June 14, 1966 W. H. REA 3,256,048

BROOM HANDLE BRACE

Filed April 17, 1964

FIG. 1

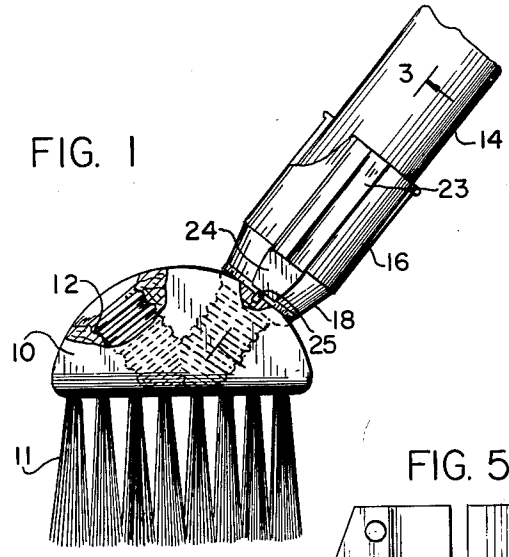


FIG. 3

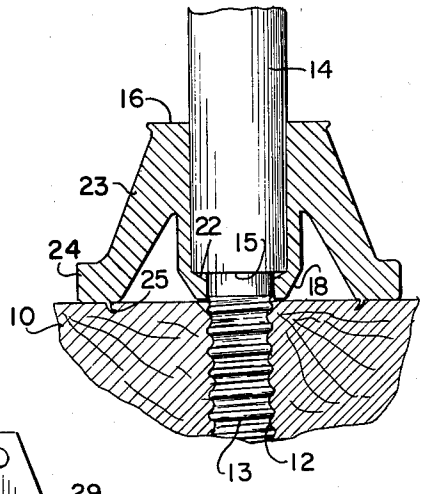
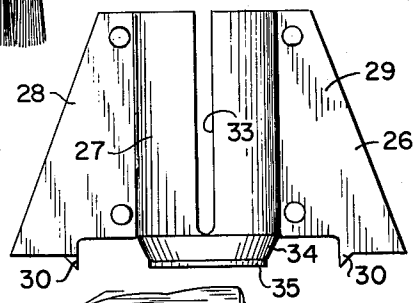


FIG. 5



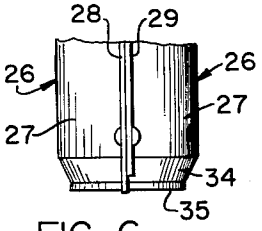


FIG. 6

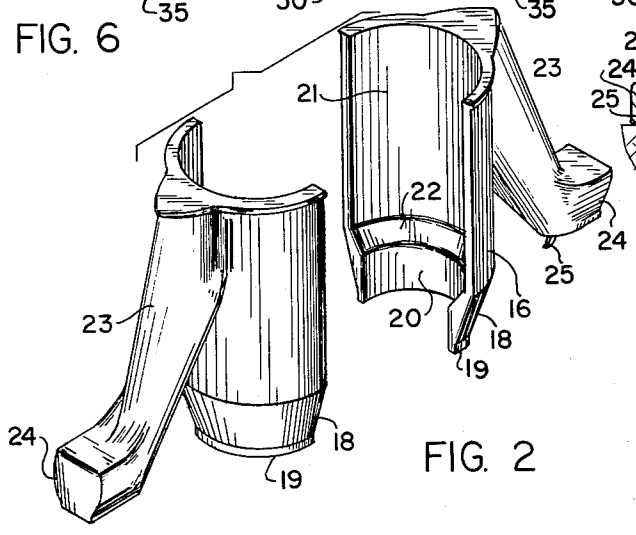


FIG. 2

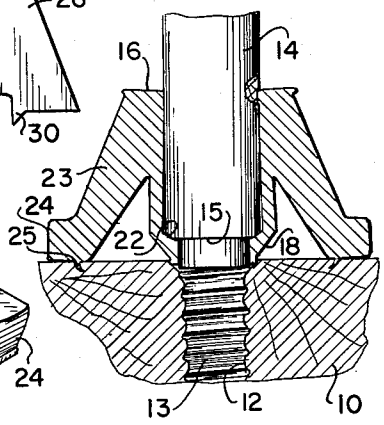


FIG. 4

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United States Patent Office 3,256,048 Patented June 14, 1966

