

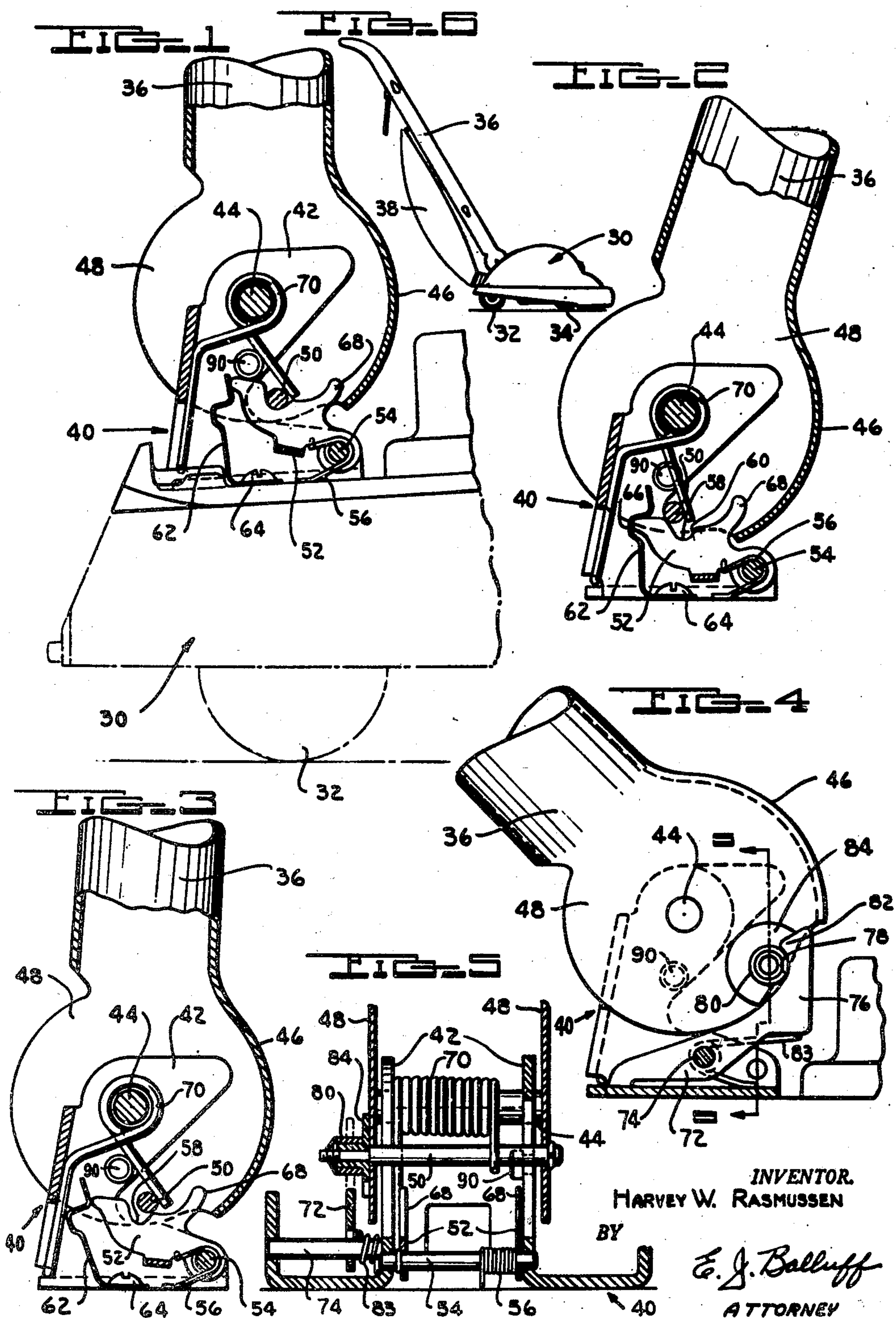
Sept. 16, 1947.

H. W. RASMUSSEN

2,427,622

HANDLE LOCK

Filed March 14, 1947



INVENTOR.
HARVEY W. RASMUSSEN

BY

E. J. Balluff
ATTORNEY

UNITED STATES PATENT OFFICE

2,427,622

HANDLE LOCK

Harvey W. Rasmussen, Bloomington, Ill., assignor
to Eureka Williams Corporation, Detroit, Mich.,
a corporation of Michigan

Application March 14, 1947, Serial No. 734,609

10 Claims. (Cl. 306—13)

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This invention relates to handle locks for suction cleaners and the like.

