March 6, 1951 G. E. WEIR 2,544,405

VACUUM CLEANER HOUSING UNIT

Filed Jan. 20, 1948 3 Sheets-Sheet 1

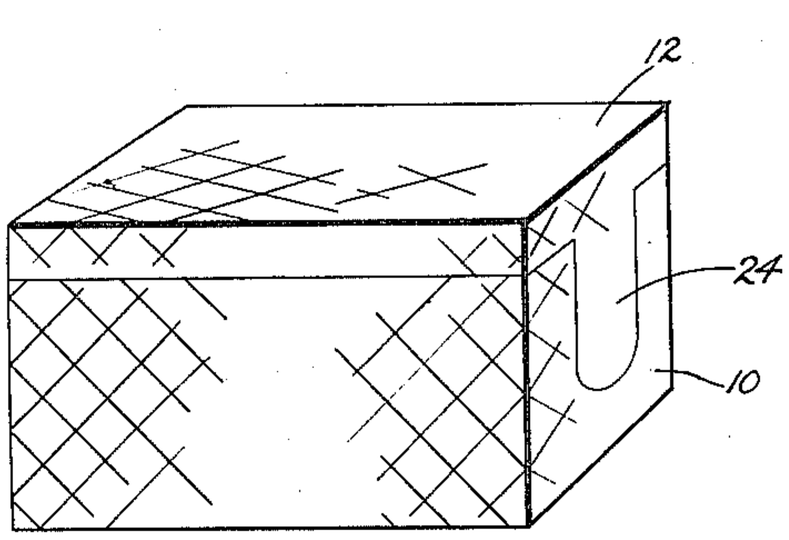

FIG. 1

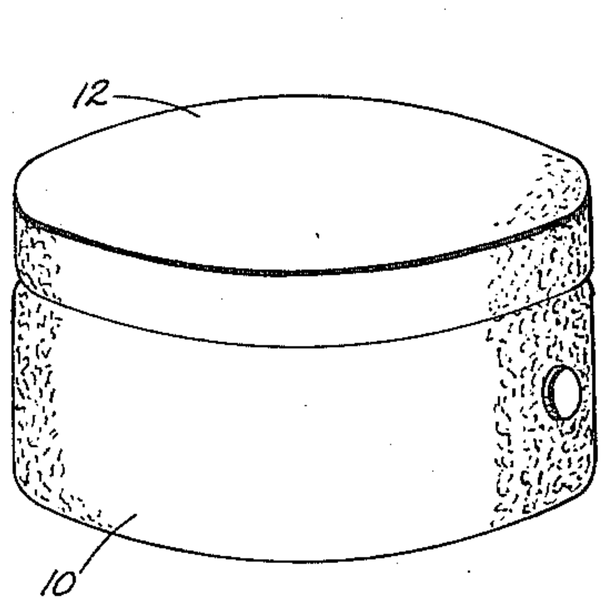

FIG. 2

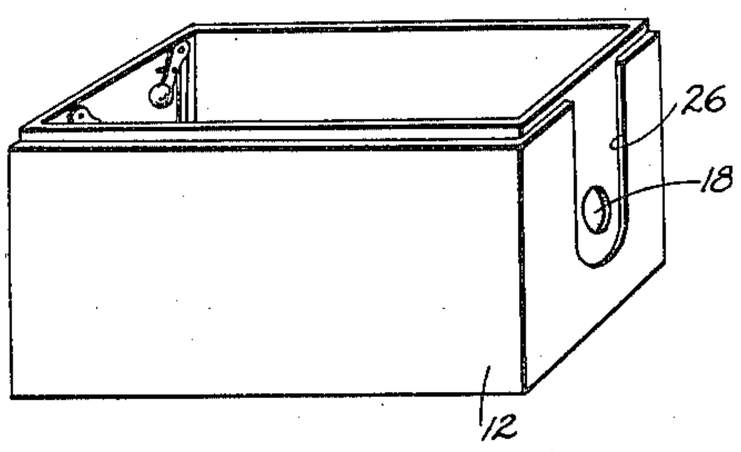

