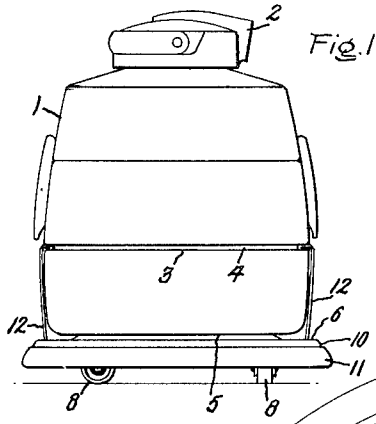
April 10, 1956 G. FAMOLARE ET AL 2,740,981

WHEELED CARRIER FOR SUCTION CLEANERS AND THE LIKE

Filed March 4, 1952

Fig. 1.



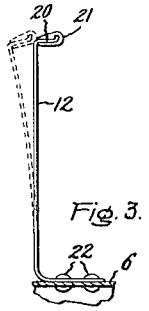


Fig. 3.

Fig. 2.

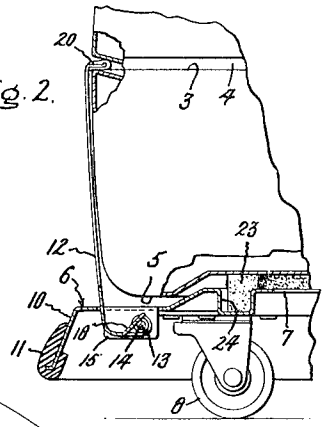


Fig. 4.

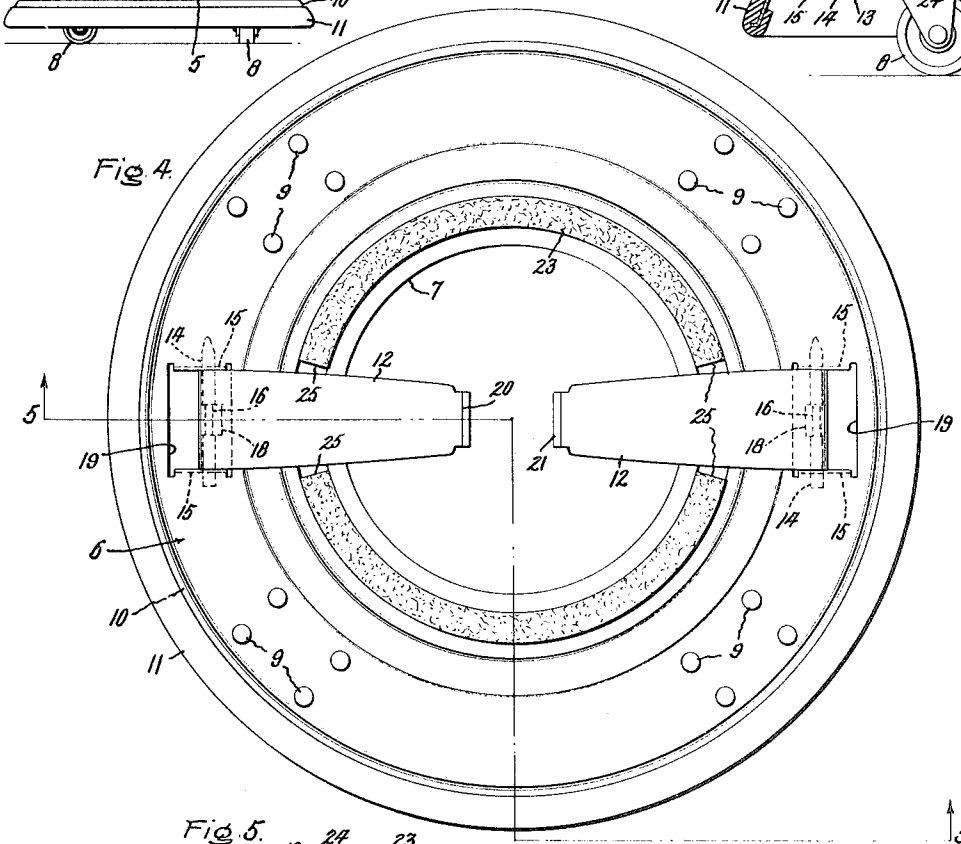
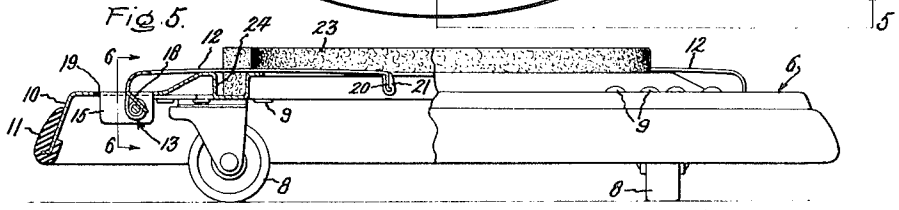


