

Nov. 23, 1965

W. V. FIELDER, JR
BROOM HANDLE JOINT BRACE

3,218,662

Filed Dec. 27, 1963

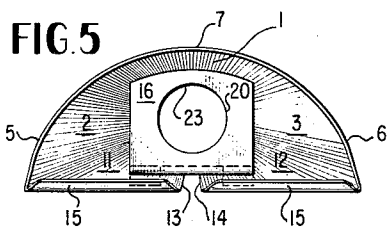
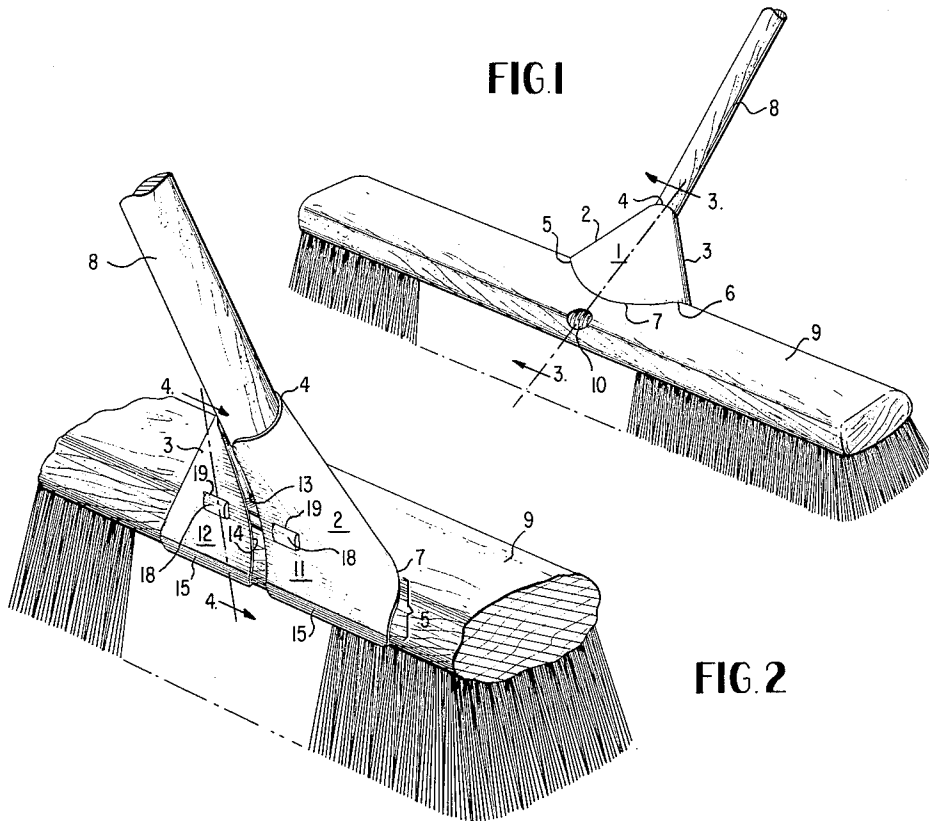


FIG. 4

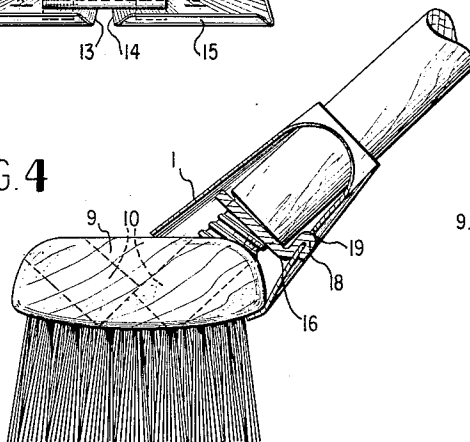
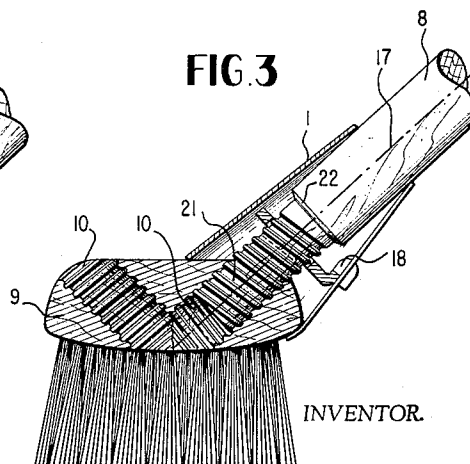


FIG. 3



INVENTOR.