FIG. 3

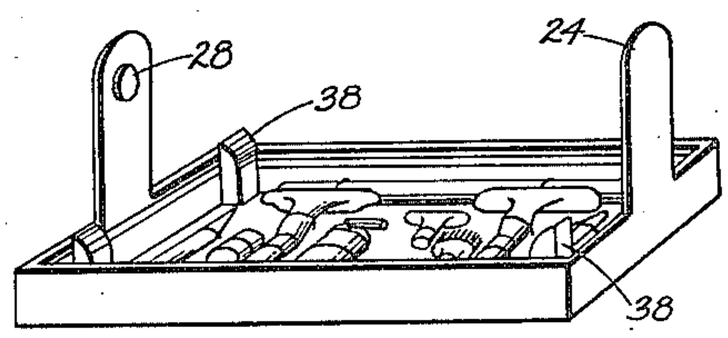

FIG. 4

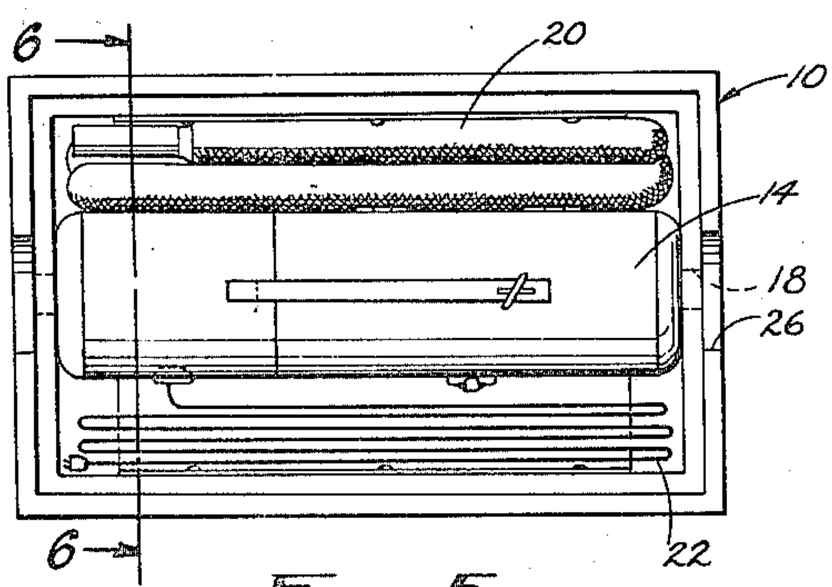

FIG. 5

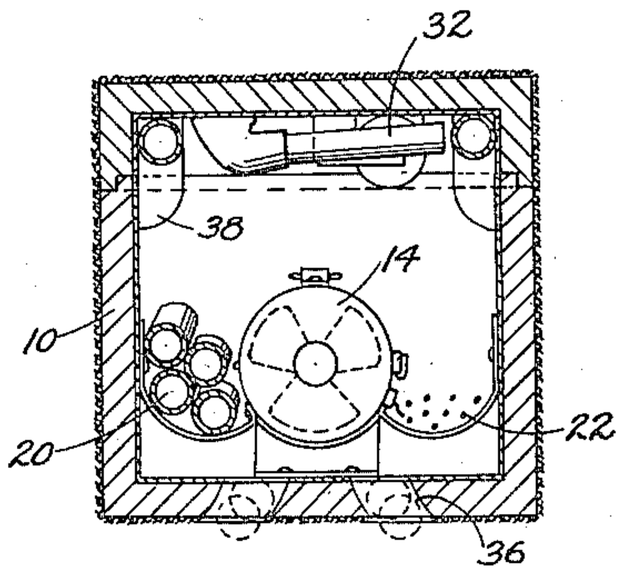

FIG. 6

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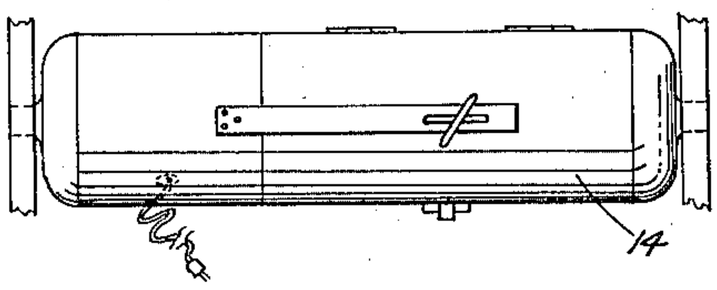