A principal object of the invention is to provide a new and simplified form of handle lock and release therefor.

Other objects and advantages of the invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawing of which there is one sheet and wherein:

Fig. 1 is a fragmentary sectional view of a cleaner embodying the invention with the handle locked in its vertical or parked position;

Fig. 2 is a view similar to Fig. 1 showing the manner in which the handle lock may be released;

Fig. 3 is a view similar to Fig. 1, illustrating the position of the parts of the handle lock just prior to their engagement;

Fig. 4 is a side elevational view of the handle mounting illustrating the handle position control means;

Fig. 5 is a fragmentary sectional view taken along the staggered line 5—5 of Fig. 4;

Fig. 6 is a view on a reduced scale of a suction cleaner embodying the invention.

As illustrated in Fig. 6, a suction cleaner embodying the invention comprises in general a body 30 having wheels 32 and 34 for supporting the cleaner for movement on the floor, a handle 36 pivotally mounted on the cleaner for maneuvering the same, and a bag 38 for collecting the dirt which is picked up by the cleaner.

In Fig. 6 the handle 36 is shown in an operating position, whereas in Fig. 1 the handle is shown in a position which is frequently designated as its parked or vertical position. This invention has particular reference to a releasable locking mechanism associated with the handle and the body which is automatically operable for locking the handle in its vertical position relative to the body upon swinging movement of the handle to said vertical position so as to permit the cleaner to be picked up by means of the handle while maintaining the relative position of the body and handle.

A handle bracket indicated generally at 40 is suitably secured to the body 30 above the rear wheels 32 and is provided with a pair of arms 42 having bearings in which axle or shaft 44 is journaled. The handle includes a socket 46 having spaced side walls 48 in which the ends of shaft 44 are secured whereby the handle is pivotally mounted on the body by means of the bracket 40 and the axle 44.

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The handle socket 46 is provided with a cross pin or latch 50, sometimes hereinafter referred to as a locking member or a locking element, such pin being fixedly secured to the side walls 48 of the socket. A latch or lever 52, sometimes hereinafter referred to as a locking element or locking member, is pivoted on a shaft 54 carried by the bracket 40. The latch 52 comprises two spaced interconnected parallel sides and is biased in a clockwise direction about the shaft 54 by means of coil spring 56 coiled around the shaft 54 and with one end of the spring 56 reacting against one side of the latch 52 while the other end reacts against the body of the cleaner as shown in Fig. 1.

The sides of the latch 52 on their upper surface are formed to provide a notch or recess 58 and a shoulder or stop 60 at one side of the recess. When the handle is locked in its parked position as shown in Fig. 1, the latch 52 is positioned so that the pin 50 is disposed in the recess 58. The stop or shoulder 60 reacts on the pin 50 to prevent pivotal movement of the handle 36 in a counterclockwise direction about its pivot. The distance between the handle and lever pivot centers is less than the sum of the distance between the handle pivot center and the pin plus the distance between the lever pivot center and the stop 60. Spring 56 yieldably holds latch 52 in the position illustrated in Fig. 1 so that the handle 36 is locked in such position against counterclockwise pivotal movement about the axis of the shaft 44. The pin 50 and the recess 58 also provide a detent action to index the handle in its parked or vertical position. The handle however is free to move a limited amount in a clockwise direction about the axis of the shaft. By pushing the handle forwardly slightly from its vertical or parked position to the position illustrated in Fig. 2, the handle lock may be disengaged.

During forward movement of the handle the pin 50 will react against the tapered left hand side of the recess 58 and shift or displace the latch 52 to the position illustrated in Fig. 2, the spring 56 yielding so as to permit the latch 52 to move. A spring 62 is provided with a hook shaped portion 66 which is adapted to engage and receive the end of the latch 52 so as to hold it in the position as illustrated in Fig. 2, that is, its disengaged position.

With the latch disposed as illustrated in Fig. 2, the shoulder 60 is out of the path of movement of the pin 50, and hence the handle may be swung rearwardly and downwardly about its pivot to an operating position. After a certain amount

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of swinging movement of the handle toward its operating position the pin 50 is arranged to engage a finger 68 formed on the latch 52 and thereby to shift the latch 52 about the shaft 54 so as to restore the latch 52 to the position in which it is illustrated in Fig. 1.