3,256,048

BROOM HANDLE BRACE

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Filed Apr. 17, 1964, Ser. No. 360,614
2 Claims. (Cl. 306—22)

This invention relates to utensils and other devices of various kinds employed in households, commercial establishments and elsewhere, and to the manufacture of such tools and other devices as well as to the equipment employed in such manufacture and to the nature and character of the devices themselves.

The invention relates particularly to floor brushes or brooms having independent attachable handles and to the manner of reinforcing the connection between such brushes and handles in order to enhance the durability of the connection to obtain greater usefulness from the brooms and handles.

Floor brushes or brooms have been employed having threaded sockets receiving threaded handles in a solid connection but these soon become loose at the joint due to continual pushing and pulling, and when the connection between the broom and the handle can no longer be maintained, it becomes necessary to obtain a new broom or handle at substantial expense.

It is an object of the invention to provide a floor brush or broom including a head with an internally threaded opening in which the external threads on the handle are engaged and to provide a connection maintaining or reinforcing element or brace by means of which the back of the broom in which the bristles are carried and the handle are solidly and securely connected for a longer life span.

Another object of the invention is to provide a broom including a solid bristle-carrying back and a threadedly attached handle with a combination reinforcing sleeve bracket and device for retaining a tight connection between the broom and handle, as well as a structure of the character indicated in the form of a split cylinder with reinforcing brackets at opposite sides thereof and in which the semi-cylindrical members have tapered end portions which extend into the joint between the handle and the brush and with the inner surface of such tapered portion of reduced diameter connected to the adjacent portion of larger diameter by an inclined shoulder so that when the shoulder on the handle is caused to move down or along such inclined shoulder, a contracting and gripping action on the remote end of the semi-cylindrical members will be accomplished.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawing in which:

FIG. 1 is a side elevation illustrating a brush and handle with the invention applied thereto;

FIG. 2, an exploded view of the handle brace of the present invention;

FIG. 3, a section through the connection between the brush, the handle and the handle brace illustrating the relation between the respective parts;

FIG. 4, a section similar to that of FIG. 3 in which the parts are in final locked position;

FIG. 5, a side elevation of a slightly different relatively simple type of brace; and,

FIG. 6, a fragmentary detail viewed at right angles to FIG. 5.

Briefly stated the present invention is a cylindrical sleeve axially split at opposite sides and with stepped internal surfaces and a tapered end about the smaller of the internal surfaces, and which stepped surfaces are connected by an inclined shoulder, and with angular brackets terminating in the transverse plane of the end of the sleeve, each bracket having a spur at its lower end adapted

to engage and penetrate the back of a brush to which the device is applied and serving to maintain the portion of the sleeve remote from the brush in contact with the handle due to the threading of the handle into the brush, the handle having a shoulder which engages and rides along the inclined shoulder of the holder.

With continued reference to the drawing, a conventional brush has a back **10** with bristles **11**. The back also has internally threaded openings **12** each at an angle of 45° for the selective receipt of the threaded end portion **13** of a handle **14**. The handle **14** has a shoulder **15** adjoining the threaded end portion. The handle may be threaded into either of the openings **12** as is well understood in order to obtain maximum use of the brush.

To provide a solid connection between the handle and the brush, a sleeve is provided composed of two semi-cylindrical half sleeve sections **16** which when placed about the threaded end of the handle substantially encircle the same with a line of separation along the axis thereof. Each of the semi-cylindrical sleeve sections **16** is provided at one end with an inclined external surface **18** terminating in an extremity **19** of reduced size. Each of the sleeve sections also has stepped semi-cylindrical surfaces **20** and **21**, the surface **20** being of a diameter and length less than the diameter and length of the remaining surface of the sleeve and with an inclined shoulder surface **22** forming a connection between the surfaces **20** and **21**.