FIG. 7

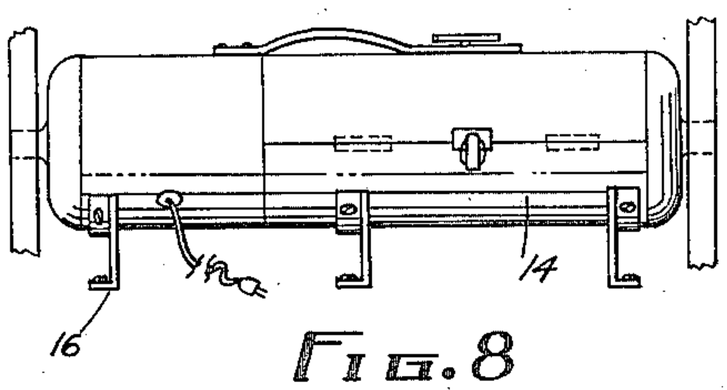

FIG. 8

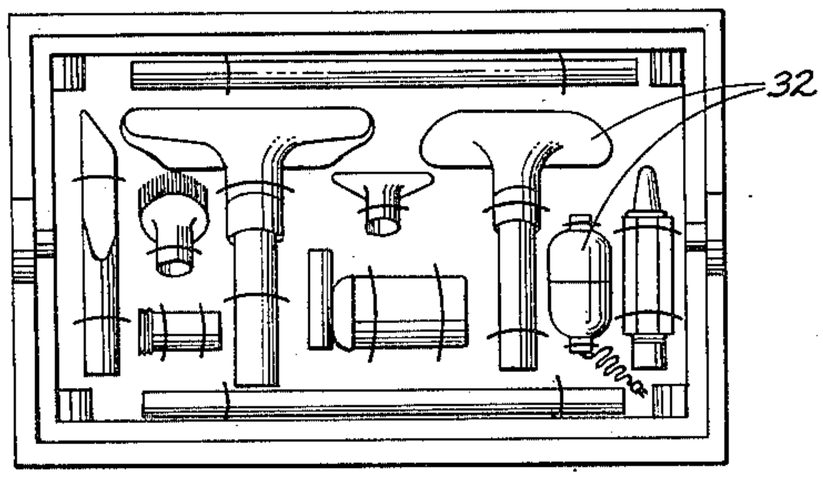

FIG. 9

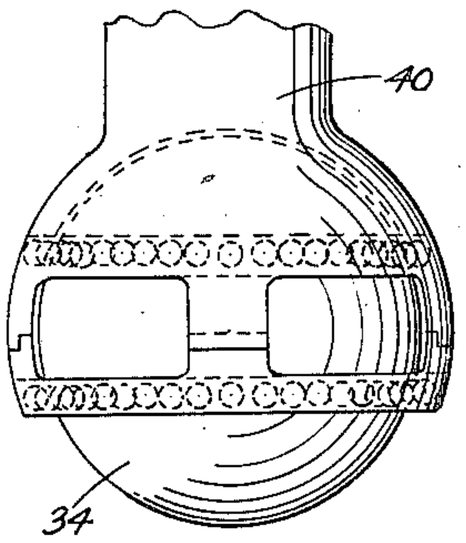

FIG. 11

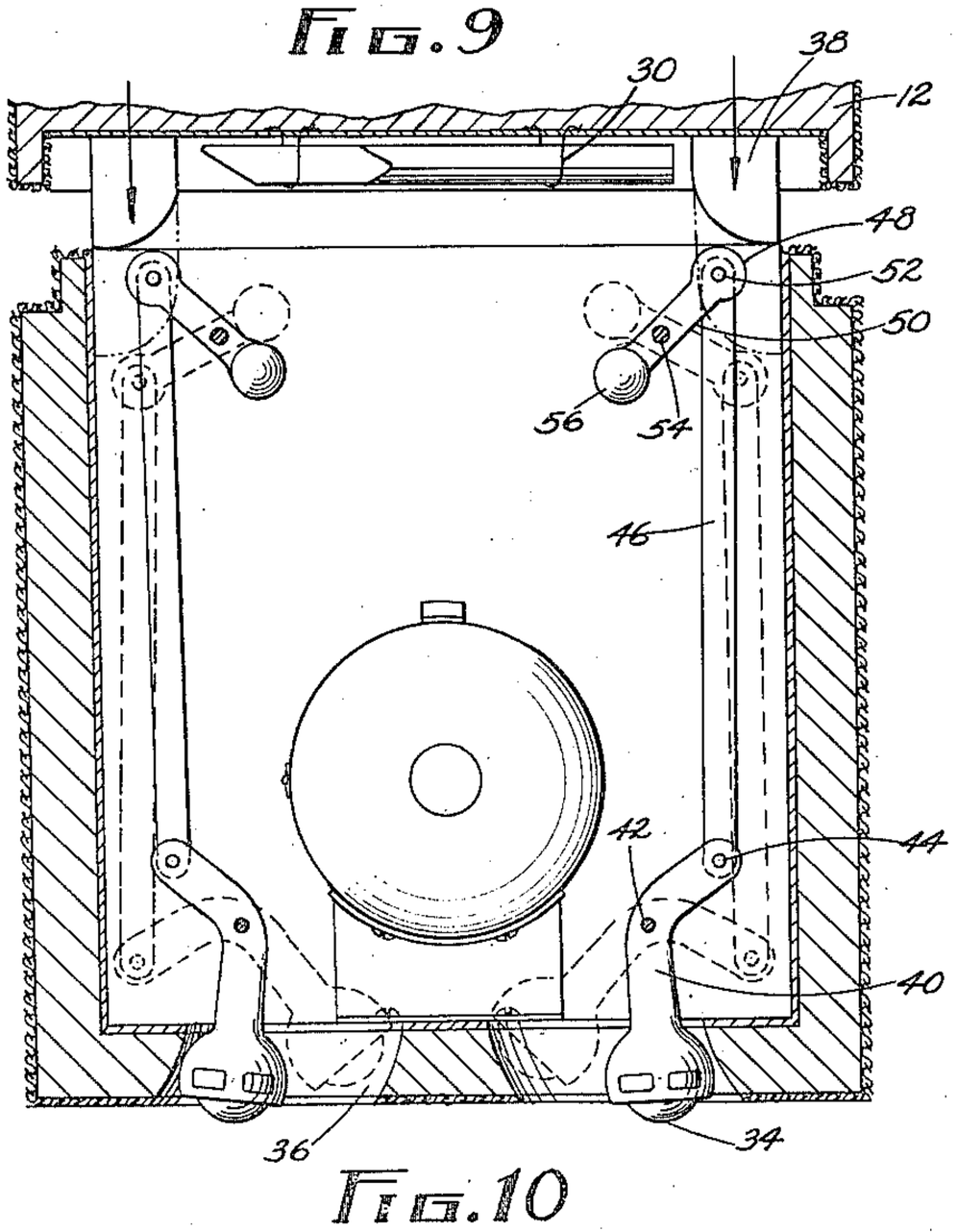

FIG. 10

