Nov. 3, 1964 W. TAFT 3,155,270

HANDLE LATCHING DEVICE

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Fig. 1

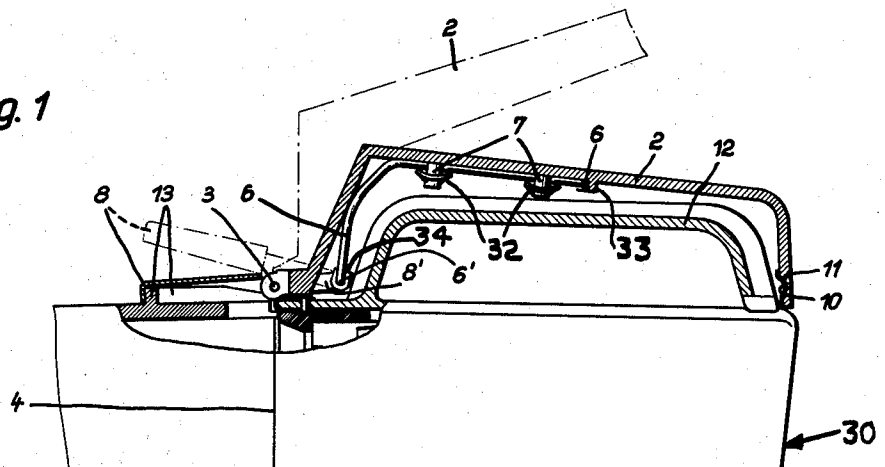
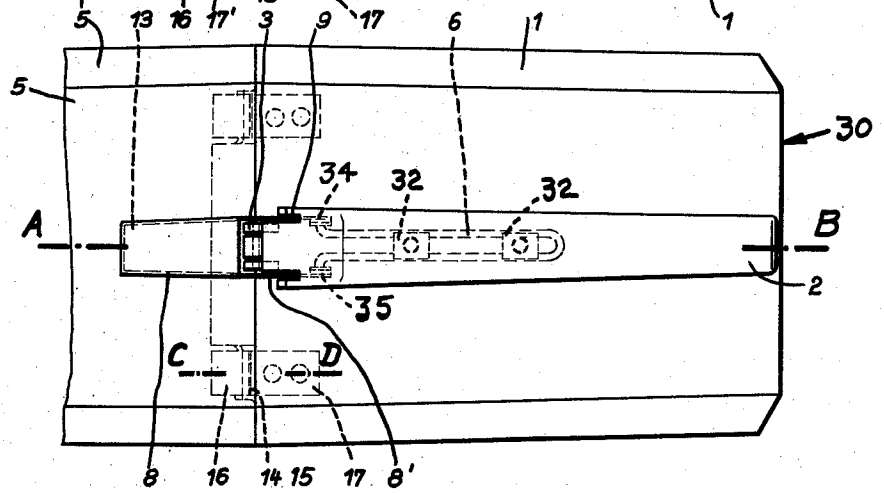



Fig. 2

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# HANDLE LATCHING DEVICE

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3 Claims. (Cl. 220—55.7)

This invention relates in general to motor-driven household tool construction and in particular to a new and useful combination handle and latching arrangement for securing housing portions together in a device such as a vacuum cleaner.

The present invention is particularly applicable to a household tool such as a vacuum cleaner, floor polisher or the like which includes a handle for transporting the device. In devices of this nature it is usually necessary to disassemble one or more of the housing parts for access, e.g. to service an interior motor, to remove cleaning bags, and the like. With devices of this nature it has been usual to interconnect the various housing parts by means of at least two lever locks which must be oriented and manipulated in order to interlock the various parts. The present invention is an improvement over the prior art constructions, particularly in the simple arrangement for locking the housing elements together. In accordance with a preferred arrangement of the invention the locking mechanism is formed as an integral portion of a handle and the arrangement permits the locking together of the housing parts by one simple latching arrangement.

In accordance with a preferred arrangement, the latching mechanism includes a protuberance or latching element formed on one of the members of the housing which may be interengaged by a capping member or latch hook carried by a latching handle pivotally mounted on the other element of the housing. The latching handle includes a V-shaped lever handle construction which is pivoted at one leg to permit it to be swung upwardly to free the latching cap from the proturbance formed on the opposite element. The construction includes interlocking means on an opposite side of the housing which is oriented and which permits pivotal movement of the parts together and then the interlocking thereof by means of the latching cap arrangement.

A feature of the construction is that the latching lever fits over a permanently formed handle construction and forms an outer covering therefor, when it is in a latched or locked position. Thus, both the stationary formation and the latching lever form a handle which permits the easy transportation of the device by the user throughout the household.

The construction advantageously includes a biasing spring arrangement formed in a U-shaped latching lever handle which tends to bias the handle in a closed position in which a cap portion covers a protuberance on the adjacent housing section.

Accordingly, it is an object of this invention to provide an improved housing construction for an appliance and latching mechanism therefor.

A further object of the invention is to provide an improved latching and handle device for interconnecting housing parts.

A further object of the invention is to provide a handle latch construction which includes a housing element having a permanent handle member and a lever handle portion pivotally mounted at one end on said housing, including a cap element and pivotally connected to a spring element of the hand lever adapted to extend outwardly from the lever portion, the hand lever being positionable to latch the cap member over a projecting portion of another housing element.



A further object of the invention is to provide a housing and handle latching device for a household appliance which is simple in design, rugged in construction, and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated and described a preferred embodiment of the invention.

