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CLIP FOR HOLDING TOOLS

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This invention relates to tool supporting apparatus and more particularly to a novel clip device for securely holding in place sets of tools when not in use.

Various racks and stands for storing tools are well known in the art. In the case of tool sets, such as a set of drills of different sizes or Allen wrenches, such racks have been provided with slots of different dimensions for respectively accommodating tools of different sizes, whereby the tools are easily inserted and readily accessible.

There is no question that devices of this nature are extremely useful and are almost a necessity in a well run tool shop. In instances where the various tools are simply deposited in suitably sized channels, the channels are generally tilted to retain the tools in position by gravity. However, should such a rack or stand be knocked to the floor, the tools will be easily dislodged from the channels and scattered about. On the other hand, if the racks employ conventional types of gripping means, it is not always a simple matter to rapidly insert or remove the tools.

A principal object of the present invention is to provide a greatly improved tool rack or support in which the above noted limitations are overcome.

More specifically, it is an object of the present invention to provide a tool clip particularly suited to sets of tools of like kind in which the tool is substantially rigidly secured in position on the clip, yet may be easily removed.

Still another object is to provide a clip of the above type which is extremely simple in construction, economical to manufacture, and which may be easily secured or hung to the wall of a tool shop or on the horizontal surface of a tool table.

Yet another object is to provide a tool clip in which all of the tools secured therein are visible at all times whereby the proper sized tool of any one set may be quickly selected.

These and further objects and advantages of the invention are attained by forming a single sheet of resilient material such as metal, into a suitable angle or generally L-shaped section. This angle section comprises a relatively large back portion or plate having a lower front laterally extending flange portion. The upper part of the back plate is smoothly curved in the direction in which the front flange extends.

Suitable slots are cut inwardly from the upper edge of the back plate terminating short of the front flange. These slots are preferably parallel to each other and serve to divide the back plate into a plurality of finger-like strips of flexible metal. Bores or openings are then formed adjacent the tip ends of the strips and corresponding bores are formed along the front flange. The latter bores are respectively spaced at points substantially perpendicular under the openings in the strips. Thus, suitable tools such as drills or Allen wrenches may be inserted through these openings by manually depressing or curving the strip fingers a slight amount to bring the strip finger openings and the corresponding flange openings into alinement. The resilient nature of the metal then tends to spring the fingers back to their original positions, thus serving to grip the tool in the alined openings.

Each of the strip fingers operates individually in the same way whereby a plurality of tools constituting a single set may be securely supported in substantially parallel relationship and in a fully visible manner at all times. Any one or more of the tools is easily removed by simply biasing downwardly the strip finger supporting the particular tool desired. The tools will then drop out from the alined openings.

In a second embodiment of the invention, the openings in the front flange are elongated and communicated at one end with notches or channels opening out the front edge of the flange whereby the lower end of the particular tool may simply be slipped out through this notch or channel rather than pulled completely through the opening. This latter arrangement permits removal of any one or more of the tools by one hand.

A better understanding of the invention will be had by referring to a preferred embodiment shown for illustrative purposes in the accompanying drawings, in which:

Fig. 1 is a perspective view illustrating one embodiment of the tool clip of the present invention;

Fig. 2 is a side view partly in section of the clip of Fig. 1 illustrating how the tools are manually inserted or removed; and

Fig. 3 is another perspective view of a different embodiment of the invention broken away in part to disclose only a portion of the clip necessary for an understanding of its operation.

For illustrating the invention, the clip will be described in connection with a set of Allen wrenches. It is to be understood of course that any other type of tools such as drills and the like may be supported by such a clip. Referring to Fig. 1, the invention comprises a resilient or flexible material, preferably of metal although flexible plastic may be used, shaped to form an angle or L-shaped section 10. As shown, this angle section comprises a back portion or plate 11 of relatively large area having an elongated front flange 12 of relatively small area. The upper part of the back plate 11 is suitably curved forwardly and is provided with a series of preferably parallel slots or channels 13 extending downwardly in the direction of the flange 12.

The slots 13 terminate short of the flange 12 and serve to divide the back plate 11 into a plurality of parallel resilient strip-like fingers 14. These fingers 14 have their upper ends curved forwardly in the general direction of the flange 12 as illustrated and are each provided with a suitable opening 15. The front flange 12 is also provided with a plurality of openings 16 of equal number to the openings 15 and spaced perpendicularly below the openings 15 whereby the openings are respectively vertically alined.