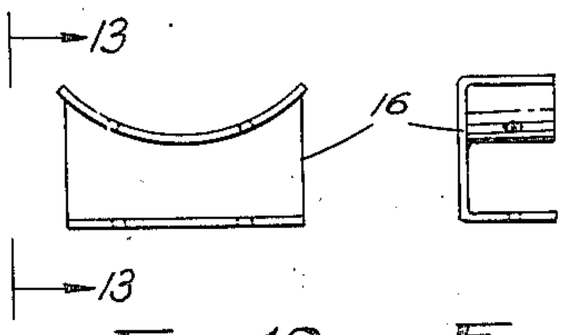

FIG. 12 FIG. 13

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VACUUM CLEANER HOUSING UNIT

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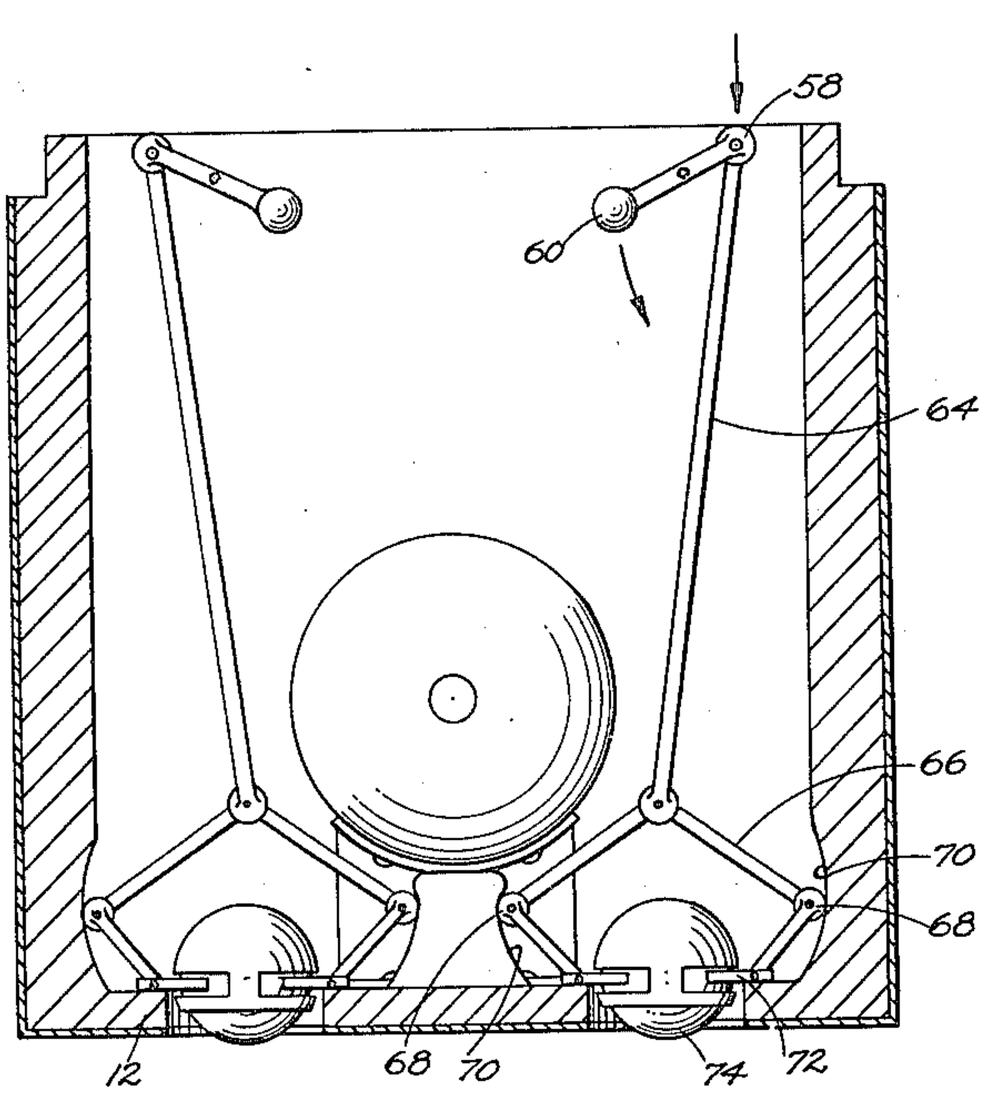

