

[54] FOLDING TOOL CASE

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[58] Field of Search 206/373, 372, 374, 375, 206/376, 378, 459, DIG. 29, 223; 190/18 A; 217/60 E; 312/200

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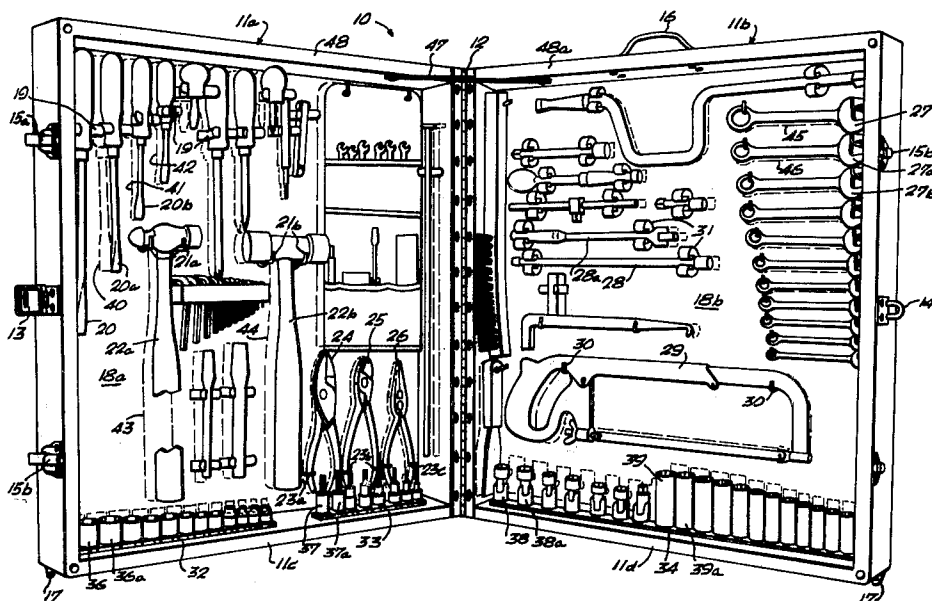
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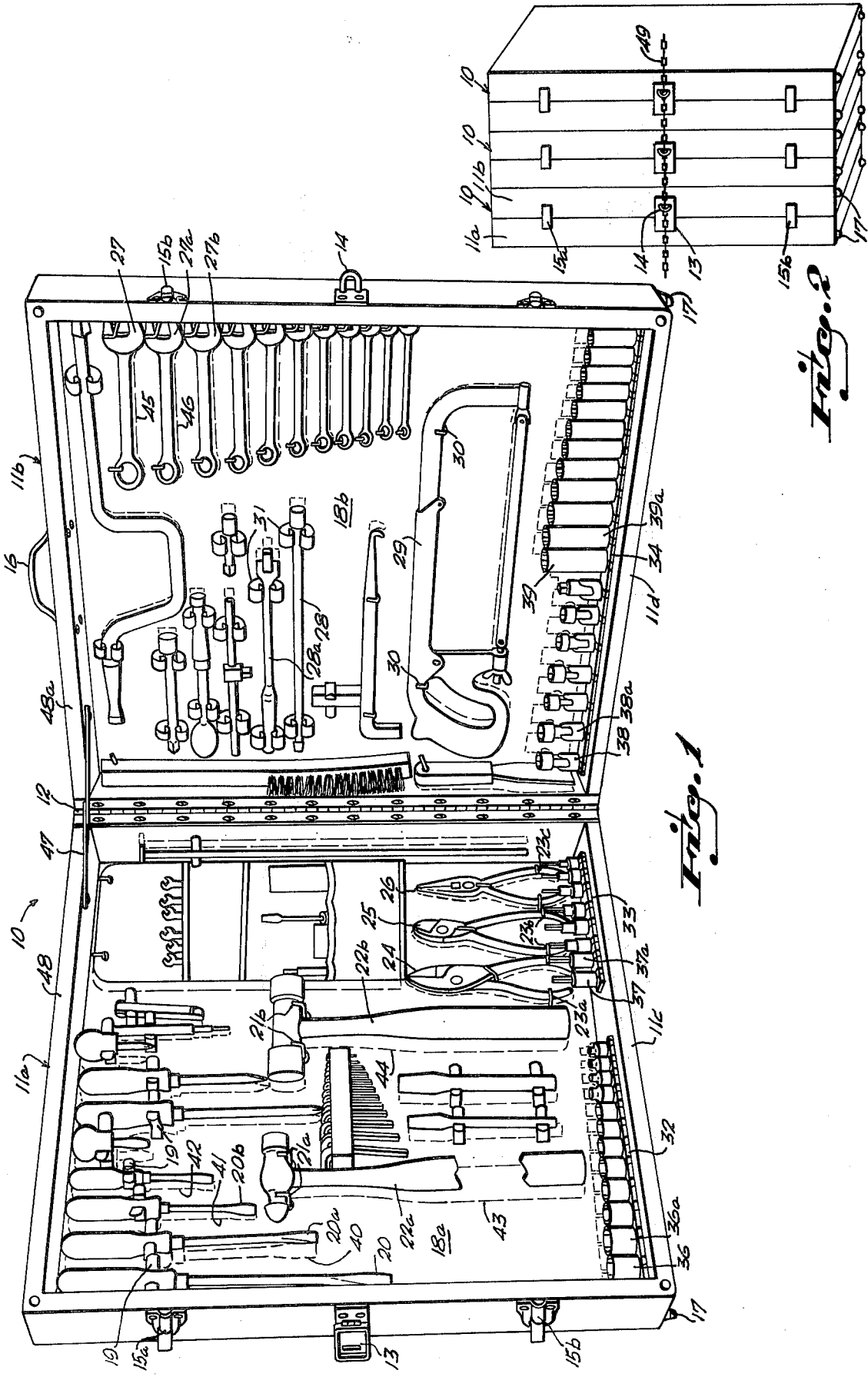
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ABSTRACT