Fig. 5.



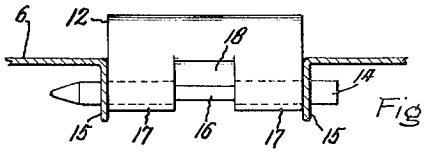


Fig. 6.

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WHEELED CARRIER FOR SUCTION CLEANERS AND THE LIKE

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3 Claims. (Cl. 15—257)

Our invention relates to a wheeled carrier for suction cleaners, in the nature of a dolly bearing casters, which may be attached to or detached from the body of the suction cleaner. A particular kind of suction cleaner with which our dolly may be used to great advantage is a cleaner of the round vertical tank or canister type.

The principal objects of our invention are to provide a detachable supporting dolly which is simple in construction, inexpensive, and attractive, but at the same time is rugged and dependable in action. Another object of our invention is to provide a dolly that may quickly and easily be secured to and disconnected from a suction cleaner without the use of special tools, screw fastenings or similar added mechanical aids. A further object of our invention is to provide a suction cleaner dolly, the clamping elements of which may be collapsed for ease in storage of the dolly when it is not in use. A still further object of our invention is to provide a dolly which will reduce the transmission of vibration and noise from the cleaner body to the floor or other surface on which the dolly is placed. Another object of our invention is to provide a dolly with a resilient bumper around its edge extending beyond the confines of the body of the cleaner, so that the cleaner or the dolly will not mar furniture or other articles against which the dolly may accidentally strike.

Other objects and further details of that which we believe to be novel and our invention will be clear from the following description and claims taken with the accompanying drawing in which are illustrated two examples of carriers or dollies embodying the present invention and incorporating our improved constructions.

In the drawing, Fig. 1 is a side elevational view of a suction cleaner of the canister type with a dolly according to our invention attached thereto; Fig. 2 is an enlarged fragmentary sectional view of the lower left-hand corner of Fig. 1 illustrating details of construction; Fig. 3 is a fragmentary view similar to a portion of Fig. 2 but illustrating a modification; Fig. 4 is a top plan view of the dolly of Figs. 1 and 2, with the suction cleaner removed therefrom and the clamps swung into the position they will occupy during storage of the dolly; Fig. 5 is a side sectional view along the line and in the direction of the arrows of 5—5 of Fig. 4, and Fig. 6 is a sectional view on a still further enlarged scale taken on the line and in the direction of the arrows 6—6 of Fig. 5.

As shown best in Fig. 1, the suction cleaner for which this particular dolly was designed has a body 1 with an inlet hose fitting 2, to which the suction hose and tools (not shown) may be attached in any suitable fashion.

The design of some suction cleaners is such that they are provided or may be provided near the bottom with ledges or projections which can be used for the connection of clamps for the purpose of securing a carrier or dolly to the bottom of the cleaner. Our invention is concerned with a dolly adapted to be secured to a cleaner of this

character, and the exemplary cleaner of the drawing uses a continuous shoulder 3 which is formed by the bottom edge of a slot 4 completely surrounding the cleaner body near its base. The circumferential shoulder is advantageous here because the dolly may be secured to the cleaner with a minimum of attention required in positioning of the cleaner on the dolly. Although this slot 4 may and preferably does have other functions, it is used in the present invention as a convenient element for fastening the dolly to the bottom of the cleaner. Knobs, lugs, other projections, or the bottom edges of holes on the body of the cleaner near the bottom could be used instead of the ledge or shoulder illustrated. In this specification, the term "shoulder" is intended to include all of these various details on the cleaner which could be engaged by a hooked clamp.