FIG. 14

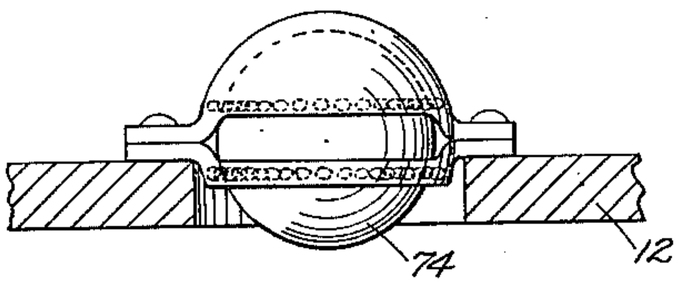

FIG. 15

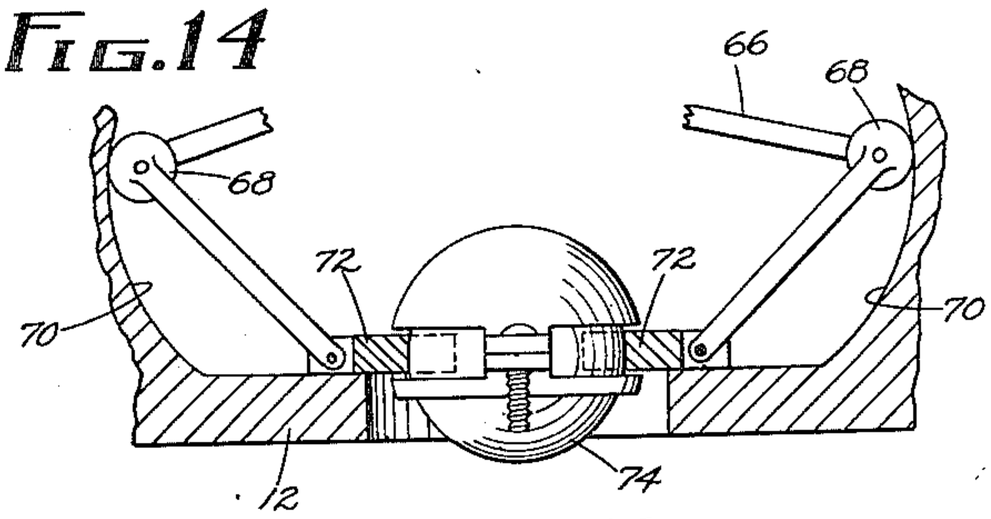

FIG. 16

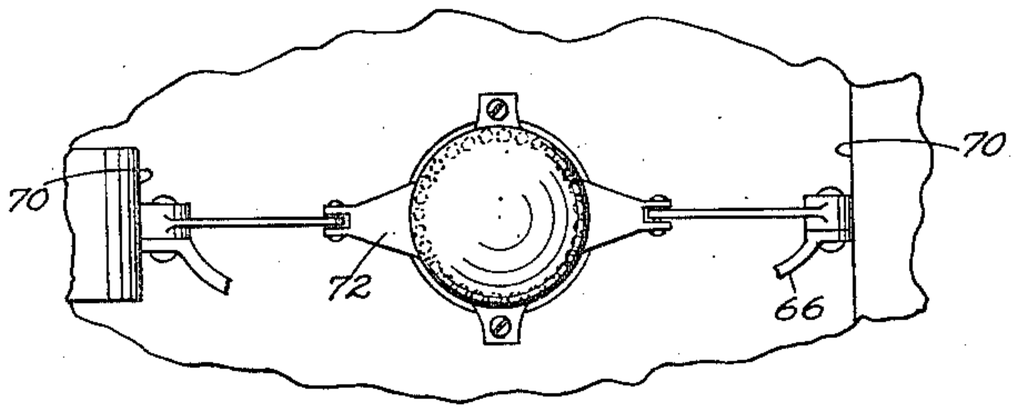

FIG. 17

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UNITED STATES PATENT OFFICE

2,544,405

VACUUM CLEANER HOUSING UNIT

Gordon E. Weir, Lakewood, Ohio

Application January 20, 1948, Serial No. 3,261

4 Claims. (Cl. 15—257)

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My invention relates to a new and novel form of container within which a vacuum cleaner may be housed both when in use and when stored.

An object of the invention is to so construct the container as to admit of its use (*a*) as a more or less stationary piece of household furniture within which the vacuum cleaner, when not in use, may be stored and (*b*) as a carrier unit within which the vacuum, when in use, may be housed, and while so housed, may be freely moved over and along a surface to be vacuum cleaned.

A further object of the invention is to provide for the container a running gear which may be rendered effective or ineffective as desired—effective when the vacuum cleaner is housed therein and in use, and ineffective when housed therein and stored.

A still further object of the invention is to provide for the container compartment within which the vacuum cleaner is housed, a suitable lid or closure which, by means of mechanism likewise housed within the container, is movable to control the effectiveness and ineffectiveness of the running gear.

Other objects and advantages of the invention will be hereinafter more fully set forth.

In the drawings, wherein like reference characters denote like or corresponding parts throughout the several views:

Figures 1 and 2 are perspective views—one of a generally rectangular and the other of a generally cylindrical container, each having the form of a useful piece of household furniture such as a hassock or stool;

Figure 3 is a perspective view of the container of Figure 1 with the container lid or cover removed;

