A storage bucket for tools is convertible to an integrated tool carrier, work platform and debris capturing apparatus through the release of a locking mechanism which allows its side walls to collapse outwardly with respect to its base in forming the platform, and where the debris is collected by a canvas, cloth or plastic webbing spanning the spaces between the adjacent side walls once opened.
INTEGRATED TOOL CARRIER, WORK PLATFORM, DEBRIS CAPTURING APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] None

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Research and development of this invention and Application have not been federally sponsored, and no rights are given under any Federal program.

REFERENCE TO A MICROFICHE APPENDIX

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] 1. Field of the Invention

[0005] This invention relates to a storage bucket for tools, in general, and to one which is convertible to an integrated tool carrier, work platform and debris capturing apparatus, in particular.

[0006] 2. Description of the Related Art

[0007] As will be appreciated in the construction industry, a worker typically transfers those tools needed on a particular job from his/her vehicle to a bucket or pail for carry to the work site. When the job is to be done inside a home or office, a drop cloth is typically put down first, to protect any work surfaces, and to catch any debris from the operation at hand. Many times, however, the drop cloth is forgotten; on other occasions when it is used, the debris generated (in the nature of shavings, left-over nuts, bolts, nails, etc.) falls from the drop cloth to the floor when being folded or dragged at the end of the job.

[0008] As will become clear from the following description, it is the object of the present invention to prevent this all from happening, by providing an integrated tool carrier, work platform and debris capturing apparatus.

SUMMARY OF THE INVENTION

[0009] In accordance with the invention, a base, a plurality of side walls, a plurality of hinges coupling the side walls with the base and a pair of tubular handles are provided. A length of tie-line traverses through each of the handles, and a plurality of tubular fasteners receive the tie-line in tying individual ones of the side walls together. A pair of adjustable locking mechanisms are included, operative with the tie-line in controlling the distance of each of the handles from its adjacent fasteners, and a substantially pie-shaped, outwardly collapsible, flexible material of one of canvas, cloth and plastic composition is coupled between each pair of adjacent side walls. As will be appreciated from the following description, the integrated tool carrier, work platform, debris capturing apparatus is so constructed and arranged that in one arrangement of the adjustable locking mechanisms, raising the tubular handles allows for rotating the side walls upwardly with respect to the base in shortening the distance of the handles from their adjacent fasteners. As will be appreciated by those skilled in the art, with these arrangements, raising the tubular handles allows for the positioning of the integrated apparatus into the tool carrier for transporting the tools about; lowering the tubular handles, on the other hand, allows for the collapse of the side walls into a horizontal work platform, where the various types of debris and leftover materials can be collected by the flexible material webbing which spans between the side walls.

[0010] So as not to damage any floor or counter surface on which the integrated apparatus is placed, the underside of the base is selected of a smooth surface, and for the base to serve as a work platform, it is selected of a hard material. At the same time, the side walls are likewise selected of a hard material, and with at least one of its inside and outside surfaces being similarly smooth—again, so as not to damage any floor or counter surfaces where the work is to be done, and so that any sawing or planing, etc. being done on the platform is not roughened. As will be appreciated, a preferred embodiment is one where both surfaces of the side walls and both surfaces of the base are smooth.

[0011] In a first embodiment of the invention, the integrated apparatus is constructed of four side walls on a rectangular base—although its operation will be the same as with a square base. In a second embodiment, eight side walls are constructed on an octagonal base. In such second embodiment, each side wall will be seen to be of rectangular configuration, while in the embodiment having four side walls on a rectangular base, the four side walls may each be of a square configuration.

[0012] Several ways of raising the handles upwardly to close the side walls, and of lowering the handles to collapse the side walls will be recognizable by the skilled artisan. In the first embodiment of the invention to be described, a pair of tie-lines are employed, each extending between two opposing side walls and through one of the handles and a pair of fasteners on a side wall between the two opposing side walls. In the second embodiment, a single tie-line extends through each of the tubular handles, and through a tubular fastener at an outer edge of each of the side walls. Different types of locking mechanisms will be readily understandable, the first embodiment utilizing a addable push-spring clip, and the second embodiment employing an inverted J-clamp.

