

March 9, 1943.

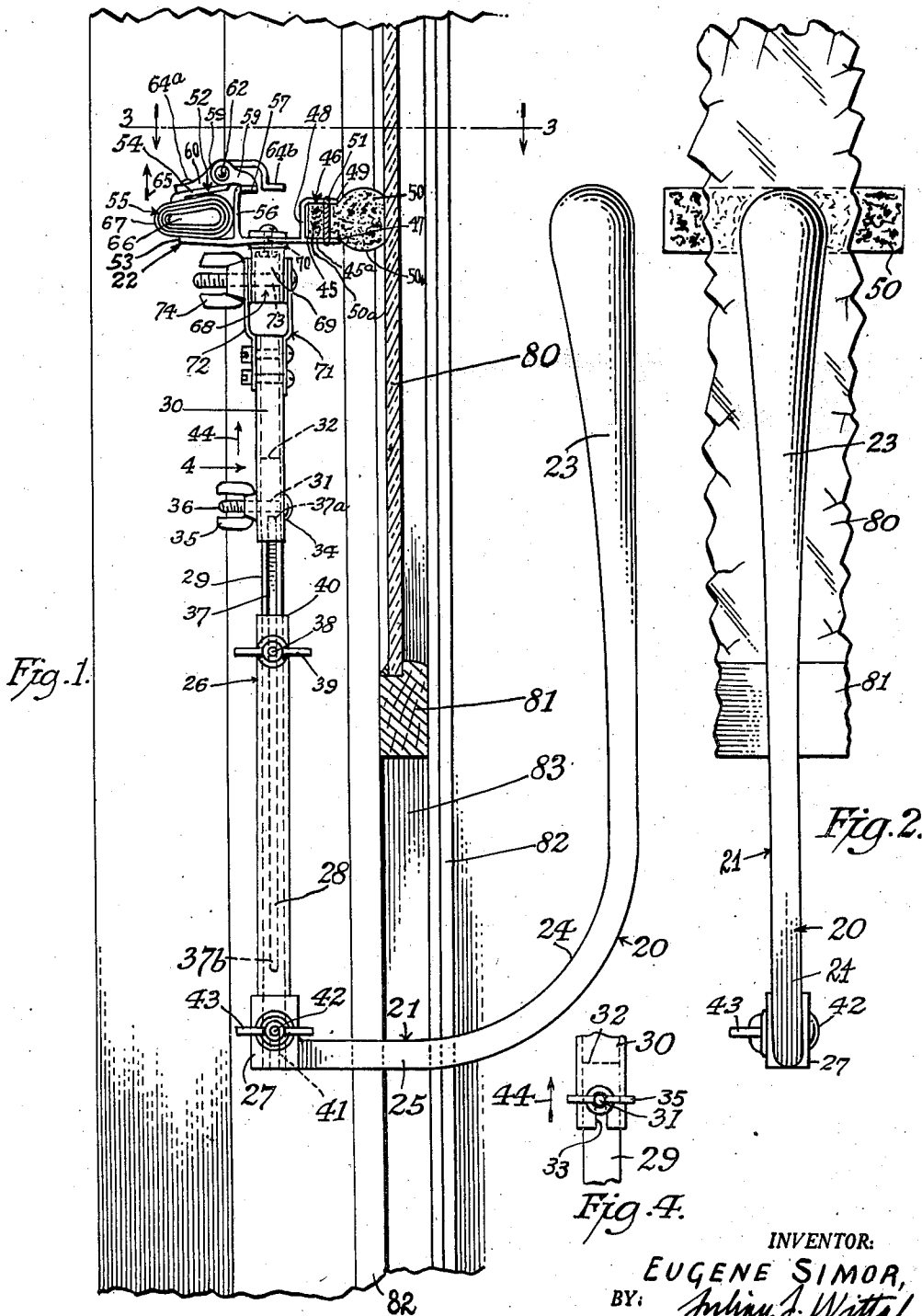
E. SIMOR

2,313,367

WINDOW CLEANER

Filed Oct. 1, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

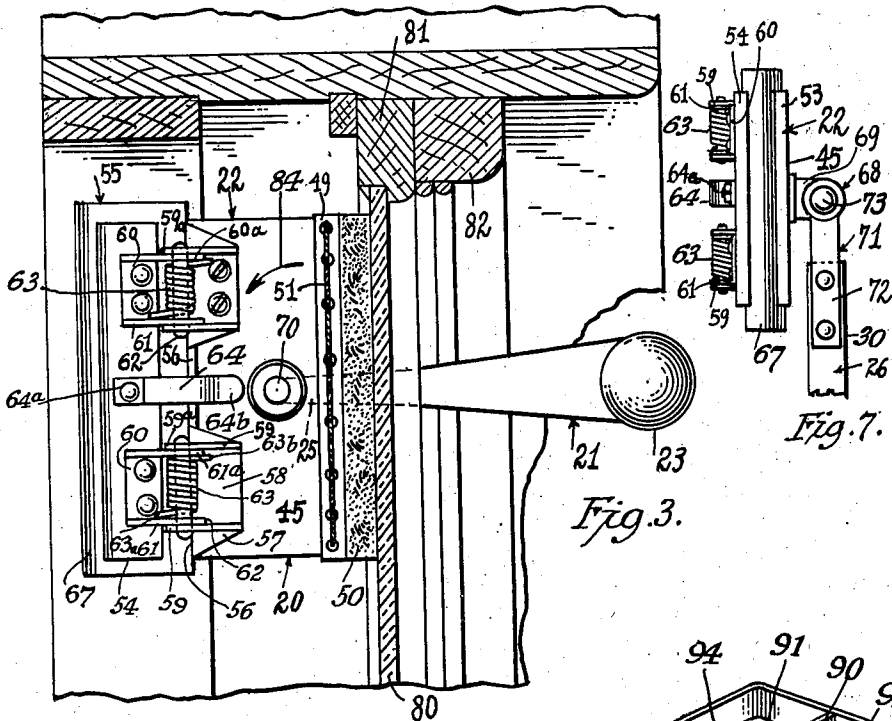