Figure 4 is a perspective view of the lid of Figure 3—inverted to expose certain conventional vacuum cleaner accessories or tools which may, for convenience, and when not in use, be nested within the lid;

Figure 5 is a plan view of the container of Figure 1 with the lid removed and the vacuum cleaner, hose and wiring fitted in place for storage;

Figure 6 is a section on the line 6—6 of Figure 5 with the container lid closed;

Figures 7 and 8 are plan and side elevational views respectively of the vacuum cleaner per se;

Figure 9 is an inverted plan view of the container lid with the vacuum cleaner accessories or tools fitted in place for storage;

Figure 10 is an enlarged cross section of the

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container with the lid removed and the running gear extended;

Figure 11 is a detail side elevation of one of the running gear roller-mountings;

Figures 12 and 13 are side and end views respectively of one of the brackets on which the vacuum cleaner is adapted to rest both when in use and when stored;

Figure 14 is a side elevation of a modified type of running gear; and

Figures 15, 16 and 17 are further and detail views of said modified type running gear.

Notwithstanding the fact that thousands of owners of vacuum cleaners live in small homes and apartments where closet space (the usual repository for an idle vacuum cleaner) is at a premium, it apparently has never heretofore occurred to anyone that a hassock, for instance (a not unconventional piece of household furniture), if specifically designed and constructed, could be made to serve (*a*) not only its usual function as an ornamental seat or footstool, but also (*b*) as a freely movable container within which a vacuum cleaner might be housed both during use and when stored. With such dual function in mind the present invention was conceived.

In the drawings two forms of hassock are shown, one generally of rectangular section (Figure 1) and the other of generally circular section (Figure 2). Except for minor details of construction the two forms are alike, and the description of the former will suffice for both.

