Aug. 26, 1930. S. KAUFMAN 1,773,900

SURFACE TREATING DEVICE

Filed Jan. 28, 1926 3 Sheets-Sheet 1

Fig. 1.

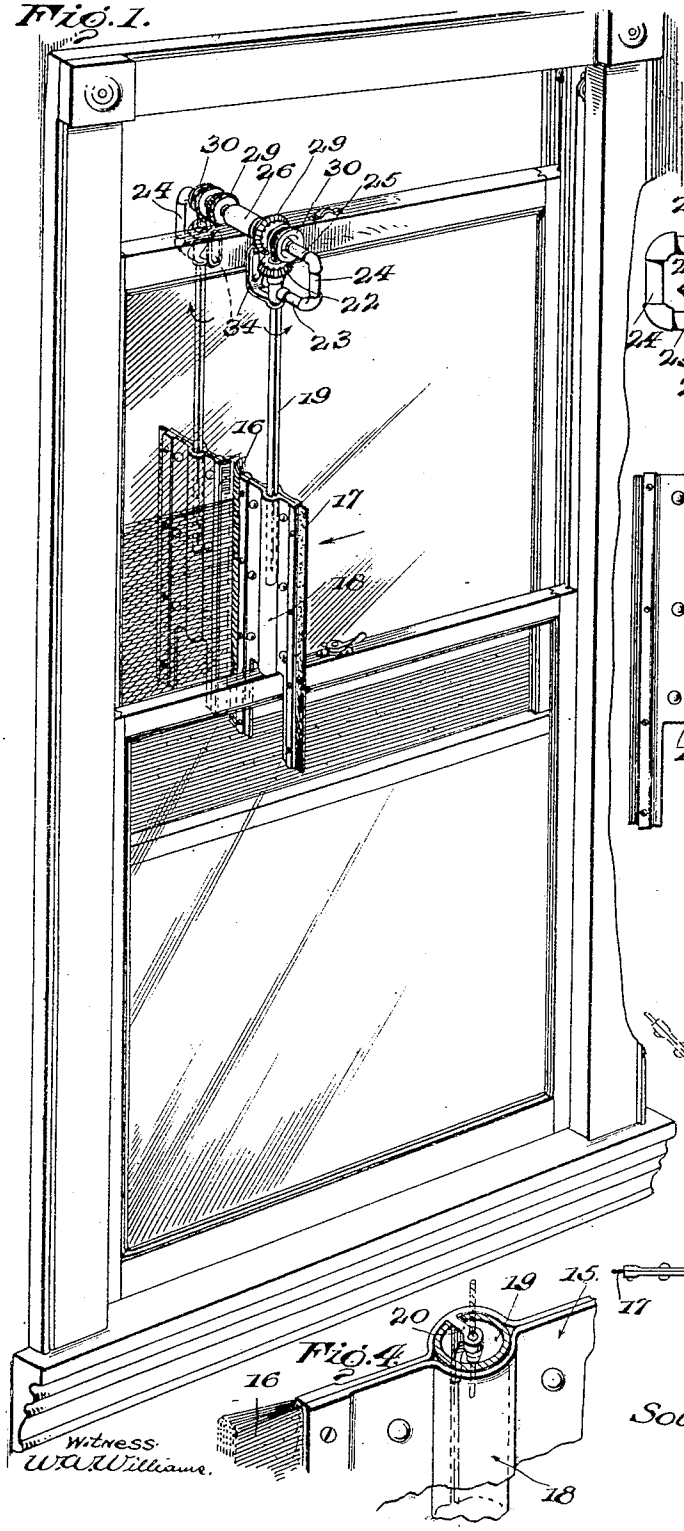


Fig. 8.

