Feb. 23, 1954 G. G. GREENE, JR 2,670,250

CONNECTOR FOR BROOMS, BRUSHES, MOPS, AND THE LIKE

Filed Oct. 4, 1949

FIG. 1.

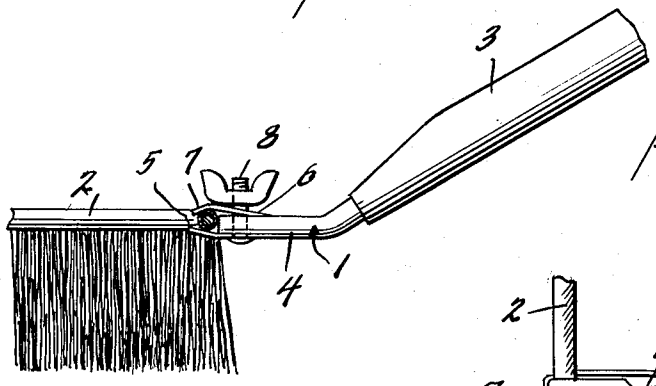


FIG. 5.

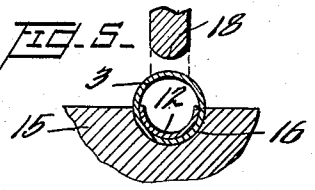


FIG. 6.

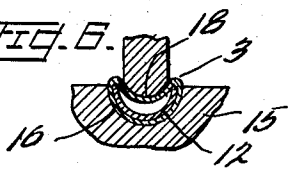


FIG. 2.

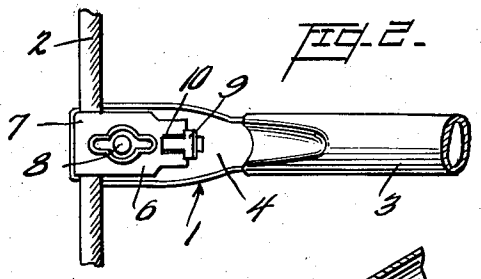


FIG. 3.

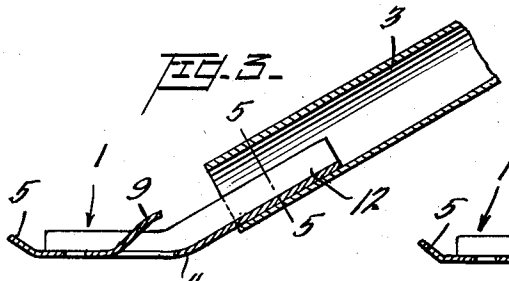


FIG. 4.

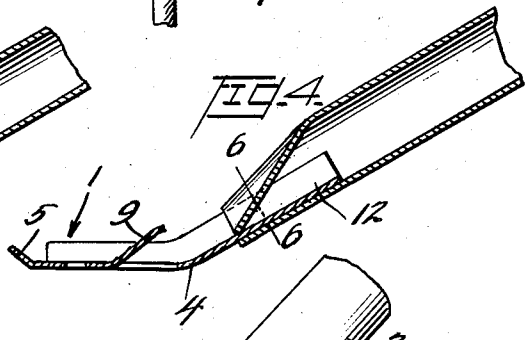


FIG. 8.

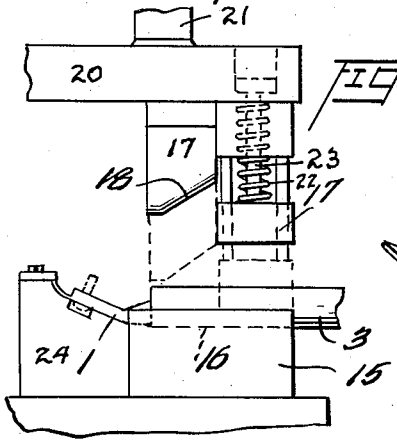
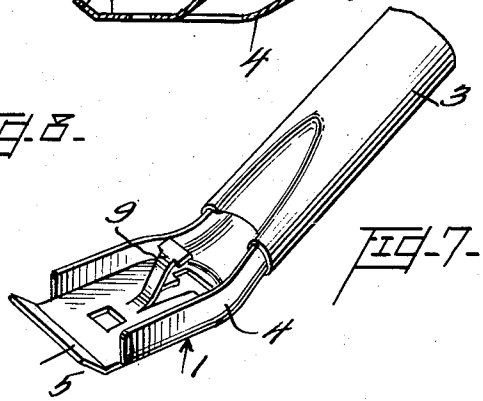


FIG. 7.



INVENTOR

Glenn George Greene, Jr.

BY Morris & Bateman

ATTORNEYS

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CONNECTOR FOR BROOMS, BRUSHES, MOPS, AND THE LIKE

Glenn George Greene, Jr., Warren, Pa.

Application October 4, 1949, Serial No. 119,538

1 Claim. (Cl. 306—25)

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The present invention relates to a connector of the type employed for connecting a broom, brush, mop or similar article to a handle, and the primary object of the invention is to provide a novel and improved connector of this type and method of forming it, which enables the connector to be firmly fixed to a tubular handle by a simple operation and without the necessity of employing any parts in addition to the connector and handle.

Heretofore, connectors of this type have usually been constructed with a tubular socket or sleeve into which an end of a solid wooden handle has been inserted and secured by inserting a rivet through the socket and handle. More recently, tubular steel handles have come into use an end of which has been inserted into the tubular socket of the connector and secured thereto by drilling through the socket and steel handle and inserting a rivet through the drilled holes and securing the rivet. Such riveting methods, however, have been laborious and expensive in the assembling operation.