In the drawings:

FIG. 1 is a partial side elevation and partial longitudinal section of a vacuum cleaner having an interlocking handle construction in accordance with the invention; and

FIG. 2 is a top plan view of the device indicated in FIG. 1.

Referring to the drawings in particular, the invention embodied therein includes a vacuum cleaner generally designated 30 which includes a housing portion 1 in which is located an electric motor for driving the device and a housing portion 5 which carries the dust bag for collecting the dust which is accumulated during vacuum cleaning.

In accordance with the invention the housing portion 1 is fitted together with the housing portion 5 by means of a novel interlocking arrangement and handle construction. The handle construction comprises an outside U-shaped handle element or handle lever member 2 which is pivotally mounted at its forward end on bolt element 3 which is journaled in a central bearing carried at the forward top end of the housing 1 adjacent the line of separation 4 between the housing parts 1 and 5.

A substantially U-shaped spring member 6 is carried by means of spanning brackets 32 held to the lever 2 by means of holding pins 7 and fitted against a recess defined by an inturned wall portion 33 of the handle lever 2. Spring 6 includes leg portions which extend into bearing elements of arm projections 34 and 35 of a cap member generally designated 8. In the embodiment indicated, the cap member 8 is generally trapezoidal in shape and is of a length permitting the forward end thereof to be engaged around an upstanding abutment or latching part 13 formed on the housing 5 at a location extending inwardly from the line of separation 4. The latching part or abutment 13 is of substantially the same trapezoidal shape as the cover 8 but of a lesser dimension to permit the cover to be easily positioned thereover, when the handle is in an upward position, as indicated in dotted lines in FIG. 1. When the handle is moved downwardly to the solid line position indicated in FIG. 1, it may be lodged against an upstanding spring element 10 extending upwardly from the rear portion of the housing 1. The spring element 10 includes a curved portion which fits into a curved recess 11 formed at this end of the handle lever 2.

The arms 34, 35 are advantageously made as an integral portion of the cap 8 and they fit through slots provided at each side of the handle lever 2. The handle lever 2 may be easily moved to the dotted line position by pulling upwardly to cause the spring 10 to be flexed to release the handle.

A feature of the construction is that the handle lever 2 overlies a permanent U-shaped handle formation 12 which is defined at the upper end of the housing 1. In the operative or carrying position the handle lever 2 directly overlies the fixed handle portion 12 and the combined

arrangement permits easy handling of the device by directing the fingers through the open space 12*a* formed between the handle 12 and the housing 1.

A further feature of the invention is the formation of the opposite side of the housing 1 and the housing 5 to permit interlocking thereof. In the embodiment indicated, particularly in FIG. 2, there is provided two sets of socket and plug arrangements for interengaging the lower portions of the housings 1 and 5. The socket and plug arrangement advantageously includes a hook element 14 connected at the end of the housing 5 which engages in a recess 15 formed by projecting element 17 at the end of the housing 1. In the event that the housings 1 and 5 are plastic housings, the hook 14 is advantageously formed by an angle sheet iron 16 which is fixed to the housing 5 and bent in the configuration indicated. The recess 15 is advantageously formed by a single strip of sheet metal 17 which is advantageously bent in a configuration to define a protuberance 17' and a downwardly extending wall which forms the recess 15.

When the housings 1 and 5 are to be interconnected, the housewife need only place the hook portion 14 of the housing 5 behind the recess 15 of the housing 1 to interengage the housing elements. This is more or less done automatically when the housewife puts the connecting housing 5 in oblique downwardly inclined position and then turns it upward, as described by the arrow indicated in FIG. 1. Thereafter the hand lever 2 is rocked from the dotted line position to permit the cap element or hook element 8 to be hooked over the protuberance or latching element 13. Thereafter the hand lever 2 is pivoted about the bolts 3 and snaps downwardly against the spring 10 which holds it in place and tightly engages the cap or hook 8 over the locking element 13.

Thus the invention provides a simple handle latching element for interlocking housing portions of a vacuum cleaner or similar household device together.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the inventive principles, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A household appliance such as a vacuum cleaner and the like, comprising first and second interengageable housing parts, said first and second housing parts having first walls which align and include a projection on one fitting into a recess on the other, and said first and second housing parts having first walls which align and include a projection on one fitting into a recess on the other, and said first and second housing parts also having second walls which align and include a latching portion formed on said first housing part, and a handle latching portion formed on the other of said housing parts, said handle latching portion including a substantially U-shaped handle lever member for carrying said appliance, said lever member having first and second leg portions, said first leg portion being pivotally mounted on said second housing at a location adjacent said first housing, a spring held to the underside of said handle lever, and including a bearing portion extending alongside said first leg portion adjacent the pivotal connection thereof to said second housing, a latching element pivotably carried by said spring baring portion engageable with said latching portion formed on said second housing and to hold said first and second housings together.



2. A household appliance according to claim 1, including a rigid handle formed on said second housing below said handle lever.

3. A handle latching device for holding together a first housing part having a latching element and a second housing part having a handle latching device, comprising a substantially U-shaped handle lever member for carrying the housings having first and second leg portions, said first leg portion being pivotally mounted on the second housing part at a location adjacent the first housing part, a latching element pivotally carried by said handle lever and engageable with the latching portion on the first housing part, latch means on said housing holding said second leg portion in a position adjacent the associated housing, and a permanent handle formed on said second housing part underlying said U-shaped handle lever member and of substantially the same configuration thereas.

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