The inclined external end surface **18** facilitates and allows the reduced extremity **19** to enter the threaded opening **12** in the brush about the handle **14** threaded into the same opening and the shoulder **15** on the handle engages the inclined surface **22** and travels therealong to force the semi-cylindrical sleeve sections into contact with the handle **14**.

In order to provide additional support for the semi-cylindrical portions of the sleeve remote from the brush, each sleeve is provided with an angular bracket **23** extending from the extremity of larger size and terminating in line with the opposite end of the sleeve section and having an outwardly turned portion **24** parallel to the surface of the brush. On the end of each brace is carried a spur **25** designed to engage and penetrate the back **10** of the brush and anchor the location of the lower portion of the bracket with regard to such back of the brush.

With the construction described a solid tight connection is provided when the handle is threaded into the brush within the semi-cylindrical members and a reinforcement is obtained around the handle between the handle and the brush and between the remote end of the sleeve at each side and the handle thus bracing and prolonging the durability of the connection.

In the use of the device as shown in FIG. 3 the spurs **25** penetrate the back of the brush **10** with the inner walls of the semi-cylindrical sleeve section loosely fitting the handle and the shoulder **22** engaged by the shoulder **15** on the handle, and as the shoulder on the handle rides along the shoulder surface **22** the remote sleeve portions will move toward each other to grip the handle.

The embodiment of FIG. 5 is similar to that of the preceding figures except that it can be pressed or stamped from sheet metal being composed of two identical half sections **26** each having a substantially semi-circular portion **27** and diametrically opposed radial flanges **28** and **29** with a spur **30** corresponding to the spur **25** of the preceding figures. When the two identical half sections are assembled with the center cylindrical portions in opposition the flames **28** and **29** of one section will overlie the flanges **29** and **28**, respectively, of the opposite section and the spur **30** on one of the members will be in diametrically opposite position from the spur **30** of the other member.

In order to fasten the two members together welding or other types of fasteners may be employed.

Each of the semi-circular portions **27** is provided with a slot **33** which extends the length of the portion of maximum diameter, such portion of maximum diameter being connected by an intermediate portion **34** with a portion **35** of smaller diameter. The interior of the portion **27** is of the same diameter as the interior of the portion **21** of the embodiment of the preceding figures, while the portions **34** and **35** correspond to the portions **22** and **20** of the embodiment of the preceding figures.

It will be apparent that in FIGS. 1 to 4 the sleeve formed by the cooperating semi-circular portions is split at 90° from the bracing portions **23** and **24** while in the embodiment of FIGS. 5 and 6 the separation in each is provided by the slot **33**. Also in the embodiment of FIGS. 5 and 6 the lower portion of the sleeve formed by the two sections is maintained of substantially constant diameter instead of the lower portion being separated and consequently variable in diameter as in the preceding embodiment.

In the use of the device the brace is placed against the object in which the handle is to be inserted with the portions **34** and **35** entering the opening therein. Next the handle is inserted and screwed into the opening forcing the portions **34** and **35** into the opening to cause the remote ends of the sleeve formed by the two sections **27** to bind against the handle to reinforce the same. It will be apparent that two sections of the device may be stamped from a flat blank with one spur on each blank and a couple of struck-out portions. The struck-out portions may be in inserted into the openings of opposite struck-out portions and bradded over to secure the parts together, or the two sections may be spot welded or fastened together by other fastening means.

It will be obvious to one skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A brace of a character to fit about the handle and to engage the body of an implement, said brace including a socket-forming portion and at least two brace portions disposed substantially axially of and equally spaced around said socket-forming portion, said brace portions each having a portion disposed generally transversely to the axis of said brace, said socket forming portion having an internal truncated substantially conical wall portion adjacent its lower end to receive bindingly a shoulder on said handle, spur means on the lower faces of said generally transverse brace portions extending beyond the terminal end thereof in a manner to penetrate said implement when said handle is inserted through said brace and forcibly engaged with said implement, causing the opposed upper portions of said brace to move into gripping engagement with said handle.

2. The structure of claim **1** in which said brace is composed of two identical members.

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T. A. LISLE, *Assistant Examiner.*