The present invention discloses a toolbox having a groove with an opening end, a first retaining surface at the bottom of the groove for retaining the tools, a second retaining surface disposed outside the opening end of the groove and having a height lower than that of the first retaining surface, so that the second retaining surface forms a first partition above the second retaining surface and between the first and second retaining surfaces for accessing the tool. Such arrangement allows users to press a part of the first partition of the tool in the groove, such that the other end of the tool is lifted up from the groove to facilitate the access of the tool.
TOOL RETAINING STRUCTURE OF TOOLBOX

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

The present invention relates to a tool retaining structure of a toolbox, more particularly to a simple structure in a toolbox that enables users to take a tool out from a special retaining groove in the toolbox by gently pressing the tool to lift it up.

[0002] 2. Description of the Related Art

In general, using a specific toolbox to contain special tools is a common practice of tool application; for example, a whole set of drills of different sizes are put in a toolbox, and since the tools contained in such toolbox are also specific tools, therefore two rectangular pivotally coupled or connected box covers are formed by hollow air blowing method, and each box cover forms several grooves of specific shape on each cover, and a flange is formed at the middle of the upper edge of the groove for embedding the tool into the groove by the gentle pressing force of the flange. However, larger tools do not have much a problem of pressing and removing the tool into and out from the flanges in the groove, but the drills as previously described are a set of tools having a rod shape, circular cross section, and a spiral knife. It is not easy to place or remove such tool form the long and narrow groove; moreover, it is difficult to determine how much force should be applied in order to remove the tool from the groove. It is quite dangerous and not easy for the user to take the drill out from the toolbox since the spiral knife may scrape the user’s fingers.

SUMMARY OF THE INVENTION

[0005] The primary objective of this invention is to provide a toolbox for accommodating the tools on the retaining surface of the toolbox, and said toolbox structure comprises a plurality groove of a specific shape, a flange protruded towards the middle of the groove disposed at the upper edge of the groove, an opening on one end, a first retaining surface being disposed at the bottom of the toolbox for retaining the tools, and a second retaining surface being disposed outside the opening and lower than the first retaining surface such that a first partition is defined above the second retaining surface and between the first and second retaining surface for accessing the tool; such arrangement of the structure allows a tool to be pressed into the groove and a part of the tool protruded from said first partition, and one end of the tool is lifted. Therefore, it is very easy for the user to remove the tool from the groove.

[0006] To make it easier for our examiner to understand the objective of the invention, its structure, innovative features, and performance, we use a preferred embodiment together with the attached drawings for the detailed description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, in which:

[0008] FIG. 1 is an illustrative diagram of a preferred embodiment of the present invention.

[0009] FIG. 2 is a cross-sectional diagram of a drill being placed into a toolbox in accordance with a preferred embodiment of the present invention.

[0010] FIG. 3 is a cross-sectional diagram of a drill being removed from a toolbox in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] In the detailed description of the preferred embodiments, it should be noted that like elements are indicated by the same reference numerals throughout the disclosure.

[0012] Refer to FIG. 1 for a preferred embodiment of the present invention, which comprises: a toolbox 1 for retaining tools on a box surface 11; a plurality of grooves 12 in specific shape, and a flange 13 slightly protruded towards the middle of the groove 12 is formed on the upper edge of the groove 12. In this embodiment, a drill 2 is used for an example of the tool, and thus the shape of the groove 12 is small and narrow to fit the shape of the drill 2. However the shape of such groove is not limited to the fit the drill or small and narrow tools only. One end of the groove 12 is close-ended, and the other end is open-ended opening 14. A first retaining surface 15 for retaining the tools is disposed at the bottom of the groove 12.

[0013] Refer to FIG. 2. A second retaining surface 16 is disposed on the box surface 11 outside the opening 14 of the groove 12 and has a height lower than the first retaining surface 15 of the groove 12, so that the second retaining surface 16 has a first partition 17 defined above the second retaining surface 16 and between the first and second retaining surfaces 15, 16 for accessing the tool. The first partition 17 comprises a plurality of partition members 18, and every two partition members define a second partition 19 for allowing the tool to move vertically when the user accesses the tool. The height of the partition members 18 is lower than the height of the box surface.

[0014] When the drill 2 is placed inside the groove 12 of the toolbox, the spiral knife section 21 of the drill 2 is embedded into the groove 12, but the part of a drill handle 22 other than the spiral knife section 21 is protruded from the second partition 19 between two partition members 18 in the first partition 17. When the drill 2 is placed in the groove 12, the drill 2 is positioned under the flange 13 and latched in a fixed position by the flange 13, but the upper end of its cross section is substantially at the same level of the box surface 11. Since the height of a partition base 18 is obviously lower than the box surface 11, the horizontal level of the drill 2 is higher than the partition base 18, and thus having a difference as shown in FIG. 2.

[0015] Refer to FIG. 3. When the drill 2 is removed from the toolbox, the user may use a thumb to press the drill handle 22 at the end of the drill 2 so that the drill handle 22 falls into the second partition 19 between two partition bases 18. Since the horizontal level of the drill 2 is higher than the partition base 18, when the user’s thumb presses on the surface of the partition base 18, the spiral knife section 21 at the other end of the drill 2 is lifted from the groove 12, and the section of the drill 2 originally embedded in the flange 13 of the groove 12 is separated from the flange 13, and the user can easily remove the drill 2 by holding the drill handle...
of the drill 2. Such arrangement is simple and easy without the risk of scraping the finger by the spiral knife section 21 of the drill 2.

[0016] Another embodiment of the present invention may skip the partition base 18, but directly pressing the drill handle 22 to the bottom of the first partition 17, which can also achieve the effect of removing the drill 2 conveniently from the toolbox. The design of the partition base 18 can guide the drill 2 into the second partition 19 when the drill 2 is pressed, so that the drill 2 shifts downward and detaches from the engagement by the flange 13 in the grooves 12, and thus the drill will not slide to the side or fall off.

[0017] While the invention has been described by way of example and in terms of a preferred embodiment, it is to be understood that the invention is not limited thereto. To the contrary, it is intended to cover various modifications and similar arrangements and procedures, and the scope of the appended claims therefore should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements and procedures.

What is claimed is:

1. A tool retaining structure of toolbox, comprising:
   a box surface disposed on a toolbox;
   a plurality of grooves in a specific shape; and
   a flange slightly protruded towards the middle of said groove being formed on the upper edge of said groove; characterized in that:
   one end of said groove 12 being an opening;
   a first retaining surface disposed at the bottom of said groove for retaining a tool;
   a second retaining surface being disposed outside the open end and having a height lower than that of the first retaining surface, such that a first partition being defined above the second retaining surface and between the first and second retaining surfaces for accessing the tool; thereby when a part of the tool in the groove is pressed, another part of the tool is lifted up from the groove to facilitate the access of the tool.

2. A tool retaining structure of toolbox as claimed in claim 1, wherein said partition comprises a plurality of partition members, and every two partition member form a second partition for enabling the tool to move vertically when the tool is accessed.

3. A tool retaining structure of toolbox as claimed in claim 1, wherein said partition member has a height lower than that of the box surface.

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