The present invention provides a novel method of and means for securing a tubular handle to a connector and firmly securing these parts together in a simple manner which avoids the necessity of a riveting operation and otherwise facilitates the assembling of the handle and connector.

In the preferred embodiment of the invention, the connector is pre-formed with a shank having a semi-tubular or segmental cross-section and which is inserted into an end of the tubular handle, and a wall of the tubular handle is pressed firmly, as in a press, into the semi-tubular or segmental shank, thereby producing a frictional grip between the connector and handle which effectively secures these parts together, and which presents a neat appearance.

The preferred embodiment of the invention is disclosed in the accompanying drawing, wherein—

Figure 1 is a side elevation of a mop or similar article and handle connected by a connector constructed in accordance with the present invention.

Figure 2 is a top plan view of the improved connector, showing the method of attaching it to an end of a handle.

Figure 3 is a detail vertical longitudinal section taken through the connector and the adjacent end of a handle prior to securing of these parts together.

Figure 4 is a view similar to Fig. 3 but showing the connector and handle secured together.

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Figure 5 is a diagrammatic view, showing the shank of the connector and adjacent portion of the handle in section on the line 5—5 in Fig. 3, and the dies of a press for securing the connector and handle together.

Figure 6 is a detail section on the line 6—6 in Fig. 4, showing the manner in which the connector and handle are secured together after the press operation.

Figure 7 is a perspective view showing the completed connection between the connector and handle.

Figure 8 is a view in elevation of a press for securing the connector in the end of the handle.

Similar parts are designated by the same reference numerals in the several figures.

In the drawing, 1 designated generally a connector adapted to be attached to a broom, brush, mop or similar article 2, and 3 designates a handle by means of which such an article is manipulated by the user thereof.

The invention is applicable to connectors of different kinds, that shown being in the form of a clamp comprising a body member 4 having a jaw 5 at one end to receive a rod, wire or other attaching part on the broom or other article, and a clamping member 6 having a jaw 7 which cooperates with the rod, wire or other attaching part of the broom or other article under the action of a clamping screw 8, the clamping member being retained in cooperative relation with the body member by a tongue 9 which is punched from and struck up from the body member and engages in a slot 10 in the clamping member.

The connector, according to the present invention, is provided with a shank 12 which is substantially semi-cylindrical or otherwise of segmental form in cross-section and of a radius to fit within and conform substantially with the curvature of the wall of the tubular handle. In assembling the connector and handle, the shank of the connector is inserted for the major portion of its length into an end of the tubular handle which is composed of steel or other suitable metal tubing, the segmental shank extending around about one-half of the inner surface of the tubular handle, as shown in Fig. 5. The portion of the tubular handle opposite to the shank is then pressed inwardly until this portion of the handle is pressed firmly into the hollow side of the shank and takes a shape in conformity therewith, substantially as shown in Figs. 4, 6 and 7, thus producing a firm frictional grip between the connector and handle which effectively prevents detachment thereof.

The pressing of the portion of the tubular

handle opposite to the shank into the concave side thereof may be performed readily and with facility in a press having dies of suitable form, as for example is shown in Figs. 5, 6 and 8, the die 15 having a substantially semi-cylindrical cavity 16 therein of a size and shape to receive the lower side of the handle which contains the shank of the connector, and the die 17 having a rib 18 thereon which is substantially semi-cylindrical in shape with its axis extending obliquely to the direction of motion of this die. The die 17 is engageable with the portion of the tubular handle which is opposite to the concave side of the shank of the connector therein, and when this die is brought down toward the die 15, it presses said portion of the handle into the concave side of the shank, thereby causing opposite walls of the tubular handle to embrace and firmly grip the shank of the connector frictionally between them, the securing of the connector to the handle being then complete.

The press employed is preferably provided with a presser foot 19 which is slidable vertically on a head 20 carried by the press ram 21 and is yieldingly pressed downwardly by a compression spring 21 coiled around a stem 23 which limits the downward movement of the presser foot relatively to the press head which carries the die 17, the lower face of the presser foot having a substantially semi-cylindrical cavity therein to conform with and receive the upper side of the handle in advance of the engagement of the die 17 with the handle and thereby hold the end of the handle in proper position for operation thereon by the die 17, as indicated in dotted lines in Fig. 8. A gauge 24 is preferably employed which is mounted in fixed position adjacent to the lower die 15 and is shaped to receive the connector and to position it in the adjacent end of the tubular handle in the die 15 preparatory to the pressing operation.

Since the assembling of the connector and handle requires merely insertion of the shank of the connector into an end of the tubular handle, and securing of the connector and handle together requires merely a simple pressing operation in a press, the labor required is reduced to a minimum, the manufacture of the completed handle and connector is greatly facilitated, without requiring employment of any additional part, and the cost of production is reduced.

I claim:

A connector for securing a cleaning implement to a handle, comprising a body member having means for attaching it to the implement, and having a shank of substantially semi-cylindrical semi-tubular uniform cross-section from the body member to its extremity, and a substantially cylindrical tubular handle into an end of which the semi-cylindrical semi-tubular shank of said member extends, the outer convex side of the shank fitting against the inner side of one wall of said end of the handle, and the other wall of said end of the handle being bowed inwardly into the inner concave side of the shank on a curvature the axis of which is inclined to the axis of the handle and embracing and frictionally gripping the shank between the opposite walls of said end of the handle.

GLENN GEORGE GREENE, JR.

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