BY

WILLIAM V. FIELDER, JR.

Robert J. Brady
ATTORNEY

1

3,218,662

BROOM HANDLE JOINT BRACE

William V. Fielder, Jr., Frederick, Md., assignor, by mesne assignments, to Ox Fibre Brush Company, Inc., Frederick, Md., a corporation of Ohio

Filed Dec. 27, 1963, Ser. No. 333,933

6 Claims. (Cl. 15-145)

This application is a continuation-in-part of my copending application Serial No. 315,014, filed October 9, 1963, for broom handle brace.

This invention relates broadly to broom handle braces and more particularly to a novel brace structure for handles of long-handled brooms at their joint with the broom block.

Application Serial No. 315,014 discloses a novel construction of a conical broom handle brace which eliminates the breakage of handles at their joint with the broom block by transferring forces from the broom block to a stouter part of the handle and by transferring forces from the handle to the broom block a substantial distance laterally outwardly on opposite sides of the normal handle connection point. Forces are also transferred in the opposite direction. However, in the previous form of the invention disclosed in the mentioned application the connecting means protruded from the broom handle brace and this is also true of all other known broom handle braces in the art. The connecting means is normally comprised of a wing nut connector or the like and since these are disposed outwardly of the brace they are susceptible to become lost as they have a tendency to loosen from time to time during use. Therefore the most desirable type connector for a broom handle brace and for a brace of the type disclosed herein is one in which the connecting means is carried entirely within the brace and has no component which can become loosened and lost.

It is, therefore, one of the objects of the present invention to provide a construction of broom handle brace having simple and novel means of connection to the broom, with no component parts susceptible to become loosened and lost.

Another object of the invention is to provide a construction of broom handle brace which is tightly secured on the broom to brace the handle at its joint in all directions by merely screwing the broom handle into the broom block in the normal manner.

Still another object of the invention is to provide a construction of broom handle brace which is pleasing and uncluttered in appearance, and economical to manufacture.

A further object of the invention is to provide a novel construction of broom handle brace which has substantially no protruding parts and in which the means for securing the brace to the broom is carried interior of the brace.

Still a further object of the invention is to provide a construction of a broom brace which is conical in shape and is provided with novel connecting means wherein the top of the conical brace is tightened into gripping engagement with the broom handle, as the handle is screwed into the broom block.

Other and further objects of the invention reside in the operation of the broom handle brace connector and the manner in which the connector and back wall of the brace cooperate to quickly and easily secure the brace in position on the broom to form a rigid reinforced joint between the handle and broom block, as set forth more fully in the specification hereinafter following by reference to the accompanying drawing, in which:

FIG. 1 is a front perspective view of the broom handle

2

brace of the invention shown secured in position on a broom;

FIG. 2 is an enlarged rear perspective view of the broom handle brace, and showing a fragmentary portion of the broom to which it is connected;

FIG. 3 is an enlarged cross sectional view through the brace and broom structure, taken substantially along line 3-3 of FIG. 1, the view showing the handle and brace in the position before the handle is screwed tightly into the block;

FIG. 4 is a cross sectional view somewhat similar to FIG. 3, taken substantially along line 4-4 of FIG. 2, and particularly showing the position of the brace after the handle is tightly screwed into the block; and

FIG. 5 is a bottom plan view of the broom brace of the invention.

Referring to the drawings in greater detail the broom handle brace of the invention includes a curved front wall section 1 extending laterally between curved side wall sections 2 and 3 which converge longitudinally upwardly toward each other and terminate in top edge portion 4. The opposite ends of side wall sections 2 and 3 and front wall section 1 diverge outwardly from each other from the top edge portion 4 to form the laterally spaced edge portions 5 and 6 on the lateral extremities of the bottom terminating edge 7 of the broom brace in the same manner as set forth in my previously mentioned application. The broom brace is thus formed generally in the shape of a hollow frustum of a semi-cone wherein the top edge portion 4 of the hollow frustum circumscribes a circular path for engaging the circumference of the broom handle 8 and the bottom terminating edge 7 including the edge portions 5 and 6, generally circumscribed a semi-elliptical path, and is contoured for enengaging the top surface of the elongated broom block 9 carrying the threaded bores 10 into which the broom handle 8 is secured by means of a threaded portion carried on one end thereof.

