

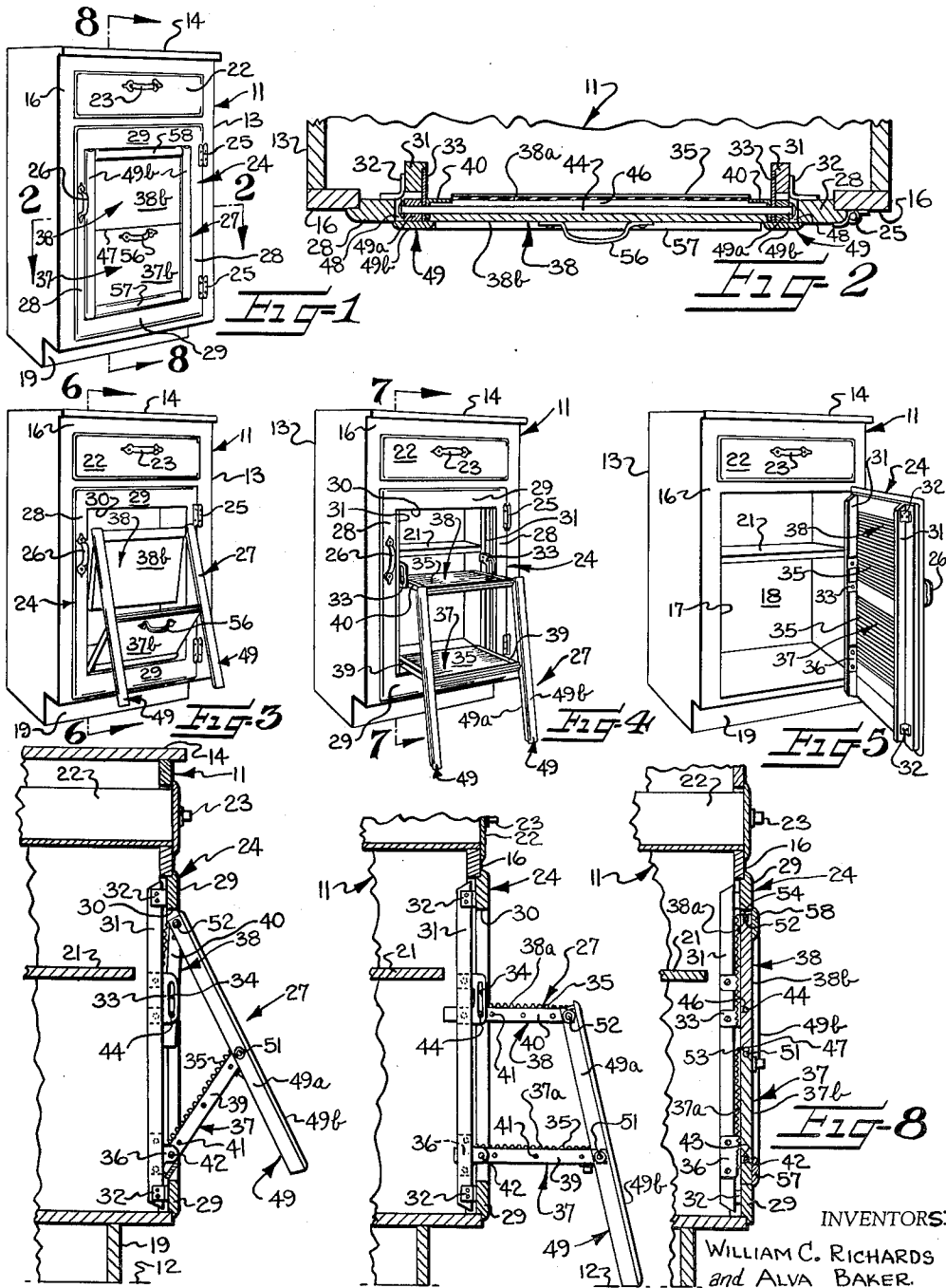
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COMBINATION CABINET AND STEPLADDER

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FIG-6

FIG-7

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1

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COMBINATION CABINET AND STEPLADDER
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This invention relates to articles of household furniture and more particularly to a combination storage cabinet and stepladder suitable for use in household areas such as kitchens and the like.