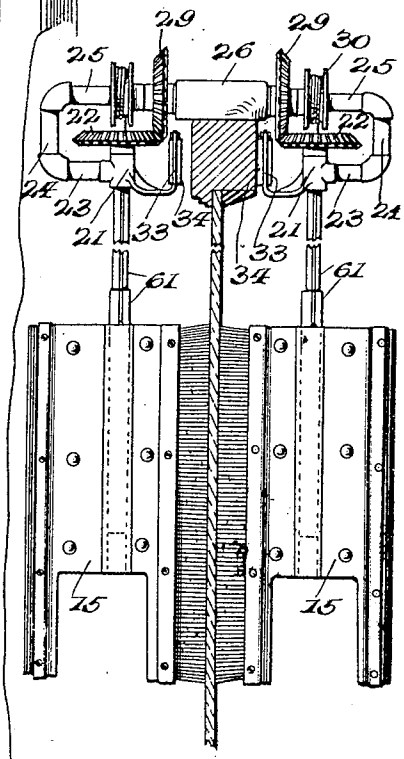
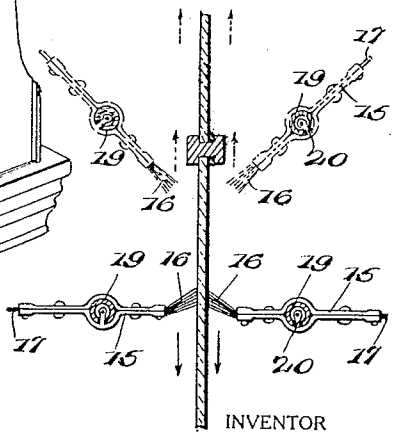


Fig. 3.



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Fig. 2.

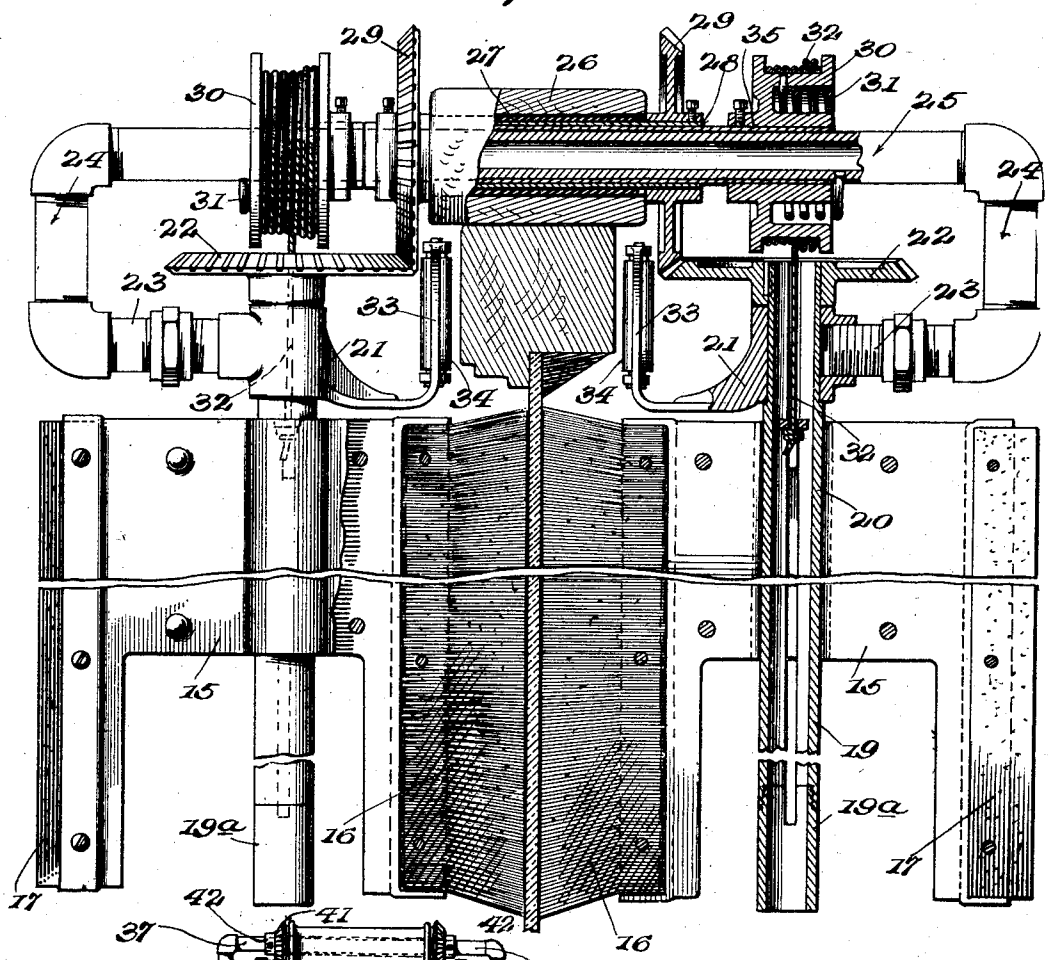


Fig. 9.

