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(54) **Bootwiper and its process of manufacture**

(57) A bootwiper made of twisted-in brush fibre rods fixed to a substantially rectangular galvanised steel wire frame having two opposed pairs of parallel sides is characterised in that

at least three additional twisted-in fibre rods are mounted on a top surface of the frame, such that they are parallel to one pair of sides of the frame and stand up therefrom, whereby two are mounted at the two opposite sides and at least one is mounted at an intermediate position between the sides.

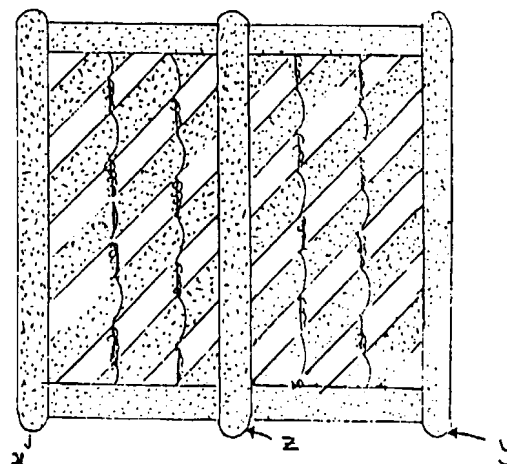


Fig (6)
(top view)

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Description

[0001] The invention relates to a coconut fibre bootwiper made with twisted in brush coconut fibre rods fixed to a galvanized steel wire frame and rigidly inter-connected with coir yarn/twine. Rubber strips are used at the bottom of this bootwiper as an anti-skid device.

[0002] We are the holders of the patent right for a twisted in brush fibre rod mat and the apparatus to make the same as per Patent No.11028 dated 11/07/96 and boot/shoe wiper Patent No 10786 dated 07.04.95.

[0003] The twisted in brush coconut fibre rods may be arranged in (fitted to) a desirable pattern/design and the sizes of the said fibre rods in the base frame may be pre-planned according to the chosen pattern/design.

[0004] The arrangement of these twisted in brush fibre rods of the base frame may be a desired pattern but generally the twisted in fibre rods are in the same plane as the fibre rods covering the steel wire frame and the upstanding three bootwiper rods are parallel to the shorter side of the rectangle on the upper face of the base frame.

[0005] Conventional bootwipers are manufactured with fibre and metal for use at the entrances, exits, doorways and openings of all types of buildings and the designs and techniques used so far serve the purpose only partly, creating certain disadvantages as listed below.

[0006] Dirt, mud and other objects such as snow are not completely removed from the boot or the shoes as the wiped dirt accumulates on the brush fibres, since these are placed and fixed on a flat horizontal plain generally parallel to the floor on which the bootwiper is placed. Therefore such inventions of doormats with bootwipers and other profiles are not efficient and require periodical cleaning by lifting, shaking or vibrating. These vigorous actions are not only tedious but reduce the lifetime of the mat drastically.

[0007] The conventional type of bootwipers made out of coconut fibre and the like and having rubber or plastic and metal and coir yarn twine components for the base, have a tight configuration on a flat surface thereby preventing drying by rapid evaporation and any moisture acquired with dirt during rains or snow.

[0008] Bootscrapers with steel wires incorporating fibres have the distinct disadvantage of getting corroded due to frequent presence of moisture. In addition to the above mentioned disadvantages, since the brush fibres are stationary and fixed to a steel wire frame without allowing any movement or without any gaps in between them.

[0009] The conventional type of bootwiper made out of twisted in fibre rods with a helical wire grid also presents limitations on designs and patterns, which are restricted.

[0010] The bootwiper with metal/steel wires could cause damage and injury.

SUMMARY OF THE INVENTION

[0011] The objective of the present invention is to overcome most of the disadvantages of the prior art bootwipers and floor mats and also using as far as possible ecologically friendly recyclable material such as natural fibres, rubber and coir twine, and avoiding plastic materials.

[0012] The invention also permits introduction of various additional cosmetic effects, designs and patterns of the bootwiper by using different colour types available for those materials. The invention may be introduced with unbleached fibre circular brush rods.

[0013] Another objective of the invention is to overcome the high production costs of conventional bootwipers made of expensive material such as metal / steel and plastic components which have to be injection moulded.

