

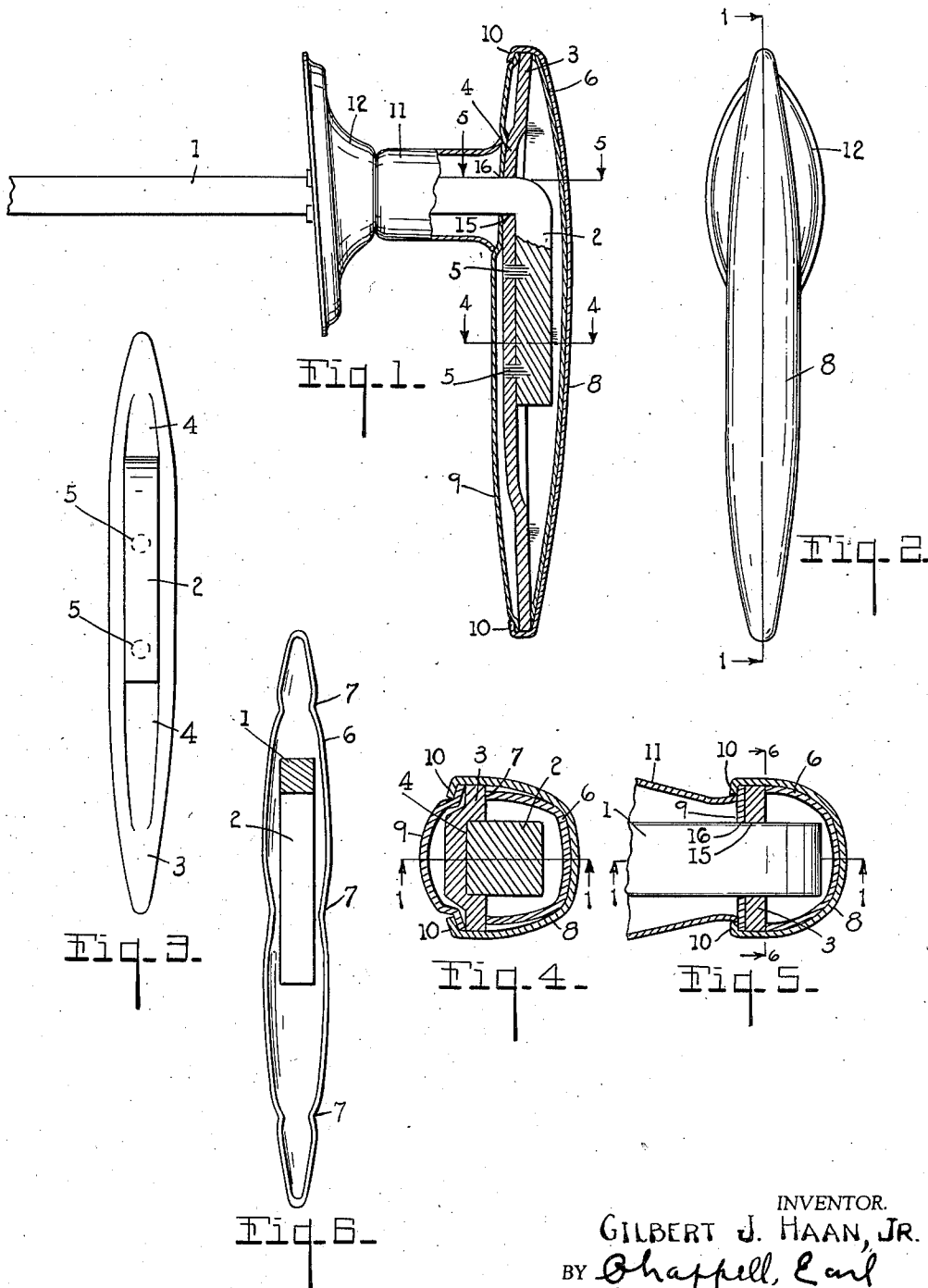
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DOOR HANDLE CONSTRUCTION

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DOOR HANDLE CONSTRUCTION

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This invention relates to improvements in door handle constructions.

