Oct. 29, 1968 K. M. DELAFRANGE 3,407,899

COMBINATION STEP-STOOL, STEP-LADDER AND CONTAINER MEANS

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Fig. 1.

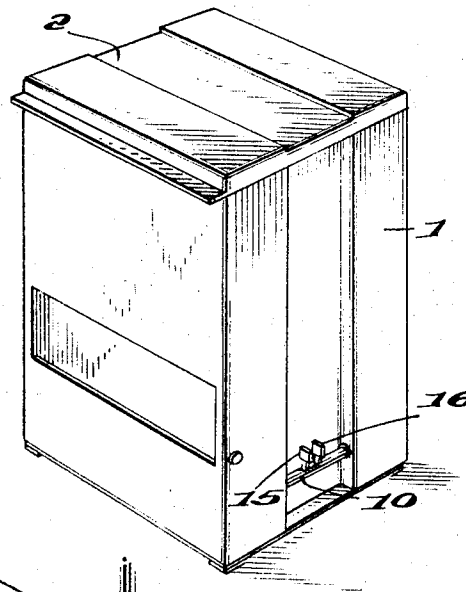
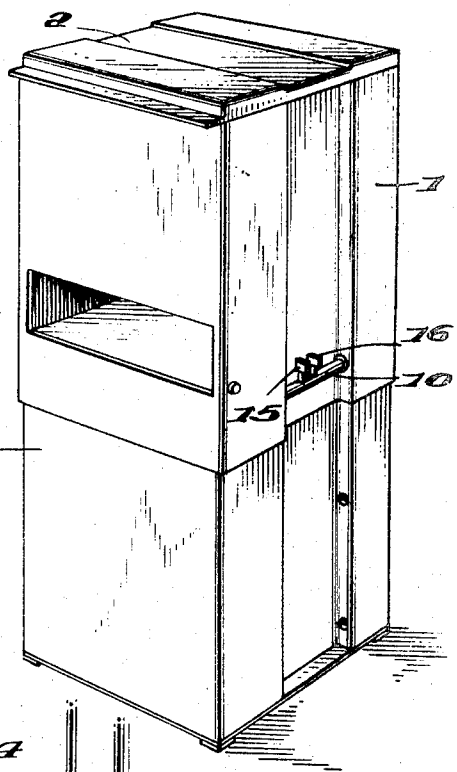


Fig. 2.



