

## Toolbox With at Least One Cable Reel

### Specification

The invention concerns a toolbox which may be used both by hobbyists and industrial handworkers.

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In the private and the industrial sector, it has long been known to operate special tools and devices electrically. These include, for example, drills, grinders, saws, and machines for tightening and removing screws or nuts, as well as other devices, such as lights, heaters, and pumps (e.g., also for preparation of a working substance, such as compressed air for pneumatically driven tools or a pressurized hydraulic oil for hydraulically activated tools). The expression "tool" used hereinafter also includes the  
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aforementioned devices. Usually, connection to an electric network is necessary as a source of current for such tools. This applies in any case for high-performance tools, for whose operation using a battery is inadequate. Frequently, operation of such tools is only  
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temporarily necessary such that a permanently installed electrical line is not reasonable for this.

Since the appropriate connection point to the electrical network is often not located in the immediate vicinity of the site where the tool is to be operated, the length  
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of the connection cable provided on the tool is frequently inadequate. Consequently, this cable must be supplemented by an extension cable. Thus, it is in many cases necessary for the tool to always have the extension cable available. This must then always be transported with the tool and must not get lost.

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It is also known to store and transport tools of the type mentioned in toolboxes specifically provided therefor. There is not usually adequate space for extension cables in such toolboxes.

DE 8227725 U1 describes a foldout toolbox for accommodating a hand drill and

its accessories. The toolbox also includes an immovably attached and removable cable reel for the electrical connection of the drill. The cable end of the cable reel that is provided with an electrical plug is passed through one side wall of the toolbox. The other cable end can be pulled out of the toolbox when its cover is open.

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This prior art does, in fact, make it superfluous to provide a separate extension cable for the drill and to transport it separately each time to the site where the drill is to be used. However, the use of the cable reel is only possible when the cover of the box is open. This is, however, disadvantageous with a toolbox which contains, on the one  
10 hand, other valuable devices besides the drill (or another electrically driven tool), such as a drill dust vacuum, drill cassettes, drills for various materials, as well as cutting, grinding, and polishing attachments, and, on the other hand, must frequently be used by professional handworkers at outdoor construction sites and assembly sites. Since a wide variety of individuals have access to such sites, experience has shown that it is not  
15 possible to prevent a tool which is accessible for hours everyday, for example, in an open toolbox, from being stolen repeatedly.

In addition, naturally, considerable amounts of dust and other contaminants, which are obviously undesirable, can penetrate into such a toolbox whose lid is open, in  
20 particular at a construction site. The risk also exists at a construction site where water is frequently present that moisture or water can get into the open toolbox. In the case of a toolbox containing electrical devices, this even results in a significant danger to individuals working therewith.

Consequently, the object of the invention is to provide a toolbox which can also  
25 be designed in the form of a tool chest which includes an extension cable in the form of a cable reel for an electrical tool stored therein or another electrical tool, which can also be used with the cover closed or even locked and simultaneously prevents both unwanted looking into the toolbox or even unauthorized access to the contents of the box and, also  
30 penetration of dust, dirt, moisture, and water into the toolbox.

The invention achieves this object with a toolbox with

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- a) an electrical cable arranged in the interior of the toolbox, which is wound on at least one cable reel rotatably attached in the toolbox, which has a cable wind-up arrangement, and
  - b) a first cable pass-through opening provided in one wall of the toolbox, through which a first connection end of the electrical cable with an electric plug is passed through from the interior of the toolbox to the outside.
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The toolbox according to the invention is characterized by

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- c) a second cable pass-through opening provided in the wall of the toolbox, through which a second connection end of the electrical cable with an electrical coupling is passed through from the interior of the toolbox to the outside.

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The electrical cable used according to the invention consists in a known fashion essentially of a first cable section with a first connection end on which the electrical plug is arranged, and of a second cable section with a second connection end, on which the electrical coupling is provided. The two cable sections may be quite different in length.

