

R. H. NEWMAN & W. N. GARTSIDE.
WINDOW CLEANER.

989,398.

APPLICATION FILED OCT. 10, 1910.

Patented Apr. 11, 1911.

2 SHEETS-SHEET 1.

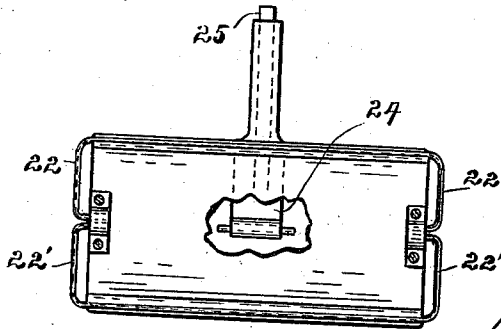


Fig. 2.

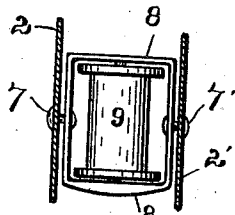


Fig. 7.

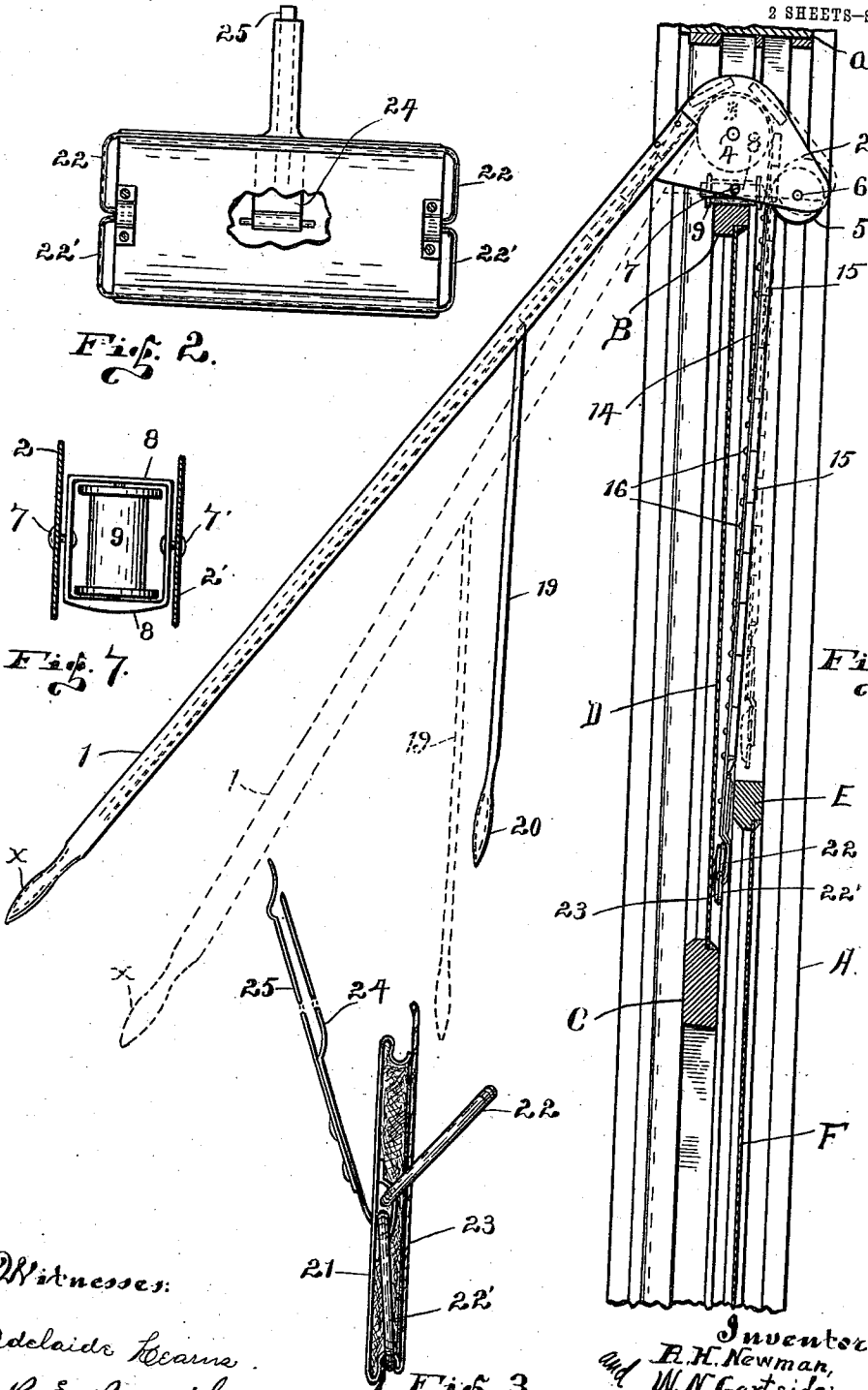


Fig. 1.

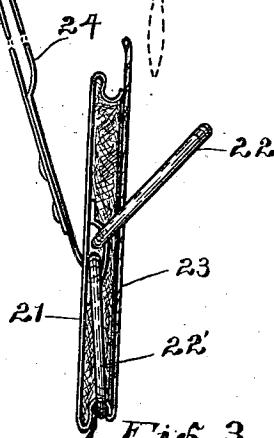


Fig. 3.

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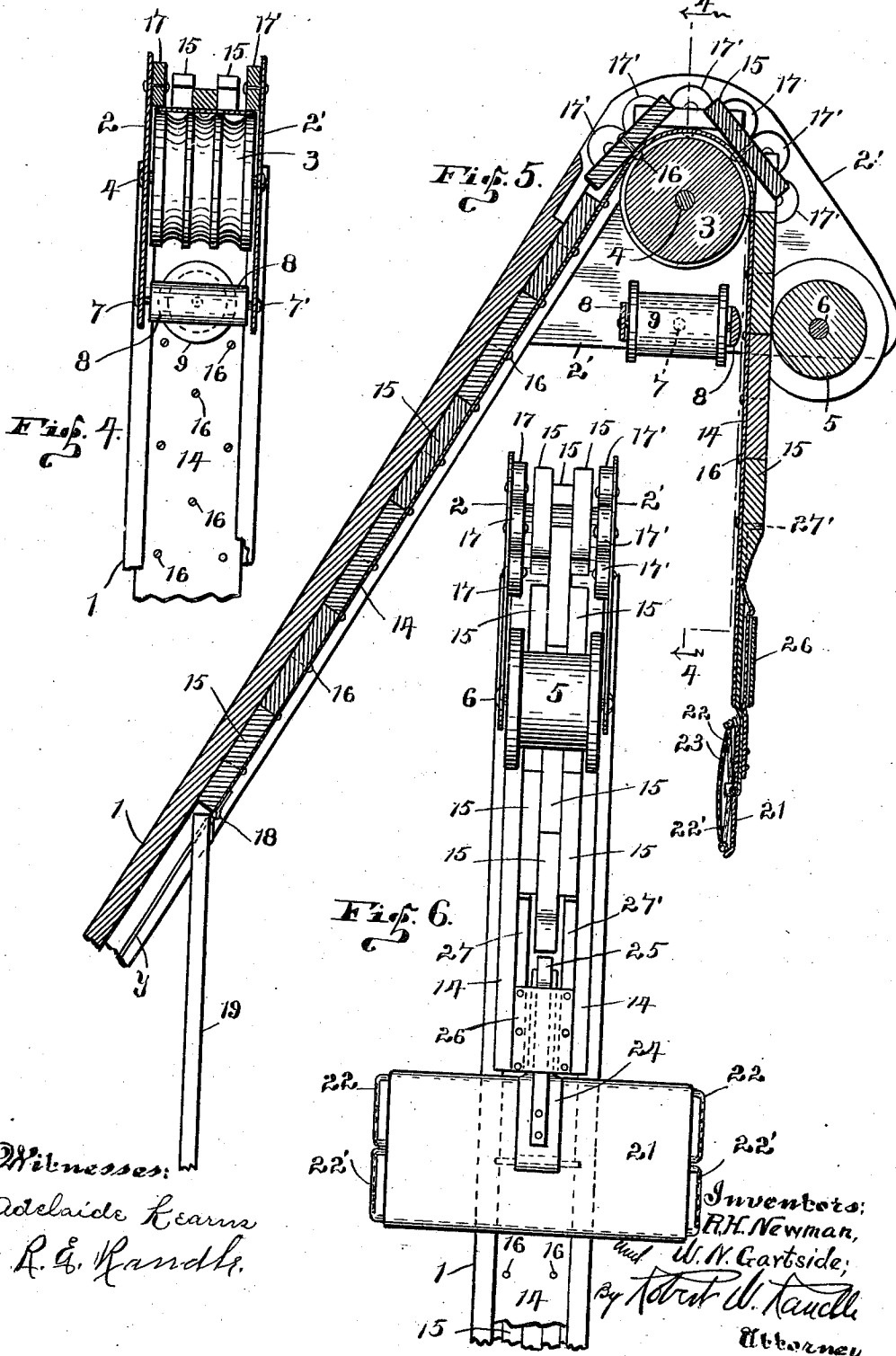
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2 SHEETS-SHEET 2.