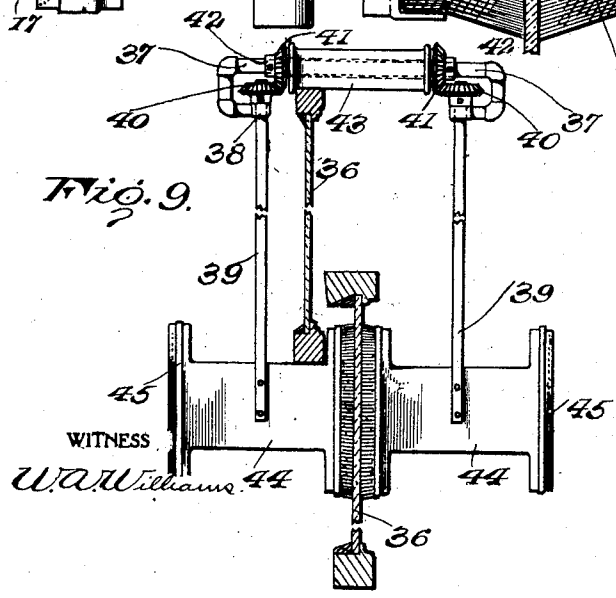
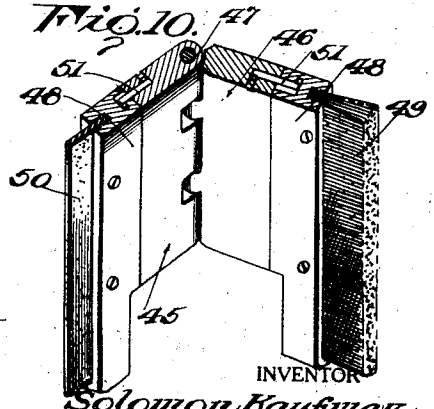


Fig. 10.



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SURFACE TREATING DEVICE

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Fig. 5.