[0014] The base frame may be arranged with twisted in fibre rods such as to obtain predetermined designs by using different cut lengths of fibre rods and placing them as per the required pattern/design. By changing the length, pattern and colours of the base, the design may be linear, round, square, zigzag, octagonal or any other desired shape or design as shown in the drawings.

[0015] The disadvantage of causing injury with materials such as steel/metal is also overcome by using twisted in fibre rods, coir yarn materials.

[0016] This uniquely designed bootwiper wipes sides of the shoe/boot as well as the bottom side simultaneously with the brushing process being done by the twisted in fibre rods set according to a pre-determined pattern on the base frame.

[0017] This circular twisted in fibre rods enable the entire circular surface to be used and the dirt can fall under the mat while providing air circulation for rapid evaporation of the frequently present moisture. The bootwipers are made in such a way that the base mat has circular twisted in fibre rods placed in a pre determined pattern/design and the three wiper rods are placed on the top surface of the base mat in such a way that two are at the extreme ends, fitted onto the shorter side of the rectangle and the balance one at the centre resulting in the coir yarn twines being symmetrical to the centre rod.

[0018] The invention provides a bootwiper which is made out of a metal wire frame covered with a circular twisted in brush fibre rod and other cut lengths of fibre rods held tightly together with a unique coir yarn harness.

[0019] Ecologically friendly and non-corrosive materials are preferred to make such bootwipers. Cleaning action is enhanced by circular coconut fibre rods as they are held spaced apart by the coir twine (with twisted in coconut fibre wiper rods placed widely apart). Coconut fibre can also be substituted with synthetic/other natural fibre rods.

[0020] The preferred embodiment of the invention essentially consists of the following parts.

[0021] The preferred embodiment given below is only an example and does not limit the scope of the claims given at the end of this complete specification.

PREFERRED EMBODIMENT

[0022] The frame is made out of galvanized wire and twisted in brush fibre rod to accommodate cut lengths of twisted in fibre rods giving a desired pattern/design.

[0023] Please refer to the Fig. 3 where the coir yarn/twine is bound/ inserted into the cut lengths of fibre rods placed in a pre-planned pattern/design within the rectangular GI wire frame. In Figs. 1-4 and Fig. 6 it is clearly seen how the twisted in fibre rods are arranged to obtain the bootwiper with the desired pattern/design. When the coir yarn/twine is bound/ inserted as shown in Fig. 3 and Fig. 4, the twisted in fibre rods are at equal intervals and are so placed to be symmetrical to the wiping fibre rod placed at the centre of the base frame, thereby creating a unique twine harness holding the fibre rods in place. Further, a coiled GI wire is coiled around each rod (Figs. 7 and 7A) to strengthen the resistance of the rod in the base held together by the twine harness, to overcome breaking and to minimise crushing of the fibre rods in the base.

[0024] The user can stand on the base platform section to wipe the sole and the three upstanding transverse/ perpendicular twisted in fibre rods x, y and z shown in Fig. 6 wipe the side portions of the shoe/boot.

[0025] Now we have obtained a flat mat consisting of a GI wire frame with twisted in fibre rods and these fibre rods are held rigidly in place by a coir yarn/twine harness having an upper and lower face.

[0026] Now refer to Figs. 5 and 6. Three upstanding twisted in fibre rods x, y and z are placed at the two extreme edges (x and y) parallel to the shorter sides of the rectangle of the base frame and the third one z is placed right at the centre.

[0027] Figure 6 clearly indicates the position of these three twisted in fibre rods x, y and z, which are placed parallel to the shorter sides of the rectangle of the base frame, as bootwipers wipe the sides of the boot, when a person stands on the bootwiper.

[0028] Several designs could be made by using this same method or the process. On the side or face of the bootwiper, opposite to the one where the three upstanding twisted in fibre rods are placed, two rubber strips are placed at the two extreme ends on the opposite face to act as anti-skid devices. In short two rubber strips are placed at both sides of the bootwiper at the two extreme ends to prevent skidding of the bootwiper. This is clearly shown in Fig. 8.