The modern trend in streamlining of automobiles requires that the hardware such as door handles thereon be likewise gracefully streamlined to bear out that motive.

The objects of my invention are:

First, to provide a door handle so constructed and arranged that it is characterized by a maximum of strength and rigidity while at the same time conforming to the above noted requirement.

Second, to provide a modern door handle having a decreased number of parts yet being characterized by considerable strength due to the shaping of the spindle thereof.

Third, to provide an improved construction comprising a support plate provided with means which allow for the locating of the support plate on the cross bar and result in a structure in which risk of displacement is reduced to a minimum.

Fourth, to provide a door handle which is simple and economical in its parts and in the assembly thereof.

Objects relating to details and economies of my invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side view of the door handle embodying my invention, parts being broken away and in section, the section being taken along the line 1—1 of Figs. 2, 4, and 5.

Fig. 2 is a front elevation of my handle.

Fig. 3 is a view similar to Fig. 2 with the top cap, support plate, ferrule and escutcheon removed.

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 1.

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 1, parts being broken away.

Fig. 6 is a sectional view taken along the line 6—6 of Fig. 5.

Due to the streamlining of automobiles nowadays, the production of a door handle which while conforming to the streamlined effect retains all of the strength and rigidity of bulkier handles is a desideratum.

In the interest of strength, in my improved door handle I have provided a spindle or chill which is bent at its end and attached to the cross bar, the bending of the spindle adding considerably to the strength of the handle and permitting the use

of a much lighter cross bar than would otherwise be possible. I have likewise provided a recessed portion in the cross bar of my invention which locates and receives the spindle and accordingly makes it possible to produce a handle having a flatter exposed portion on the top cap if such is desired. The recessing of the cross bar also aids in the effective anchorage of the cross bar to the spindle.

I provide the support plate or shell abutting the cross bar with a plurality of notches along its length, to the end that the support plate may be permanently located with respect to the cross bar so as not to slide over the edge of the bar, which feature results in a much more satisfactory arrangement not only in the completed product but also with respect to the assembling process.

In the drawing, reference numeral 1 indicates the spindle of the door handle, the outer end of the spindle being bent through 90° as shown at 2. A cross bar 3 is provided having a recessed portion 4 therein, the bent portion of the spindle being located in the recess and spot welded to the cross bar as indicated at 5. The cross bar is apertured at 15 to receive the spindle 1.

The support plate or shell 6 is placed on cross bar 3 with the edges of the plate abutting the surface of the cross bar, and support plate 6 is bent in or notched inwardly at a plurality of oppositely disposed points adjacent its edges, as indicated at 7, the notched portions as will be apparent resting inwardly of the periphery of the cross bar. Top cap or face plate 8 encloses the cross bar and support plate at the front thereof, while back plate 9 which is apertured at 16 fits against the under side of the cross bar. Flanges 10 of finishing plate or cap 8 are spun around to clamp the back plate, cross bar and support plate together, while the ferrule 11 and escutcheon plate 12 bear against the back plate from the rear.

I am unaware that it has been proposed to bend the free end of the spindle and secure it to the cross bar and I have produced a structure which is greatly strengthened by this feature. In recessing the cross bar at 4, a handle which is narrower from front to back is produced, yet the handle retains all of its strength provided by the bent feature of the spindle. However, the provision of a recessed portion is quite optional. Due to the bending of the spindle through 90° and attaching the same to the cross bar, it will be apparent that a much lighter cross bar may be used inasmuch as the stresses are

largely borne by the bent portion of the spindle.

In providing notched portions 7 lengthwise of the support plate 6, I have effected a considerable saving from a manufacturing point of view and have also provided for the production of more uniform and better handles. Previously to the provision of this feature, when the top caps were assembled, the support plates were apt to be crushed slightly or slip out of position over an edge of the cross bar, thus distorting the top caps and causing them to slide around on either side of the cross bar, with the result that the handle was slightly widened. Also, there was a tendency to cause the top cap to spring slightly loose at the folded over portion 10 after it was assembled. This often resulted in sharp edges upon which it was possible to cut oneself, and to eliminate this hazard it was frequently necessary to put extra assembly operations on the handle to get the edges down in place. It will be obvious that by notching the support plate all this difficulty is eliminated since it cannot slide over the cross bar.