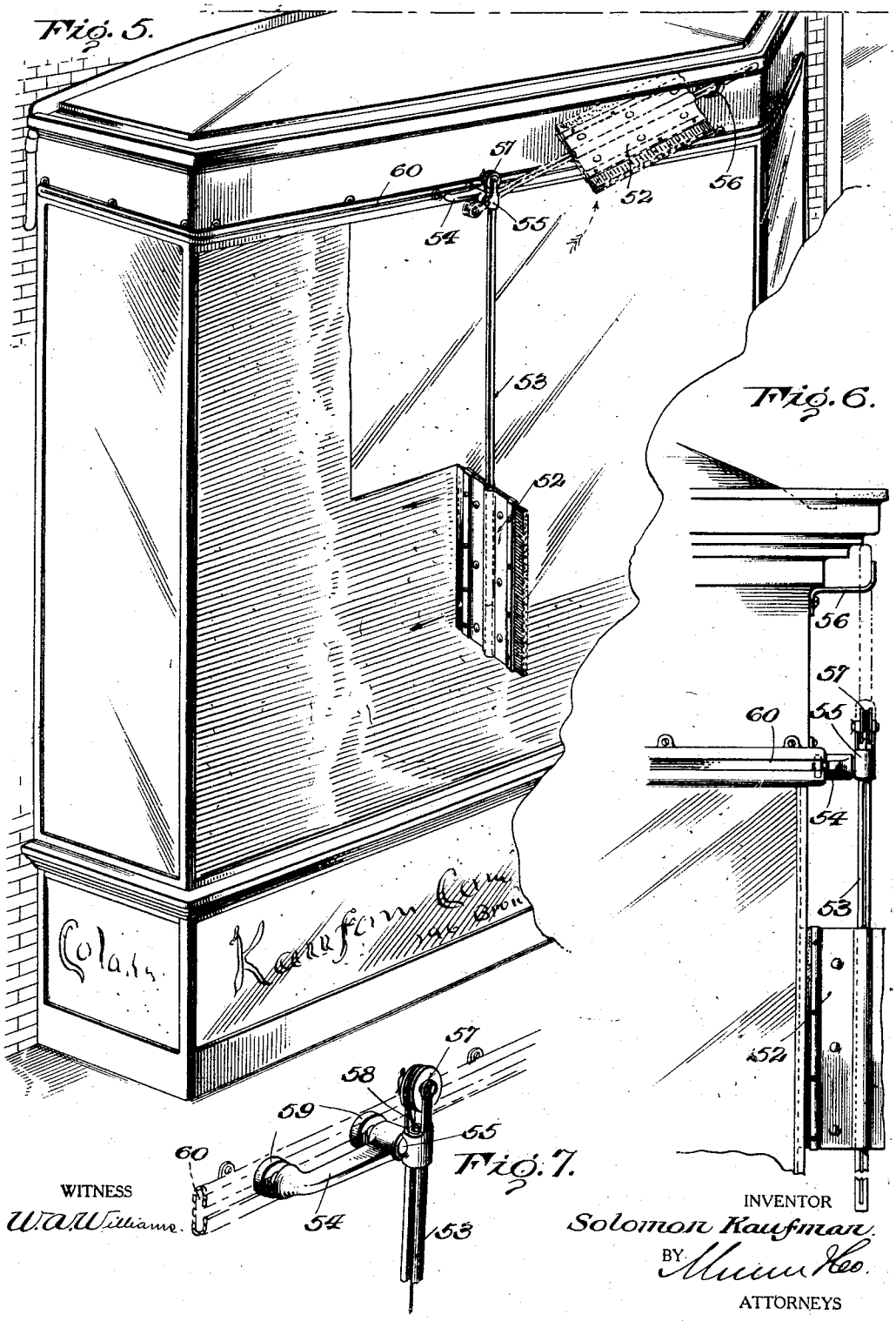


Fig. 6.

Fig. 7.

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SOLOMON KAUFMAN, OF NEW YORK, N. Y.

SURFACE-TREATING DEVICE

Application filed January 28, 1926. Serial No. 84,440.

This invention relates to surface treating devices generally, and has for its primary object to provide for a labor saving apparatus for this and other kindred purposes, including the cleaning, rubbing, scraping or wiping down of such surfaces, and, in its more particular adaptation for the treatment or cleaning of all kinds of windows, doors or the like, whether in plain or fancy, large or small, sliding, swinging or pivoted windows or doors, as well as windows or doors of different odd shapes, and those which are stationary in frames, such as store windows, doors and the like.

A still further object is the provision of an apparatus for simultaneous operation upon two opposite sides of an object, such as a window or the like, to be acted upon, together with two members to perform the desired actions and means to coordinate and synchronize the movements of the two operating members in action whereby the movements including the adjustments of one will be reproduced at the other. Thus as applied to the cleaning device proposed by my invention, both surfaces of windows may be cleaned at the same time, and usual labor reduced by at least one-half, and sliding sashes may be cleaned without the necessity of sitting on and swinging outwardly from the window sill and without the physical danger to the operator which these positions necessarily require in the usual cleaning of windows.

A still further object of my invention is the provision of a window cleaning apparatus including a cleaning member having cleaning and wiping elements along its opposite sides, which member is turnable to present either the cleaning or the wiping element against the glass, as well as to vary the angle of either thereof, and especially the wiping element, in its engagement with the glass. It is to be understood in this connection that both the wiping and cleaning elements may be of various forms, as for instance a cleaning cloth or brush and a wiping pad or rubber strip commonly known as a squeegee.

