SYSTEM FOR HOLDING TOOLS IN A POSITION FACILITATING STORAGE

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ABSTRACT

A tool cart has two tool holding systems mounted above one another such that each tool is held in two distinct places. Each tool system has a throat with a bottom for holding the shaft of a tool by an elastic device and a structure for leading the shaft into the throat while passing on the side of the elastic device where the throat is situated. The interior contour of the throat and structure for leading the shaft into the throat are covered on by an element forming an adherence zone that brakes the tool shaft vertical movement.
The present invention relates to a tool cart permitting an easier storage of tools, particularly of gardening tools. Especially in gardening, tools are most often used which have a long shaft. This applies, for example, to the spade, to the cultivator, to the ridging hoe, to the dutch hoe, to the combined hoe and fork, to the lawn rake, etc. These tools are provided for working the earth without having to bend down, and therefore reduce the fatigue experienced during such work.

Between each use, the tools are stored in a place selected for this purpose. The presence of the long shaft often presents a problem for choosing the place or the direction of the tool storage. In fact, the tools should not hinder the passing-through and should avoid being the cause of accidents either as a result of falling, or exhibiting sharp-pointed ends, etc. In addition, the gardener hopes to both easily store and remove the tools from the selected site.

Whether the gardeners are professionals or individuals, the accepted storage solution consists of placing the tools against a wall. Although this position partly fulfills the gardener’s wishes, it does not meet people’s safety requirements. This solution is, in fact, dangerous because tools placed in this manner present the risk of falling. In addition, this position is not very practical for reaching the tools, since these are often intermingled. In addition, this solution forces the gardener to remove a single tool with the disadvantage of being hindered by tools he will not be using during his work.

It is therefore an object of the invention to provide a tool cart which makes it possible to solve the above-mentioned problems.

For this purpose, the invention suggests a tool cart which comprises two systems for holding tools mounted above one another such that each tool is held in two distinct places, each tool holding system comprises, on the one hand, at least one throat having a bottom for holding the shaft of a tool by an elastic device and, on the other hand, at least one device for leading the above-mentioned shaft into at least one throat while passing on the side of the above-mentioned elastic device where the above-mentioned throat is situated. The interior contour of the above-mentioned or each throat and the above-mentioned or each device for leading the above-mentioned shaft into the above-mentioned throat is covered by an element forming an adherence zone for braking the vertical movement of the tool shaft.

According to another characteristic of the invention, the above-mentioned device for leading the above-mentioned shaft into the above-mentioned throat is an inlet duct.

According to another characteristic of the invention, the above-mentioned adherence zone is a piece of plastic material.

According to another characteristic of the invention, the holding system according to the invention comprises several units formed by the above-mentioned throat and the above-mentioned inlet duct which are regularly distributed on its periphery.

According to another characteristic of the invention, the above-mentioned elastic device is a band of an elastic material.

In one embodiment, the above-mentioned elastic device is a spring.

According to another characteristic of the invention, the above-mentioned cart comprises a structure adapted to determine the weight of the cart on the axis of rotation of the wheels in such a manner that the handling of the above-mentioned cart is facilitated.

The characteristics of the above-mentioned invention as well as others will be explained in detail by the description of the following embodiments, the above-mentioned description being made in connection with the attached drawings.

FIG. 1 is a global perspective view of a tool cart according to the invention comprising two holding systems; FIG. 2 is a global perspective view of a tool cart comprising two holding systems provided with tools; and FIG. 3 is a top view of a tool cart according to the invention comprising two holding systems provided with tools.

FIGS. 1 and 2 are illustrations of a tool cart which comprises two similar tool-holding systems placed above one another. Cart 1 comprises a base 10 mounted on a tube 20 provided at its lowest end with a foot 200 which makes it possible for the base 10 to be held in a horizontal position. The base 10 permits the eventual replacing of the functional part of the tool, such as a cultivator head, in a manner illustrated in FIG. 2. The tube 20, in addition, rests on an axle 30, whose ends are provided with wheels 300. Preferably, these wheels are inflatable. The part of the tube 20 resting on the axle 30 continues vertically to a bent part on which a plate 40 is fixed. The bent part of the tube 20 is provided for bringing back the weight of the cart and of the tools placed upon it onto the axle 30 of the wheels 300 when the cart is inclined by the user, which makes the cart light and manageable. The plate 40 makes it possible to hold two holding systems 50 of tools placed on one another in a horizontal line on a first side, and small holes 60 also participating in the holding of the tools on a second side. The tube 20 extends slightly above the plate 40 and ends in a handle 70. With the exception of the wheels, the elements forming the cart are advantageously implemented in rust-resistant steel but may also be made of other adapted materials, or comprise the appearance of a painted surface, a galvanized surface, etc.

The holding system 50 advantageously is a circular or semicircular plate intended for holding the shaft of the tools 2 preferably in a vertical position. This holding function is accomplished by slots 51 described in the following in connection with FIG. 3.

