

May 15, 1934.

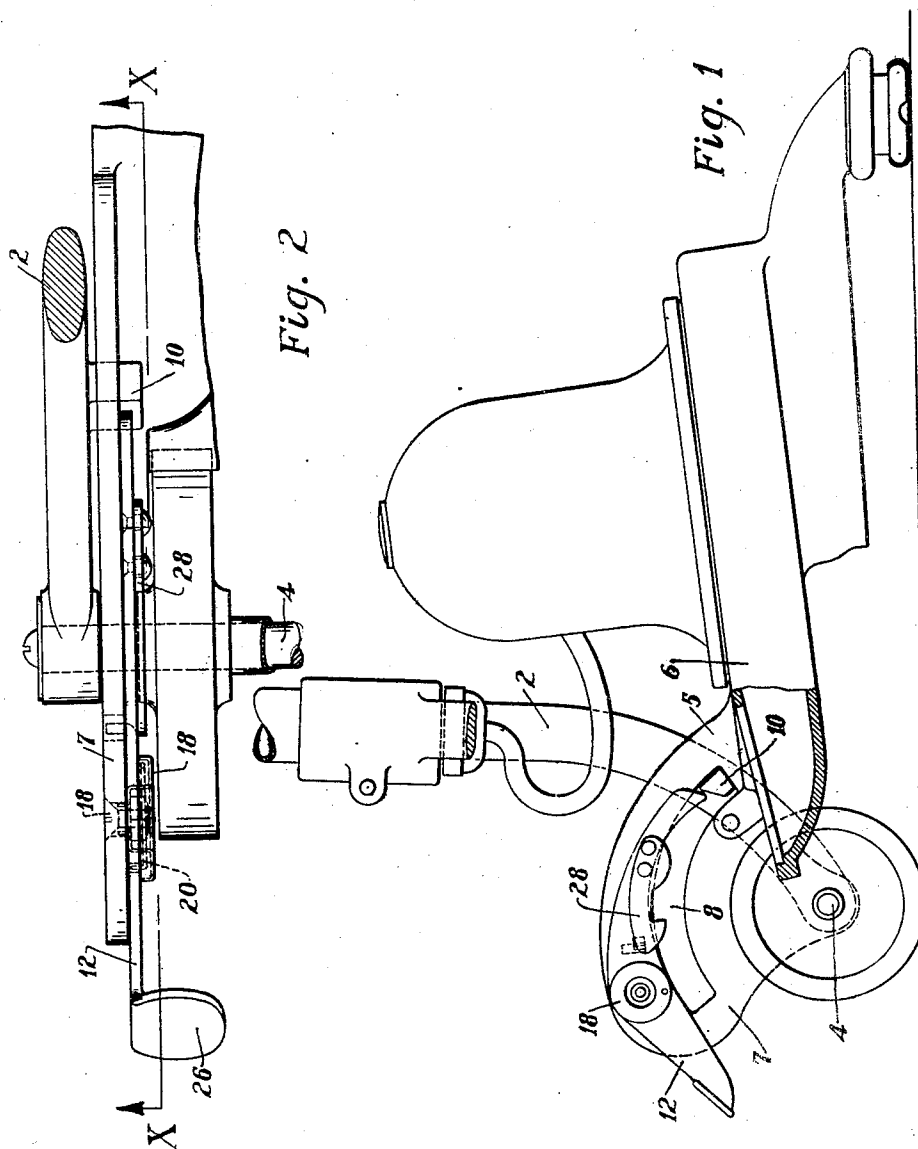
G. W. ALLEN ET AL

1,958,602

LATCHING DEVICE

Filed Aug. 19, 1931

2 Sheets-Sheet 1



Witness

Ernest A. Myers

Inventor

George W. Allen
Eloah B. Salt
by their Attorneys
Van Emmon, Fish, Kildreth & Cary

May 15, 1934.