Various other objects and advantages of my present invention will be made plain in the course of the following description and in reference to the accompanying drawings which illustrate the invention and form a part of this specification and in which drawings:—

Figure 1 is a perspective view illustrating the practical application of my invention in connection with the cleaning of the usual sliding sashes;

Figure 2 is an enlarged vertical transverse section through a sash illustrated in the practical application of my invention, the latter being partly in elevation and partly in section;

Figure 3 is a horizontal section through a divided sash showing the application of my improved cleaning members thereto;

Figure 4 is a detailed sectional perspective view of a portion of one of the cleaning members and the support thereof;

Figure 5 is a perspective view illustrating the application of my invention as a cleaning device for store windows;

Figure 6 is a partial side elevation thereof;

Figure 7 is a detailed perspective view of the guide bracket and a portion of the support of the cleaning member;

Figure 8 is a view showing a similar type of cleaning apparatus to that shown in Figures 1 and 2, and illustrating a slight modification in the support of the cleaning members;

Figure 9 is a sectional side view illustrating another modified form of the invention; and,

Figure 10 is a detailed sectional perspective view of a modified form of cleaning member.

Referring now to these figures, I have shown in the several instances of the application of my invention in practical use, a surface treating member which has a substantially flat body, provided along one longitudinal edge with a working element illustrated in the form of a brush and along its other longitudinal edge with a second working element in the form of a squeegee, or the like.

In the form of my invention illustrated in Figures 1 to 4 inclusive, the surface treating member 15 of the form above described has its

body constituted by a pair of plates secured to one another, the cleaning brush along one longitudinal edge being indicated at 16 and the squeegee or the like along the other longitudinal edge being indicated at 17. Moreover the body 15 is formed to provide a central longitudinal cylinder 18 to receive therethrough a guide rod preferably of the hollow form indicated at 19, and also preferably provided with a slot through its wall in which slot an inwardly projecting rib 20 of the body of the cleaning member extends, so as to thus constrain the cleaning member 15 to rotation with the guide rod 19. The lower end of 19 is detachable as at 19ª, Fig. 2, so that the cleaning member with its rib 20 may be moved downwardly off of the guide rod in case repair or substitution becomes necessary.

In this form of the invention it will be moreover noted that two cleaning members 15 and two guide rods 19 are employed in the spaced apart parallel relation shown the upper ends of the guide rods having rotatable bearings through brackets 21 adjacent to their upper ends and being provided above these brackets with bevel gears 22 securely fastened thereon.

The brackets 21 are securely held in connection with the inturned lower portions 23 of the depending sides 24 of a supporting frame, which also includes an upper horizontal body member 25 preferably in the form of a tube or pipe having around the central portion thereof a roller 26 preferably formed of wood or some similar material which will avoid defacement of the sash rails along which roller is moved in practice. Within the roller a bushing 27 seats loosely upon a sleeve 28 around the tube or pipe 25, the end portions of which sleeve project beyond opposite ends of the roller and have securely fastened thereon bevel gears 29 engaging the bevel gears 22 at the upper ends of the two guide rods 19 and thus constrained to simultaneous rotation by virtue of their connection with the sleeve 28.

Rotatable on the tube or pipe 25 above each of the guide rods 19, is a reel 30 controlled by a spring 31, one end of which is secured to the reel and the other end of which is secured to the tube 25. Upon each reel is a cord or cable 32 which is extended downwardly into the respective hollow guide rod 19 and is in connection at its lower end with the inwardly projecting rib 20 of the respective cleaning member 15, as most plainly seen by comparison of Figs. 2 and 4. In this way the cleaning members are placed under tension, adapted to simultaneously draw them upwardly along the guide rods at all times by virtue of the connection of the two reels with the sleeve 35 and by virtue of the connection of the two guide rods through the gears 22 and 29 and the sleeve 28, it is likewise obvious that any turning movement of the cleaning members will be synchronized, and further, when one of these members is moved to a slightly angular position in order to shift the angular position of either its cleaning element 16 or its wiping element 17 with respect to the window glass, the other cleaning member will be moved in the same degree, for the same purpose. This shifting of the cleaning members enables the elements carried thereby to pass over obstructions as in the case of fancy windows embodying numbers of small panes of glass shown for instance in Figure 3, where the operation just referred to is indicated by the showing of the cleaning members in full and dotted lines, and it is obvious that this same shifting or swinging of the cleaning members permits the device to straddle a window sash when the window cleaner as a whole is initially shifted downwardly upon the window and removed upwardly therefrom respectively at the beginning and end of the cleaning operation.

