 14(1)-14(4) of the resilient layer of material 12 have a convex outer shape to assist an operator in slipping a hand under an edge of the device, although the edges could have other shapes. The corners connecting adjacent ones of the side edges 14(1)-14(4) are rounded, although the corners could have other shapes.

[0012] The surfaces 16(1)-16(2) of the resilient layer of material 12 are substantially planar and substantially parallel to each other, although the device could have other numbers and types of surfaces with other configurations and orientations with respect to each other. With this configuration, interchangeably either of the surfaces 16(1)-16(2) could lie substantially flush with a flat ground working surface during use. The opposing surfaces 16(1)-16(2) are coated with a skid resistant material 18(1)-18(2) to assist in keeping the portable maintenance assistance device 10 to an object when not in use, such as the belt of the operator, an automotive lift, or tool rack.

[0013] The portable maintenance assistance device 10 made from the resilient layer of material 12 returns to its normal shape right after use regardless of the size and weight of the operator who used the portable maintenance
assistance device 10. The portable maintenance assistance device 10 also offers the operator protection from any objects, fragments, or other debris which may be on the floor, such as screws, metal fragments, or rocks.

[0014] The resilient layer of material 12 is substantially fluid proof, although the portable maintenance assistance device 10 could have other amounts of fluid resistance. Substantially fluid proof means the portable maintenance assistance device 10 is made of or coated or otherwise treated with a material that substantially prevents penetration by water, automotive chemicals or other fluids.

[0015] The resilient layer of material 12 also comprises a closed cell foam, such as polyethylene, although other types and numbers of materials could be used. By using a closed cell foam material, the portable maintenance assistance device 10 is substantially fluid proof and will not absorb any type of fluid, such as water or automotive chemicals. Since many automotive shop floors and other work environments become wet and damp during automotive maintenance operations, especially on rainy or snowy days and from automotive fluids, the portable maintenance assistance device 10 with this property provides the operator a dry spot to kneel and work.

[0016] Additionally, the resilient layer of material 12 is substantially resistant to deterioration from exposure to automotive chemicals. In particular, the resilient layer of material 12 in these embodiments is chemically resistant which means the layer of material 12 is able to resist change from chemicals, such as automotive chemicals. An automotive chemical is a chemical compound that is an automotive material including engineering fluids, such as coolants, brake fluid, transmission fluid, antifreeze, engine oil, appearance care products, such as waxes and cleaners, and supplemental additives to improve performance by way of example. With this property the portable maintenance assistance device 10 can withstand repeated exposure to automotive chemicals and other elements without substantial degradation.

[0017] Further, the resilient layer of material 12 is substantially tear resistant, although the layer of material could have other types of properties, such as being resistant to tears. For example, the resilient layer of material 12 could be made of another material that resist tears with forces at least up to about fifteen pounds per square inch thickness. This substantially tear resistant property enables the portable maintenance assistance device 10 during use to withstand the rough environment of an automotive repair shop or other work surrounding.

[0018] The resilient layer of material 12 also is substantially resistant to mold, mildew, and bacteria, although the materials could be resistant to other types and numbers of contaminants. Operators in these surroundings often suffer minor cuts and scrapes and the resistant of the resilient layer of material 12 to mold, mildew, and bacteria helps to maintain a more hygienic working environment and healthier operators.

[0019] Further, the resilient layer of material 12 provides thermal insulation reducing the rate of heat transfer from the operator to a ground surface on which the portable maintenance assistance device 10 is located, although other numbers and types of layers could be used. In these particular embodiments, the resilient layer of material 12 has an R value of at least five, although the layer could have other R values. The R-value of a material is its resistance to heat flow and is an indication of its ability to insulate. Additionally, the resilient layer of material 12 comprises reflective barrier insulation which helps to reflect the operators body heat back to the operator, although other types of layers with other properties, such as ones that are not reflective can be used.

