April 8, 1930. G. GRAFF ET AL 1,753,700

HANDLE STRUCTURE

Original Filed Feb. 21, 1927

Fig. 1.

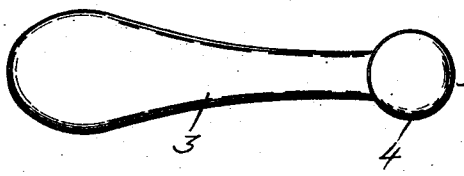


Fig. 2.

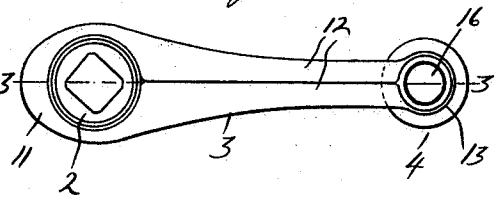


Fig. 3.

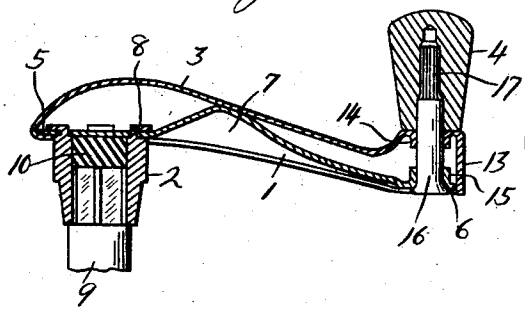


Fig. 4.

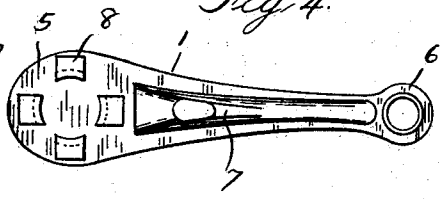
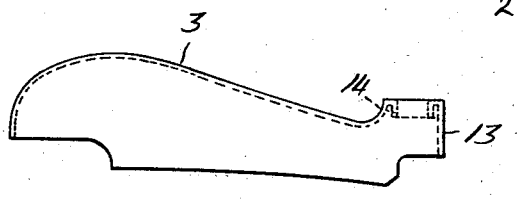


Fig. 6.



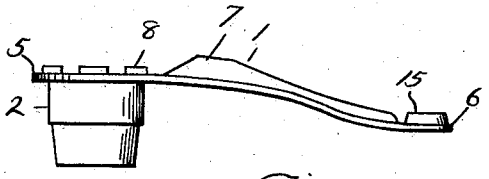


Fig. 5.

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UNITED STATES PATENT OFFICE

GEORGE GRAFF, HOWARD B. HASKINS, AND GEORGE E. GUNTHER, OF TOLEDO, OHIO, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE DURA COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO

HANDLE STRUCTURE

Application filed February 21, 1927, Serial No. 170,037. Renewed September 16, 1929.

The invention relates to a handle structure which lends itself to economical manufacture and assembly and is of sufficient strength to withstand the usual stresses to which it is subjected. Another object is to provide a handle structure which lends itself to the economical production of designs which may be formed by suitable press operations. With these as well as other objects in view the invention resides in the novel features of construction and combinations and arrangements of parts as more fully hereinafter set forth.

In the drawings:—

Figures 1 and 2 are respectively a front and rear elevation of a handle structure embodying my invention;

Figure 3 is a cross section on the line 3—3 of Figure 2;

Figures 4 and 5 are respectively a front elevation and a side elevation of the body member and hub member assembly;

Figure 6 is a side elevation of the shell member.

The handle structure comprises the body member 1, the hub member 2, the shell member 3 and the knob 4. The body member is preferably formed of sheet metal and has the hub and knob end portions 5 and 6 of different size and the forwardly extending hollow boss 7 pressed therein, this boss being a longitudinally extending hollow rib between the end portions for reinforcing the body member. One end of the hub member abuts the rear face of the hub end portion 5 of the body member and the hub member is secured to the body member by means of the tongues 8 preferably integral with the hub member and extending through apertures in the hub end portion and turned over upon the front face thereof. The hub member is in the nature of a socket member, it being hollow to receive the operating shaft 9 and the yieldable pad 10, the latter being preferably formed of rubber and being located between the hub end portion and the adjacent end of the operating shaft to effectually serve in yieldably forcing the operating shaft away from the hub structure and prevent rattling. The opening in the hub member and also that portion of the operating shaft engaging in the opening are polygonal shaped to effect the driving.