In present day arrangements of living and working quarters, space is at a minimum and the provision of adequate storage facilities requires considerable thought and careful planning. For instance, in the kitchens of residential dwellings, it is quite common to provide counter-top cabinets for storage together with overhead or raised storage facilities to accommodate the wide variety and quantity of utensils, implements and the like required for everyday living. As these overhead storage cabinets are quite high, some means must be employed such as a chair or a ladder in order to conveniently reach all portions of these overhead cabinets. The procurement of a chair each time an overhead cabinet is to be reached is a source of annoyance and often results in damage to the chair. Furthermore, a chair is a device for seating and risk of injury to an individual is substantial when standing on a chair.

Folding stepladders and the like are well known and are often employed to permit access to these overhead cabinets but in addition to the nuisance of procuring a stepladder on each occasion, these ladders are generally bulky and awkward and unless handled carefully cause damage to articles with which they come in contact. In some previous constructions, these folding stepladders have been made small enough to permit storage within cabinets but such folding ladders occupy considerable cabinet space that could otherwise be utilized. Furthermore, in these compact folding stepladder constructions, it is not without difficulty that these ladders are folded and unfolded and in the unfolded or operating position do not always offer a safe support for a user due to the light and fragile structure which is typical of present day folding ladders.

Accordingly, a primary object of this invention is to provide a new and novel article of household furniture.

Another object of this invention is to provide a new and novel combination cabinet and folding step ladder.

A further object of this invention is to provide a new and novel combination cabinet and stepladder which does not utilize the cabinet storage space when in the folded position and which in the folded condition blends attractively into the overall cabinet structure.

This invention further contemplates the provision of a new and novel combination cabinet and stepladder which is simple and inexpensive in construction, may be readily manipulated by a relatively unskilled user between a folded and unfolded or operating position, and which offers extremely rugged and safe support to a user in the unfolded position.

Another object of this invention is to provide a new and novel folding stepladder construction which not only offers firm support to the user but which may be folded into a substantially flat inoperative position within a minimum of space.

Still another object of the invention is to provide a new and novel combination cabinet and stepladder in which the steps of the ladder form a part of the external cabinet closure surface so that in the folded position, the ladder blends attractively into the overall cabinet construction without utilizing cabinet space and is completely

2

inconspicuous and which may be readily manipulated by the user to the unfolded position in a simple and easy manner to expose antislip surfaces on the steps and permit ready access to overhead storage facilities without the risk of injury from slipping and the like.

Still another object of the invention is to provide a new and novel combination cabinet and stepladder which is inexpensive in construction so as to permit utilization in quantity throughout an area without a material increase in cost.

Briefly, the objects of the invention and other related objects are accomplished by providing a cabinet having an access opening. The cabinet may be of the type commonly found in household areas such as a kitchen and is supported on the kitchen floor below overhead storage facilities. The cabinet is provided with a closure or door which is pivotally mounted on the cabinet and which closes the access opening in the cabinet. An opening is provided in the closure which is arranged to accommodate a folding stepladder. The stepladder contains one or more pivotally mounted steps which are provided with supporting legs. In the folded position, the steps and the legs are positioned in vertical planar alignment with the closure within the closure opening and the steps themselves form part of the closure to provide a neat, substantially flat closure construction. The folding stepladder may be readily moved to an unfolded position by pivoting the steps into a vertically spaced, substantially parallel relationship supported by the legs which are positioned in contact with the floor of the area in which the cabinet is utilized.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

FIGURE 1 is an isometric view of a combination cabinet and stepladder constructed in accordance with the invention;

FIGURE 2 is an enlarged sectional view taken substantially along line 2—2 of FIGURE 1 in the direction of the arrows;

FIGURE 3 is a view similar to FIGURE 1 showing the stepladder of the invention in an intermediate position between a folded and unfolded position;

FIGURE 4 is a view similar to FIGURE 1 showing the stepladder in the unfolded position;

FIGURE 5 is a view similar to FIGURE 1 illustrating the ladder in the folded position and the cabinet closure pivoted to an open position;

FIGURE 6 is an enlarged sectional view taken substantially along line 6—6 of FIGURE 3 in the direction of the arrows;

FIGURE 7 is an enlarged sectional view taken substantially along line 7—7 of FIGURE 4 in the direction of the arrows; and

FIGURE 8 is an enlarged sectional view taken substantially along line 8—8 of FIGURE 1 in the direction of the arrows.

Referring now to the drawing there is shown in FIGURE 1, a combination cabinet and folding stepladder constructed in accordance with the invention and designated generally by the numeral 11. In the specific embodiment illustrated, the unit 11 is of the type commonly found in residential dwellings and particularly in kitchens and similar areas of such dwellings. Although only one such unit 11 is illustrated in FIGURE 1, it should be understood that a plurality of these units are generally arranged in a side by side relationship along the walls of such rooms and are positioned on a supporting surface such as the floor 12 of the room in which they are located.