According to the teachings of the present invention the back wall portion of the broom brace is generally flat, as indicated in FIGS. 3 and 5, and is divided into back wall sections 11 and 12 connected to side wall sections 2 and 3, respectively, and extending between the top and bottom edges to form the straight side of the generally semi-elliptical cross section of the broom brace.

The back wall sections 11 and 12 are longitudinally divided and laterally spaced from each other, as indicated by their respective longitudinal edges 13 and 14, as particularly shown in FIGS. 2 and 5, with the bottom edges extending downwardly and inwardly at acute angles to the back wall sections to form the laterally extending block-gripping edges 15 which are coextensive with the lower portions of the wall sections. A connecting bracket 16 is connected interiorly of the broom brace, generally at right angles to the center longitudinal axis 17 of the brace, by means of a pair of upstanding lugs 18, extending upwardly of the bracket at acute angles thereto, and extending through a pair of apertures 19 in the back wall sections 11 and 12 with the upstanding lugs being bent downwardly upon themselves as shown to secure the bracket in position inside the broom brace. Bracket 16 is apertured as indicated at 20 with the aperture being slightly larger in diameter than the diameter of the threaded portion 21 of the broom handle, and smaller in diameter than the diameter of the main portion 8 of the broom handle. It should be noted that, in general, threaded broom handles carry a shoulder portion, such as indicated at 22, where the diameter of the handle is reduced during the threaded process.

The broom brace of the invention is preferably comprised of relatively thin cold rolled steel, for instance,

of approximately .030 inch in thickness, but it is to be understood that other types of material can also be used as long as the back wall sections 11 and 12 can be flexed and somewhat deformed under pressure applied by the tightening of the broom handle 8, to be explained hereinafter following. On the other hand, the bracket 16 is constructed of a relatively heavy metal which will not deform under pressure exerted thereon by the handle.

To install the broom brace of the invention on a broom, the brace is positioned on the block so that the gripping edges 15 engage the under side of broom block 9 and the bottom edge 7, including edge portions 5 and 6, engage and conform to the contour of the top surface of the broom block as particularly illustrated in FIGS. 1 and 2. The threaded broom handle 8 is then inserted centrally through the broom brace so that the threaded portion 21 of the handle extends through aperture 20 of the interior bracket 16 and into threaded engagement with the threaded opening 19 in the broom block, as illustrated in FIG. 3. As the broom handle 8 is rotated to thread the handle further into the block 9, the shoulder portion 22 on the broom handle advances into engagement with the top surface of bracket 16 and applies a downward force on the bracket. As downward force is applied to the bracket 16 the front edge 23 of aperture 20 moves into sliding engagement with the threaded portion 21 of the broom handle and as the handle is threaded further into the block, bracket 16 is advanced toward the block and pulled slightly inwardly of the brace, and has a tendency through upstanding lugs 18 to pull back wall sections 11 and 12 inwardly to deform the same as shown in FIG. 4.

The bracket 16 by its connection with the back wall portions 11 and 12 through apertures 19 keeps the back wall sections spaced from each other at the point of connection at the bracket. The inward and downward movement imparted to the bracket 16 by the broom handle moves the gripping edges 15 and the lower edge 7 of the bracket into firm engagement with the lower and upper surfaces, respectively, of the broom block and the pressure applied by the broom handle in this manner has a tendency to pull the upper extremities of the longitudinal edges 13 and 14 of the back wall sections inwardly toward each other so that the upper circular terminating edge 4 constricts tightly around the outer diameter of broom handle 8 to lock the upper edge of the brace to the circumference of the broom handle. The handle 8 is firmly tightened in the threaded hole 10 in the broom block until it can be turned no more, and in this position, as shown in FIGS. 2 and 4, there is no relative movement whatever in any direction between the handle and the broom block, and the handle, broom brace and broom block function as one rigid unit.

With the broom brace tightly secured on the broom in the manner described, any sidewise, or forward and backward, pressure on the handle is transferred from the stouter portion of the handle gripped by the upper terminating edge 4 of the brace, to the upper surface of the broom block 9 a substantial distance laterally outwardly in surrounding relation to the screw-threaded joint of the handle. The broom brace 1 thus provides the handle with exceptional additional support to prevent breakage of the handle at its most vulnerable point, that is, at its screw-threaded connection with the block where the diameter of the handle is smaller than at other portions of the handle. In like manner, pressures are also transferred from the broom block to the stouter portion of the handle.

