

C I P O

(57) Abrégé(suite)/Abstract(continued):

brush head (1) which is fixed thereto and provided with a handle, in addition to a dust-collector head (7) which preferably contains a suction connection (72). The invention is characterized in that the brush body (2) is a rubber plate, pierced by the limbs of elastic, U-shaped metal wire bristles (3) which are fixed on an inclined plane in the direction of pull of the brush. Said bristles form an angle of 5-15° (α) in relation to the plane, which is perpendicular to the plane of the brush body. The limbs which form part of the U-shaped bristles (3) are provided with a plastic coating (4) or similar, at least on the free, protruding ends.

ABSTRACT

The invention relates to a carpet-cleaning brush, in particular for cleaning rugs or carpets, which have been soiled by the hair of animals kept in the room. Said brush has
5 bristles (3) in the form of an angle of arc, a brush body (2) for receiving said bristles, a brush head (1) which is fixed thereto and provided with a handle, in addition to a dust-collector head (7) which preferably contains a suction connection (72). The invention is characterized in that the brush body (2) is a rubber plate, pierced by the limbs of elastic, U-shaped metal wire bristles (3) which are fixed on an inclined plane in the direction of
10 pull of the brush. Said bristles form an angle of 5-15° (α) in relation to the plane, which is perpendicular to the plane of the brush body. The limbs which form part of the U-shaped bristles (3) are provided with a plastic coating (4) or similar, at least on the free, protruding ends.

Carpet-cleaning Brush

5 DESCRIPTION

The invention relates to a carpet-cleaning brush for the cleaning of rugs and carpets which have been soiled by animals kept in the room, the brush body which receives and fixes the metal bristles, as well as the brush head which is fixed to the body and
10 provided with a connection for the handle and a dust-collector with a suction pipe end.

Many kinds of brushes are known for the removal of hair falling out from fur animals. Generally known are the cleaning gloves, which can be put on and are provided with rubber bristles protruding from a rubber surface by which the lost hair of animals can be
15 collected. However, these gloves are not suitable for the cleaning of carpets because of their small size and low efficiency.

The patent document DE 195 00 008 discloses a brush which is essentially suitable for the removal of the hair of animals and decreases the necessary display of strength and is
20 provided with a handle. Bristles of the said brush are made of stiff wire or of plastic.

US Patent No. 4,044,724 represents a brush suitable for disinfecting of the fur of animals and for dusting it with disinfecting powder. The free end of the bristles of the said brush is made of wire and bent into the direction of pull. These brushes serve
25 exclusively for the treating of the surface of the skin and the fur of animals and thus they are entirely unsuitable for the cleaning of carpets.

Patent Document 35,071 of the German Democratic Republic Patentschrift presents a brush for a quick removal of pieces of threads and similar particles of dirt from clothes, fabrics and rugs. The
30 bristles of the said brush are made of plastic, have the shape of small hooks and are arranged in a way, that during the process of brushing they form an angle of 90 ° with the surface to be

cleaned. However, said brushes are only seldom used, as they are suitable only for the cleaning of the surface of carpets.

5 The presented types of brushes cannot be used for the cleaning of carpets because they have no connection for a dust collector, which is necessary for a larger quantity of dust.

10 Patent document DE 41 12 382 discloses a sweeping device arranged in a housing. The device contains bristle rollers rotated by wheels running on the carpet. The bristles arranged on the rollers are bent in the operating direction and in the consequence of rolling they clean the surface of the carpets whereas the dust particles are sprinkled into a container arranged in the housing. Their disadvantage is that the bristles cannot pick up the very short particles of dirt entwining the fibers of the carpet, the hair of animals trampled into the carpet.

15 Finally it should be mentioned that for the cleaning of carpets there are also used brushes fitted to the suction head of vacuum cleaners.

20 The said patent document DE 41 12 382 also describes a roller sweeping devices, which can be fitted to a vacuum cleaner. Very small particles of threads sticking between the bristles are removed in the upper part of the housing through the suction effect of the cleaner.

25 Vacuum cleaners of commercial design are provided with carpet brushes the bristles of which encircle the suction opening of the suction head. To spare the carpet, these bristles are usually made of horsehair or similar materials. Dirt is being removed also in the upper part of the brush.

30 The disadvantage of the said solution consists in that the suction surface encircled by the bristles does not separate the accumulated dust and pieces of hair so that when the suction head of the cleaner is being pulled onwards on the carpet they get the suction pipe of the cleaner choked within a short time.

Aim of the invention is to develop such a carpet-cleaning brush, which removes the dust out of the carpet and from the surface of it efficiently, rapidly and reliably.