Fig. 3.

Fig. 7.

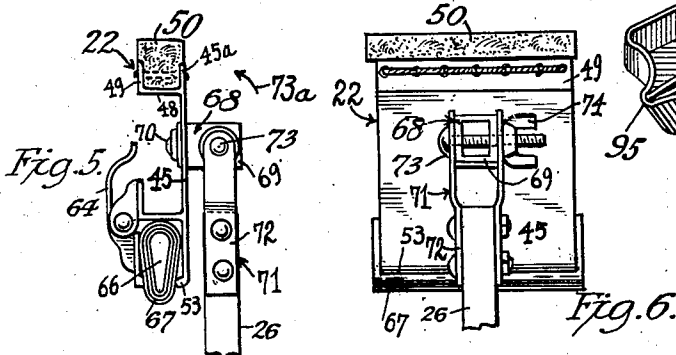


Fig. 5.

Fig. 6.

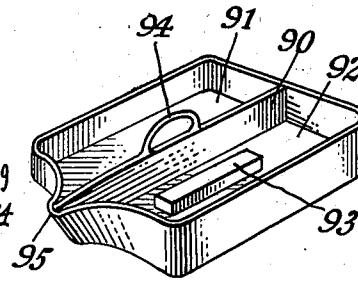


Fig. 8.

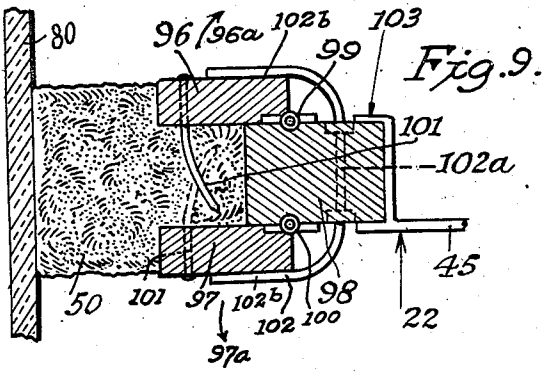


Fig. 9.