Each unit 11 comprises a storage cabinet 13 having a counter-top or work surface 14 which together with the

3

counter-tops of adjacent units forms a continuous working surface arranged at a satisfactory working height. As is well known, in order to provide additional storage facilities within rooms in which the units 11 are utilized, storage facilities such as racks, overhead cabinets, or the like (not shown) are generally secured to the wall of the room above the units 11 in spaced relationship with the cabinet counter-top 14 so as to provide additional storage facilities for the various items commonly required for use in the area.

Each of the cabinets 13 is provided with a front wall 16 having an access opening 17 (FIGURE 5) to permit access to the cabinet interior 18 and the front wall 16 is preferably recessed at 19 for convenience. If desired, the cabinet interior 18 may be provided with one or more shelves 21 to facilitate the storage of items therein. In addition, a drawer 22 having a pull 23 may also be suitably mounted for sliding movement through the front wall 16 of the cabinet.

In order to close the cabinet access opening 17, a closure or door designated generally by the numeral 24 is provided which is pivotally mounted on a vertical axis by any suitable means such as hinges 25 which permits the closure 24 to be moved by means such as a handle 26 between the open position (FIGURE 5) in which access to the cabinet interior 18 is obtained and the closed position shown in FIGURE 1.

As generally illustrative of the invention, a folding stepladder has been provided as shown best in FIGURES 4 and 7 and designated generally by the numeral 27. As will be explained hereinafter, the stepladder 27 is combined with the cabinet 13 without utilizing any of the storage space within the cabinet interior 18. As shown best in FIGURE 4, the closure 24 is formed from vertically extending side members 28 and top and bottom cross members 29 which define a centrally arranged opening 30 preferably rectangular in shape for accommodating the folding stepladder 27 in the folded position.

As specifically illustrative of the invention, a pair of vertically extending support members 31 are provided each of which is positioned behind one of the closure side members 28. Each of these support members 31 is fixedly secured in the position shown by means such as brackets 32 secured to the top and bottom cross members 29 as shown best in FIGURE 6. In order to provide for mounting the folding stepladder 27 on the cabinet 13, each of the support members 31 is provided with an upper bracket 33 having a slot 34 and a lower bracket 36 secured thereto in any suitable manner such as by screws or the like.

The stepladder 27 comprises at least one foot plate or step and in the specific embodiment illustrated, a pair of such steps are provided which, as will be referred to hereinafter, include a lower step 37 and an upper step 38. For convenience, the lower step 37 is preferably longer than the upper step 38 as shown best in FIGURE 7. The steps 37, 38, which are preferably formed from material such as wood are provided with inner surfaces 37a, 38a and outer surfaces 37b, 38b respectively, with the outer surfaces being preferably finished in a material corresponding to the cabinet front wall 16 in order to blend therewith. The inner surfaces 37a, 38a of the steps are preferably provided with an anti-skid material 35 such as plastic, rubber, or the like secured thereto in any suitable manner such as by adhesives.

The steps 37, 38 are also provided with side plates 39, 40 respectively, preferably L-shaped in cross-section and formed from metal or the like, which are suitably secured by means such as screws 41 (FIGURES 6, 7) to the side edges of the steps as shown best in FIGURE 2. As can be seen, these side plates 39, 40 are arranged to overlap the marginal edge portions of the inner surfaces 37a, 38a of each of the steps and extend substantially throughout the length of the steps.

In accordance with the novel construction of the invention, each of the steps 37, 38 is arranged for pivotal

4

movement on a horizontal axis extending across the closure opening 30. As shown in FIGURES 6 through 8, the bottom step 37 is arranged for pivotal movement on a rod 42 which is positioned within a groove 43 suitably formed in the step inner surface 37a. The rod 42 extends through suitable openings in the side plates 39 and is suitably connected at each end to the bottom brackets 36 which, as described above, are secured to the support members 31.

The upper step 38 is similarly arranged for pivotal movement on a horizontal axis by means of a rod 44 positioned within a groove 46 formed in the step inner surface 38a and extending through the side plates 40 so as to be slidably mounted at each end within the slot 34 of the upper brackets 33 on the support members 31.

As can be seen clearly in FIGURES 6 and 7, the lower and upper steps 37, 38 may therefore be pivotally moved on the rods 42, 44 respectively so that their adjacent edge portions move into interfitting engagement along a joint designated by the numeral 47 in FIGURE 1. The opposite edge portions of the steps therefore cooperatively mate with the inner edge portions of the top and bottom closure cross members 29 so that the steps 37, 38 substantially close the closure opening 30 in the folded position of the stepladder 27.