The cleaner body has the usual bottom wall 5 on which the cleaner rests and is supported when a dolly is not being used. In order to increase the mobility of the cleaner and to make it easier to pull or to turn on the floor, the dolly of our invention is provided. This dolly includes a main body portion in the form of a horizontal platform base 6 shown here as of slightly larger outside diameter than the diameter of the body of the cleaner itself, and having a central opening 7 for the purpose of reducing weight and of conserving material used.

Underneath this platform base are secured casters 8 in the usual form of vertically swiveled wheels, preferably four in number. The stationary portions of these casters are secured at equally spaced points around the base as by the rivets 9. Surrounding the base and projecting downwardly and slightly outwardly thereof is a stiffening flange 10 which also serves partially to conceal the casters from view. Suitably secured over the edge of this flange is a resilient bumper 11 of rubber or soft plastic which will serve to prevent marring of furniture or other articles against which the dolly may accidentally strike.

In order to secure the cleaner body to the dolly, we provide a plurality of clamps, preferably two in number, located on diametrically opposite sides of the platform base near its edge. These clamps are in the form of flat spring steel strips 12, in the preferred form of the invention hingedly secured as at 13 to hinge pins 14 which pass through suitable holes in ears 15 which are struck out from the base. Each hinge pin 14 may be pointed at one end as shown and have a reduced central section such as 16, so that when the pin is forced through the hinge loop 17 at the end of the spring arm 12, an integral central spring tongue 18 will drop into the reduced section 16 and prevent further longitudinal shifting of the hinge pin.

There is an opening 19 in the base formed when the ears 15 are struck out of the base. As shown best in Fig. 2, the outer edge of this opening 19 serves as a stop to limit outward movement of the bottom of the arm 12 when it is swung in its vertical pivoting plane away from the base. When in use, the arms 12 extend generally perpendicularly to the base. The upper or free end of each arm 12 is provided with an inwardly hooked portion 20 and the dimension between the tips of the opposite hooked portions is such that when a cleaner is forcibly inserted between the clamping arms 12, the top ends of the arms are forced outwardly away from each other until they reach the slot 4, at which time the resiliency of the arms will force the hooked portions 20 into the slot on the cleaner so that the hooks engage the shoulder 3. If desired, the hooked portions on the spring arms may be provided with covers 21 made of rubber or similar material to prevent scratching of the finish on the body of the cleaner.

If it is not desired to hinge the arms 12 to the base, these spring arms may be permanently fixed to the base

as shown in Fig. 3. In this form of the invention, the same reference numerals are used to indicate the base **6**, the vertical resilient arm **12**, and its hooked end portion **20**. However, the bottom of the arm, instead of being hinged to the base, is rigidly fastened thereto as by rivets **22**. Dotted lines in this figure of the drawing indicate the position that the spring arm will occupy when the cleaner is being forced onto the carrier and before the hooked portion has engaged within slot **4** of the cleaner.

For most purposes, however, it is desired that the hinged arrangement of the other figures of the drawings be used, so that the spring arms may be folded downwardly and radially inwardly against the base of the dolly when it is not being used with the cleaner. This will conserve considerable space in shipping and in storing the dolly.

In either form of the invention shown, we prefer that the base member of the dolly be provided with a spring cushion on its upper surface to assist in maintaining the clamping hooks in their proper position. This cushion may also assist in reducing vibration transmitted from the cleaner to the dolly, and thence to the floor. Preferably this cushion is in the form of an annulus of sponge rubber **23** cemented or otherwise suitably secured to the base within the circular groove **24**. Obviously, this cushion extends above the top level of the base, and in order to accommodate the spring arms **12** when they are folded inwardly toward the center as shown in Fig. 4, the sponge rubber annulus is interrupted as at **25**, or reduced in height, so that it does not project above the base at those points. In this position the clamping arms lie substantially parallel to the base.