Referring specifically to Figure 1, and to the remaining views of the drawings in which the details of construction of the embodiment of such Figure 1 are illustrated, 10 designates the body portion of the hassock—same being constructed in the form of a suitable container having a removable lid 12 which, when closed, provides a hassock top or cover. With the lid 12 removed or open, as shown in Figure 3, the container 10 is adapted to removably receive within its embrace a vacuum cleaner unit 14 of any conventional type, notwithstanding the fact that a so-called cylinder type is shown. Said vacuum cleaner, both when in use and when not in use, is adapted to be so housed, and when so housed, as well as when removed (to empty the dust receptacle), is adapted to be supported on suitable brackets 16 fastened at their upper ends to the vacuum cleaner body and at their opposite ends to the container bottom—one or the other of said fastenings being made detachable through any suitable means. The vacuum cleaner, at its opposite ends, is provided with an air inlet open-

ing and with an air exit opening respectively, each said opening being adapted to register or coincide with an opening 18 formed in each end wall of the container 10. Over or within the vacuum cleaner air inlet opening one end of the usual flexible vacuum cleaner hose 20 is adapted to be fitted when in use. Said hose, which is readily detachable when not in use, is adapted to be folded and stored—space within the container, at one side of the vacuum cleaner body being provided for this purpose. Like space on the opposite side of the vacuum cleaner body is adapted to receive, when stored, the flexible extension cord 22 with which the conventional type vacuum cleaner is generally equipped.

In Figure 4 is illustrated the cover or lid 12 as it appears when removed and inverted. Said lid, it will be noted, is provided with end extensions or strips 24, which, when the cover is closed, conform in shape to the shape of cutouts 26 formed in the end walls of the container and within which cutouts the extensions respectively engage. If desired, and as a means for holding the lid in place when closed, each said extension may have formed thereon a lug 28 of a size and shape corresponding to the size and shape of the openings 18 within which they are adapted to respectively engage. Moreover, as best illustrated in Figure 9, the lid 12, on its top face when inverted, may be provided with suitable means such as clips 30 to hold and retain within the lid confines most, if not all, of the usual tools or accessories 32 which go to make up a conventional vacuum cleaner kit. Not only are the various accessories thus made freely available when the top is removed, but in addition they are so disposed and held in place as to admit of complete and effective storage along with the vacuum cleaner, hose and extension cord, when the vacuum cleaner is not in use.

To permit of free rolling movement of the container 10 (with the vacuum cleaner housed therewithin) along and over the floor or other surface to be cleaned, it is provided with one or the other of two forms of running gear which may be rendered effective or ineffective at will. In one said form of running gear the rollers or casters thereof are adapted to be locked and released, whereas in the other said form they are adapted to be extended and retracted. In either case the end effect is the same, i. e. the rollers, if locked or retracted, preclude free rolling movement of the assembly comprising the container 10 and vacuum cleaner 14, whereas, if released or extended, free rolling movement of said assembly may be achieved.

The retractible and extendible type running gear is best illustrated in Figure 10. It comprises four rollers or casters 34 (ball-bearing mounted), disposed one each at or near each of the respective four corners of the container 10. The rollers, when retracted through openings 36 formed in the bottom of the container, permit the container to bottom solidly on the floor or other surface to be cleaned, and it is when the container is so bottomed that it is adapted to function not only as a hassock or stool, but also as a repository for the vacuum cleaner when stored. With the running gear retracted free rolling movement over and along the floor or other surface cannot occur.

Regardless of which type running gear is used, it is desirable that the locking and releasing thereof on the one hand, or the retraction and extension thereof on the other, be made responsive in its operation to the opening and closing (or raising and lowering) movements of the lid 12. This I accomplish in both types of running gear by providing the lid 12 with four lugs 38 on its inner or under side, said lugs in the lowering or closing of the lid being adapted to engage and operate suitable mechanism housed within the container and so connected to the rollers or casters 34 as to cause the latter to be locked or retracted as the case may be.

The mechanism for extending and retracting the running gear preferably comprises four separate linkage assemblies, one for each roller or caster. The description of but one such assembly should suffice for all. Each roller or caster 34 is suitably housed (see Figure 11) in a two-piece casing formed on the end of a bell-crank 40 so as to extend therebeyond. The bell-crank 40 is pivoted intermediately of its ends as at 42 within the container, and is pivotally connected at its inner or upper end as at 44 to the lower end of a vertically extending rod 46. The rod 46 at its opposite or upper end is provided with a roller 48 so disposed in relation to one of the lugs 38 as to be engaged thereby as the lid 12 is lowered or closed.