According to the above, the invention relates to a carpet-cleaning brush preferably for
5 cleaning rugs and carpets soiled by the hair of animals kept in the room containing bristles bent in the shape of an angle or an arc in the direction of pull of the brush, a brush body receiving said bristles, a brush head fixed on the brush body and provided with a handle as well as a connection for the dust-collector.

10 The essence of the invention consists in that on the longitudinal side of the brush head in the direction of pull of the brush on the brush body receiving the bristles there is a housing narrowing in the direction of pull with a limited open mouth provided with a connection for the dust collector and the interior surfaces of the housing bordering the mouth on its longitudinal side are designed as a dust-feeding shovel.

15 According to the invention it is advantageous if the textile brush is coated with a velvet like textile fabric whose fibers are arranged slantwise in relation to the direction of pull of the brush. This brush is located on the surface of the brush head opposite to the brush body.

20 The use of the carpet-cleaning brush is made easier if on both shorter sides of the brush body connection elements are provided the handle. The handle is connected to the said fixing elements. In relation to the plane of the brush head the handle forms an angle of 30-45° in the direction of pull of the brush. The carpet-cleaning brush according to the
25 invention is extraordinarily efficient if the narrowing end of the funnel shaped housing of the dust-collector on the brush head is provided with a suction pipe end whereas the lower exterior surface is provided with at least one supporting wheel.

The carpet-cleaning brush according to the invention is equipped with such bristles,
30 which pick up from the carpet even the hair trampled into the carpet up to the basing of knotting and at the same time loosen the particles of dust. The spring force of the elastic bristles sweeps the particles of dust through the dust-feeding shovel into the connection

of the dust-collector, whereas the veil like texture of hair can easily be removed from the bristles by hand.

By simply pulling the carpet-cleaning brush along on the carpet even the smallest pieces
5 of hair and particles of dust can be removed from the carpet.

The invention makes also possible to separate the particles of dust from the hair of animals by means of a vacuum cleaner. The veil like texture of hair is being fixed by the bristles pierced slantwise through the brush head, whereas the particles of dust are
10 whirled along by the suction through the mouth onto the dust-feeding shovel and from there into the dust bag of the vacuum cleaner. The veil like texture of hair can be entirely removed from the bristles by hand. Owing to the separation of the dust from the hair the suction pipe of the vacuum cleaner never gets choked, as no hair of animals can get into it.

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The detailed description of the invention is following on the base of the attached drawings.

Fig.1 is the perspective, partly split, picture of the carpet-cleaning brush according to
20 the invention,

Fig.2 is the perspective picture of the carpet-cleaning brush according to another embodiment, whose brush head is made as a textile brush of textile cloth,

25 Fig.3 represents the perspective picture of the brush according to fig.2 after having been turned.

Fig.4 is the perspective view of a carpet-cleaning brush according to the invention, which can be connected to the suction side of a vacuum cleaner.

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The embodiment of the carpet-cleaning brush presented in fig.1 basically consists of a brush 10 and the pipe end of the dust collector 7 integrated with it.

The brush 10 contains the brush head 1, the brush body 2 connected with it, in which the bristles 3 are arranged by piercing. The brush head 1 is produced of wood, plastic or similar material, whereas the brush body 2 is made of a rubber plate or a similar elastic material. The protruding bristles 3 are made of metal wire as U-shaped limbs. The elastic U-shaped bristles 3 of metal wire are fixed on an inclined plane in the direction of arrow 5 indicating the pull of the brush. Said bristles 3 form an angle of $5-15^{\circ}$ (α) in relation to the plane, which is perpendicular to the plane of the brush body 2. Bristles 3 protruding through the brush head of a rubber plate are bent in the form of an angle or an arc also in the direction of pull marked by arrow 5. Bristles 3 are coated with plastic or a similar material 4 at least on their free end. The U-shaped metal wire bristles 3 are arranged in the brush body 2 of rubber plate in longitudinally parallel rows in a distance u from each other between the U-shaped limbs. The rows of bristles are displaced in relation to each other. They are fixed by piercing through brush body 2.

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The pipe end 7 of the dust collectors is bordered by the housing 70 narrowed in the direction of pull marked by arrow 5. The pipe end 7 of the dust collector having a mouth 71 open in the direction of the bristles 3 is connected with brush head 1 and brush body 2 keeping the bristles in the direction 5 of pull of the brush. The interior surface of the housing 70 bordering the mouth 71 on the long side is designed as a dust-feeding shovel 74.