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Witnesses:
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UNITED STATES PATENT OFFICE.

RUTLEDGE H. NEWMAN AND WILLIAM N. GARTSIDE, OF RICHMOND, INDIANA.

WINDOW-CLEANER.

989,398.

Specification of Letters Patent.

Patented Apr. 11, 1911.

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To all whom it may concern:

Be it known that we, RUTLEDGE H. NEWMAN and WILLIAM N. GARTSIDE, both citizens of the United States, residing in the city of Richmond, in the county of Wayne, and in the State of Indiana, have invented a new and useful Window-Cleaner, of which the following is a full, clear, and accurate specification, being such as will enable others to make the same with exactitude.

The device of the present invention is intended to be used for the purpose of washing the outside of windows by a person located upon the inside, in substantially the manner hereinafter defined.

The object of our present invention is to provide a window cleaner which will be strong and durable in construction, easily operated and controlled, adapted to perform the work intended of it with certainty and precision, and which can be manufactured and sold at a comparatively low price.

Other minor objects and particular advantages of our invention will be brought out in the course of the following specification, and that which is new and useful will be correlated in the appended claims.

One manner of carrying out the objects of our invention in a practical manner and that which in practice we have determined to be the most practical is shown in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation of our invention, showing same in operative position in connection with a window. Fig. 2 is a plan view of the hand or cleaner which may be used in connection with our invention. Fig. 3 is an end view of the hand or cleaner. Fig. 4 is a detail view partly in section, as taken on lines 4—4 of Fig. 5. Fig. 5 is a longitudinal vertical section of our device. Fig. 6 is an enlarged detail plan of the body of the device, and Fig. 7 is a plan view of the swivel arrangement, partly in section.

Similar devices denote like parts throughout the several views.

In order that the invention may be more fully understood and the advantages thereof be better appreciated we will now take up a detailed exposition of the invention and we will set forth the construction and the operation as briefly and as comprehensively as we may.

In the drawings A denotes one side of a window-frame, terminating in the top *a*. B denotes the upper member and C the

lower member of the lower or bottom sash, in which is mounted the glass or pane D. E denotes the upper member of the upper sash which carries the glass or pane F, the lower part of the frame and of the upper sash not being shown. All of said parts being shown only for the purpose of manifesting the operation of the invention with relation thereto.

Referring now to the device proper: Numeral 1 denotes the main arm or body of the device which terminates at its lower end in the handle *x*,—the other end of said arm being secured to the head which will presently be described in detail. Said main arm 1 is provided with a channel formed in the under side and extending uniformly from end-to-end thereof, there being oppositely disposed side grooves (as the groove *y* in Fig. 5) in which may operate the edges of the flexible arm which will hereinafter be described in detail and which forms one of the most essential elements of this invention.

The head of the device comprises the two side members 2 and 2' which are spaced apart and are secured to the upper end of the main arm 1. It should be understood that in practice said main arm 1 is to be disposed at an angle, substantially as that indicated in the drawings, whereby the lower edges of the members 2 and 2' are retained substantially horizontal as indicated.