The spring 62 will yield to permit the end of the latch 52 to be disengaged from the portion 66. Thereafter when the handle is restored to its parked position as illustrated in Fig. 3, the spring 62 will permit the latch 52 to yield or be displaced sufficiently so as to permit the pin 50 to move into line with the notch 58, after which the spring 46 will shift the latch 52 back to its position as illustrated in Fig. 1 so that the pin 50 will be seated in the notch 58. It will thus be observed that upon restoring the handle to its parked position the handle lock will automatically lock the handle in such position and that by moving the handle slightly forward from its parked position the handle lock will be released so that the handle may be moved to its operating position.

A torsion spring 70 is coiled around the shaft 44 and reacts upon the bracket 40 and on the pin 50 so as to counterbalance, at least partially, the weight of the handle.

A lever 72 pivoted on a shaft 74 carried by the bracket 40 includes a portion 76 having a notch 78 which is adapted to receive a roller 80 as illustrated in Fig. 4. The shoulder 82 above the notch 78 forms a yieldable stop which determines one normal limit of the operating position of the handle. A spring 83 coiled about the shaft 74 reacts on the lever 72 so as to hold the edge thereof in engagement with the roller 80 and permits the lever 72 to yield if sufficient pressure is applied to the handle so that the roller 80 may travel upwardly beyond the shoulder 82. The roller 80 is journaled and secured on a bushing 84 which is mounted on a projection of the pin 50.

The pin 50 is adapted to engage the side arms of the bracket 40 as shown in Fig. 2 so as to limit the clockwise pivoting movement of the handle relative to the bracket 40. A pin 90 carried by one of the arms of the bracket 40 limits the clockwise pivoting movement of the latch 52 about the shaft 54.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a device of the class described a body, an upstanding handle pivoted on said body for swinging movement from a substantially vertical position downwardly and rearwardly to an operating position and back to said vertical position, a releasable locking mechanism associated with said handle and body and automatically operable for locking said handle in its vertical position relative to said body upon swinging movement of said handle into said vertical position so as to permit said device to be picked up by means of said handle while maintaining the relative position of said body and handle, said locking mechanism comprising a laterally extending pin on said handle, a latch pivoted on said body having a stop arranged so that it may be positioned in the path of movement of said pin so as to lock said handle against rearward pivoting movement, means operable for yieldably holding said

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latch in position to lock said handle against rearward pivoting movement and means actuated by forward pivoting movement of said handle from said vertical position for shifting said latch so as to move said stop out of the path of said pin in order to permit rearward pivoting movement of said handle.

2. In a device of the class described a body, an upstanding handle pivoted on said body for swinging movement from a substantially vertical position downwardly and rearwardly to an operating position and back to said vertical position, a releasable locking mechanism associated with said handle and body and automatically operable for locking said handle in its vertical position relative to said body upon swinging movement of said handle into said vertical position so as to permit said body to be picked up by means of said handle while maintaining the relative position of said body and handle, said locking mechanism comprising a locking member on said handle, a locking member on said body positioned in the path of movement of said handle locking member so as to lock said handle against rearward pivoting movement, one of said locking members being mounted so that it may be shifted to an inoperative position, and means actuated by forward pivoting movement of said handle from said vertical position for shifting said one of said locking members to said inoperative position in order to permit rearward pivoting movement of said handle.

3. A device according to claim 2 wherein means actuated by rearward pivoting movement of said handle are provided to restore said locking member to an operative position.

4. In a device of the class described a body, a handle pivoted on said body for swinging movement from a parked position in one direction to an operating position and back to said parked position, a releasable locking mechanism associated with said handle and body and automatically operable for locking said handle in its parked position relative to said body upon swinging movement of said handle into said parked position, said locking mechanism comprising a locking element on said handle, a locking member on said body and arranged to engage said locking element so as to lock said handle against pivoting movement in said one direction, and means actuated by pivoting movement on said handle in the other direction from said parked position for shifting said locking member so as to move the same out of the path of said locking element in order to permit pivoting movement of said handle in said one direction.

5. In a device of the class described a body, an upstanding handle pivoted on said body for swinging movement from a substantially vertical position downwardly and rearwardly to an operating position and back to said vertical position, a releasable locking mechanism associated with said handle and body and automatically operable for locking said handle in its vertical position relative to said body upon swinging movement of said handle into said vertical position so as to permit said device to be picked up by means of said handle while maintaining the relative position of said body and handle, said locking mechanism including a releasable element operable for rendering said locking mechanism inoperable, and means actuated by forward pivoting movement of said handle from said vertical position for operating said releasable element to render said locking mechanism inoper-

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able in order to permit rearward pivoting movement of said handle.