[0013] With the side walls of the described embodiments of the invention in the open, flattened position, a work platform area is presented in which all the tools will be clearly visible in sight. With the side walls in the raised, closed position, the embodiments take on the tool box or storage shape configuration.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] These and other features of the present invention will be more clearly understood from a consideration of the following description, taken in connection with the accompanying drawings, in which:

[0015] FIGS. 1-4 are illustrations helpful in an understanding of the first embodiment of the invention outlined above;
FIGS. 5-8 are illustrations helpful in an understanding of the second embodiment outlined; and

FIGS. 9-10 are illustrations helpful in an understanding of yet a further embodiment of the invention, for an integrated carrier having a hexagonal base.

DETAILED DESCRIPTION OF THE INVENTION

While the number of side walls and shape of the base of the integrated carrier of the invention may vary, the embodiment of the invention of FIGS. 1-4 incorporates a rectangular base 10 with two side walls 12 of square configuration and two side walls 14 of rectangular configuration. Four substantially pie-shaped, flexible corners 16a-16d couple between each pair of adjacent side walls 12, 14 in FIG. 2, to supplement the flattened layout of the base and four side walls shown in FIG. 1. As shown in these drawings, each side wall is coupled with the base by a hinge 18 to allow each side wall to be rotated upwardly from the positions illustrated. As will be appreciated, each hinge 18 may be secured to its respective side wall and base alignment by rivets, or in any other manner as will allow this rotation to take place.

Each substantially pie-shaped corner is secured at its three apices 100 to the adjacent side walls and to the base so that when the side walls are rotated upwardly from the positions of FIGS. 1 and 2, the box configuration of FIG. 4 results. By composing the upper, or facing, surfaces of the side walls and base of FIG. 1 and 2 of a hard surface, a work platform is presented as defined by these inside surfaces in FIGS. 1 and 2. By having the undersides of the side walls and base of a smooth surface, the platform can be placed on a floor or counter for the work to proceed, without damaging the floor or counter. Sawing, cutting, screwing, nailing—and a wide variety of other tasks—can then be performed safely on the work platform, with the substantially pie-shaped, collapsible flexible corners 16a-16d serving to collect debris which may result from the ongoing operation. In this preferred embodiment of the invention, the corner 16a-16d may be composed of canvas, cloth or plastic so as to be collapsible outwardly in the direction of FIG. 4 when closed in this manner, to capture the debris which results.

FIG. 3 illustrates one manner by which a worker may collapse the integrated carrier of FIGS. 1 and 2 to arrive at the closed construction of FIG. 4. A pair of tubular handles 20 are shown, along with two pairs of tubular fasteners 22, 24 and a tie-line coupling through the handles and the fasteners, shown as the tie-lines 26, 28 (a corded rope, for example). The respective ends of each tie-line 26, 28 will be understood as being secured at the underside (or outside) surfaces of the side walls 12 as at 101, and when the carrier is open, the tie-lines run generally along the outside edge 105 of the side wall 14 as shown in FIG. 2. Pulling upwardly on the handles 20 in the direction of the arrows 107 shown in FIG. 3 thus closes the side walls 12 and 14 and collapses the corners 16a-16d to capture any debris created, and in holding tools within the box as a tool carrier. Any appropriate locking mechanism to restrain accidental reopening from the FIG. 3 configuration may be employed, as by means of a slidable push-spring clip 40—which, in the position shown in FIG. 3 locks the tie-line, the handles and the side walls in the orientation illustrated while locking the tie-line, the handles and the side walls in the orientation of FIG. 2 when secured at the position illustrated. As will be understood, in the FIG. 3 position, the handles 20 are at a distance remote from the fasteners 24; in the FIG. 2 position, the handles 20 are at a distance adjacent to the fasteners 24.