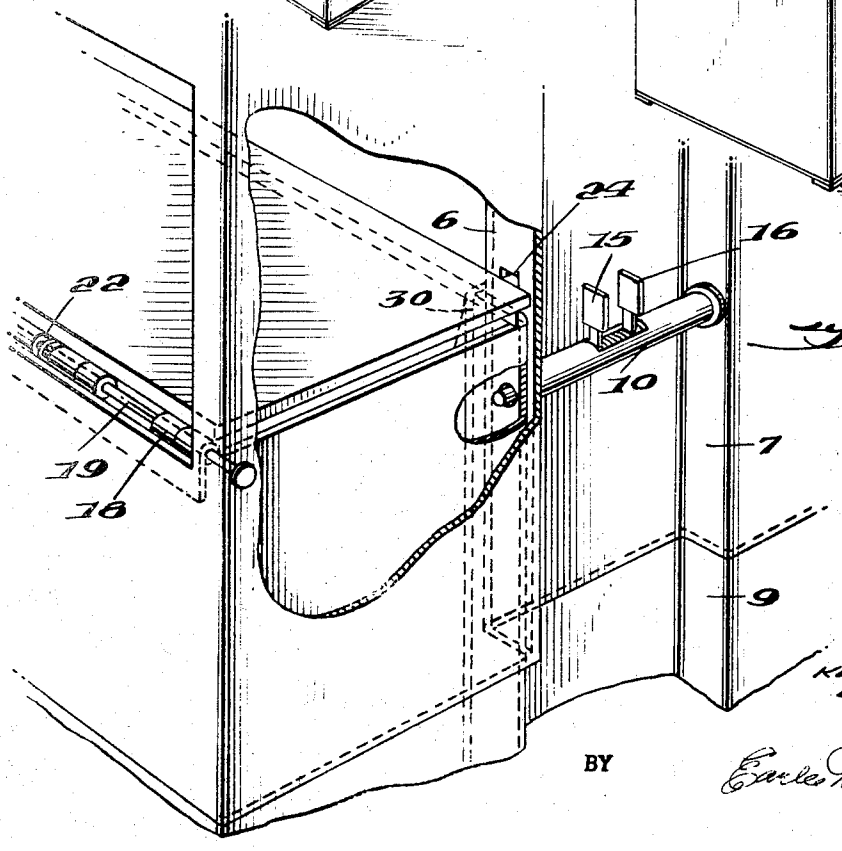


Fig. 7.

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Fig. 3.

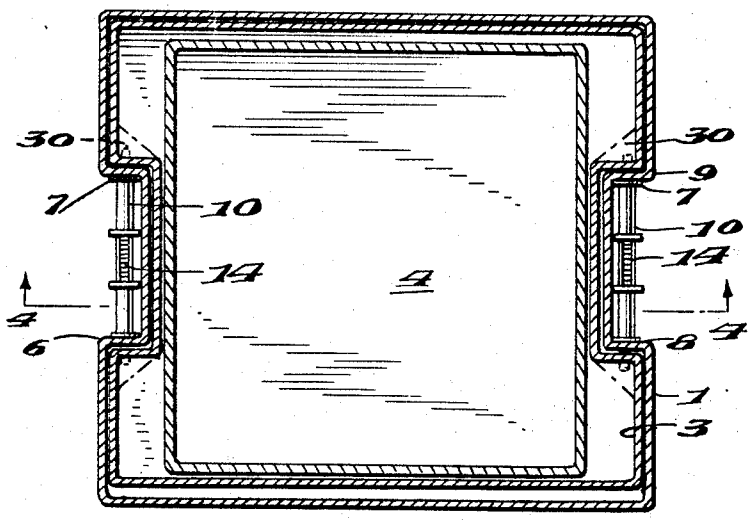
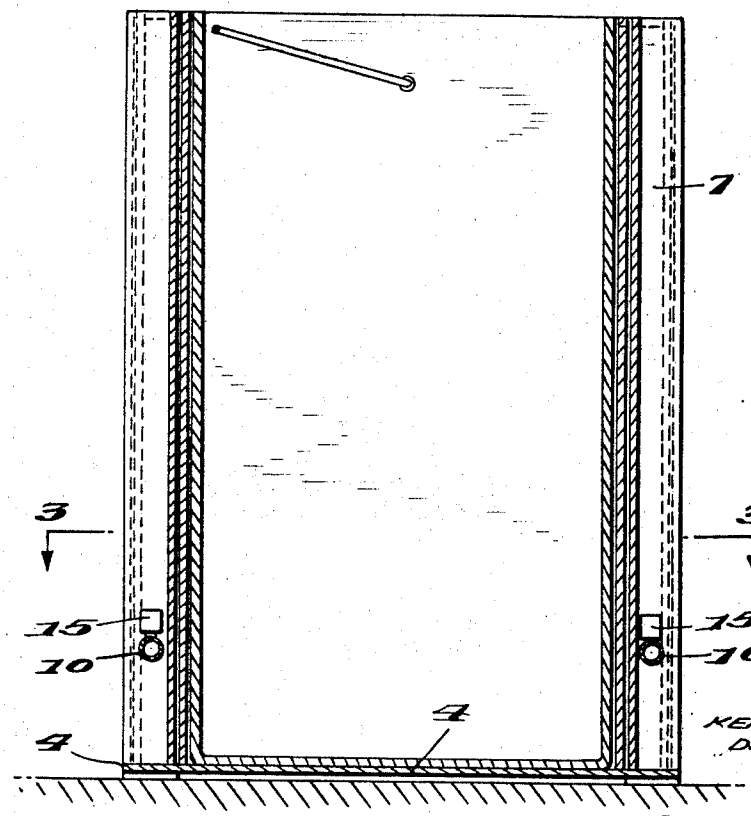


Fig. 4.



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Fig. 5.