Revolubly mounted between members 2 and 2' is a comparatively large roller or pulley 3 which is carried on the shaft 4, the latter being secured at its ends to and near the centers of the members 2 and 2'. A plurality of peripheral channels are formed around the pulley 3 which are for the purpose which will hereinafter be made apparent. Also mounted between members 2 and 2' is the spool 5, it being located near the lower outward corners of members 2 and 2' as indicated. Said spool 5 is revolubly mounted on the shaft 6, which shaft is also adapted to retain members 2 and 2' in proper relation to each other.

Located between members 2 and 2', directly below pulley 3, is a frame 8 which is carried on the pivots 7 and 7' whereby said frame is pivoted to members 2 and 2', forming a swivel for the purpose hereinafter stated. Revolubly mounted in frame 8 is the spool 9, same being disposed at right-angles to spool 5 and to pulley 3. Said spool 9 is adapted to travel on the top B of

the window sash, as shown in Fig. 1, and by reason of the swivel arrangement it is allowed to rest squarely on the edge of the window sash even though the handle x be raised and lowered.

Probably the most important single feature of our invention is the flexible arm above referred to and which comprises the thin sheet of ribbon 14 formed, preferably, of a flexible but non-elastic material, such as sheet brass or the like. The edges of said ribbon fit and are adapted to slide in said grooves y , passing out, if desired, at the upper end of the main arm and then passing over pulley 3 and then down back of spool 5. Mounted on one side of said ribbon are a plurality of blocks 15 which are arranged in three rows parallel with the length of the ribbon. The two outside rows of blocks are located even with each other while the middle row of blocks breaks joints with the two outside rows, that is to say each middle block extends from the center of two outside blocks to the center of the next two outside blocks, all substantially as shown in Fig. 6. Each of said blocks is secured to the ribbon 14 by a single central attachment, such for instance as a screw 16, or otherwise. From the above it will be noticed that when the ribbon is spread out flat, as it is when it is in said grooves y , that all of said blocks will be joined up close to each other, arranged alternately with relation to each other, as indicated in Fig. 6. Also it will be manifest that should the flexible arm be removed from said grooves in the main arm, that it may be easily bent in one direction but it can not be bent in the other direction, as the blocks 15 prevent its being bent except in the direction shown in Fig. 5.

Pivoted on the inner face of the member 2 are a plurality of small disks 17, and opposite thereto pivoted on the inner face of member 2' are a plurality of like disks 17'. Said disks are arranged in such manner that their peripheries are very near to the periphery of pulley 3, as shown in Fig. 4, the ribbon 14 being adapted to pass between disks 17-17' and pulley 3, while the blocks 15 pass between the two sets of disks 17 and 17'. The outside faces of blocks 15 are adapted to engage with the periphery of spool 5, that is when the flexible arm is operated. As the flexible arm passes over the pulley 3 the heads of the screws 16 enter said channels in the periphery of pulley 3, thereby allowing the ribbon 14 to contact with the periphery of pulley 3, as in Fig. 5. Secured to the lower (inner) end of the flexible arm, by means of the hinge 18, is the lever 19, having a handle 20, which may be turned out parallel with the flexible arm or it may be folded against the flexible arm when not in use.

The cleaning device or hand comprises an

oblong plate 21 having a channel formed in each of its longer edges. A pair of clamps 22 and 22' are pivoted in the center of the ends of the plates with their central portions adapted to spring into said channels in edges of the hand, as indicated in the lower part of Fig. 3, in order to secure a cloth or the like, denoted by numeral 23, in position. Pivoted in the center of the back of plate 21 is a finger 24 on which is rigidly secured the spring tongue 25. Numeral 26 denotes a bridge-plate secured on the end portion of ribbon 14, being on the same side thereof as are said blocks, and on the end portion opposite to said lever 18, as shown most clearly in Fig. 6, whereby said finger 24 and tongue 25 may be slid thereunder, there being an offset or catch formed near the free end of said tongue which is adapted to spring out and engage the inner end of the bridge-plate when the finger 24 has been pressed to proper position to hold the hand in operative position. By the above the cleaner or hand will be locked in position until such time as it may be desired to remove it when it may be disengaged by simply pressing down on said tongue.