The bearing brackets 21, may, as shown particularly in Figure 2, be also provided with inwardly projecting and upstanding portions 33 to support upright rollers 34 adapted to be positioned at opposite sides of the upper rail of a window sash when the apparatus as a whole is shifted over the window to straddle the rail and to permit the roller 26 to roll thereon as the cleaning members are drawn back and forth across the window glass at the different levels permitted by virtue of the movement of the cleaning members lengthwise of the guide rods 19.

The reels 30 are preferably rotatable and simultaneously rotatable upon the ends of a sleeve 35 around the tube 25, and extending through the sleeve 28, which sleeve 35 is rotatably confined between the springs, and it is thus obvious that the sleeve 28 is in this way prevented from endwise movement while the gears 29 at the same time confine between them the roller 26 and effectively hold the latter in place.

It is possible moreover to do away with the reels 30 entirely as illustrated in the construction shown in Fig. 9, where one of the sashes 36 is movably adjusted with respect to the other sash upon which the cleaning members are in operation, in lieu of the adjustment of the cleaning members vertically along the same sash in which the device operates, as in Figs. 1 to 4 inclusive. In Fig. 9 the guide tube of the supporting frame is seen at 37 with its depending and inturned ends having bearings at 38 for the upper portions of the guide rods 39. The upper ends of these guide rods have gears 40 engaging gears 41 upon the opposite ends of a sleeve rotatable on the tube 37 and confined between said collars 42, the gears 41 being mounted at opposite ends of an elongated sash engaging roller 43. In this form the cleaning members 44 are secured upon the lower ends

of the guide rods 39, for simultaneous rotation through the gears 40 and 41 and the device is operable in connection with one of the pair of sashes 36 by virtue of engagement of the roller 43 with the other sash.

It is to be noted of the invention that several of the forms thereof, as herein described and illustrated, are adapted to clean both sides of the top and bottom sashes of a window from one edge of either of the sashes simultaneously, and with equal facility and efficiency.

In Fig. 9 as well as in Figs. 1 to 4, inclusive, the cleaning members provided with cleaning elements at one side and wiping elements at the opposite side, are provided with side portions 45 extending in spaced parallel relation beyond one or both ends of the body of the cleaning member, and in each instance it will be noted that the cleaning and wiping elements project continuously along the sides of the cleaning member and along such extensions so that both the cleaning and wiping elements may project for some distance between overlapping sashes since in the use of this device it is necessary in its employment with upper and lower sashes that portions of the sashes overlap during such use.

As seen in Fig. 10, the cleaning members may be of the two part construction illustrated, the two parts being indicated at 45 and 46 connected along their longitudinal centers by a hinged joint, as at 47, whereby one part may be adjusted angularly with respect to the other, and whereby to permit said parts to simultaneously or successively operate upon a window glass. This form of cleaning member is adapted to be mounted on the guide rods in any form of my device. As seen in Fig. 10, I may moreover provide the cleaning members with detachably locked side strips 48 carrying the cleaning element 49 and the wiping element 50 so as to provide for the renewal of these elements when necessary. The strips 48 are normally secured in place by locking members 51.

As shown in Figs. 5, 6 and 7 my improved cleaning member indicated at 52 and constructed as previously described, may be applied to store windows and the like, lengthwise movable, and in rotatable relation, upon a guide rod 53, which obviously may also be in telescoping sections whose upper end is carried in a bracket 54 having a turnable part 55 so that the rod 53 with the cleaning member 52 may be elevated to the position shown in dotted lines in Fig. 5 and the rod 53 placed over a hook 56 above the store window when not in use. The bracket portion 55 may support a reel 57 which preferably has a tension spring therein, from which a cord or cable 58 depends to the cleaning member 52, and the supporting bracket 54 including its part 55 has guide rollers 59 disposed within a guide track 60 above the store window, or this bracket may if so desired extend through a closable slotted opening above the store window and employed in connection with an inside cleaner constrained to movement with the outside cleaner in substantially the same manner as described in connection with the structure outlined in Figs. 1 to 4 inclusive or Figure 8. This apparatus, it will be noted, operates without gears.