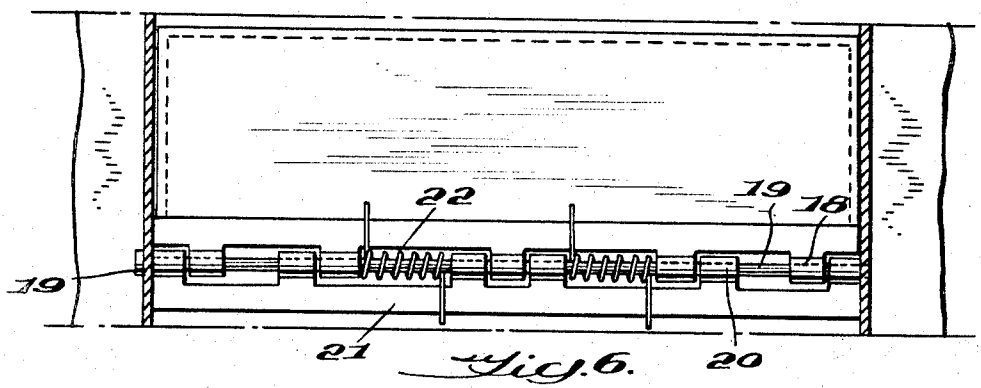
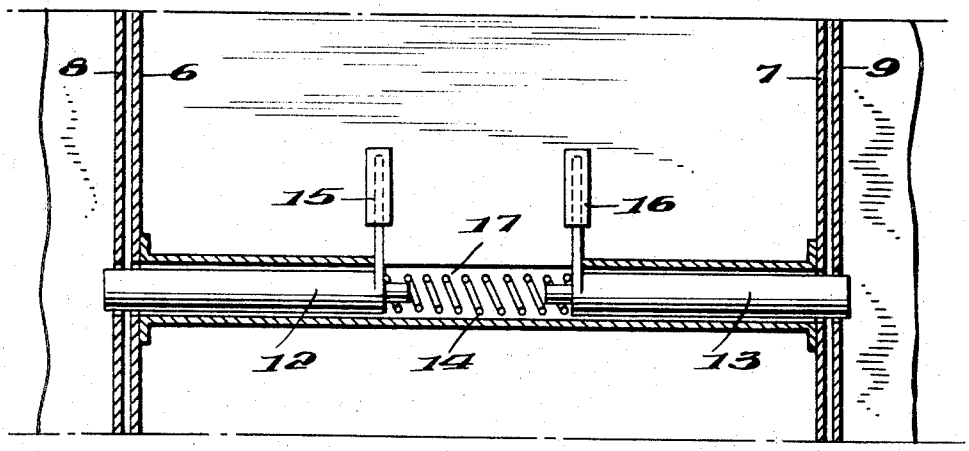


Fig. 6.



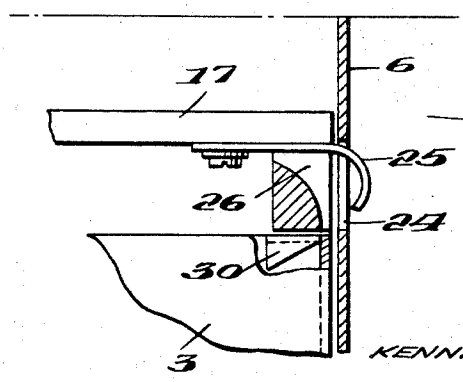


Fig. 8.

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United States Patent Office 3,407,899 Patented Oct. 29, 1968

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COMBINATION STEP-STOOL, STEP-LADDER AND CONTAINER MEANS

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Filed June 9, 1967, Ser. No. 644,995
4 Claims. (Cl. 182—20)

ABSTRACT OF THE DISCLOSURE

A polyfunctional structural combination of receptacle for waste or other material and combination step-stool and step-ladder of outer and inner telescoped housing members each preformed and strengthened on opposite sides providing vertical slide-guide nesting formations, the outer member being provided with manually operable squeeze-lock means for elevating and lowering the member and interlocking it with the inner member in a number of vertically spaced functional positions and having a step hinged to swing and hold in horizontal position of support atop the upper end of the inner telescopic member.