[0029] The components of the bootwiper are unique and novel and therefore are made systematically with specific purpose skills and essentially with custom

designed machines and apparatus with specially trained skilled labour. Due to the natural ecologically friendly and unique twine harness and non rusting materials used, the said bootwiper could be produced in a variety of colours and patterns to provide a matching effect to the place of its use and suit any individual user's taste.

[0030] The above description of the preferred embodiment does not in any way limit the scope of this invention and these embodiments given in Figures 1-8 are only examples of the descriptions of a few of the embodiments of the invention that are covered by the scope of the claims.

Claims

1. A bootwiper made of twisted-in brush fibre rods fixed to a substantially rectangular galvanised steel wire frame having two opposed pairs of parallel sides characterised in that

at least three additional twisted-in fibre rods are mounted on a top surface of the frame, such that they are parallel to one pair of sides of the frame and stand up therefrom, whereby two are mounted at the two opposite sides and at least one is mounted at an intermediate position between the sides.

2. A bootwiper according to claim 1, wherein a number of cut lengths of twisted-in fibre rod are arranged in the same plane and fixed at each of their ends to one side of the frame.

3. A bootwiper according to claim 1 or claim 2, wherein the frame is covered by an additional twisted-in brush fibre rod along its periphery.

4. A bootwiper according to claim 2 or claim 3, wherein at least four elements, comprising coir, twine or yarn, are inserted into the cut lengths of fibre rods, such that the elements are parallel to and spaced apart from each other, and such that they extend longitudinally from one side to the opposite side of the frame.

5. A bootwiper according to any of claims 2 to 4, wherein the cut lengths of fibre rods are individually bound with coiled galvanised wire to obtain a firmly fitted rigid base frame.

6. A bootwiper according to any of the preceding claims, wherein rubber anti-slip strips are fixed on a reverse surface of the frame.

7. A bootwiper as claimed in any of claims 1 to 6 where the said fibre rods are made of coconut fibre or any other natural fibre or synthetic fibre.

8. A bootwiper as claimed in any of the preceding claims where circular coconut brush fibre rods are held in place by a coir/twine/yarn (natural/synthetic) harness and are of an unbleached variety or a given colour and pattern arrangement to enhance the cosmetic effect. 5
9. A bootwiper as claimed in any of claims 1 to 7 where the said twine/yarn harness is made out of coconut fibre or any other natural fibre or a synthetic fibre or a PVC coated wire. 10
10. A bootwiper as claimed in any of the preceding claims where the centrally placed fibre rod which is perpendicular and above base circular fibre rods is placed so that all the sides of the shoe/boot touch the three circular fibre rods above the base while the soles are in contact with the circular fibre rods of the base. 15
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11. A bootwiper according to any of claims 1 to 10 made using the following process steps.
- (a) bending a galvanised steel wire rod of about 4mm in diameter to make a substantially rectangular shape and welding the two ends together; 25
- (b) covering this rectangular steel wire with a twisted in brush fibre rod by bending said rod such that it takes the same shape along the periphery of the steel wire; 30
- (c) placing pieces of cut lengths of twisted in brush fibre rods within this rectangular shape to obtain a desired pattern/design; 35
- (d) inserting/binding at least four lengths of coir/yarn/twine through the said pieces of cut lengths of fibre rods mentioned in (c) in such a manner to be parallel and symmetrical to the middle line between the shorter sides and fixing each end of these twine pieces to the two longer sides of the rectangular thus binding the coir rods in a twine harness; 40
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- (e) tightly binding these said pieces of cut lengths of fibre rods, making a base frame for the bootwiper with thinner galvanised steel wire pieces having about 2.0mm diameter in coil form then binding the ends of each of these coils together with each end of the cut pieces of the fibre rods into the meeting side of the rectangular shape to obtain a rigid base frame for a bootwiper; 50
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- (f) obtaining three pieces of twisted in brush fibre rods and placing two at the extreme ends

on the shorter sides and the other at the centre of the base frame, parallel to each other on one face of the base frame and binding their ends firmly to obtain the bootwiper with the desired pattern/design; and

(g) placing and fixing two pieces of rubber on the opposite face at the extreme ends opposite the two pieces of fibre rods fitted into the two shorter sides of the rectangular base frame to act as anti skid device when the bootwiper is placed for use.