A folding tool case operative to stand upright on rollers when open to present for use tools removably supported upon the opposed inner vertical panels of the case is described. The particular location of each tool of a set of various tools supported in the tool case is identified by shadow representations of the tools painted or otherwise marked upon the case panels to minimize tool loss while at the same time providing ready access to the tools during their use in engine overhaul.

3 Claims, 2 Drawing Figures





FOLDING TOOL CASE

This invention relates to mechanic's tools and is directed particularly to a novel and improved folding tool case which, in addition to serving as a storage and carrying case, opens to provide an upright, rollable display board supporting a plurality of mechanic's tools in separate, individual positions for ready access by a mechanic in the performance of engine work and the like.

Various toolboxes have heretofore been devised for storing mechanic's tools when not in use. Such toolboxes or tool containers as have heretofore been devised, however, if designed to carry the full complement of the various tools that would ordinarily be used in major engine overhaul, incorporated a plurality of bins, compartments or the like into which tools or tool parts of various groupings would be loosely placed when not in use. This necessitated groping in the various bins for a particular size of a wrench socket, for example, or open end wrench, in the bins containing these particular tool sets, with the result that considerable time was wasted simply in picking out a particular tool when needed. Another disadvantage of such prior toolboxes is that it could not readily be determined if all the tools had been returned to the toolbox upon the completion of a job without counting the loose tools or tool parts in the various bins. This resulted in the loss of tools from time to time, particularly small tools such as Allen wrenches and wrench sockets, because of failure to take the time for an accurate inventory upon the completion of an overhaul job. In certain instances, such as in aircraft engine overhaul, the loss of a tool due to its inadvertent inclosure within an engine upon the assembly of the engine, if undetected, could pose a serious threat to safe operation of the engine when placed in use in an aircraft.

It is, accordingly, the principal object of this invention to provide a novel and improved folding tool case for a full compliment of engine overhaul tools that obviates the above-described deficiencies of toolboxes, tool cases and the like heretofore devised.

It is a more particular object of the invention to provide a folding tool case comprising a pair of relatively hinged, shallow, rectangular case members the interior surfaces of which are provided with means for individually releasably supporting a complement of the various tools needed in the performance of an engine overhaul on a particular engine or class of engines.

It is another object of this invention to provide a folding tool case of the above nature wherein, at each tool support position, a shadow likeness of that particular tool is traced, printed or otherwise impressed upon one or the other of the interior surfaces of the case members to facilitate the correct replacement of tools in the case after their use.

Yet another object of the invention is to provide a folding tool case of the character described which includes means for limiting the relative outward swinging or opening of the case members to approximately 90°, to provide an angular base for sturdy upright support of the tool case when open for use, with full display of all tools for ready access by a mechanic.

Still another object of the invention is to provide a folding tool case of the above nature the undersurfaces of which are provided with rollers for rolling portability of the case when in its open position of use.

Other objects features and advantages of the invention will be apparent from the following description

when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts in each of the two views:

FIG. 1 is a perspective view of a folding tool case embodying the invention shown in its open, upright position of use; and

FIG. 2 illustrates how a plurality of the folding tool cases can be stacked and chained together to prevent stealing or pilferage.

Referring now in detail to the drawings, reference numeral 10 designates, generally, a preferred form of folding tool case embodying the invention, the same comprising a pair of shallow, rectangular half-case members 11a, 11b, hinged along inner edge portions as by a piano hinge 12 to provide for folding together into a compact, rigid carrying case having a thickness of approximately 6 inches, a width of about 20 inches and a height of about 24 inches. The half-case member 11a, 11b are preferably fabricated of hard wood or plywood and, along their meeting edges opposite the hinge 12, are provided with central lock means in the form of a hasp 13 and staple 14 adapted to receive a padlock or other locking means as is hereinbelow more particularly described. The half-case members 11a, 11b are also fitted, at each side of the hasp and staple 13, 14, with latch mechanism 15a, 15b for securing the folding case in closed condition, as illustrated in FIG. 2. The upper end of one of the half-case members, for example the half-case member 11b as illustrated in FIG. 1, is fitted with a carrying handle 16. The undersides of the bottom 11c, 11d of the half-case members 11a, 11b are provided with roller means, preferably ball rollers 17, (see FIG. 2), one at each end of each of the half-case members, to provide for four point rolling support of the tool case when in its open position of use.