The main object of the invention is provision of a polyfunctional structure of the kind which has good appearance, can be produced economically and has novel cooperation of its embodied structural features. Further objects and advantages will become apparent from the following detailed description and specification and from the drawings forming part thereof, wherein

FIGS. 1 and 2 are perspective views respectively of an embodiment of the invention in normal step-stool and in step-ladder positions of adjustment.

FIG. 3 is a horizontal cross section view of the structure of FIG. 1 taken on line 3—3 of FIG. 4.

FIG. 4 is a vertical median cross section of the assembled members of FIG. 1 on line 4—4 of FIG. 3.

FIG. 5 is a detail plan view of hinged step mounting interiorly of the outer housing member front panel.

FIG. 6 is a detail view in cross section of the manually operable squeeze-lock means.

FIG. 7 is a detail perspective view partly broken showing housing members in step ladder position with step turned down.

FIG. 8 is a detail view in part section of the step holding means.

Having reference to the drawing, and FIGS. 1 to 4 in particular, the embodied structural combination there illustrated consists of two preformed telescopically associated housing members, an outer housing member **1** having a cover **2** hinged thereon to overlie the upper end of the housing member in horizontal supported position thereon, an inner container housing member **3** with upper open end and a base support **4** provided with conventional rubber feet for surface engagement and support and an inner removable pail receptacle of plastic or other material for receiving therein waste or other matter.

Opposite midzone vertical side portions of housing members **1** and **3** are preformed by being struck inwardly, thus defining in each a recessed panel and relatively narrow and facing vertical panels **6** and **7** and **8** and **9** respectively resulting in strengthening and rigidifying the thin sheet material of the members and providing mutual nesting slide-guide portions for the members in telescopic assembly, the resulting interengagement maintaining the members in position but permitting easy vertical sliding adjustment of the outer member with relation to the inner member. The inner member **3** being fixed at its bottom to its supporting base is further rigidified at its free or upper end by gussets **30** welded or otherwise

fixed to lie flush with the upper end of the member at its in-struck portion and to afford additional bearing support for a step member presently to be described. Greater strength and rigidity is rendered the outer housing member **1** on each side by tubular member **10** of a squeeze lock means disposed between narrow panels **6** and **7** fixed at its ends to the panels in registry with holes therethrough adapted to be brought in registry with holes **11** vertically spaced in panels **8** and **9** in the narrow panels of the inner housing member.

Tubular members **10**, as portions of the squeeze-lock means provide hand hold means for slidably elevating and lowering the outer housing member with relation to the base supported inner member and house slidably therewithin at opposite ends slide bolts **12** and **13** in spaced relation with a tensioned helical spring **14** disposed between inner ends of the bolts tending to force the bolts outwardly of the tube ends and through vertically spaced holes in panel portions **8** and **9** when these come in registry with the locking device. The bolts may be retracted within the tube by manually squeezing together finger grasp elements **15** and **16** exposed outwardly of the tube and having end portions thereof fixed within the tube to inner end portions of the bolts **12** and **13** respectively. These elements pass through an elongated slot **17** which limits separation of the elements and bolts under pressure of spring **14** and in turn limits projection of the bolts from ends of the tube. In normal step-stool locked position the squeeze-lock bolts **12** and **13** extend outwardly of the ends of tube **10** and through the lowermost set of holes **8** and **9** of the inner housing member.

When it is desirable to vertically expand the structure to a predetermined intermediate height or to the step-ladder position, a user merely grasps the tubular member **10** and squeeze-lock elements **15** and **16** on opposite sides of the outer housing member, then, by the simple operation of squeezing the elements toward each other against the spring tension the lock bolts are withdrawn and the outer housing member is free for vertical elevation or lowering, as the case may be, to obtain desired elevation of the supporting top cover. With the lock bolts retracted, an operator vertically slides the outer housing member with relation to the inner housing member to a desired height where the squeeze-lock registers with a given set of bolt receiving holes in panels **8** and **9** at which point the bolts are released for projection through the holes to lock the members together in the selected position of adjustment.