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UNITED STATES PATENT OFFICE

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WINDOW CLEANER

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2 Claims. (Cl. 15—220)

This invention relates to window cleaners and has for its main object to provide a device of this character which will make the cleaning of the outside of the window panes, without leaving the premises, from the inside thereof, easier and more efficient and comfortable and expeditious than it is possible with the devices now in use for such purpose.

Another object of my invention is to provide a device as characterized hereinbefore which generally will be adapted to efficiently, quickly and comfortable clean all parts of the panes of a window.

Still a further object of my invention is to provide a window cleaning device whereby the wet washing and cleaning, as well as the drying and polishing, of the window pane may be executed by the same instrument or apparatus, easily adjustably and exchangeably for the various operations.

A further object of my invention is to provide a device of the type herein indicated in which the cleaning of the washing element for the window panes, the removal of the dirt and used liquid therefrom, as well, as its rewetting with any appropriate cleaning fluid, and its squeezing to a required degree, may all be done in a novel, efficient and comfortable manner.

Another object of my invention is to provide a window cleaning device of the mentioned character which will be easily and efficiently adjustable to various sizes and types of windows and to various situations in the cleaning thereof.

Still a further object of this invention is to provide a window cleaner of the type indicated having a cleaning head or element proper which will be adjustable to various situations and uses, for wet washing of the window panes, for drying them, and for cleaning edges and corners of the same.

Another object of this invention is to provide a drying and polishing element, in a device as characterized hereinbefore, in which element the used portion of the drying medium may be easily removed and a fresh portion used, or the drying element entirely exchanged.

Still another object of my invention is to provide a cleaning head proper, in a device characterized hereinbefore, which cleaning head may be removed from the device and used independently in an efficient manner to clean portions of a window, or for general cleaning purposes, being adapted for wet washing, drying and polishing the surfaces of various objects, and in which device adjustable handle means will also be

included for the independent use of said cleaner head.

Other objects of this invention will be apparent as the specification of the same proceeds, and among others I may mention: to provide a device of the many objects, uses and advantages hereinbefore indicated, which will be comparatively simple in construction, inexpensive to manufacture, and easy and efficient in use and operation.

In the drawings forming a part of this specification and accompanying the same:

Fig. 1 is a side elevational view of my device, indicated in the position as applied for cleaning the outside of a window pane from the inside of the premises, a portion of the window structure being indicated in section;

Fig. 2 is a front view of my device, as seen from the inside of the premises in the position as used in Fig. 1;

Fig. 3 is a sectional elevation, the section being taken on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary detail of my device, being an elevational view of a portion thereof, as indicated by the arrow 4 in Fig. 1;

Figs. 5, 6 and 7 are elevational and plan views, respectively, of the adjustable cleaner head proper used in my device, in some of its various positions;

Fig. 8 is a perspective view of a washing, rewetting, and squeezing device used in connection with my invention, and

Fig. 9 is a fragmentary sectional elevation showing a modification in the wet cleaning or washing portion of said cleaner head.

Referring now to the drawings more in detail, by characters of reference, the numeral 20 indicates my device in general having the two main portions of a U shaped frame, generally indicated by the numeral 21, and a cleaner head proper, generally indicated by the numeral 22.

A U shaped frame for window cleaners to clean the outside of the panes from the inside of the premises has been proposed before, its general construction is well known in this art, and my U shaped frame 21 may be of any appropriate design. The embodiment of it shown in the drawings is provided with a handle or grip portion 23 to be arranged at the inner side of the window pane, being continued in a curved corner portion 24 and a transverse bottom portion 25, projecting to the outside of the plane of the window panes then being continued upwardly in an adjustable outer branch of the U frame, generally indicated by the numeral 26.