Secured to the ribbon 14, adjoining the bridge-plate 26, are the two fingers 27 and 27' which are located on each side of the projecting portion of the last central block 15 and they extend to the last two outside blocks 15 and they are turned out at right angles even with the faces of said blocks. The last central block 15 is beveled off as indicated whereby a hollow is formed, as in Fig. 6, in which the periphery of spool 5 may rest when the device is not in commission.

Operation: The operation of our device is very simple. Suppose that a person located on the inside of a room desires to wash the outside of the window. The first operation would be to lower the top sash to its limit and then raise the bottom sash until the member B is within a few inches of the top a of the frame, there being just sufficient space between the top A and the member B to insert the head of the device as in Fig. 1, it being understood that at this time the flexible arm has been run back into the main arm until the cleaning member or hand is up near the head of the device. Before placing the device in position on the member B the sash should be secured from slipping downward. In order to use the device the operator will grasp handle x with his left-hand and at same time grasping handle 20 with his right-hand. Now by pressing upward on lever 19 the flexible arm will be forced out of the upper end of the main arm, passing over pulley 3 with which it will be held in contact by said disks 17 and 17', and also further guided by the spool 5. The cleaning device or hand carrying a suitable cloth

or the like will of course be moved downward as the lever 19 is moved upward. Now by simply raising or lowering handle *a* the pressure of the cloth carried by the hand may be controlled.

It should be noticed that every part of the outside of the glass D may be reached by simply moving the handle 20 up and down and also by moving the device laterally, that is allowing the spool 9 to roll along on the upper edge of member B.

It should be particularly noticed that the narrow space between the two panes D and F may be as readily reached with our invention as any other part of the window.

We desire that it be fully understood that various changes may be made in the several details of construction herein shown without departing from the principles of our invention or of sacrificing any of the advantages thereof.

Having now fully shown and described the principles of our invention and the best exemplification thereof to us known at this time, what we claim and desire to secure by Letters Patent of the United States, is—

1. A window cleaner comprising a main-arm having a head, a flexible arm slidable in the main arm and adapted to be slid endwise from the upper end thereof and being free to be bent in one direction but having means whereby it may not be bent from a straight line in the opposite direction, a cleaning member detachably secured on the outer end of said flexible arm, and a lever-handle hinged to the other end of the flexible arm, all substantially as shown and described.

2. The combination, in a window cleaner, of a flexible arm adapted to be bent in one direction only, a main arm having grooves in which said flexible arm is guided, a pulley over which the flexible arm may be extended, and means for guiding said flexible arm as it issues from the main arm, all substantially as shown and described.

3. In a window cleaner, a main arm hav-

ing a head formed of two members spaced apart, a pulley mounted between the members of the head, a spool located near the lower outward corners of the head, a pivoted frame carried by the members of the head, a spool mounted in said frame and located at right-angles to the first named spool, a flexible arm adapted to slide in grooves formed therefor in said main arm, a plurality of disks carried by each member of the head and adapted to guide said flexible arm in a curve over said pulley, and means for preventing said flexible arm from being bent out of a straight line in one direction yet allowing it to be freely bent in the opposite direction, substantially as set forth and for the purposes specified.

4. In a window cleaner, a main arm having a head formed on one end, said head being composed of two members spaced apart, a pulley mounted between the members of the head, a spool carried by the head parallel with said pulley, a swivel frame pivoted between the members of the head, a spool mounted in said frame, said second spool being located at right-angles to the first spool, a metal ribbon forming an arm slidable in grooves formed in the main arm, blocks located on one side of said ribbon, said blocks being arranged to overlap with each other and each having a single connection with the ribbon, means carried by the inner faces of the members of the head for guiding said ribbon in a curve over said pulley, a handle for operating said ribbon back and forth, and a cleaner hand detachably secured to the opposite end of said ribbon from said handle, all substantially as shown and described.

In testimony whereof we have hereunto subscribed our names to this specification in the presence of two subscribing witnesses.

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WILLIAM N. GARTSIDE.

Witnesses:

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R. E. RANDLE.