A rectangular step through opening is provided in the lower front portion of the outer housing member which is normally closed by a spring loaded step **17** hinged mounted to be swung inwardly and downwardly of the housing to horizontal support position atop the inner housing member when in use. The step is supported at its lower or front edge portion by hinge units **18** fixed thereto and hingedly mounted on a horizontal pintle rod **19** passing from outside of the housing where it is headed through hinge units **18** and like hinge units **20** formed integral with or fixed to a horizontal support and panel stiffening strip **21** welded or otherwise fixed to the inner face of the housing panel along the lower edge of the opening therein. The step is slightly larger than the step through opening so as to abut in its end and free edge portions with the rear face of the panel. Helical spring means **22** under tension surrounds rod **19** with spring ends bearing respectively on the inner surface of the housing and the inner or bottom surface of the step. This spring means, which becomes further tensioned as the step is swung inwardly and down, serves to return the step from a swung down position to its normal vertical and aperture closing position when not being used. Pintle rod **19**, which is headed at one end to engage the outer

surface of the housing member, is passed through a hole provided therefor through the housing material, the hinge units and the helical spring means with its free end extending outside a hinge unit where it is fastened against displacement by any suitable means, here illustrated as a simple cotter pin **23**.

The arrangement is such that, when the outer housing member is vertically adjusted to its uppermost locking position, the step may be swung inwardly and downwardly to horizontal position to be supported in overlying engagement with the upper end of the inner housing member, and mainly thereon at points of reinforcing resulting from the slide-guide and gusset formation. To hold the step in its turned down position, the narrow panels **6** are apertured at **24** to frictionally receive the free end of a formed leaf spring **25** fixed at its other end to the inner or bottom side of the step. The free end portion of the spring extends outwardly and downwardly with relation to the free edge boundary of the step where it is curved and formed for yielding but tensioning engagement with the inner surface of the housing and for projection through aperture **24**. This spring is designed with sufficient strength to overbalance tendency of spring means **22** to return the step to vertical position. However, its engagement through aperture **24** may be readily broken by added manually applied lifting force on the free edge of the step. To accommodate flexing of the spring through its engagement with the inner surface of the housing in being turned down, the free edge portion of the step is apertured and recessed at **26**. When the step is in use, it forms an intermediate one between the floor and the hinged cover having firm overlying support atop the outer housing.

Operation and uses of the structural combination described appears clear from its description. However, in the normal lower locked position of the outer housing there is provided a combined step-stool and housed receptacle for waste material adaptable for vertical expansion to provide added and higher support surface in intermediate positions, or to provide a step-ladder with substantial upper stand support.

The invention has been described and illustrated in a selected embodiment thereof but words employed are those of description and not of limitation as changes and modifications within purview of the appended claims are contemplated without departure from the true scope and spirit of the invention.

I claim:

1. In a combination step-stool, step-ladder and container means, a vertically expansible housing comprising inner and outer telscoped housing members each having on opposite sides thereof vertical preformed slide guide and facing formations in nested relationship, said inner telescopic member constituting a base supported container with open top and vertically spaced horizontally aligned lock bolt receiving apertures in its facing slide guide formations, said outer member having a hinged horizontal cover and support overlying its upper end having at the lower part of slide guide formation manually operable squeeze-lock means for manually elevating and lowering the outer member with relation to the inner member and interlocking the two in different positions of vertical adjustment as determined by the vertically spaced lock-bolt receiving positions in the inner member.

2. The structure as defined in claim **1** with an inner but removable pail type receptacle for receiving waste or other material within the inner housing member.

3. The structure as defined in claim **1** wherein the manually operable squeeze-lock means each comprises a slotted tubular reinforcing hand hold member housing in its ends thereof slidable lock-bolts projectible outwardly of the tubular member by spring means interposed therebetween and having finger grasp elements extending through the slots for operation of the bolts for unlocking or locking the bolts through the vertically spaced openings in the inner member.

4. The structure as defined in claim **1** wherein the outer member is provided with a step-through aperture in the lower portion thereof normally closed by a step mounted on the inner side of the housing member, spring loaded hinge mechanism fixed to the inner side of the housing member and lower edge portion of the step supporting the step and normally holding it in aperture closed position, said step being adapted to be swung downwardly to horizontal position atop the inner housing member in upper position of adjustment of the outer member, and manually releasable latch means for holding the step in its swung down position.

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