[0020] Accordingly, as illustrated and described herein the present invention provides a more durable, ease to use and effective portable maintenance assistance devices for use in caustic surroundings and varying environmental conditions. The present invention is substantially resistant to any deterioration from automotive chemicals, such as coolants, brake fluid, transmission fluid, antifreeze, engine oil, appearance care products, such as waxes and cleaners, and supplemental additives to improve performance. Additionally, the present invention is substantially fluid proof to water, automotive chemicals, and other fluids to keep the operator dry. Further, the present invention is substantially resistant to tears and can be subjected to harsh use with tear damage. Even further, the present invention provides thermal insulation and even reflective insulation to help operators maintain body heat in harsh environmental working conditions, such as in automotive garages in winter. The present invention is also hygienic because it is resistant to mold, mildew, and bacteria which could affect an operator. Further, the present invention utilizes a rounded side edges and corners making it easy to reach under and grasp. The present invention also offers the operator protection from any objects, fragments, or other debris which may be on the floor, such as screws, metal fragments, or rocks.

[0021] Having thus described the basic concept of the invention, it will be rather apparent to those skilled in the art that the foregoing detailed disclosure is intended to be presented by way of example only, and is not limiting. Various alterations, improvements, and modifications will occur and are intended to those skilled in the art, though not expressly stated herein. These alterations, improvements, and modifications are intended to be suggested hereby, and are within the spirit and scope of the invention. Additionally, the recited order of processing elements or sequences, or the use of numbers, letters, or other designations therefor, is not intended to limit the claimed processes to any order except as may be specified in the claims. Accordingly, the invention is limited only by the following claims and equivalents thereto.

What is claimed is:
1. A portable maintenance assistance device comprising at least one resilient material having one or more side edges between a pair of opposing substantially planar surfaces, the at least one resilient material is substantially resistant to deterioration from exposure to one or more automotive chemicals.
2. The device as set forth in claim 1 wherein the at least one resilient material is substantially fluid proof.
3. The device as set forth in claim 2 wherein the at least one resilient material is substantially tear resistant.
4. The device as set forth in claim 2 wherein the at least one resilient material that is substantially tear resistant is resistant to tears from forces up to at least about fifteen pounds per square inch thickness.
5. The device as set forth in claim 3 wherein the at least one resilient material is substantially resistant to one or more of mold, mildew, and bacteria.
6. The device as set forth in claim 4 wherein the at least one resilient material has an R value of at least five.
7. The device as set forth in claim 6 wherein the at least one resilient material further comprises reflective barrier insulation.
8. The device as set forth in claim 3 wherein at least one of the pair of opposing substantially planar surfaces is at least partially skid resistant.

9. The device as set forth in claim 1 wherein the one or more side edges further comprises four of the side edges arranged around the circumference of the at least one resilient materials, each of the four side edges having a convex shape and each corner adjacent connecting ones of the four side edges being rounded and further comprising at least one passage extending through the at least one resilient material.

10. The device as set forth in claim 1 wherein the at least one resilient material further comprises a closed cell foam.

11. A method for making a portable maintenance assistance device, the method comprising:
   obtaining at least one resilient material that is substantially resistant to deterioration from exposure to one or more automotive chemicals; and
   forming the at least one resilient material to have at least one side edge between a pair of opposing substantially planar surfaces.

12. The method as set forth in claim 11 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that is substantially fluid proof.

13. The method as set forth in claim 12 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that is substantially tear resistant.

14. The method as set forth in claim 12 wherein the obtaining at least one resilient material that is substantially tear resistant further comprises obtaining at least one resilient material that is resistant to tears from forces up to at least about fifteen pounds per square inch thickness.

15. The method as set forth in claim 13 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that is substantially resistant to one or more of mold, mildew, and bacteria.

16. The method as set forth in claim 14 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that has an R value of at least five.

17. The method as set forth in claim 16 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that further comprises reflective barrier insulation.

18. The method as set forth in claim 13 further comprises providing an at least partially skid resistant on at least one of the pair of opposing substantially planar surfaces.

19. The method as set forth in claim 11 wherein the forming the at least one resilient material further comprises forming the at least one resilient material to have four of the side edges arranged around the circumference of the at least one resilient materials, each of the four side edges having a convex shape and each corner adjacent connecting ones of the four side edges being rounded and further comprising forming at least one passage extending through the at least one resilient material.

20. The method as set forth in claim 11 wherein the obtaining at least one resilient material further comprises obtaining at least one resilient material that further comprises closed cell foam.