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COMBINATION BRUSH AND SNOW MOVER

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FIG. 1

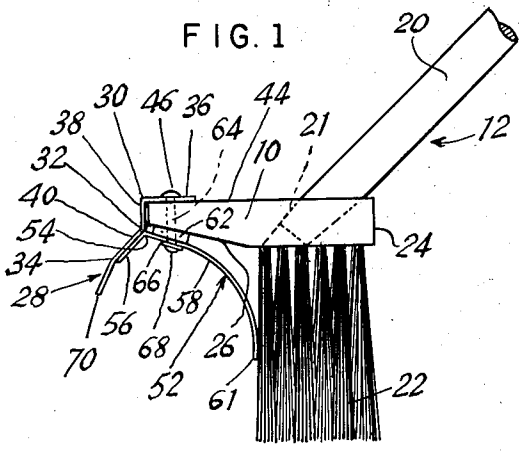


FIG. 2

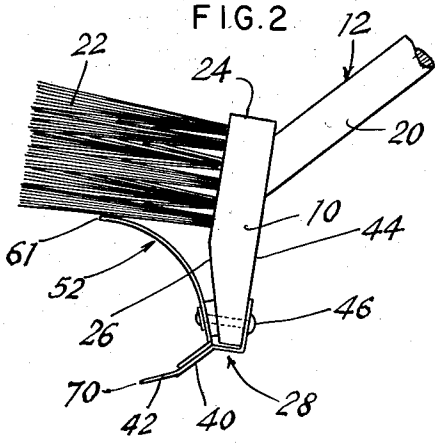
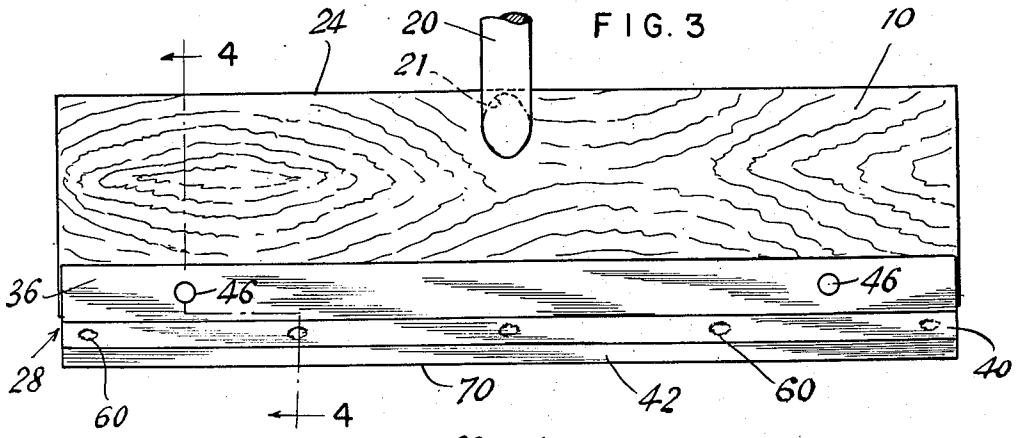


FIG. 3



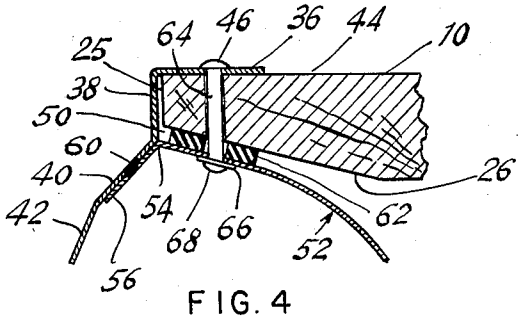


FIG. 4

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COMBINATION BRUSH AND SNOW MOVER

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6 Claims. (Cl. 15—111)

This invention relates generally to area cleaning implements and more particularly to an all-weather combination brush and snow mover.

The ordinary cleaning of an area such as a sidewalk or a driveway is generally accomplished by means of a brush or a broom. After a very light snowfall, the soft snow can often be swept away with a brush or a stiff broom. Areas in which the snow has become caked or hard-packed by pedestrian or vehicular tracks, or by changes in temperature, however, cannot easily be cleared by the ordinary brush or broom. Similarly, an area that has been blanketed by at least a moderate snowfall, cannot be easily cleared by a simple brush or broom.

An important object of this invention, therefore, is to provide an all-weather implement which can be used for sweeping an area under normal weather conditions and for clearing an area after a snowfall.

Another object of this invention is to provide a snow mover for clearing an area of packed snow in combination with a brush for sweeping up any residual snow.