Openings 15 and 16 are made of a relatively large diameter as compared to the diameter of the respective tools to be inserted therein. Where the tools of a set are of different sizes and have different diameters such as would be the case for Allen wrenches, the openings 15 may be made of varying diameters correspondingly. In every instance, however, the diameter of the openings 15 for the particular tool to be secured therein is made substantially larger than the diameter of that particular tool.

In Fig. 1 the clip or angle section 10 is provided with openings for fastening means in the forms of screws 17 and 18 whereby it may be secured to a vertical wall. As shown, Allen wrenches 19, secured in position on the clip, are readily available for instant use.

Referring to Fig. 2, the operation of the clip will now
be described. When it is desired to insert or remove a tool, the upper curved portion of the strip finger 14 is brought downwardly by a person’s index finger to swing the axis of the opening 15 in a generally downward direction thereby increasing the apparent diameter of the openings 15 as viewed along a line between the corresponding opening 16 and opening 15. A tool such as the Allen wrench 19 may then be readily inserted through the aligned openings 15 and 16 and the upper portion of the strip finger 14 then released. The resilient nature of the finger tends to straighten it towards a more vertical position and thus results in the sides of the openings 15 exerting a coupling force on the shaft of the Allen wrench 19. Since the lower portion of the Allen wrench is confined by the opening 16, however, this coupling action of the opening side 15 serves merely to exert a frictional force without any motion and as a result the wrench is held firmly in place.

Removal of the wrench is easily effected by simply manually depressing the upper part of the strip finger 14 downwardly in the direction indicated by the arrow whereby the wrench 19 will simply drop out of the aligned openings 15 and 16. The extreme simplicity afforded by this unique clipping action provides an excellent supporting rack for tools of this nature.

Assuming that an operator has only one hand free whereby he cannot conveniently grasp the tool 19 as he releases it with his free hand, the modified type of clip illustrated in Fig. 3 is most useful. In Fig. 3 the parts of the clip corresponding to those shown in Fig. 1 are designated by the same numerals with a prime affixed thereto. As shown, this clip comprises an angle section having a back plate or portion 11' and a front extending flange 12'. Various channels or slots 13' are cut in the back plate 11', only one such channel being illustrated in Fig. 3. These channels serve to divide the back plate 11' into a plurality of fingers such as shown at 14', suitably curved forwardly at their upper ends and provided with openings 15'.

In accordance with the modified embodiment, instead of a plurality of circular openings in the front flange 12' there are instead provided elongated openings 20 opening at one end through an edge of the flange by notches 21 cut therein. These notches are of sufficient width to accommodate the diameter of the tool to be fitted therein. As shown, the device of Fig. 3 may be provided with small circular openings 22 at the side edges of the back plate 11' for securing the same to a horizontal table top or to a vertical wall in either an upright position or a sidewise position.

To insert or remove tools from the clip illustrated in Fig. 3, it is only necessary to use one hand to grip the end of the tool protruding below the front flange 12' and swing the tool out through the notch 21. The shaft of tool 19 is then lifted upwardly, as viewed in Fig. 3, to bring its axis into correspondence with the axis of the opening 15' whence it may be easily removed from the opening. To insert a tool, the tool shaft is inserted normally through the opening 15' and then urged downwardly into parallelism with the back plate portions 11' and simply inserted into the opening 20 through the notch 21. It will be readily appreciated that this action may be easily executed with one hand leaving the other hand of the operator free for holding a suitable work piece or implement with which the tool is to be used.

It will thus be seen that the present invention provides an extremely simple and reliable clip for holding tool sets. Not only are the tools of a set neatly displayed for easy selection, but each is individually secured in place whereby, even should the entire rack be knocked to the floor, the tools will not be scattered about. Further, the complete clip is an extremely simple structure and may be economically manufactured from a single plate of flexible material.

Various modifications within the scope and spirit of the present invention will occur to those skilled in the art. The invention is therefore not to be thought of as limited to the specific embodiments disclosed for illustrative purposes.

I claim:

1. A clip for holding tools, comprising: a plate of resilient material formed along one edge with a right angle flange, said plate having a series of narrow slots extending normal to said flange and opening through the opposite edge of the plate to define a plurality of flexible fingers, the tips of said fingers being curved to overlie said flange, the spacing between the flange and fingertips progressively decreasing toward one side of the plate, said flange and fingertips having openings which are misaligned in the normal positions of the fingertips and which are aligned by flexing the fingertips toward the flange, each of said fingertips being adapted to be flexed toward the flange for aligning the fingertip and flange openings to accommodate insertion of a tool shank thereinto and thereafter released to cause frictional retention of the tool shank on the clip.

2. The subject matter of claim 1 wherein each of said openings in the flange are of generally L-shape configuration and open through the edge of the flange.

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