Oct. 27, 1959 S. RHOADS 2,909,954

PLASTIC OPEN END WRENCH

Filed Feb. 3, 1958

FIG. 1.

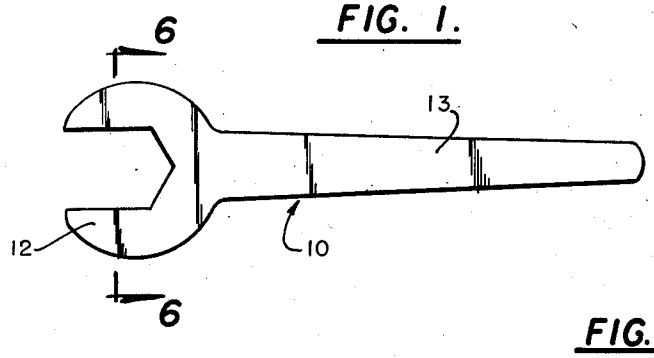


FIG. 2.

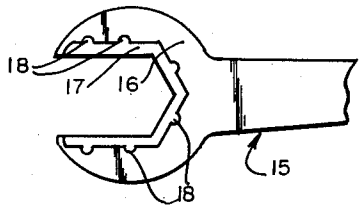


FIG. 3.

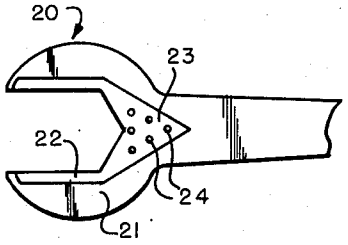


FIG. 6.



FIG. 4.

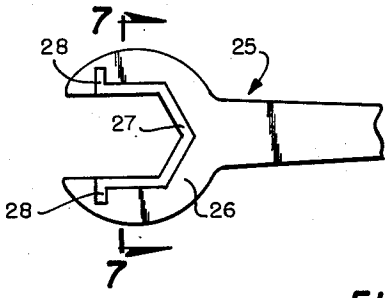


FIG. 7.

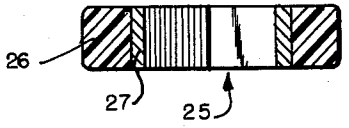
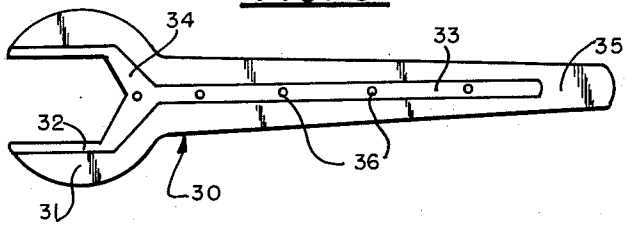


FIG. 5.



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United States Patent Office 2,909,954
Patented Oct. 27, 1959

2,909,954

PLASTIC OPEN END WRENCH

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Application February 3, 1958, Serial No. 712,852

5 Claims. (Cl. 81—186)

This invention relates to hand tools and more particularly to a hand wrench.

It is an object of the present invention to provide an open end wrench of completely novel construction which is extremely durable, of light weight, and entirely electrically insulated.

Another object of the present invention is to provide an open end wrench of the above type that is reinforced at points of greatest stress, is brightly colored, and has a very high strength to weight ratio.

Other objects of the invention are to provide a plastic open end wrench bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and efficient in operation.

For other objects and for a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawing, in which:

Figure 1 is a plan view of a plastic open end wrench made in accordance with one form of the present invention;

Figure 2 is a fragmentary elevational view of a modified form of construction;

Figure 3 is a view similar to Figure 2, showing a still further modified form of the present invention;

Figure 4 is a view similar to Figure 3, showing a still further modified form of the present invention;

Figure 5 is a view similar to Figure 1, illustrating another embodiment of the present invention;

Figure 6 is a transverse cross sectional view taken along line 6—6 of Figure 1; and

Figure 7 is a transverse cross sectional view taken along line 7—7 of Figure 4.