Another object of this invention is to provide a brush for sweeping soft snow from an area in combination with a snow-mover or scraper for removing clumps of hard-packed or caked snow.

Still another object of this invention is to provide a combination brush and snow-remover device of the character described provided with bristles for sweeping snow and also provided with means to prevent the swept snow from riding up over the brush back for curling the swept snow forwardly to make a pile, for protecting the brush bristles and for helping push the pile of snow forwardly.

Yet a further object of this invention is to provide a combination brush and snow-mover device of the character described which may be reversed from sweeping position to a position for scraping snow and having means, when used as a scraper, for scraping snow, for curling back the scraped snow, for preventing the scraped snow from riding up over the back of the brush, for pushing a pile of scraped snow forwardly, and for protecting the brush bristles as the snow is being scraped and as the pile of scraped snow is being pushed forwardly.

Yet a further object of this invention is to provide a strong, rugged and durable device of the character described, which shall be relatively inexpensive to manufacture, easy to manipulate, and which shall yet be practical and efficient to a high degree in use.

Other objects and advantages will be apparent upon further reading of the specification.

Accordingly, to accomplish these objects, there is herein provided an all-weather combination brush and snow-mover having a brush back as a base, tufts of bristles set into the lower face of the base near its rearward edge to form a brush, an elongated handle angularly set into the upper face of the back for convenient manipulation of the implement, a snow-mover and scraper blade mounted along the forward edge of the base and extending downward and outwardly therefrom, and a plate attached to the snow-mover blade and curving rearwardly and downwardly therefrom so that its rearward edge contacts the foremost bristle along a line lower than the edge of the snow-mover and scraper blade thereby to effect cooperative interaction between the snow-mover and the brush.

In describing a preferred embodiment of the invention reference will be made to the drawing consisting of four figures in which the same or similar reference numbers refer to the same or similar parts and in which:

Fig. 1 is a side elevation of the preferred embodiment of the invention with part of the handle broken away, in position to perform a sweeping and snow pushing operation;

Fig. 2 is a side elevation of the preferred embodiment of the invention in position to perform a snow-plowing or scraping operation;

Fig. 3 is a plan view; and

Fig. 4 is a cross-sectional view taken along the section line 4—4 of Fig. 3.

A preferred embodiment of the invention will now be described in detail by reference to the drawings, particularly Figs. 1, 3 and 4.

The brush-back base **10** of the combination brush and snow-mover **12** is rectangular in shape for simplicity in construction, and preferably made of wood for strength and economy, although it may be made of any other suitable substance, such as one of the plastics. A handle **20** is removably set into the base within the hole **21** at an angle of substantially 45° for convenience in the manipulation of the implement. Tufts of bristles **22**, such as nylon or like bristles suitable for its toughness, durability and relative imperviousness to water, are set into the lower face of the base in longitudinal array to form a brush near the rearward edge **24** of the base. The bristles may, in the alternative, be made of wire, or any other suitable material.

The leading edge **25** of the base is bevelled longitudinally along the lower face of the base to form the inclined surface **26**. The snow-mover and scraper plate **28**, which is preferably of metal, is bent longitudinally along three lines **30**, **32**, **34** to form four longitudinal panels **36**, **38**, **40** and **42**. In vertical cross-section the snow-mover plate **28** has the appearance of a spread-out W. Panel **36** of the snow-mover plate lies longitudinally along the leading edge of the upper surface **44** of the base and is fixed to the base by two rivets **46**. Panel **38** of the snow mover plate lies close, though not contiguous, to the vertical leading edge **48** of the base. A small amount of space **50** is left available for slight play. Panels **40** and **42** of the snow-mover plate extend downwardly and outwardly from the base as shown in Fig. 1. Panel **42** serves as a snow-mover and scraper blade.

The guide plate **52**, perferably of metal, is bent longitudinally along a single line **54**, forming two panels **56** and **58**. In cross-section, the guide plate **52** has the appearance of a spread-out L with the longer section curving inward and downward as shown in Fig. 1. Panel **56** of the guide plate lies along and is spot welded to panel **40** of the snow plow plate at several junctures **60**. Panel **58** curves backward and downward from the snow mover plate so that its rearward edge **61** contacts the foremost row of bristles along a line which is lower than the forward edge of the scraper blade.

Rubber washers **62** are interposed as shock absorbers at two places between panel **58** of the guide plate and the bevelled surface **26**, to provide a small amount of resilience. The shafts **63** of rivets **46** which hold the snow plow plate to the base extend through the rubber washers and through the guide plate. A small washer **66** is placed over each rivet shaft and next to and on the underside of the guide plate. Peening the rivets over the washers at the juncture **68** fixes the guide plate and the snow plow plate to the base.