To hold the roller 48, and hence the rod 46, in proper position, a lever 50 is provided, said lever being pivoted at one end to the upper end of the rod 46 as at 52, pivoted intermediately of its ends as at 54 to one end wall of the container 12, and provided at its opposite end with a counter-weight 56 having sufficient mass to cause the running gear to be automatically extended should the lug 38 be withdrawn from engagement with the roller 48; in other words, the lowering of the lid 12 will cause the lugs 38 to so move the linkage above described as to automatically retract the running gear.

The running gear of Figures 14 to 17 inclusive may be said to operate on substantially the same general principle in that it is made effective and ineffective accordingly as the lid 12 of the container is raised or lowered. Like the running gear above described, the running gear shown in Figures 14 to 17 inclusive comprises rollers 58 adapted to be engaged by the lugs 38. It also includes counterweights 60 movable under their own weight to operate the linkage mechanism to thereby lock, rather than retract, the rollers of the running gear. I also provide connecting rods 64 comparable to the rods 46. The rods 64 at their lower ends are pivotally connected to suitable toggle mechanism 66 having rollers 68 engageable with opposed guideways 70. Each toggle mechanism 66 at its lower end carries opposed brake-shoes 72 slidable toward and away from each other to engage and disengage rollers or casters 74 similar to the casters 34, except that the former, instead of being raised or lowered, are held in fixed position with only a fraction of the total area thereof extended beyond the bottom of the container 10 to bear on and roll along and over the surface to be cleaned when the rollers 74 are freed by the withdrawal of the brake-shoes 72 from engagement therewith.

A combination locker or hassock-housed vacuum cleaner unit such as herein contemplated is simple in design, easy to operate, and would seem to provide an item of consumer convenience having considerable aesthetic as well as utilitarian appeal. The outer contour of the housing or container 10, being a matter of design rather than functional, it is obvious that same may be given any shape desired so long as it

does not violate the functional limits as to diameter, depth, width and length for efficient operation of the within-contained vacuum cleaner unit.

While I have described my invention in detail in two alternative embodiments, it will at once be apparent to vacuum cleaner manufacturers that various changes and modifications may be made (particularly as to the details of construction of the types of running gear) without departing from the spirit or scope thereof. I aim in the appended claims to cover all such modifications and changes.

I claim as my invention:

1. In combination; a piece of household furniture having formed therein a walled-in space within which a vacuum cleaner unit is adapted to be housed both when in use as such and when not so used; a bodily removable closure for an opening formed in a wall of said space; means on the inner face of said closure for removably holding, when not in use, one or more vacuum cleaner accessories; a roller-equipped running gear for said piece of household furniture; and means coacting with said running gear to render said piece of household furniture ambulatory or non-ambulatory as desired, said means being responsive in its operation to the removal and replacement of said closure.

2. In combination; a piece of household furniture having a walled-in space within which a vacuum cleaner unit is adapted to be housed both when in use as such and when not so used; a closure for an opening formed in a wall of said space, said closure being movable from a closed to an open position and vice versa; a roller-equipped running gear for said piece of household furniture likewise housed for the major part within said walled-in space; and means responsive in its operation to the opening and closing movements of said closure adapted by coacting with said running gear to render the piece of household furniture ambulatory or non-ambulatory as desired.

3. In combination; a piece of household furniture having a walled-in space within which a vacuum cleaner unit is adapted to be housed both when in use as such and when not so used; a

closure for an opening formed in a wall of said space, said closure being provided on its inner face with means for removably holding, when not in use, one or more vacuum cleaner accessories, said closure being movable from a closed to an open position and vice versa to admit of the bodily removal and replacement of the vacuum cleaner unit; a roller-equipped running gear for said piece of household furniture; and means responsive in its operation to the opening and closing movements of said closure adapted by coaction with said running gear to render the piece of household furniture ambulatory or non-ambulatory as desired.

4. In combination; a piece of household furniture having formed therein space within which a vacuum cleaner unit is adapted to be housed both when in use as such and when not so used; a freely removable closure for an opening formed in a wall of said space, said closure being provided on its inner face with means for holding, when not in use, one or more vacuum cleaner accessories; and a roller-equipped extensible and retractable running gear carried by said piece of household furniture operable to render it either ambulatory or non-ambulatory as desired, said extension and retraction of the running gear being responsive automatically to the opening and closing movements of said closure.

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