6. A body having a handle pivoted thereto, a handle lock operable for locking the handle in one position against pivoting movement in one direction comprising a lever pivoted on said body and having a stop thereon, a member on said handle and spaced from the handle pivot, a spring acting on said lever yieldably to position the same so that said stop is located in the path of movement of said member, thereby to lock said handle against pivoting movement in said one direction, the distance between said handle and lever pivot centers being less than the sum of the distance between the handle pivot center and said member plus the distance between said lever pivot center and said stop, said member acting on said lever upon pivoting movement of said handle in the opposite direction to shift said stop out of the path of movement of said member, a spring constructed and arranged to position said lever with said stop out of the path of movement of said member, said lever having a portion arranged to be engaged by said member after a predetermined extent of pivotal movement of the handle in said one direction to restore said lever to a position where said stop is in the path of movement of said member so that upon movement of said handle to said one position said stop will automatically cooperate with said member to lock said handle in said one position against pivoting movement in said one direction.

7. A body having a handle pivoted thereto, a handle lock operable for locking the handle in one position comprising a latch on said body, a member on said handle and spaced from the handle pivot, a spring acting on said latch yieldably to position the same so that said latch is located in the path of movement of said member, thereby to lock said handle against pivoting movement in one direction, said member acting on said latch upon pivoting movement of said handle in the opposite direction to shift said latch out of the path of movement of said member, means to position said latch out of the path of movement of said member, said latch having a portion arranged to be engaged by said member after a predetermined extent of pivotal movement of the handle in said one direction to restore said latch to a position where it is in the path of movement of said member so that upon movement of said handle to said one position said latch will automatically cooperate with said member to lock said handle in said one position against pivoting movement in said one direction.

8. A body having a handle pivoted thereto, a handle lock operable for locking the handle in one position comprising a lever pivoted on said body and having a stop thereon, a member on said handle and spaced from the handle pivot, means acting yieldably to position said lever so that said stop is located in the path of movement of said member, thereby to lock said handle against pivoting movement in one direction, said member acting on said lever upon pivoting movement of said handle in the opposite direction to shift said stop out of the path of movement of said member, means to position said lever with

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said stop out of the path of movement of said member, means operable upon a predetermined extent of pivotal movement of the handle in said one direction to restore said lever to a position where said stop is in the path of movement of said member so that upon movement of said handle in said one position said stop will automatically cooperate with said member to lock said handle in said one position against pivoting movement in said one direction.

9. A body having a handle pivoted thereto, a handle lock operable for locking the handle in one position comprising a lever pivoted on said body and having a stop thereon, a member on said handle and spaced from the handle pivot, means acting on said lever to position the same so that said stop is located in the path of movement of said member, thereby to lock said handle against pivoting movement in one direction, means acting on said lever upon pivoting movement of said handle in the opposite direction to shift said stop out of the path of movement of said member, means to position said lever with said stop out of the path of movement of said member, means operable by and upon a predetermined extent of pivotal movement of the handle in said one direction to restore said lever to a position where said stop is in the path of movement of said member so that upon movement of said handle to said one position said stop will automatically cooperate with said member to lock said handle in said one position against pivoting movement in said one direction.

10. A body having a handle pivoted thereto, a handle lock operable for locking the handle in one position comprising a latch, a member on said handle, means acting on said latch to position the same so that said latch is located in the path of movement of said member, thereby to lock said handle against pivoting movement in one direction, means acting on said latch by and upon pivoting movement of said handle in the opposite direction to shift said latch out of the path of movement of said member, means to maintain said latch out of the path of movement of said member, means acting by and upon movement of the handle in said one direction to restore said latch to a position in the path of movement of said member so that upon movement of said handle to said one position said stop will automatically cooperate with said member to lock said handle in said one position against pivoting movement in said one direction.

HARVEY W. RASMUSSEN.

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Disclaimer

2,427,622.—*Harvey W. Rasmussen*, Bloomington, Ill. HANDLE LOCK. Patent dated Sept. 16, 1947. Disclaimer filed Sept. 24, 1948, by the inventor; the assignee, *Eureka Williams Corporation*, consenting.

Hereby enters this disclaimer to claims 2, 3, 4 and 5 of said patent.

[*Official Gazette October 26, 1948.*]