G. W. ALLEN ET AL

1,958,602

LATCHING DEVICE

Filed Aug. 19, 1931

2 Sheets-Sheet 2

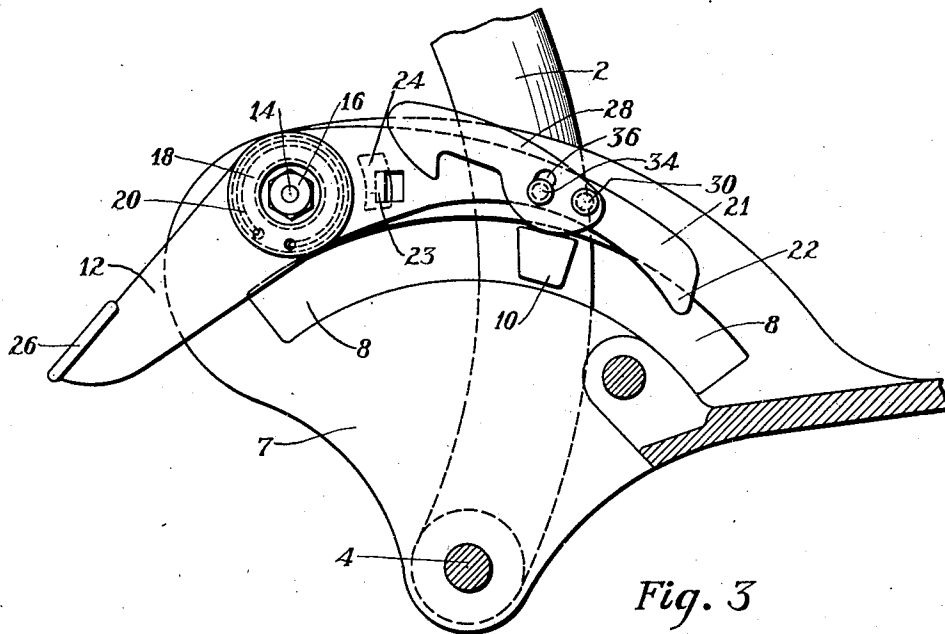


Fig. 3

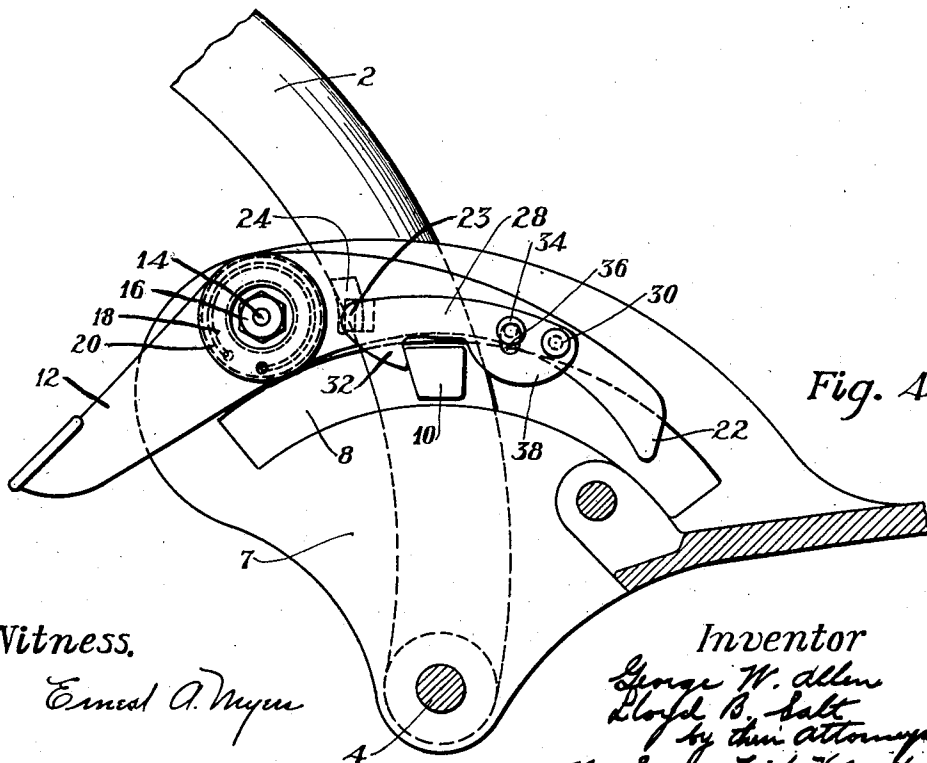


Fig. 4

Witness.