The shell member fits over the body member which latter has the plan outline of the finished handle. This shell member is preferably formed of sheet metal of less gauge than that of the body member and lends itself to the economical manufacture or production of designs pressed therein. The rear face of the front of the shell member engages and is positioned by the boss 7 and the body and shell members are secured in this position by means of a transverse flange at the rear of the shell member which is bent over upon the rear face of the body member. This flange has the hub end portion 11 and the side portions 12, the former terminating adjacent to the hub member and the latter preferably terminating with their edges adjacent to each other and in the longitudinal median plane of the handle structure. The shell member has at the knob end of the handle structure the hollow cylindrical boss 13 for receiving the knob end portion 6 of the body member. The front end of this boss has the inturned annular flange 14 while the knob end portion 6 has the inturned annular flange 15 in axial alignment with the annular flange 14, the knob end portion 6 being at the rear end of the cylindrical boss 13 and the two annular flanges being spaced from each other. For securing the knob 4 I have provided the pin 16 which extends through and bears upon the annular flanges 14 and 15 and has at its rear end the head 16 and at its front end the serrations 17 which are pressed into the metal forming the knob to deform the same and thereby firmly hold the knob to the pin.

It will be seen that since the body member and shell member are formed of sheet metal the handle structure will be comparatively light and lends itself to economical manufacture. Also that the shell member lends itself to economical production of any desired design to be pressed therein. It will be further seen that the hub and shell members are rigidly secured in fixed position and that the hub member and knob may be readily secured in place with the hub member secured

in such a manner that the yieldable pad will effectually be held to function in preventing rattling between the handle structure and the operating shaft.

What we claim as our invention is:

1. In a handle structure, the combination of a sheet metal body member of the plan outline of the finished handle having a forwardly extending boss and a sheet metal shell member fitting over said body member and having the rear face of its front engaging and positioned by said boss and also having means for securing said body and shell members to each other including a flange at the rear end of said shell member engaging the rear face of said body member.

2. In a handle structure, the combination of a sheet metal body member having a forwardly extending boss, a hollow hub member having an end abutting the rear face of said body member and secured thereto, said hub member being adapted to receive the operating shaft, and a yieldable pad between said body member and the adjacent end of said shaft and a sheet metal shell member over said body member and having the rear face of its front engaging and positioned by said boss and also having a flange engaging the rear face of said body member.

3. In a handle structure, the combination of a sheet metal body member having a forwardly extending reinforcing rib extending longitudinally thereof and a sheet metal shell member over said body member and having the rear face of its front engaging and positioned by said rib and also having a flange engaging the rear face of said body member.

4. In a handle structure, the combination of a sheet metal body member, a hollow hub member for receiving the operating shaft and a yieldable pad between said body member and the adjacent end of said shaft, said hub member having an end abutting the rear face of said body member and secured thereto, and a shell member over said body member and having a flange engaging the rear face thereof.

5. In a handle structure, the combination of a sheet metal body member having end portions of different size, a hollow hub member having an end abutting the rear face of the larger end portion and tongues extending through the larger end portion and bent over upon the front face thereof, and a sheet metal shell member over said body member having a hollow boss at one end for receiving the smaller end portion of said body member and a flange engaging the rear face of said body member.

6. In a handle structure, the combination of a sheet metal body member having end portions of different size with one end portion formed with an opening surrounded by an annular flange, a hub member having an end abutting the larger end portion and secured thereto, a sheet metal shell over said body member and having a transverse flange engaging the rear face of said body member and a hollow boss for receiving said end portion with the opening therethrough, said hollow boss being provided with an annular flange in substantially axial alignment with the first mentioned annular flange, a knob, and means for securing said knob to said body and shell members including a pin engaging both of the annular flanges.

7. In a handle structure, the combination of a sheet metal shell member, and a sheet metal body member extending longitudinally within said shell member and co-extensive therewith and provided with a boss engaging and positioning said shell member, said shell member having means for securing the same to said body member including a flange upon said shell member engaging the rear face of said body member.

In testimony whereof I affix my signature.

GEORGE E. GUNTHER.

In testimony whereof we affix our signatures.

GEORGE GRAFF.
HOWARD B. HASKINS.