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The toolbox according to the invention is also equipped with a cable wind-up arrangement. This can, for example, be a handle or an appropriate recess on the periphery of the cable reel, with the aid of which the cable reel can be manually rotated. Alternatively, the cable reel may also include a spring mechanism, by which the unwinding of the cable by pulling against this spring force occurs with the action of a known latch when the desired cable length is reached and the winding up of the cable

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occurs by spring force alone.

According to a special embodiment, the cable wind-up arrangement is designed with a single wind-up mechanism for simultaneous unwinding and winding of the cable section with the electrical plug and of the cable section with the electrical coupling.

5           According to a further embodiment, a first cable reel with an associated first cable wind-up device is designed for the cable section with the electrical plug and a second cable reel with an associated second cable wind-up device is designed for the cable section with the electrical coupling. In this case, the two cable reels can be arranged in one half of the toolbox (either in the part referred to as the mounting portion in the following description of the drawing or in the part referred to as the cover portion  
10           therein), or the first cable reel in the mounting portion and a second cable reel in the cover portion of the toolbox or vice versa. In each case, the electrical cable on the first cable reel is electrically connected to the electrical cable on the second cable reel.

15           Preferably, the cable reel is or the cable reels are releasably attached in the toolbox (for example, by means of a wing nut or a wing bolt or a snap lock between the cable reel and its axis of rotation), possibly along with the respectively associated cable wind-up arrangement; and the first and the second cable pass-through openings are designed in each case in the form of a slot extending to the outside edge of the respective  
20           side wall of the tool chest, through which the electrical cable can be drawn out and can be pushed back in again perpendicular to its longitudinal direction. Thus, the toolbox offers the capability, as needed, of removing the cable reel or the cable reels with the entire electrical cable as well as the electrical plug and the electrical connection from the toolbox and to replace it there after use. Thus, the electrical cable is even more versatile.  
25           When the cable reel or the cable reels are attached in the toolbox, the electrical cable is always available as mentioned above wherever the toolbox with the tool stored therein is located. If the cable reel or the cable reels have been removed from the toolbox, that cable reel may be used as a conventional cable reel. Such use can be very expedient in the individual instance, for example, when, because of very restricted space, the electrical  
30           cable is to be used without the toolbox.

It has also proved advantageous for that portion of the interior of the toolbox in which at least one cable reel is arranged to be separated from the rest of the interior of the toolbox by a removable false bottom. The false bottom can also assume the function of a separate housing for the cable reel, such that this housing as such may be omitted. The false bottom may, however, also be used in addition to such a separate housing and, for example, serve as a carrier for certain small hand tools or small parts. Moreover, the false bottom may also extend over only a portion of the base area of the interior of the toolbox.

In order to prevent the ends of the wound up electrical cable with the electrical plug and the electrical coupling from hanging down loose on the outside of the box or the plug and the coupling from projecting beyond the periphery of the box in a disadvantageous fashion, attachment means for the cable connection ends are preferably provided on the outside of the toolbox. Indentations or recesses into which the plug and coupling can be inserted flush with the periphery of the toolbox and where they may be affixed by a clamping holder may additionally be designed in the toolbox wall.

The electrical coupling of the toolbox according to the invention may also be designed in the form of a multiple coupling for simultaneous connection of a plurality of tools to be operated electrically.

The invention is explained in the following with reference to an exemplary embodiment schematically depicted in the attached drawing.

In the figure, a toolbox according to the invention is depicted in perspective in an open position. For the sake of clarity, only the most important parts of the object of the invention, i.e., the actual toolbox, the electrical cable 3 on a cable reel 4 arranged therein, and the two cable connection ends guided out of the toolbox are shown in a simplified depiction.

According to the figure, the toolbox has an mounting portion 1 and a cover

portion 2. The mounting portion 1 is provided to accommodate the electrical cable 3 and other articles (not shown), such as a tool to be operated electrically as well as, possibly, additional small hand tools and any kinds of small parts. The electrical cable 3, whose coils 5 are depicted only schematically by ellipses, is wound up on a cable reel 4 in the mounting portion 1. The cable reel 4 is attached in the mounting portion 1 rotatably and releasably therefrom. The attachment of the cable reel 4 may be achieved, for example, by screwing (not depicted in the drawing) to the mounting portion 1, using a manually releasable wing nut or wing bolt. Alternatively, a conventional snap lock between the cable reel 4 and its rotational axis attached to the mounting part 1 is possible.