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Both shorter sides of the brush head 1 are provided with a connecting part 6 receiving the cylindrical ends of the generally used handle 9 forming with the plane of the brush head 1 an angle of $30-45^{\circ}$. The fork of the handle can be fixed in the support 90 and released by snapping.

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The brush corresponding to the above-described invention shall be equipped with the handle 9 prior to use. Said hand shall be snapped into the support 90 arranged on the short side of the brush head. After having been snapped into said supports 90 handle 9 has to be screwed in. The ready for use carpet-cleaning brush has to be pulled on the surface of the soiled carpet in the direction of arrow 5. The bristles 3 made of an elastic

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material protrude deeply into the carpet between the knotted fibers and here together with the dust they also pick up the hair of animals removing them in the form of a veil like texture, whereas the particles of dust are swept by the spring force of bristles 3 through the dust-feeding shovel 74 into the pipe end 7 of the dust collector and are removed from there by releasing the connecting parts 73 between the brush head 2 and the pipe end 7 of the dust collector. The texture of hair delivered from the dust must be from time to time removed from the bristles 3 by hand.

The embodiments of the carpet-cleaning brush according to fig.2 and 3 differ from the embodiment described above in that the upper surface of brush head 1 opposite to the brush body 2 is provided with an elastic pad - rubber or sponge - coated with a velvet like cloth 80, the rigid fibers of which are inclined in the direction of pull of the brush indicated by arrow 5, constituting a textile brush 8. This embodiment of the invention principally consists of two brush surfaces -one is a springy fixed brush 10 with metal bristles 3 coated with plastic, and the other is a textile brush 8 on an elastic pad. The brush surface you want to use must just be put on the surface of the carpet.

The double carpet-cleaning brush described above prior to use must be fitted with the handle 9 according to fig.2 and 3. After the use according to the embodiment described earlier, the hair and dust particles still sticking to the surface of the brush must be removed in the following way. Support 90 belonging to the handle 9 according to fig.2 must be released from the connection 6 and then the carpet-cleaning brush must be turned into the position according to fig.3. And now the textile brush 8 contacts the surface of the carpet. Then the support 90 shall be snapped into the connection 6 and the carpet can be cleaned by pulling the carpet-cleaning brush along on the surface of the carpet. Hair and particles of dust remain sticking to the surface of the textile brush 8 and can be easily removed from there.

In case of less soiled carpets you can just clean the carpet with the textile brush 8 assembled according to fig.3 and then remove the small curled rolls of hair by means of the carpet-cleaning brush with wire bristles 3 coated with plastic.

A further embodiment of the invention is presented in fig.4. With this embodiment the carpet cleaning brush is equipped with a pipe end 7 for the vacuum cleaner on the suction side of latter not presented in the fig 4.

- 5 Finally to make easier moving of the carpet-cleaning brush with said embodiment the lower exterior surface of the housing 70 is provided with the supporting wheels 75 (fig.4).

10 The carpet-cleaning brush according to fig.4 is preferably used so that by means of the suction pipe end 72 the brush is connected to the dust collector pipe end 7 of a vacuum cleaner not indicated in fig.4. After the start of the vacuum cleaner when the carpet-cleaning brush is being pulled on the surface of the carpet in the direction according to arrow 5 the bristles pick up the hair between the knotted fibers of the carpet and remove them, whereas the vacuum-cleaner transfers the dust particles swept onto the dust-
15 feeding shovel into the dust bag of the vacuum cleaner which is not represented in fig.4. Consequently, during the operation of the carpet-cleaning brush bristles 3 retain the veil like texture created by the hair, whereas under the suction effect of the vacuum cleaner the dust is being transferred into the dust bag. Thus the veil like texture created by the pieces of hair cannot get into the vacuum cleaner and so choking of the suction pipe is
20 impossible. After the cleaning of the carpet the said texture can be easily removed from the bristles by hand, without any tool.

The great advantage of the carpet-cleaning brush according to the invention consists in that by means of it carpets soiled by dust and hair of animals can be easily, quickly and
25 efficiently cleaned with a minimal display of strength.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A carpet-cleaning brush to be pulled in a single direction to clean rugs and carpets soiled by animals comprising:

bristles configured so that at least a portion of the bristles extend toward the pull direction of the brush;

a brush body receiving the bristles;

a brush head fitted to the brush body such that the bristles, the brush body and the brush head form a non-rotatable flat body;

a handle for pulling the brush in the pull direction; and

a dust collector having a housing, wherein a first side of the brush head facing in the pull direction of the brush and the brush body are connected to the housing of the dust collector, wherein the housing narrows in the pull direction of the brush and has an open mouth with a longitudinal bordering interior surface positioned adjacent the brush body; wherein in operation hairs of the animals are collected by the bristles separate from the dust which is collected in the dust collector.