Ernest A. Myers

Inventor

George W. Allen
Dorothy B. Salt
by their attorneys
Van Emmon, Fish, Kilchick & Cary

UNITED STATES PATENT OFFICE

1,958,602

LATCHING DEVICE

George W. Allen, Hyde Park, and Lloyd B. Salt,
Chestnut Hill, Mass., assignors to B. F.
Sturtevant Company, Hyde Park, Mass., a cor-
poration of Massachusetts

Application August 19, 1931, Serial No. 558,000

6 Claims. (Cl. 306—11)

The present invention relates to latching or locking devices for movable handles or levers and is particularly designed and adapted for the handles of traveling vacuum cleaners, and the like, wherein the handle may be latched or locked in various angular positions relative to the body of such machines.

The object of this invention is to provide a latching device for the handle of vacuum cleaners, and the like, which may latch or lock the handle positively in a number of different positions, and which may be rendered operative or inoperative at the will of the operator merely by the manner of manipulation of the handle by the operator.

The usual type of domestic vacuum cleaner is provided with a handle for propelling and guiding the cleaner in operation. This handle is pivotally mounted in the cleaner to turn about a horizontal axis, and latching devices are provided to latch and retain the handle in one or another of a plurality of positions. Such latches commonly permit the cleaner handle to be raised or swung freely upon its pivots from a horizontal to a vertical position, but do not permit the reverse movement to be executed without release of the latching means for each of the several positions, ordinarily accomplished by tripping the latch by the hand or foot. It is to avoid the effort and delay incident to the operation of such latching devices that the present invention has been developed, the operation of the latching means being rendered automatic and dependent upon the manipulation of the handle itself.

In the accompanying drawings which illustrate what is now considered to be the preferred embodiment of the invention, Fig. 1 is a side elevation of a vacuum cleaner equipped with the improved latch device, showing the pivoted handle locked in the upright position; Fig. 2 is a plan view on an enlarged scale of portions of the vacuum cleaner frame, and of the pivoted handle locked in the upright position, together with the latch device; Fig. 3 is a side view, partly in section, on line *x—x* of Fig. 2, showing a portion of the vacuum cleaner frame, of the pivoted handle, and of the latching device at one stage of their co-operation; and Fig. 4 is a similar view of the same parts showing the pivoted handle latched in a position intermediate the upright and the horizontal positions.

The handle 2 of the vacuum cleaner is pivotally mounted upon the extremities of the axle 4 secured in the rearward extensions 5 of the fan casing 6. The extensions therefore constitute a

frame for pivotal mounting of the handle. The extensions 5 are provided with the vertical web or flange 7 having the arcuate slot 8 wherein moves and is confined an abutment 10 with which the handle 2 is provided. The combination thus far described permits rotation of the handle within two well defined positions, namely, the positions wherein the abutment makes contact at the ends of the arcuate slot 8.

An irregular arcuate-shaped latch lever 12 is pivotally mounted upon the flange 7 by means of the bolt 14, the nut 16, the lock nut 18 containing the spring 20 which operates to depress the front or longer arm 21 of the latch lever.

The latch lever 12 is provided at its front end with a suitably shaped face 22 for contacting with the lever handle abutment to lock the handle in an upright position as in Fig. 1, and is provided at the other end with an ear 26 to serve as a pedal surface for facilitating its actuation by the foot or hand to release the lever handle locked in any position. The oscillation of the latch lever is limited by a stop 23 confined in a slot 24 of the flange.

To permit retention of the handle in an intermediate position, a gravity actuated detent member 28 is pivoted at its front end 30 on the latch lever. At its rear end, the member 28 is formed with a hook 32 having an arcuate rear surface. The member is limited in oscillation about its pivot by a stud 34 mounted on the latch lever and confined within a slot 36 in the detent. The front end of the detent is formed on its under side with a curved cam surface 38. Both the hook 32 and the cam 38 normally lie in the path of the abutment 10.

The detent is so mounted on the latch lever that it is moved out of the path of the abutment by depression of the pedal 26.

When the lever handle, originally in the horizontal position with its abutment making contact with the frame at the rear end of the slot 8, is rotated upon its pivot, the abutment travels within the frame slot 8, and first contacts with the rear surface of the hook 32, rotating the detent upon its pivot, and allowing the hook to engage the abutment in the intermediate position of Fig. 4. Further forward movement of the handle causes engagement of the abutment with the cam 38 to permit the detent to swing idly upward, as shown in Fig. 3. At the limit of forward movement of the handle, the handle is latched in vertical position, as shown in Fig. 1, by the engagement of the front face 22 of the latch lever with the abutment.