In the embodiment shown in the drawings, the inner or handle portion 23 and the transverse portion 25 of the device is made of one integral piece of material, preferably of hollow tubular construction, and a tubular or sleeve-like head or socket 27 is secured at the outer end of the transverse or bottom section 25 to receive the adjustable outer branch 26 of the U frame.

In the embodiment shown as an example of the construction of my invention, the adjustable outer branch 26 of the U frame is made of telescopic tubular sections, preferably of rectangular cross section; three such sections being shown in Fig. 1; a bottom section 28, a middle section 29, and a top section 30, the middle section 29 being of somewhat smaller dimension so as to slidably fit into the upper and lower ends, respectively, of the lower and upper sections 28 and 30. The sleeve or socket 27 is similarly rectangular in cross section and of such dimensions as to receive the lower section 28 in a snugly slidable manner.

A securing screw or bolt 31 is arranged near the upper end 32 of the middle section 29, across said middle section, passing through two slots 33 (Fig. 4) at the bottom of the upper section 30, downwardly open so that the upper section 30 may be pulled off from the top end of the middle section 29 and from said bolt 31. A head 34 is provided at one end of the bolt 31 and a wing nut 35 is threaded at the other screw threaded portion 36 of the bolt 31. It is obvious that when the wing nut 35 is tightened it will securely lock the middle section 29 and the upper section 30 to one another. On the loosening of the wing nut 35, however, the upper section 30 may be pulled off the upper end of the middle section, the screw 31 riding in the downwardly open slots 33, as will be obvious to those versed in this art, the screw or bolt 31 remaining in its holes in the middle section 29.

A longitudinal slot 37 is further provided in the middle section in the two faces or sides thereof transverse to the side in which the bolt 31 is arranged, said longitudinal slots 37 being closed, both, at their upper and lower ends, as at 37a and 37b.

A bolt 38 and a wing nut 39 is arranged adjacent to the upper end 40 of the lower section 28 passing through holes in the appropriate opposite sides of the lower section 28 and through the slots 37 in the middle section 29.

It will be obvious that upon the loosening or releasing of the wing nut 39, the middle section 29 may slide inwardly or outwardly in the lower section 28, thereby lengthening or shortening the branch 26 of the U frame 21, its bolt 38 riding in the slots 37, and the middle section 29 may be secured in any of its telescopically adjusted positions by tightening the wing nut 39.

At the lower end of the lower section 28, downwardly open comparatively short slots 41 are provided, facing the sides of the receiving sleeve or socket 27 which are in parallelism with the plane of the transverse branch 25 and handle 23 of the U frame 21. A bolt 42 passes through said slots 41 and through appropriate holes in the mentioned sides of the socket 27, and a wing nut 43 is threaded on the screw threaded end of the bolt 42, while the other end thereof may be provided with a head, similarly to the bolts 31 and 38, mentioned hereinbefore, and it will be seen that upon a loosening of the wing nut 43, the middle section 28 may be entirely pulled out upwardly of the socket or sleeve 27, the bolt 42 riding in the down-

wardly open slots 41 and permanently remaining in the socket 27, as will be obvious to those versed in this art.

It will be seen that the branch 26 of the U frame 21 may be extended or contracted to any lengths within the limits provided or allowed by the slots 37 in the middle section 29, and that the same, with all its parts, may be entirely removed from the U frame by pulling it out of the socket 27, as has been described hereinbefore.

It also will be obvious that the upper section 30 thereof may independently be removed from the rest of the branch 26 by loosening the wing nut 35 and pulling the section 30 off the middle section 29, as has been described hereinbefore, and is indicated by the arrow 44 in Figs. 1 and 4.