In some instances windows of considerable height such as store windows may make it desirable to utilize guide rods for the rotatable and vertically adjustable support of the cleaning members which are in telescoping sections, as seen at 61 in Fig. 8, where the construction of the cleaning device as a whole, including the cleaning members, is otherwise the same as described in connection with Figures 1 to 4 inclusive, although it is obvious that in this instance also the construction may be similar to that of Fig. 9 and may be intended for either the ordinary house windows or store windows, train car windows, etc.

When employing one cleaning member in connection with a store window, as in Figure 5, instead of placing the said cleaning member on a hook over the store window, as previously set forth, the lengthy guide rod can also be used to slide the cleaning member and its supporting bracket with guide rollers entirely out of the guide track in order that these parts may be entirely detached and laid aside for using. This can obviously be accomplished by leaving at least one end of the guide or track open as indicated in Figure 7 in order that the guide rollers may be shifted into and out of the track.

As the device as a whole is of generally flat form, it is obviously possible to utilize both inside and outside cleaning members in connection with store windows by providing the store window with an upper slot through which a device such as generally outlined in Figure 1 may be shifted first in the horizontal position, and then brought down into effective vertical position against both sides of the window glass.

By substituting for the squeegee 17 of any other type of surface treating or working element such as a rubber or scraper, rubbing or scraping operations may be performed with equal facility, such as the rubbing or scraping down of dirt or other accumulations, or coatings from the surfaces to be treated or cleaned, and by moistening the brush with a liquid, such as water, on the one hand, the surface may be subjected to a scrubbing or washing action, or an oil or paint, or other coating material, on the other hand, may be applied to the said surfaces.

With the above explanation, the effectiveness and efficiency of the invention as well as its durability and inexpensive construction, and its ready adaptability to windows of va-

rious sizes and shapes, will be apparent and it will also be obvious from the description and the showing of the several modified forms that the invention is susceptible of various other modifications, as to structure as well as to function and use, within the spirit of the invention and the terms of the appended claims.

I claim:—

1. In a window cleaning device, a support including a frame movable along a window sash, guide members rotatably supported in portions of and extending from said frame in spaced relation to project upon opposite sides of such sash, cleaning members adjustable lengthwise of said guide members and rotatable therewith, a cross member rotatable on said frame, and geared connections between said guide members and said cross member constraining the guide members and the said cleaning members to simultaneous rotation.

2. In a window cleaning device, a support movable along a window sash, a rotatable guide member projecting from said support in parallel relation to each side of said sash, a vertically elongated member engaged at its vertical center on said guide member and shiftable about the same and also lengthwise thereof, and cleaning elements carried at the opposite edges of said shiftable member.

3. In a window cleaning device, a frame adapted to straddle a window sash and having a roller for movement along the sash, depending guides having rotatable bearings in portions of the said frame and disposed in parallel spaced relation, and cleaning members adjustable lengthwise on the said guides, said cleaning members having cleaning elements along the opposite edges thereof and being rotatable with the rods to bring either element in contact with a window and to regulate the angular relation and pressure of such contact, and connections in the said frame for constraining the said depending guides and the said cleaning members to simultaneous rotation.

4. In a window cleaning device, a frame adapted to straddle a window sash and including an upper cylindrical member having side portions, a roller disposed on the said member for movement along a sash, vertical tubular bearings carried by the side portions of the frame, vertical tubular guides, the upper ends of which are rotatable in said bearings, a sleeve rotatable upon the upper cross member of the frame and extending through the roller, gears secured on the sleeve, gears secured upon the upper ends of said guide members and engaging the first mentioned gears, whereby to constrain the guide members to simultaneous rotation, and cleaning members vertically adjustable on and rotatable with the said guide members.