Once the conical brace is installed on the broom it is usually maintained in this position, but if the handle is removed for any reason the back wall portions 11 and 12 will not return completely to their original position as shown in FIG. 3, even though the wall portions are somewhat resilient, but rather will remain in the

deformed state as shown in FIG. 4, although the deformation will be to a lesser degree. When the handle is again inserted the back wall portions retain sufficient resilience so that they will again flex inwardly to enable the brace to be again tightly secured on the broom, as previously described.

It will be noted that there are no protruding members to catch or become entangled with other objects, and the brace and its connector do not include any members which are subject to loosen and become lost. If for any reason the broom handle and brace should become loosened during use, a mere twist of the handle returns the assembly to its rigid unitary state.

While the invention has been described in a certain preferred embodiment, it is realized that modifications can be made and it is to be understood that no limitations upon the invention are intended other than those imposed by the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is as follows:

1. A broom handle brace comprising a unitary sheet material body portion, said body portion having opposed side wall sections which converge in one longitudinal direction and forward and rear wall portions which converge in the same longitudinal direction, said opposed side wall sections spaced apart substantially throughout the lengths thereof a greater distance than said forward and rear wall portions, said opposed side wall sections carrying laterally spaced edge portions for engaging a broom block laterally outwardly a substantial distance from its connection with the handle, said opposed side wall sections and said forward and rear wall portions terminating in a top edge adapted to surroundingly engage a broom handle, end extensions on said rear wall portion adapted to engage beneath a broom block, said rear wall portion being longitudinally divided, connecting bracket means connected to said rear wall portion on opposite sides of the longitudinal division and extending interiorly and transversely of the brace, and said connecting bracket means being apertured and adapted to movably engage the broom handle passing therethrough to secure the brace to the broom, whereby movement of said connecting bracket means by axial movement of the broom handle is adapted to constrict the top edge into engagement with the broom handle.

2. A broom handle brace as set forth in claim 1 in which said rear wall portion is resiliently yieldable, and said connecting bracket means is an apertured plate adapted to receive the end of a broom handle and be downwardly moved thereby, relative to said opposed side wall sections and said forward wall portion, and is adapted to flex said rear wall portion inwardly.

3. A broom handle brace comprising, a generally downwardly diverging conical body portion of yieldable material adapted to be disposed about the handle of a broom, rear wall means on said body portion, a top edge portion on said body portion for gripping the perimeter of the broom handle, a bottom edge portion for engaging the surface of a broom block, and movable connecting means connected on one side only to said rear wall means in a rigid manner interiorly of said body portion and disposed transverse of the interior of the body portion intermediate said top and bottom edge portions and spaced from the remainder of said body portion, said connecting means disposed to engage the broom handle whereby longitudinal movement of the broom handle against the connecting means constricts said top edge portion about the broom handle to secure the brace on a broom.

4. A handle brace for brooms of the type having a block and a handle threaded therein comprising, an upper edge portion adapted to engage a broom handle in surrounding relation, a lower edge portion adapted to engage the block surface about the connection of the handle to the block and in spaced relation thereto, an upwardly tapered body portion extending between and connecting

5

said lower and upper edge portions, an inwardly yieldable rear wall on said tapered body portion divided longitudinally, and means connected to said rear wall on opposite sides of the longitudinal division and extending interiorly and transversely of said body portion and adapted to engage the broom handle to secure the body portion on the broom and laterally constrict the upper edge around the broom handle through said yieldable rear wall for stabilizing the handle.

5. A broom handle brace as set forth in claim 4 in which said means connected to said yieldable rear wall is connected to be pulled inwardly and downwardly relative to said body portion as the broom handle is threaded axially into the block to inwardly deform said rear wall of said tapered body portion on opposite sides of the longitudinal division, said means connected to maintain the rear wall on opposite sides of the longitudinal division in spaced relation at the connection point, and said upper edge portion connected for lateral constriction by said yieldable rear wall into locking engagement with the perimeter of the broom handle.

6

6. A broom handle brace as set forth in claim 5 in which said means connected to said rear wall comprises a plate having four sides extending generally at right angles to the broom handle center axis and having an aperture therein of a size to allow only the threaded portion of the handle to extend therethrough, and said plate spaced from said upwardly tapered body portion on three of its sides.

References Cited by the Examiner

UNITED STATES PATENTS

2,163,979	6/1939	Judson	-----	15—111
2,902,704	9/1959	Schwartz	-----	15—229.1

FOREIGN PATENTS

603,752	1/1926	France
22,169	1901	Great Britain.

DANIEL BLUM, *Primary Examiner*.

CHARLES A. WILLMUTH, *Examiner*.