As can be seen in FIGURE 2, the steps 37, 38 are suitably dimensioned laterally so as to be of less width than the width of the closure opening 30. Thus, when the stepladder is in the folded position of FIGURE 2, vertical spaces 48 are defined by the side plates 39, 40 on the steps 37, 38 respectively and the inner edges of the vertically extending side members 28 of the closure 24.

In order to support the steps 37, 38 in the unfolded or operating position, a pair of substantially identical legs 49 have been provided. The legs 49 are substantially T-shaped in cross-section having a body member 49a and a facing strip 49b, the outer surface of which is preferably finished in a material and color corresponding to the cabinet front wall 16 and the outer surfaces 37b, 38b of the steps 37, 38 respectively.

The legs 49 are pivotally connected as shown in FIGURES 6, 7 to opposite sides of the steps 37, 38 adjacent the forward edges of the steps by means of pivot rods 51, 52 which are positioned within grooves 53, 54 in the forward edges of steps 37, 38 respectively. The rods 51, 52 extend through suitable openings (not shown) in the side plates 39, 40 of steps 37, 38 so as to retain the rods 51, 52 within their grooves 53, 54 respectively, and the rods are suitably secured in any suitable manner at each end to a leg 49 so as to permit pivotal movement of the legs. If desired, strips 57, 58 are secured in any suitable manner adjacent the forward edge of step 38 and adjacent the rear edge of step 37 respectively as shown best in FIGURES 1, 8. The outer surface of the strips 57, 58 also simulate the material of the cabinet wall 16 and step surfaces 37b, 38b.

Therefore, with the above described novel construction, the stepladder 27 is arranged to be moved from the folded position of FIGURE 1 into the unfolded or operating position of FIGURES 4 and 7 by a user who, by grasping the handle 56, moves the two steps 37, 38 outwardly and downwardly into a vertically spaced substantially parallel relationship with the steps positioned in a substantially horizontal plane.

In the unfolded position of FIGURES 4 and 7, the supporting legs 49 are in contact with the floor 12 and together with the pivot rods 42, 44 support the steps firmly and rigidly as shown. The user may then step onto the upwardly facing surfaces 37a, 38a of steps 37, 38 respectively which contain the anti-skid material 35 and therefore gain ready access to the storage rack or overhead cabinets above the unit 11 without risk of slipping and possibly sustaining injury.

When it is desired to move the stepladder 27 into the folded or inoperative position, the handle 56 may

5

again be manipulated by the user and the steps 37, 38 pivoted rearwardly and upwardly as shown in FIGURES 3 and 6 until the upper step 38 and then the lower step 37 move into closing relationship with the closure opening 30. At this time, the ends of pivot rod 44 can slidably move within the slots 34 of brackets 33 to permit the lower leg 37 to continue its pivotal movement to the folded position of FIGURE 5.

As can be seen best by reference to FIGURE 2, in the folded position of the stepladder 27, the body members 49a of the legs 49 move into the vertically extending spaces 48 between the closure side members 28 and the side plates 39, 40 for the steps while the facing strips 49b of the legs are positioned substantially flush with the steps 37, 38 and the closure 24. The horizontal strips 57, 58 on the steps also impart an attractive appearance to the front of closure 24 while strip 58 conceals the joint between step 38 and the upper cross member 29.

Therefore, as can be seen in FIGURE 1, steps 37, 38 and legs 49 of the stepladder 27 fold neatly in vertical planar alignment with the closure 24 and the exposed surfaces of the stepladder blend or harmonize with the exterior of the cabinet 13 to provide a neat and attractive unit 11. Furthermore, closure 24 may be readily moved between the closed position of FIGURE 1 and the open position of FIGURE 5 in which access to the cabinet interior 18 may be obtained without disturbing the folded stepladder.

It can be seen that there has been provided with this invention a novel arrangement for incorporating a stepladder within a cabinet in such a manner that the stepladder in the collapsed or stored position occupies virtually no more space than would normally be occupied by the cabinet door itself and thereby conserving valuable cabinet space. This outstanding feature has been obtained by utilizing the stepladder itself as part of the door for the cabinet. Furthermore, the folding stepladder of the invention is so constructed that it may be readily utilized in any vertical wall or panel having a limited thickness. Thus, it may be readily utilized in other arrangements than the illustrated embodiment without the cabinet and where space is at a premium.