2. The carpet-cleaning brush according to claim 1, wherein a surface of the brush head opposite from the brush body is formed as a textile brush comprising a textile fabric on an elastic pad, wherein fibers of the textile fabric are arranged slantwise with respect to the pull direction of the brush.

3. The carpet-cleaning brush according to claim 1 or 2, wherein the brush head has two shorter sides that are shorter in length than the first side;

wherein the brush head includes a connecting element on each of the shorter sides forming a releasable joint; and

wherein the handle is connected to each of the connecting elements, is inclined in the pull direction, and forms an angle of 30-45° with an upper surface of the brush head.

4. The carpet-cleaning brush according to claim 1, 2 or 3, wherein the housing narrows toward an end at which is provided a suction pipe end and a lower exterior surface of the housing is equipped with a supporting wheel.
5. The carpet-cleaning brush according to any one of claims 1 to 4, wherein the bristles are bent at an angle.
6. The carpet-cleaning brush according to any one of claims 1 to 4, wherein the bristles are configured as an arc.

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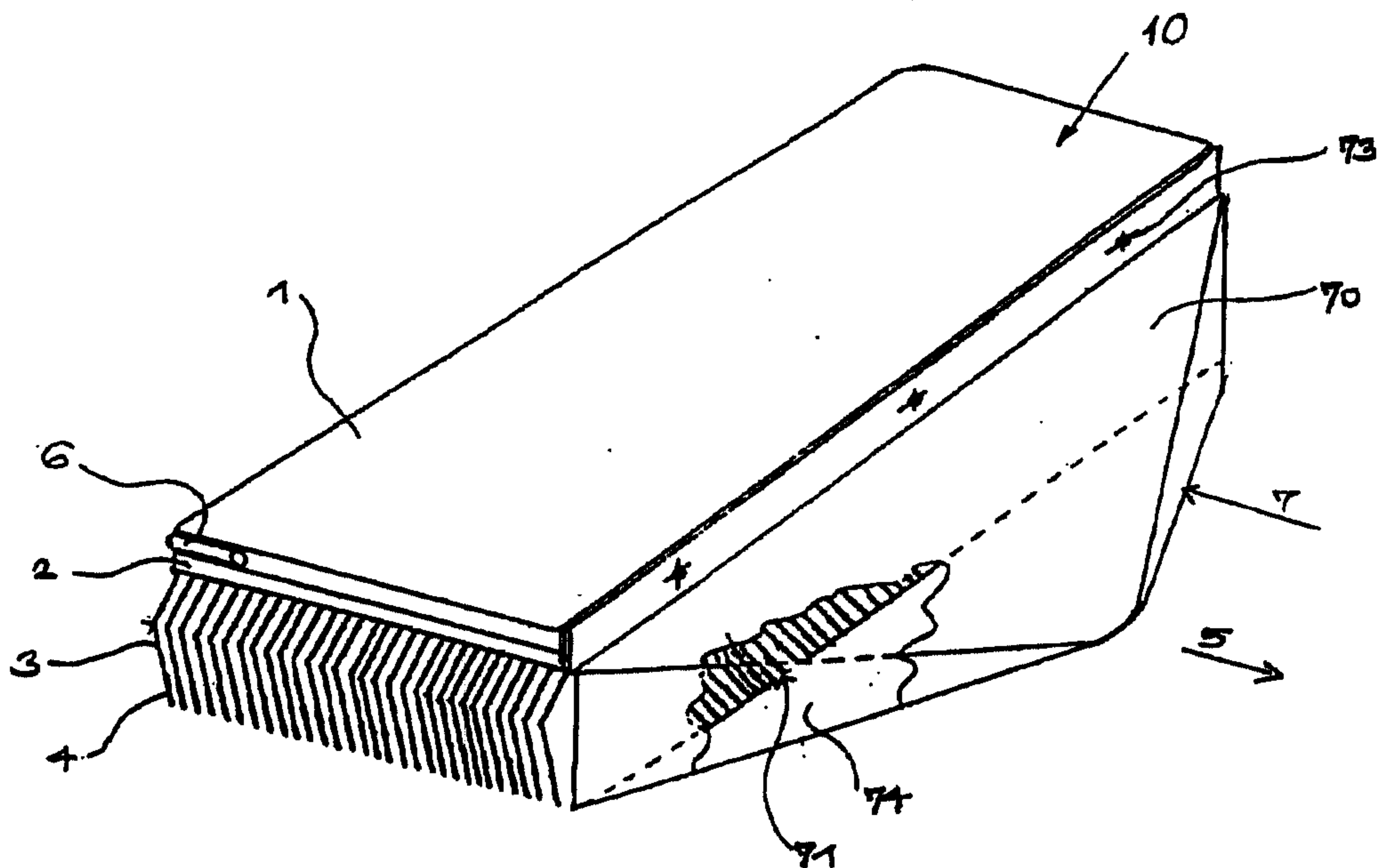


FIG. 1.