Referring to FIG. 1, it will be seen that the inner face panels 18a, 18b of the half-case members 11a, 11b, respectively, have removably attached thereto, in an orderly fashion, all the various tools which might ordinarily be used in the repair or overhaul of engines, for example a particular class of aircraft engines. To this end, and by way of example, spring clips 19 are appropriately placed for attaching a plurality of screwdrivers 20, 20a, 20b, etc.; pairs of hooks screws 21a, 21b are provided for the supporting hammers 22a, 22b; and wire hook members 23a, 23b and 23c are provided for supporting pliers and plier-like tools, 24, 25 and 26, all against the inner facing of face panel member 18a. Similarly, various tools such as wrenches 27, 27a, 27b etc.; socket wrench extension members 28, 28a, etc.; hack saw 29, and other tools are supported in an orderly fashion against the inside of inner face panel member 18b by hook members 30 and spring clip members 31. The upper surfaces of the bottoms 11c, 11d of the respective half-case members 11a, 11b have secured thereto support plates 32, 33, 34, having upstanding pegs (not visible in the drawings) for locating and removably retaining in place various sets of wrench socket members 36, 36a, etc.; 37, 37a, etc.; 38, 38a, etc., and 39, 39a, etc.

Means is provided to facilitate the replacement of any one of the tools in its proper retained position within the folding tool case 10. To this end, each tool has its shadow likeness painted, or otherwise impressed, upon the adjacent surface of its respective face panel member 18a, or 18b, as illustrated by the broken-line representations thereof as indicated, by way of ex-

ample, by reference numerals 40, 41 42 associated with the screwdriver set comprising screwdriver 20a and 20b; reference numerals 43 and 44 associated with hammers 22a and 22b; reference numerals 45 and 46 associated with hand wrenches 27 and 27a; etc.

In the use of my folding tool case, it will be opened to define an angle of about 90° between the face panel numbers 18a and 18b, as illustrated in FIG. 1, whereat it will be releasably retained in open position by an ordinary toggle lever device 47 attached between inner marginal portions of the top members 48, 48a of the folding tool case 10. When so opened the four ball rollers 17, upon which the tool case rests, define a wide triangular base for stable support and stable rollability of the tool case while in its use position. The open tool case can therefore be easily moved from place to place along the floor for convenient access in engine overhaul. Since each tool has a definite location within the tool case, their individual locations will be quickly learned by the mechanic, enabling him to remove and replace the tools with little difficulty. Since each tool has its shadow likeness at its retained location, only casual attention need be given to insure that each tool is in its proper place. This is especially important in use of the tool set to overhaul aircraft engines, as an accurate inventory must be kept of the tools to prevent inadvertently leaving one or more of them within the interior of the engine during re-assembly. It will be apparent that the orderly, regular placement of the various tools in the tool case, together with the shadow likenesses of the tools behind their particular locations, makes it a simple matter to observe almost at a glance, whether or not every tool that has been used in the repair or overhaul of an engine has been returned back to the tool case.

FIG. 2 illustrates how a plurality of folding tool cases 10 embodying the invention can be horizontally stacked in upright position for storage when not in use, and secured together in locked condition by means of a chain loop 49 to minimize the possibility of stealing. This method of locking and securing the tool cases is

particularly advantageous in engine overhaul shops where many mechanics are employed in the overhaul of aircraft engines in quantity production.

While I have illustrated and described herein only one form in which my invention can conveniently be embodied in practice, it is to be understood that this form is presented by way of example only and not in a limiting sense. My invention, in brief, comprises all the embodiments and modifications coming within the scope and spirit of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a folding tool case, the combination comprising, a tool case having a pair of shallow, rectangular half-case members, piano hinge means connecting edge portions of said half-case members for relative opening and closing of the tool case to define an interior chamber, a toggle lever device for limiting the relative outward swinging motion of said half-case members to define an interior angle of approximately 90°, said half-case members each comprising a rectangular face panel and peripheral side panels, attachment means for releasably and individually securing the tools of a mechanic's set of tools against said insides of said half-case members when said panels are vertically disposed, shadow likenesses of the tools of the tool set being impressed upon the insides of said half-case members to illustrate their individual positions when secured by their attachment means, a plurality of ball rollers for rollably supporting said half-case members upon a horizontal surface when its face panels are in vertical disposition and locking means for securing said half-case members in relatively closed disposition.

2. A folding tool case as defined in claim 1 wherein said locking means comprises a hasp and staple secured at edge portions of said half-case members opposite said piano hinge.

3. A folding tool case as defined in claim 2 including a carrying handle secured to the upper end of one of said half-case members.

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