The cabinets of the invention are of the type commonly found in residential dwellings and may be readily adapted with little modification for incorporation with such a stepladder to provide for a user a high degree of convenience in reaching high places such as storage cabinets or the like, commonly found in the areas in which such cabinets are generally installed. The stepladder of the invention is extremely simple in construction and therefore of low initial cost while at the same time provides a rugged, sturdy construction which is not easily damaged and which is so concealed when in the folded position as to present a pleasing and attractive outward appearance. Furthermore, the novel construction of the combination cabinet and folding stepladder permits an operator such as a housewife to readily move the stepladder between the folded and the unfolded operating position with a minimum of effort and inconvenience and no problem of returning the stepladder to the folded condition is presented such as is typical of previous constructions.

In the drawings and specification there have been set forth preferred embodiments of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. A combination cabinet and stepladder comprising a cabinet having a vertical access opening to the interior thereof; a segmental door closing said access opening, said door comprising an upright outer enclosing frame extending along and covering the entire marginal portion of said access opening, said frame defining the boundaries of an inner remaining portion of said access open-

6

ing and panel means removably received within said frame in vertical alinement therewith to cover the inner remaining portion of said access opening; means mounting said frame of said door on said cabinet for pivotal movement of said door about a vertical axis between closed and open positions with respect to said access opening, said panel means comprising at least one step plate and a pair of legs extending along the opposite sides of said step plate in juxtaposition to corresponding sides of said frame, means pivotally securing said legs to the opposite sides of said step plate, and means connecting said step plate to said frame for pivotal movement of said step plate about a horizontal axis between a folded position with said step plate and said legs carried thereby by received within said frame in vertical alinement therewith and an unfolded position with said step plate horizontally disposed and said legs depending therefrom in outwardly extending relation to said frame to expose the inner remaining portion of said access opening bounded by said frame.

2. A combination cabinet and stepladder comprising a cabinet having a vertical access opening to the interior thereof; a segmental door closing said access opening, said door comprising an upright outer enclosing frame extending along and covering the entire marginal portion of said access opening, and panel means removably received within said frame in vertical alinement therewith to cover the remainder of said access opening; means mounting said frame of said door on said cabinet for pivotal movement of said door about a vertical axis between closed and open positions with respect to said access opening, said panel means comprising an upper and a lower step plate and a pair of legs extending along the opposite sides of said upper and lower step plates in juxtaposition to corresponding sides of said frame, said upper step plate being shorter in length than said lower step plate, means pivotally securing said legs to the opposite sides of said upper and lower step plates adjacent corresponding end edges thereof, and means connecting each of said upper and lower step plates to said frame at points remote from said pivotal securement means for said legs for pivotal movement of said upper and lower step plates about vertically spaced parallel horizontal axes between a folded position with said upper and lower step plates and said legs carried thereby received within said frame in vertical alinement therewith and an unfolded position with said upper and lower step plates disposed in vertically spaced parallel horizontal planes, said lower step plate extending forwardly of said upper step plate, and said legs depending from said upper and lower step plates in outwardly extending divergent relation to said frame.

3. A combination cabinet and stepladder comprising a cabinet having a vertical access opening to the interior thereof; a segmental door closing said access opening, said door comprising an upright outer enclosing frame extending along and covering the entire marginal portion of said access opening, and panel means removably received within said frame in vertical alinement therewith to cover the remainder of said access opening; means mounting said frame of said door on said cabinet for pivotal movement of said door about a vertical axis between closed and open positions with respect to said access opening, said panel means comprising an upper and a lower step plate and a pair of legs extending along the opposite sides of said upper and lower step plates in juxtaposition to corresponding sides of said frame, means pivotally securing said legs to the opposite sides of said upper and lower step plates adjacent corresponding end edges thereof, and means connecting each of said upper and lower step plates to said frame at points remote from said pivotal securement means for said legs for pivotal movement of said upper and lower step plates about vertically spaced parallel horizontal axes between

a folded position with said upper and lower step plates and said legs carried thereby received within said frame in vertical alinement therewith and an unfolded position with said upper and lower step plates disposed in vertically spaced parallel horizontal planes, said lower step plate extending forwardly of said upper step plate, and said legs depending from said upper and lower step plates in outwardly extending divergent relation to said frame.

5

References Cited in the file of this patent

UNITED STATES PATENTS

1,501,440	Dana	July 15, 1924
1,883,504	Bolles	Oct. 18, 1932
2,581,488	Keltner	Jan. 8, 1952
2,730,412	Yoder	Jan. 10, 1956
2,743,861	Mattis	May 1, 1956