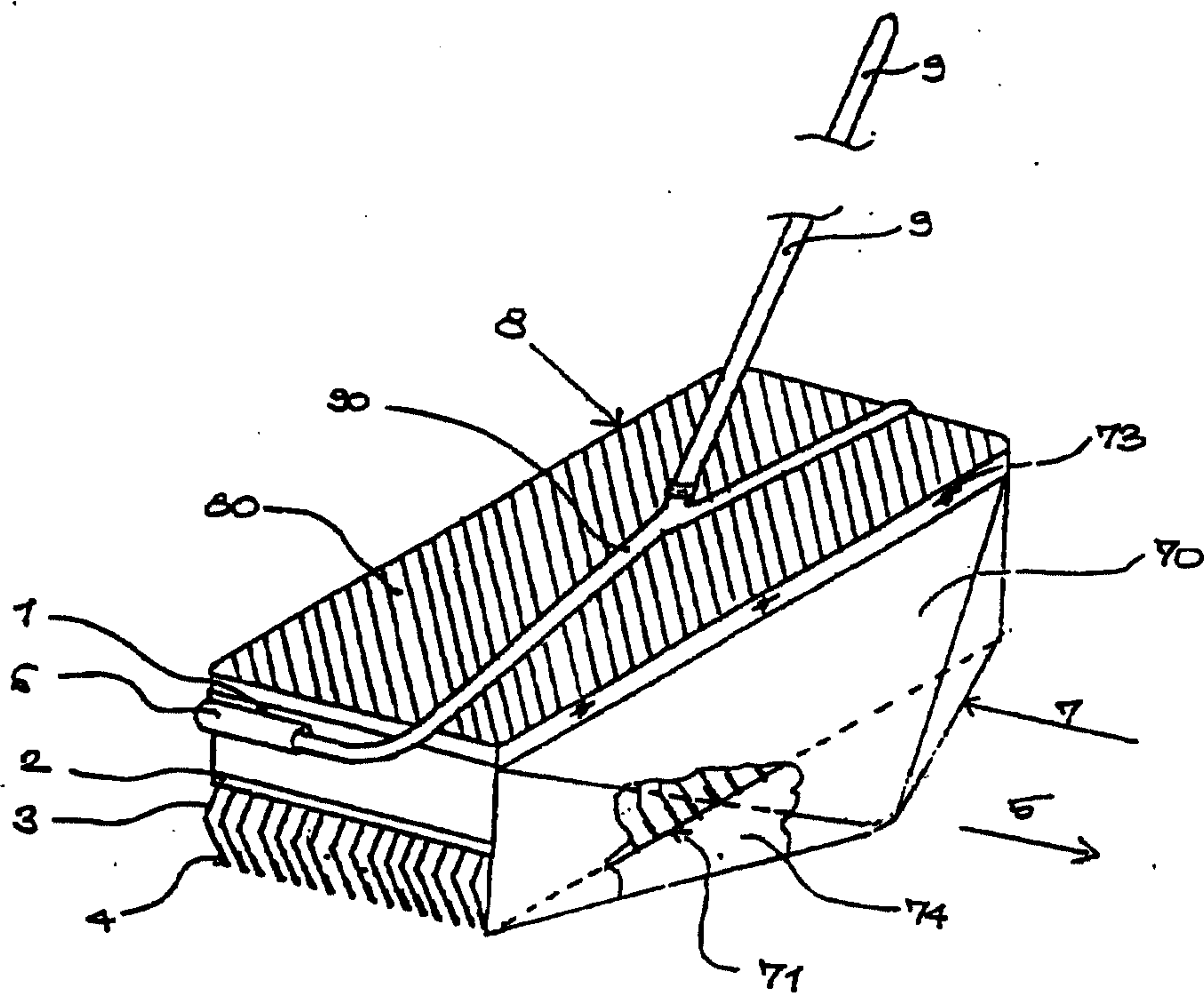


FIG. 2.

AMENDED
SHEET

Marks & Clerk