As illustrated in FIG. 3, a holding system 50 comprises several slots 51 regularly distributed along its periphery. In the illustrated embodiment, the holding system 50 comprises five slots 51. Each slot 51 has the shape of an inlet duct 512, preferably of a bent shape, terminated by a throat 511. The opening 510 of the inlet duct 512 of the slots 51 allows the passage of the shaft of the tool 2 without difficulty. The shape of the slot 51 is such that the shaft of
the tool 2, which is led by means of the inlet duct 512 to the throat 511 of the slot 51, comes to be held horizontally in this throat 511 by means of a fixed piece 513. Nevertheless, since the slot 51 facilitates the passage of the tool shaft 2, it does not completely block the tool shaft 2 in this holding position. For this reason, each slot 51 is, in addition, provided with an elastic device 52, such as a strip of an elastic material, for example, of the SANDOW type (Registered Trademark) or a spring. On the one hand, elastic device 52 is fixed at a first point A near the throat 511 of the slot 51 and, on the other hand, at a second point B near the opening 510 of the inlet duct 512. The location of the fixed points A, B of the elastic device 52 and of the fixed piece 513 is calculated for exercising a force on the shaft of the tool 2 such that it has the tendency to stay in its holding position in the throat 511 of the slot 51. For this purpose, the ratio of the distance between fixed points A, B and the distance between a fixed point A or B and the fixed piece is approximately equal to two. The above-described holding system 50 is preferably implemented in rust-resistant steel, but may also be implemented in other adapted materials or comprise an appearance of a painted surface, a galvanized surface, etc.

For improving its holding function, the holding system 50 advantageously comprises an adherence zone 514 in the interior of each slot 51. This adherence zone 514 is made of a plastic material, preferably by means of a rough U-section-type strip placed on the interior contour of the slot such that it covers in the manner of a coating. This adherence zone 514 is provided particularly for holding the shaft of the tool 2 such that its vertical movements are braked. In addition, the adherence zone 514 makes it possible to avoid an excessive friction of the holding system 50 on the shaft of the tool 2, which may wear it out in an abnormal fashion. Thus, by means of the fixed piece 513, the elastic device 52 and the adherence zone 514, the shaft of the tool 2 is held in all its degrees of freedom. By means of the holding system 50 according to the invention, the tool 2 can therefore be held in a unique zone of its shaft determined independently of the length of this shaft. The user of the tool 2 can therefore choose not to place the tool shaft 2 on the base 10 of the cart. In addition, it will be found that generally, while the user can choose to dispose the useful portion of the tool 2 in the direction opposed to the base 10, for example, because the shaft of the tool 2 is too short, he will preferably, as a result of the adherence zones 514 of the invention, choose to place this tool 2 in a more secure position, with the useful portion of the tool 2 turned toward the base 10.

Thus, a user of a tool 2 who wants to arrange the tool 2 on the tool cart, which comprises two similar holding systems 50 placed above one another, places the shaft of the tool 2 in front of the opening 510 of a slot 51 present on each of the holding systems 50; then, pushes the shaft along the inlet duct 512 before introducing it in the throat 511 where it then finds itself clamped by the elastic device 52 against the adherence zone 514 of the fixed piece 513. In this manner, the tool is held firmly in two places while one simple horizontal pushing movement is carried out.

Inversely, the withdrawal of the tool 2 from the holding system 50 involves pushing back the elastic device 52 by means of the tool 2 in order to disengage the tool 2 from its grasp and allow the shaft to pass the fixed piece in order to be able to then withdraw it, passing through the inlet duct 512. The presence of the two holding systems 50 facilitates the insertion and the withdrawal of the tools and increases the holding.

- 7. (canceled)

8. Tool cart comprising two systems for holding tools, the systems being mounted above one another such that each tool is held in two distinct places, each tool holding system comprising at least one throat having a bottom portion for holding the shaft of a tool, an elastic device and at least one device for leading the shaft into at least one throat while passing on the side of the elastic device where the throat is situated, the throat and each device for leading the shaft into the throat having a covering on an interior contour thereof by an element forming an adherence zone for braking the vertical movement of the tool shaft.

9. Tool cart according to claim 8, wherein the device for leading the shaft into the above-mentioned throat includes an inlet duct.

10. Tool cart according to claim 9, wherein the adherence zone includes a strip of plastic material.

11. Tool cart according to claim 10, wherein the holding system comprises several units, each including one of the throats and one of the inlet ducts which are regularly distributed on the periphery of the holding system.

12. Tool cart according to claim 11, wherein the elastic device includes an elastic band.

13. Tool cart according to claim 12, further including a structure adapted to determine the weight of the cart on the axis of rotation of the wheels in such a manner that the handling of the above-mentioned cart is facilitated.

14. Tool cart according to claim 11, wherein the elastic device includes a spring.

15. Tool cart according to claim 14, further including a structure adapted to determine the weight of the cart on the axis of rotation of the wheels in such a manner that the handling of the above-mentioned cart is facilitated.

16. Tool cart according to claim 8, further including a structure adapted to determine the weight of the cart on the axis of rotation of the wheels in such a manner that the handling of the above-mentioned cart is facilitated.

17. Tool cart according to claim 8, wherein the adherence zone includes a strip of plastic material.

18. Tool cart according to claim 9, wherein the holding system comprises several units, each including one of the throats and one of the inlet ducts which are regularly distributed on the periphery of the holding system.

19. Tool cart according to claim 8, wherein the elastic device includes an elastic band.

20. Tool cart according to claim 8, wherein the elastic device includes a spring.

21. Tool cart comprising two systems for holding tools, the systems being mounted above one another such that each tool is held in two distinct places, each tool holding system comprising at least one throat having a bottom portion for holding the shaft of a tool, an elastic device and at least one device for leading the shaft into at least one throat while passing on the side of the elastic device where the throat is situated, the throat and each device for leading the shaft into the throat including an interior contour forming an adherence zone for braking the vertical movement of the tool shaft.