The vertical dimension between the tip of either hook **20** and the top surface of the cushion **23** when it is uncompressed is made to be slightly smaller than the vertical dimension between the shoulder on the cleaner and the bottom surface of the cleaner which is engaged by the cushion. This means that when the cleaner is placed on the dolly, it must be pushed downwardly to compress the cushion slightly before the hooks can engage the shoulder on the cleaner. When the hooks are engaged, the cushion will exert a pressure upwardly on the cleaner, tending to keep the clamping arms under tension and the hooks in engagement. At the same time, the stops at the base of the spring arms prevent pivotal movement of the bottom ends of the arms outwardly beyond a certain point. This requires that whenever the cleaner is inserted or withdrawn from the dolly, the upper free ends of the arms must be flexed outwardly in opposition to the spring nature of the arms themselves in order to have the inwardly facing hooked ends clear the bottom edge of the shoulder and the bottom portion of the cleaner. In effect, therefore, these clamping arms are always spring biased inwardly when in use and if the hinges are not desired for purposes of collapsing the arms during storage, the arms may be rigidly fastened at their bottom ends to the base as in Fig. 3 and so positioned and dimensioned that the free hooked ends are always biased slightly inwardly toward each other. To disengage the dolly from the cleaner, in either form of the invention, all that is necessary is to pry the upper hooked ends of the spring arms off the shoulder on the cleaner, and lift the cleaner out of the dolly.

This process of disengagement is facilitated if the cleaner body is pressed downward by hand so as to compress the resilient cushion **23** slightly. The prying force necessary to disengage the hooks is then only that required to move one spring arm outwardly enough to release its hook from the shoulder. This pressure can be applied on the whole cleaner or on one side only, just above the clamp that is to be released. When one clamp has been released, the cleaner may be tilted upwardly on that side and the opposite clamp hook will easily disengage from the slot without prying.

As will be evident from the foregoing description, certain aspects of our invention are not limited to the particular details of construction of the examples illustrated, and we contemplate that various and other modifications and applications of the invention will occur to those skilled in the art. It is, therefore, our intention that the appended claims shall cover such modifications and applications as do not depart from the true spirit and scope of our invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. For attachment to the bottom of a tank type suction cleaner or the like, a dolly comprising a platform base carrying casters on its underside, flat spring arm clamps hinged to the top of the base at the edges thereof and arranged to swing in vertical planes radially inwardly of the base, stops limiting movement of the hinged ends of said clamps outwardly of said base, hooks on the free ends of said clamps facing inwardly of said base, and a resilient cushion on said base projecting above the top face of the base, said hooked ends on the clamps being engageable with a suction cleaner or the like resting on said base for holding the cleaner against said cushion and compressing the cushion.

2. For attachment to the bottom of a tank type suction cleaner or the like, a dolly comprising a base platform carrying casters on its underside, a pair of hooked flat spring arm clamps hinged to the top of the base at opposite side edges thereof, each clamp being arranged to swing in a vertical plane radially inwardly of the base, stops limiting movement of said clamps outwardly of said base, hooks on the free ends of said clamps facing inwardly of said base, and a resilient cushion on said base projecting above the top face of the base, said cushion being interrupted opposite the plane of swing of said clamps whereby said clamps may be swung inwardly to positions parallel to said base, said hooked ends on the clamps being engageable with a suction cleaner or the like resting on said base for holding the cleaner against said cushion when said clamps are swung outwardly of the base.

3. A dolly for supporting a suction cleaner or the like having a bottom and sides, and a shoulder on its sides spaced above said bottom, said dolly comprising a platform base carrying casters on its underside, a plurality of upwardly extending spring arms secured to the top of the base at the edges thereof, a hook on the upper end of each arm, a resilient cushion on said base projecting above the top of said base, a portion of said bottom being engageable with said cushion when said cleaner or the like is supported on the dolly, the vertical distance between said portion and said shoulder being less than the vertical distance between the top of the base and said hooks, but being in excess of the vertical distance between the top of said resilient cushion and said hooks, said hooks being engageable with said shoulder when said suction cleaner or the like rests on and compresses said cushion.

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