To the upper end of the upper section 30 is secured my novel specific cleaning head or device proper 22 in a rotatable and in a pivoted manner, so that the connection between the upper section 30 and the cleaning head 22 is a universal joint permitting the head 22 to take up various positions with reference to the section 30, as will be described more in detail hereinafter.

The cleaning head proper 22 is composed of a plate-like base 45 formed of any appropriate material, having a receiving channel, generally indicated by the numeral 46, along the inner edge 47 thereof, said channel being formed of the marginal portion 45a of the base 45, along said edge 47 thereof, then by an upstanding wall 48, and an outwardly pointing transverse flange 49 thereon. An elongated block 50 of liquid absorbent resilient material, like rubber sponge, is secured in the channel 46, as by the cord 51 passing through appropriate holes in the lower and upper walls of the channel 46, and in this manner being arranged as a seam across the inner end 50a of the elastic absorbent block 50, while the outer larger portion 50b of said block may be allowed to spread out through its resilient action. Another receiving channel, generally indicated by the numeral 52, is formed along the opposite outer edge 53 of the base 45. The upper wall or top 54 of said channel, however, being made upwardly and downwardly movable or rockable so as to make the drying and polishing element, generally indicated by the numeral 55, in said channel easily removable and exchangeable.

To form said channel, adapted to be easily opened and closed, an upstanding wall 56 is provided on the base 45 spaced apart from the edge 53 thereof and having two inwardly turned flanges 57 at its upper end. A plate element 58, with two upstanding lugs or brackets 59, is secured on each flange 57 (Figs. 1 and 3), and a plate 60 is secured on the movable upper member 54, opposite each plate 58 on the flanges 57. As will be observed, the upper movable or rockable member 54 is entirely independent of the upstanding wall 56, and the flanges 57. Upstanding brackets or lugs 61 are provided on the plates 60 slidably engaging, in respective overlapping portions 59a and 61a, the upstanding brackets or lugs 59 on the inner plates 58.

A permanently secured pin 62 is arranged in appropriate holes in each pair of inner lugs 59, the outer lugs 61 being rockable therearound through appropriate openings therein.

A helical spring 63 is arranged around each pin 62, one end 63a thereof engaging the outer plate 60 and the other, 63b, engaging the respective inner plate 58. A handle device 64 is secured on the rocking upper member 54, as at 64a, hav-

ing a downwardly bent inner end 64b. It will be seen that upon exerting a downward pressure on the inner end 64b, the upper plate 54, in the outer channel 52 of the cleaning head 22, will rock upwardly on its pivots 62, as indicated by the arrow 65, and will release the cleaning element 55 in said channel 52.

In the embodiment shown in the drawings, the cleaning element 55 may have a central elongated piece of material 66, forming a core for the same around which is wound, in a plurality of layers, a strip of paper 67. The mentioned universal joint between the cleaning head 22 and the upper section 30, generally indicated by the numeral 68, is formed of a hollow block of material 69 having an upstanding pin 70 around which the base plate 45 may rotate, as indicated in Fig. 3, (arrow 84) and as will be obvious. Means may be provided to permit such a rotation for the base plate 45 and still secure the same in the position into which it has been turned around the pin 70.

In the drawings, simply washers are shown on the block 69 underneath the base plate 45 and over the same underneath a head for the pin 70, the base plate being slidable between said washers but having such friction between them as to secure it in its various positions.

A fork device 71 is arranged at the top of the upper section 30 formed by two appropriate strips of material 72, secured at the opposite sides thereof, and a bolt or screw 73 is passed through appropriate holes in the block 69 and in the upper ends of said fork, as will be obvious and as it is indicated in Fig. 1, said bolt or screw 73 having a head at one end thereof and a wing nut 74 being threaded on the other end of the same. It is obvious that upon the loosening of the wing nut 74, the block 69, and the whole cleaning head 22 therewith, may be turned or rocked on the axis of the pin 73 to any desired positions within the limit of its rocking, whereupon said head may be secured in its new adjusted position by the tightening of the wing nut 74.