The notches 7 provided in the edges of the support plate are easily formed by a simple embossing or bending operation. It is desirable that the cross bar be as wide as possible to obtain adequate strength for a given size of handle, and due to the relation of my support plate with the cross bar it will be seen that a wider cross bar may be utilized for the production of a narrow streamlined handle.

I have described two features which constitute the means by which I produce a strengthened rigid handle, yet one which is characterized by its narrowness, and I have shown both of these features embodied in a single construction. However, it will be apparent that the feature comprising the bent handle may be used with other types of support plates and that my improved supporting plate and parts associated therewith may be used with other conventional spindle and cross bar constructions, such as, for instance, a construction in which the spindle is riveted at its extreme end to the cross bar or otherwise secured thereto.

I have illustrated and described my improvements in an embodiment which I have found very practical. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A door handle comprising a spindle having a bent end portion, a cross bar having an aperture to receive said spindle and recessed to locate said end portion thereon, said bar and end portion being spot welded together, a support plate abutting said cross bar at its edges, said plate being notched inwardly of said edges, and a top cap and back plate enclosing said cross bar and support plate, said notches preventing displacement of said top cap and support plate relative to said back plate.

2. A door handle comprising a spindle having a bent end portion, a cross bar having an aperture to receive said spindle and recessed to locate

said end portion thereon, said bar and end portion being rigidly secured together, a support plate abutting said cross bar at its edges, said plate being notched inwardly of said edges, and a top cap and back plate enclosing said cross bar and support plate, said notches preventing displacement of said top cap and support plate relative to said back plate.

3. A door handle comprising a spindle having a bent end portion, a cross bar, said bar and end portion being rigidly secured together, a support plate abutting said cross bar at its edges, said plate being notched inwardly of said edges, and a top cap and back plate enclosing said cross bar and support plate, said notches preventing displacement of said top cap and support plate relative to said back plate.

4. A door handle comprising a spindle having a bent end portion, a cross bar having an aperture to receive said spindle and recessed to locate said end portion thereon, said bar and end portion being rigidly secured together, a support plate abutting said cross bar at the edges of the plate, and a top cap and back plate enclosing said cross bar and support plate.

5. A door handle comprising a spindle having a bent end portion, a cross bar having an aperture to receive said spindle, said bar and end portion being rigidly secured together, a support plate abutting said cross bar at the edges of the plate, and a top cap and back plate enclosing said cross bar and support plate.

6. A door handle comprising a spindle, a cross bar having an aperture to receive said spindle, said bar and spindle being rigidly secured together, a support plate abutting said cross bar at the edges of the plate, said plate being notched inwardly of said edges, and a top cap and back plate enclosing said cross bar and support plate, said notches preventing displacement of said top cap and support plate relative to said back plate.

7. A door handle comprising a spindle, a cross bar, said bar and spindle being rigidly secured together, a support plate abutting said cross bar at the edges of the plate, said plate being notched inwardly of said edges, and a top cap and back plate enclosing said cross bar and support plate, said notches preventing displacement of said top cap and support plate relative to said back plate.

8. In a door handle, a spindle, a cross bar, a support plate abutting said bar at the edges of said plate and provided with notches at said edges for preventing displacement of said plate relative to said bar in assembled condition, and a top cap and back plate enclosing said cross bar and support plate.

9. In a door handle, a spindle having an end portion thereof bent through 90°, and a cross bar provided with an aperture to receive said spindle, said cross bar being recessed adjacent said aperture whereby to locate said bent end portion, said cross bar and bent end portion being rigidly secured together.

10. In a door handle, a spindle having an end portion thereof bent through 90°, and a cross bar provided with an aperture to receive said spindle, said cross bar and bent end portion being rigidly secured together.

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