FIGS. 5-8 are comparable views for the second embodiment of the integrated tool carrier employing eight (rather than four) side walls of rectangular configuration 50, a base of octagonal shape 52 and eight (rather than four) substantially pie-shaped collapsible corners 54 of flexible canvas, cloth or plastic composition. With the pie-shaped corners 54 again secured with their adjacent side walls and with the base 52 at the apices 100, and with the tubular fasteners 56 secured at the side walls 50, a single tie-line 60 then traverses through the fasteners 56 and the pair of tubular handles 62 so that pulling on the handle 62 lifts the side walls 50 and the corners 54 upwardly with respect to the base 52 about the hinged couplings 70. Once rotated to the closed position of FIG. 7, the tie-line 60 can be locked in place through insertion in the groove 80 of a pair of inverted J-clamps 82. As with the arrangements of FIGS. 1-4, the base 52 and the side walls 50 can be constructed of a hard material, with smooth outside surfaces to present a smooth underside for resting on a finished floor or counter. As will be appreciated by those skilled in the art, the base and the side walls, either or both, could likewise be composed of an outside surface other than smooth, and/or other than hard, in providing similar, but less beneficial results—although still continuing to provide an integrated tool carrier, work platform, debris capturing apparatus. In this respect, the inside surfaces of the base and side walls in either embodiment, could similarly be smooth, in presenting an optimum work platform.

FIGS. 9-10 are further examples of integrated carriers according to the invention, in which six sidewalls 90 are utilized with a base of hexagonal configuration. FIG. 9 is a simplified illustration without the substantially pie-shaped corners in place, but with the tubular handles of the invention, while FIG. 10 illustrates the configuration without the handles, the fasteners, and the tie-lines, but with the collapsible debris collecting corners 92 and the securements to the side walls and to the base at the apices 100. The locking mechanism for securing and/or releasing the handles, the tie-lines, and the side walls could be either of the arrangements described with respect to the first and second embodiments of the invention, or of any other appropriate construction. In any event, the integrated tool carrier, work platform and debris capturing arrangement could continue to exist.

While there have been described what are considered to be preferred embodiments of the present invention, it will be readily appreciated by those skilled in the art that modifications can be made without departing from the scope of the teachings herein. Thus, the dashed lines 735 in FIG. 1 illustrate the left-and-right side walls being extended to a rectangular configuration as the top-and-bottom side walls, instead of being of square shape; similarly, the dashed lines 737 in FIG. 1 illustrate the top-and-bottom side walls being extended to a square configuration as the left-and-right side walls, instead of being of rectangular shape. For at least such reason, therefore, resort should be had to the claims appended hereto for a true understanding of the scope of the invention.
I claim:

1. Integrated tool carrier, work platform, debris capturing apparatus comprising:
   a base;
   a plurality of side walls;
   a plurality of hinges coupling said side walls with said base;
   a pair of tubular handles;
   a length of tie-line traversing through each of said handles;
   a plurality of tubular fasteners receiving said tie-line in tying said side walls together;
   a pair of lock mechanisms operative with said tie-line in controlling the distance of each of said handles from adjacent fasteners;
   and a substantially pie-shaped, outwardly collapsible flexible material of one of canvas, cloth and plastic composition coupled between each pair of adjacent side walls;
   the apparatus being so constructed and arranged that in one arrangement of said locking mechanisms, raising the tubular handles allows for rotating the side walls upwardly with respect to the base in lengthening the distance of said handles from said adjacent fasteners, and in a second arrangement of said locking mechanisms, lowering the tubular handles allows for rotating the side walls downwardly with respect to the base in shortening the distance of said handles from said adjacent fasteners.

2. The integrated apparatus of claim 1 wherein said base is composed of a hard surface material with a smooth underside.

3. The integrated apparatus of claim 1 wherein said side walls are of a hard surface material, with at least one of an inside and outside surface thereof being smooth.

4. The integrated apparatus of claim 2 wherein said side walls are of a hard surface material, with at least one of an inside and outside surface thereof being smooth.

5. The integrated apparatus of claim 4, including four side walls on one of a square or rectangular base.

6. The integrated apparatus of claim 4, including four side walls of square configuration on a rectangular base.

7. The integrated apparatus of claim 4, including eight side walls on an octagonal base.

8. The integrated apparatus of claim 7 wherein each side wall is of rectangular configuration.

9. The integrated apparatus of claim 5, including a pair of tie-lines, each extending between opposing ones of said side walls and through one of said handles and a pair of said fasteners on a side wall between said opposing ones of said side walls.

10. The integrated apparatus of claim 7, including a single tie-line extending through each of said handles, and through a tubular fastener at an outer edge of each of said side walls.

11. The integrated apparatus of claim 10 wherein said locking mechanisms are in the configuration of inverted J-clamps.

12. The apparatus of claim 5 wherein said locking mechanisms are the locations of included slidable push-spring clips on said pair of tie-lines.