The use and operation of my device will be obvious from the herein description thereof and it is as follows:

In Figs. 1, 2 and 3 is indicated the application thereof when it is desired to clean the lower portion of the outer surface of the glass pane 80 in a window sash 81 of a window structure 82 from the inside of the premises.

The operation is the same whether the sash be an upper or a lower one. The other sash will be pushed to the upper end of the window structure 82, and the sash, the lower outer portion of which is to be cleaned, will be drawn downwardly but leaving space 83 thereunder through which a U frame 21 may project to the outside of the window, said U frame having been preferably arranged in such a manner that when the sash 81 is drawn downwardly the same will be between the outer branch 26 of said U and the inner handle portion 23 thereof.

The absorbent resilient strip of rubber sponge 50 has been preferably wetted to a desired extent and the operator now will grip the handle 23, will press said strip 50, comprising the washing element in the cleaning head 22, against the window pane 80 to a desired extent and will move it upwardly and downwardly on the outer face of the window pane 80 starting from one vertical end of said pane and gradually moving to the other vertical end thereof covering the whole outer lower portion of said surface, whereupon

the device will be taken inwardly through the space 83 under the window sash 81, the head 22 rotated around the pin 74, as indicated by the arrow 84 (Fig. 3), turning the drier and polisher element 67 inwardly into the position formerly occupied by the washing element 50, whereupon the outer branch 26 of the device will be returned to the outside of the window pane in the same position as before and as indicated in Fig. 1, but now the drier 67 will be pressed against the window pane 80 and the same will be dried and polished, as will be obvious, and with similar movements as it has been washed before.

It will be seen that the upper outer surface of a window pane may be washed, dried and polished in a similar manner by pulling the respective sash, partially downwardly and arranging my U shaped cleaning device 20 to saddle the upper end of the window pane in a similar manner as the lower end thereof has been shown saddled or embraced by it in Fig. 1, but in a reversed downward position, and the upper outer surface of the respective window pane will now be washed and then dried and polished in a similar manner, thereby completing the washing, drying and polishing of the entire outer surface of the respective window pane 80.

It will be obvious that by judicious moving of the upper and lower sashes of a window upwardly and downwardly, and applying my U shaped frame over the lower ends and then over the upper ends thereof, the outer surfaces of both panes may be entirely cleaned in an easy, efficient manner and in a comparatively short time.

When the cleaning of the outer faces of the window panes has been finished, the wing nut 35 may be loosened and the upper section 30, with the cleaner head 22 thereon, may be entirely removed, whereupon the upper section 30 may be used as a grip or handle for the cleaning head and the inner surfaces of the window panes cleaned quickly, efficiently and easily, by first applying the wet element 50 thereon and then the drying and polishing element 67 of the same.

It will also be obvious that at anytime when it is desired to use the cleaner head 22 in a different position, for cleaning corners and edges, the wing nut 74 may be loosened and the head 22 turned on the bolt 73 in the fork 71 until its base plate 45 will point upwardly, as indicated in Figs. 5 and 6 (arrow 73a). The first of said figures being a side elevational view and Fig. 6 being a plan view of the upper end of the outer branch 26 and the cleaner head 22 in said position. In said figures, the washing element 50 is shown at the top of the device. In this manner, said washing element may be used in horizontal or vertical corners and edges, whereupon the base plate 45 may be turned on the pin 70 (Fig. 3) until the drying element 67 will take the position of the washing element 50, and then the drying and polishing of such covers and edges may be performed, as will be obvious.

Base plate 45 and the operating portions of the cleaning head 22 therewith may also be turned into an intermediate position, as indicated in Fig. 7, which figure is a view of the device seen from the side of the drying element 67 and in which case both, the drying element 67 and the washing element 50 at the opposite side thereof, are turned into parallelism with the upper section 30 and may be used in such position when desired, as will be obvious, particularly for cleaning corners edgewise by up and down strokes.