If now the latch lever 12 is released by pressing on the ear 26, the pivoted handle may be moved rearwardly from its vertical position. When the abutment is in the position shown in Fig. 3, either one of two results may follow, depending upon the speed of movement. If the handle is moved slowly, the abutment will follow the edge of the detent so that the detent is permitted to drop to hold the handle in the intermediate position shown in Fig. 4. But if the handle is moved rapidly, the abutment travels within the slot at a speed sufficient to pass its position shown in Fig. 4 before the detent can fall, so that it escapes engagement with the hook member.

From the intermediate position of Fig. 4, the handle may be released to carry it to horizontal or rearward position, either by depressing the rear end of the latch, or by sharply rocking the handle forwardly and then rearwardly.

It will be seen that the present invention provides for retention of the handle in any of three positions with respect to the cleaner. In general, the handle is placed in vertical position only when not in use, the horizontal and intermediate positions being employed for cleaning purposes. The intermediate position is most useful for normal rug cleaning. It will be noted that the handle is not positively locked but is free to undergo some movement forwardly of the detent to accommodate the natural arm movement of the operator. If the handle is released by the operator, it comes to rest in the detent, ready to be taken up again when the work is resumed. This makes an advantage over the ordinary two-position cleaner, in which the operator, upon leaving the work temporarily, must either drop the handle to its lowermost position or latch it in vertical position.

While the present invention has been shown and described as embodied in a vacuum cleaner, it is understood that it is not limited thereto but may be embodied in other apparatus. Nor is the present invention limited to the particular form and arrangements herein shown and described, but may be embodied in other and different forms and combinations within the language of the claims.

Having thus described the invention, what is claimed is:

1. In an apparatus of the class described, a frame, a handle pivotally mounted thereon, co-operating means borne by the handle and the frame comprising an abutment and a pivoted latch lever, a pivotally mounted hook member carried by the latch lever and adapted to engage the abutment in one position of the latch lever and to escape engagement with the abutment in another position of the latch lever.

2. In an apparatus of the class described, a frame, a handle pivotally mounted thereon, co-operating means borne by the lever and the frame comprising an abutment, a spring actuated re-

strictedly rotatable pivoted latch lever on the frame to engage the abutment to lock the handle in one position, and a restrictedly rotatable gravity actuated detent pivotally carried by the latch lever and provided with an arcuate surface for slidably contacting with the abutment to produce rotation of the detent away from the abutment.

3. In a vacuum cleaner, a frame having an arcuate slot, a handle pivotally mounted thereon and provided with an abutment travelling within the arcuate slot, a spring actuated latch lever pivotally mounted on the frame to engage the abutment to lock the handle in an upright position, and a gravity actuated detent pivotally carried by the latch lever and provided with an arcuate surface for slidably contacting with the abutment to produce rotation of the detent away from the abutment.

4. In a vacuum cleaner, a frame provided with an arcuate slot, a handle pivotally mounted thereon and provided with an abutment traveling within the arcuate slot, a spring actuated latch lever pivotally mounted on the frame to engage the abutment to lock the handle in an upright position, and a gravity actuated detent pivotally carried by the latch lever and having means causing engagement thereof by the abutment upon displacement by slow movement of the handle from its upright position, and causing escape of engagement with the abutment upon displacement by rapid movement of the handle from its upright position.

5. In a vacuum cleaner, a frame provided with an arcuate slot, a handle pivotally mounted thereon and provided with an abutment traveling within the arcuate slot, a spring actuated latch lever pivotally mounted on the frame to engage the abutment to lock the handle in an upright position, a pivotally mounted gravity actuated detent having a hook in the path of rearward movement of the abutment, and a cam ahead of the hook surface adapted to follow the abutment in a slow movement thereof to cause engagement of the hook therewith and to displace the hook from the path of the abutment upon a quick movement thereof.

6. A vacuum cleaner having, in combination, a pivoted handle provided with an abutment, a pivoted latch for engaging the abutment to lock the handle in forward position, a detent pivoted on the latch to engage the abutment and lock the handle in intermediate position when the handle is slowly moved rearwardly, and adapted to be rendered inoperative on a quick rearward movement of the handle, and means to be actuated by the foot of the operator for raising the pivoted latch to unlock the handle both when the latter is latched in forward and in intermediate positions.

GEORGE W. ALLEN.
LLOYD B. SALT.