Referring now more in detail to the drawing, and more particularly to Figures 1 and 6 thereof, an open end wrench **10** made in accordance with one form of the present invention is shown to be entirely constructed of a strong, colored, luminescent plastic material. This wrench has a nut and bolt engaging head portion **12** with jaw members and a rearwardly tapered handle **13** that are so dimensioned as to provide the greatest amount of strength for the material used. This material is not only durable and of light weight, but is also brightly colored and electrically insulated.

In Figure 2 of the drawing, a modified form of construction **15** is shown wherein a metallic insert **17** is embedded within the head portion **16** with jaw members to provide a liner for the nut and bolt receiving socket so as to further rigidify the wrench and prevent damage thereto. This insert **17** is also provided with a plurality of outwardly disposed arcuate projections **18** on all sides which are embedded within the plastic material so as to prevent removal thereof.

In Figure 3 of the drawing, a still further modified form of the present invention **20** is shown to have a metallic insert **22** which not only forms a liner for the bolt and nut receiving socket of the head portion **21**, but also has a rearwardly tapering section **23** with perforations **24**. This

section **23** further rigidifies the connection or juncture between the head and handle portion and the perforations **24** allow some of the molded plastic material to enter therein and form an interlock between the insert and main body portions.

In Figures 4 and 7 of the drawing, a further modified form of the invention is shown wherein the wrench **25** has a metallic insert **27** embedded within the nut and bolt receiving socket portion of the head **26** with jaw members, wherein the insert has diametrically oppositely extending legs **28** at each end that are deeply embedded within the molded plastic material so as to define the very rigid jaw that is firmly entrenched with the plastic material.

Referring now more specifically to Figure 5 of the drawing, a particularly rigid and indestructible wrench **30** is shown wherein a metallic insert is embedded within substantially all of the plastic molded material that defines the wrench. This insert includes a liner portion **32** for the nut and bolt receiving socket portion of the head **31** with jaw members and a rearwardly tapering section **34** that terminates in an elongated shank **33** that is embedded within substantially the entire length of the tapered handle **35**. For reasons similar to those heretofore described, the tapered section **34** and shank **33** are provided with perforations **36** which allow some of the molded plastic material to enter therein and form an interlock between the insert and the main body of plastic material. It will be recognized that this particular construction is extremely rigid and durable, while providing the electrical insulating qualities hereinbefore described.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

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

1. An open end wrench comprising, in combination, an elongated main body portion of substantially rigid shatterproof plastic material and having open jaw members provided with a metallic insert embedded therein, said jaw members and the insert defining a nut and bolt receiving portion at one end and an integral handle portion extending rearwardly therefrom toward the opposite end, said main body portion being of generally uniform thickness throughout the entire length thereof from said nut and bolt receiving portion to the outer end of said handle portion, and said handle portion being substantially longer than said nut and bolt receiving portion.

2. The combination according to claim 1, and said metallic insert lining the bolt and nut receiving portion and having a plurality of outwardly disposed arcuate projections on all sides embedded within said plastic material of said head portion.

3. The combination according to claim 1, and said metallic insert lining the bolt and nut receiving head portion, said insert having a rearwardly tapering section embedded in said plastic material, and said tapering section having a plurality of perforations for receiving some of said plastic material for interlocking said insert and said plastic main body portion together.

4. The combination according to claim 1, and said metallic insert lining the bolt and nut receiving head portion, said insert having a pair of oppositely extending legs one at each side of said head portion embedded in said plastic material.

5. The combination according to claim 1, and said metallic insert lining the bolt and nut receiving head portion, said insert having a rearwardly tapering section embedded within said head and a rearward terminal shank extension embedded within said handle portion, said tapering section and said shank having perforations for

receiving said plastic material to form an interlock therewith.

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