The cleaning head may be turned in all kinds of other positions, on the swivel of the pin 73 and being rotated around the pin 70, as it is best suited to the situation to be met.

The cleaning head preferably will be turned 5 into the position shown in Figs. 5 and 6 when it is desired to wash the dirt out of the washing element 50 and to rewet the same.

In case of cleaning the outside of the window, the U shaped frame may be taken inside of the 10 premises, the head turned into the position of Figs. 5 and 6 and then the washing element 50 immersed into a cleaning liquid, the U frame being turned into the reverse position from that shown in Fig. 1, washed out and possibly there- 15 after immersed into an appropriate cleaning liquid, whereupon the superfluous liquid may be squeezed out of the same by pressing the washing element 50 against a hard surface to a desired degree, as will be understood.

For this operation I provide a cleaning and rewetting container indicated in Fig. 8. The container of Fig. 8 is divided into two sections by a central wall or partition 90. In the section 91 water or other liquid may be placed for wash- 20 ing and cleaning the element 50, while in the section 92 the fresh cleaning liquid may be placed so that the washing element 50 after being cleaned in the section 91 may be immersed into the liquid in the section 92 and thereupon the 25 same placed on the raised lug 93 in said section and pressed thereagainst squeezing out the superfluous cleaning liquid which then will flow back into the section 92.

A handle 94 may be provided for my combination cleaning and rewetting container and it may have a common spout 95 for both sections to remove the used liquid, as will be understood.

In Fig. 9 I illustrate a modified form of securing the washing element 50 into the clean- 30 ing head 22. In this case, said washing element is clamped between an upper strip of material 96, and a lower one 97, each preferably being made of wood, and being secured on a block 98 by outwardly opening pivots or hinges 99 and 100, respectively.

Inwardly projecting and preferably rear- 35 wardly bent spikes or nails 101 are arranged in the pivoted plates 96 and 97 and when it is desired to secure the washing element 50 into the device the plates 96 and 97 will be opened, as indicated by the arrows 96a and 97a, the wash- 40 ing element 50 placed against the central block 98 and the plates 96 and 97 closed thereon, their spikes 101 penetrating into the inner portion thereof as indicated in Fig. 9.

A rotatable U shaped wire 102 may be ar- 45 ranged in the block 98, and after closing the plates 96 and 97 on the washing element 50, the U shaped wire 102 is turned on its stem 102a into the position indicated in Fig. 9, its outer branches 102b closing upon the plates 96 and 97 and securing them in their locking positions. It is obvious that when it is desired to open the device, the U shaped wire 102 will be turned into 50 the opposite direction to that shown in Fig. 9, its branches 102b releasing the plates 96 and 97. The block 98 may be secured in the cleaner head proper 22 by any appropriate means. In Fig. 9 it is indicated that the inner end of the block 98 is placed into a channel, generally in- 55 dicated by the numeral 103, forming the respective end of the base plate 45, and the portion of the block 98 placed into said channel may be 60

secured therein by any appropriate means, well known to those versed in this art.

As has been indicated hereinbefore, the whole 65 outer branch 26 of my U shaped cleaning device may be removed by loosening the wing nut 43 and pulling the lower section 28 from the socket 27. In this manner, a cleaning device is provided having a handle formed by the branch 26 which may be used like a mop, or for clean- 70 ing table tops, walls, bathtubs, or any other objects appropriate for such cleaning, washing and drying. The handle formed by the branch 26 may be adjusted in a similar manner as has been described hereinbefore by telescopically moving 75 the middle section 29 to any desired extent out of the lower section 28 or into the same and then securing it by the wing nut 39.

It will be seen that I provide not only a window cleaning device of the many advantages 80 enumerated hereinbefore, but also a device for many other cleaning purposes, in general, which may be adjusted to various uses and the cleaning head of which may be removed and used in the many positions indicated with a handle pro- 85 vided for it in the device itself, said handle being adapted to be made from a short convenient length to a great range of longer lengths, as desired.