In actual use the implement is held in the position shown in Fig. 2 with the panel **42** acting as the snow mover and scraper blade. As the implement is pushed forward, snow is picked up by the scraper blade and guided away from the operating edge **70** of the scraper blade by panels **56** and **58** of the guide plate. The curved panel **58** of the guide plate serves to prevent snow from clogging the brush and protects the upper portions of the bristles. It also serves as a base to push snow forward.

Since the handle is set into the base at an angle, a simple axial rotation of the handle of substantially 180° places the implement in the position shown in Fig. 1 for sweeping purposes. The curved panel **58** of the guide plate here serves as a base to push snow or debris forward.

The guide plate accomplishes the cooperative interaction between the brush and the snow mover in this fashion:

(1) When the implement is held and operated as shown in Fig. 1 snow is piled up by the bristles, curled forward and upward by the guide plate and piled up forward by the scraper blade.

(2) When the implement is held and operated as shown in Fig. 2, snow is picked up by the snow mover, curled forward and upward by the guide plate, and piled up forward by the bristles.

It will now be understood that when the device embodying the invention is used in the manner disclosed in Fig. 1, the bristles **22** brush or sweep the snow. The brushed snow will curl up against the under-surface of the plate **52** and will be broken up by the plate **28**. The plate **28**, furthermore, prevents the piled up snow from moving up over the top of the back **10** of the combination device. Furthermore, when sweeping snow and a pile of snow accumulates, the pile may be pushed forwardly and the plate **52** serves to aid in pushing the pile forwardly and to protect the bristles **22** against bending back or breaking.

When the device is reversed and used in position shown in Fig. 2, the snow can be scraped. However, the scraped snow will move up against the plate **52**, and curl forwardly and break up. The plate **52** protects the bristles **22** and the portions of the bristles which extend forwardly to prevent the snow from moving up around and over the top of the brush. When using the device as shown in Fig. 2, furthermore, the plate **52** serves as an abutment for pushing the snow forwardly.

It will thus be seen that there is here provided an improvement in area cleaning devices in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In combination, a brush back having an upper surface and a front edge, and an inclined under-surface extending downwardly and rearwardly from the front edge, and a flat undersurface extending from said inclined surface and disposed parallel to said upper surface, bristles extending downwardly from said parallel undersurface, and a member attached to the front of said brush back and having a top flange contacting the upper surface of the brush back, said member having a portion located at the front edge of said brush back, and a plate disposed below said inclined surface and being curved rearwardly and downwardly, and a scraper extending downwardly and forwardly of said front edge.

2. A combination brush and snow mover comprising a brush back, a handle attached to the brush back and being inclined rearwardly and upwardly therefrom, said brush back having an upper surface, and an undersurface with a downwardly and rearwardly inclined forward portion and a level rearward portion, bristles extending downwardly from the brush back and located rearwardly of said inclined surface, a member having a top flange contacting the upper surface of said brush back, said member having a front web portion extending downwardly from said top flange, and a scraper portion inclined downwardly and forwardly from said web, and a plate fixed to said scraper portion and having a downwardly and rearwardly curved portion disposed below said inclined surface and terminating in a lower edge located above the lower ends of said bristles, and means to rivet said member to said brush back.

3. The combination of claim 2 in combination with resilient shock absorbing means interposed between said member and said brush back.

4. A combination brush and material mover comprising an elongated top brush back member, a handle attached thereto and inclined upwardly and rearwardly therefrom, a longitudinal group of flexible brush elements extending downwardly from the underside of the rear portion only of said back member leaving a substantial portion of the front part of the underside of the brush back member without brush elements, a longitudinal stiff member fixed to the brush back member and located at the underside of said back member in front of said group of elements and extending down from the brush back member and contacting the front side of said group of elements a substantial distance above the lower ends thereof, leaving the lower ends free for brushing, and said brush elements being free to flex rearwardly when brushing, said stiff member extending from the front of the brush back member and being inclined rearwardly and downwardly, and being of transverse concavely curved shape.

5. The combination of claim 4, in combination with a scraper extending from the front end of the brush back member and being inclined downwardly and forwardly therefrom, whereby when said handle is swung forwardly about 90° the scraper will project downwardly at an inclination from said front end of the brush back member and present a scraping edge for scraping, and the material scraped will move against the stiff member.

6. The combination of claim 4, substantially the front half of the underside of said brush back member being free of brush elements, and said stiff member engaging the front of said brush elements about half way up from their lower ends.

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