Moreover, the cable reel 4 is equipped with a cable wind-up arrangement 6. This includes, for example, a spiral spring (not shown) through whose action the electrical cable 3 is always pulled in the wind-up direction of the cable reel 4. When the electrical cable 3 has been unwound to the desired length, a known locking mechanism prevents automatic rewinding of the electrical cable 3.

A first cable pass-through opening 8, through which a first connecting end 9 of the electrical cable 3 with an electrical plug 10 is guided through to the outside of the toolbox, is provided in a first side wall 7 of the mounting portion 1 of the toolbox.

There is a second cable pass-through opening 12 on a second side wall 11 of the mounting portion 1, which is positioned opposite the first side wall 7, through which a second connection end 13 of the electrical cable 3 with an electrical coupling 14 is guided through to the outside of the toolbox. Alternatively, the two cable pass-through openings 8, 12 may also be located in adjacent side walls or in one and the same wall of the toolbox.

In the embodiment depicted in the drawing, the cable wind-up arrangement 6 is designed only for the unwinding and winding of the cable section with the electrical coupling 14.

For the use of the toolbox according to the invention, which contains a tool to be operated electrically, it is brought to the site of use of the tool after being transported, separate transport of an extension cable being superfluous. At the site, the tool is removed from the toolbox. The electrical plug 10 on the first connection end 9 of the electrical cable 3 is connected to the connection point of the existing electrical network. The second connection end 13 with the electrical coupling 14 is pulled out to the desired cable length through the second cable pass-through opening 12 of the mounting portion 1. Then, the connection cable of the tool to be operated electrically is connected to the electrical coupling 14, whereupon the tool is ready for operation. After ending work with the tool, the connection ends 19, 13 of the electrical cable 3 are separated from the electrical network and from the tool. The cable section with the electrical coupling 14 pulled out is rewound onto the cable reel 4. This occurs in accordance with the type of cable wind-up arrangement 6 either by appropriate rotation of the cable reel 4 manually or using the restoring force of an appropriate spring.

Claims

## 1. Toolbox having

- 5                   a)     an electrical cable (3) arranged in the interior of the toolbox, which is wound on at least one cable reel (4) rotatably attached in the toolbox, which has a cable wind-up arrangement (6), and
- 10                   b)     a first cable pass-through opening (8) provided in one wall (7) of the toolbox, through which a first connection end (9) of the electrical cable (3) with an electrical plug (10) is passed through from the interior of the toolbox to the outside,
- 15                   characterized by
- c)     a second cable pass-through opening (12) provided in the wall (11) of the toolbox, through which a second connection end (13) of the electrical cable (3) with an electrical coupling (14) is passed through from the interior of the toolbox to the outside.
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2.     Toolbox according to claim 1, characterized in that the cable wind-up arrangement (6) is designed for the simultaneous unwinding and winding of both the cable section with the electrical plug (10) and the cable section with the electrical coupling (14).
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3.     Toolbox according to claim 1 or 2, characterized in that the cable reel (4) or the cable reels is/are releasably attached in the toolbox and that the first and the second cable pass-through openings (8, 12) are in each case designed in the form of a slot extending to the outside edge of the respective wall (7, 11) of the toolbox, through which the electrical cable (3) can be pulled out and pushed back
- 30                   in perpendicular to its longitudinal direction.



4. Toolbox according to one of claims 1 through 3, characterized in that the portion of the interior of the toolbox in which the cable reel (4) is arranged is isolated by a removable false bottom from the remaining portion of the interior of the toolbox.

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5. Toolbox according to one of claims 1 through 4, characterized in that attachment means for the connection ends (9, 13) of the electrical cable (3) are provided on its outside.