The U shaped cleaning device without any 90 change, except the turning of its cleaning head into the position of Fig. 5, may be washed out and rewetted in a quick and convenient manner and the same is true when the cleaning head is removed with its handle and used separately. 95 In each case, the washing out and rewetting not only may be done in a quick comfortable manner but also without the necessity of the hand of the user touching any liquid so that ammonia solutions and other effective strong cleaning 100 fluids may be used without the disadvantages which now accompany the use of the same in similar situations.

The drying element 67 may be easily removed 105 by exerting a downward pressure on the end 64b of the arm 64 thereby moving the plate 54 in an upward direction as indicated by the arrow 65 in Fig. 1, and as has been described hereinbefore.

As also has been indicated, the preferred form of said drying element comprises a plurality of 110 layers of paper wound around a core 66, and upon the outermost layer becoming unduly wet, the drying element 67 may be removed and the outer layer of paper torn off and then the element 67 replaced into the cleaning head permitting 115 the plate 54 to snap thereon. This provides an extremely simple, efficient and quick means for refreshing the drying and polishing element.

Of course, instead of the paper roll any other drying and cleaning means, like an appropriate 120 rag, chamois, etc., may be used. It also is obvious that the removal of the used paper and a renewal of the paper drying element may be made in other manners, than that indicated in the drawings, so, for instance, an appropriate 125 rotating roll of paper may be arranged in the cleaning head and upon the exposed portion thereof becoming wet, the same may be released, rotated to a desired extent, and locked again 130 by any appropriate means, as it is well known for such rotating paper rolls part of which is de- 135 sired to be removed, as paper towels, toilet pa- per, etc.

Similarly, the drying and polishing element 140 may be in the form of a roll and the wet portion thereof removed from the exposed position and

a fresh portion propelled into its place, as it is well known with the endless towels now in use.

While I have shown and described preferred embodiments of my device, it is to be understood that changes and variations may be resorted to in the elements and details of construction thereof, and I reserve my right to all such changes and variations which are within the spirit of this specification and the scope of the claims hereunto appended.

One of such changes may consist in the construction of the wet cleaning or washing element 50 which may be formed as a rubber sponge having a hollow sleeve-like extension by which it may be pulled on an appropriate block in the cleaning head. After use and deterioration, the rubber wet cleaning element may be pulled off the block and a fresh one pulled thereon.

What I claim as new, is:

1. In a window cleaning device, a U-shaped 20 frame adapted to saddle the window sash, a cleaning head at the end of the outer branch of said U-shaped frame, a plurality of cleaning and polishing elements on said head, a pin, for said head in parallelism with said outer branch, 25 said head being rotatable on said pin, a second pin at the end of said outer branch transversely thereto, said head also being rotatable on said second pin, whereby on pre-determined rotations of said head on both pins, a selected cleaning 30 element will be placed into engagement with the

window pane in a plane and in a position, as desired, a member between said head and said outer branch, said first pin being in said member to rotatably secure said head thereon, and 5 said second pin being arranged transversely at the end of said outer branch, and said member being rotatable on said second pin, the end of said outer branch being forked, said second pin being secured in said fork, and said intermediate 10 member depending from said head into said fork.

2. In a cleaning device, a handle, a cleaner head at the end of said handle, a plurality of cleaning and polishing elements in said head, a pin for said head in parallelism with said handle, 15 said head being secured by said pin but being rotatable thereon, a second pin at the end of said handle transversely thereto, said head also being rotatable on said second pin, whereby on pre-determined rotations of said head on both of said 20 pins, a selected cleaning or polishing element may be placed into a desired operative position in a desired plane and position, a member interposed between said head and handle, said first pin being in said member, and said member being ro- 25 tatable on said second transverse pin at the end of said handle, the outer end of said handle being forked, said intermediate member being placed into said fork, and said second pin being secured in said fork.

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