5. In a window cleaning device, a frame adapted to straddle a window sash and including an upper cylindrical member having inturned side portions, a roller disposed on the said member for movement along a sash, vertically tubular bearings carried by the side portions of the frame, vertical tubular guides, the upper ends of which are rotatable in said bearings, a plurality of sleeves rotatable upon the upper cross member of the frame and extending through the roller, gears secured on one of said sleeves, gears secured upon the upper ends of said guide members and engaging the first mentioned gears, whereby to constrain the guide members to simultaneous rotation, cleaning members vertically adjustable on and rotatable with the said guide members, said guide members being hollow, simultaneously acting spring controlled reels carried on opposite ends of the other of said sleeves on the upper cross member of the frame, and flexible connections depending from the said reels through the members and connected to said cleaning members, for the purpose described.

6. A window cleaner including reversible cleaning members, means engageable with a window sash for supporting said members in movable relation at opposite sides of said sash, said members having connections constraining them to simultaneous adjustable rotative movements relative to the said window sash.

7. A window cleaner comprising a pair of oppositely arranged and relatively adjustable cleaning members, means engageable with a window sash for supporting said members at the opposite sides of the said sash and for vertical movements along and rotative adjustments about the same and connections between said members arranged to coordinate and synchronize the said vertical and rotatively adjustable movements of said cleaning members.

8. In a window cleaning device, a reversible cleaning member having a body portion and spaced edge extensions projecting from the same, a guide supporting said member for horizontal and vertical adjustments of the same thereon relative to a window sash, and cleaning and wiping elements extending along the opposite side edges of said body and the extensions thereof to permit the cleaning member to clean the adjacent side of the sash and the portion thereof overlapped by a companion window sash.

9. In a window cleaning device including a support adapted to traverse a window sash, a pair of laterally spaced parallel guide members rotatably mounted on said support at opposite sides of the sash, reversible cleaning members slidable lengthwise on said guide members, means independent of the guide members for synchronizing the sliding movements of said cleaning members on the guide members, and means interconnecting said guide members for simultaneously shifting

said cleaning members upon a rotary movement being imparted to one of said guide members.

10. An apparatus for simultaneously treating the opposite sides of an object, including a movable support, surface treating members carried by said support at the opposite sides of the object and movable with and relatively to the support to traverse the entire areas of the opposed surfaces of the object, said members being angularly adjustable on said support to operate on the surfaces of the object at various pressures, and connections between said members arranged to coordinate and synchronize their working movements and angular adjustments.

11. In a window cleaning device, a working member having cleaning and wiping elements along the side edges thereof and having relatively movable flat portions, its said edges angularly adjustable relative to one another whereby to permit the said elements to simultaneously or successively operate upon a window glass.

12. In a window cleaner, a support movable along an edge of a window sash, guide members rotatably supported at one end in portions of said support and extending therefrom in spaced relation to project at opposite sides of a sash, and elongated cleaning members adapted to be projected beyond the corresponding free ends of said guide members having a plurality of cleaning elements movable lengthwise of said guide members and simultaneously rotatable therewith in use to alternately present identical cleaning elements to the plane of the sash.

13. In a window cleaning device adapted to traverse a window sash in guided relation, a pair of parallel guide rods in spaced relation adapted to extend along opposite faces of a sash and having connections constraining the same to simultaneous rotation, and cleaning members slidable on said rods, said members having cleaning and wiping elements and having connections constraining the same to rotation with the rods and simultaneous sliding movement on said rods.

14. In a window cleaning device adapted to traverse a window sash in guided relation, a pair of hollow lengthwise slotted guide rods in spaced parallel relation having connections constraining the same to simultaneous rotation, cleaning members slidable on said rods having portions projecting inwardly through said slots, and means for constraining the cleaning members to simultaneous sliding movement on the rods, including flexible connections within the hollow rods and joined to the said inwardly projecting portions of the cleaning members.

15. An apparatus for simultaneously treating the opposite sides of an object comprising a frame adapted to straddle the object and be moved relative thereto, reversible surface treating elements supported at the opposite sides of said frame for identical movements over the areas of the said sides of the object, and connections extending between the members for connecting and synchronizing the movements of the same when one or the other is actuated.

16. An apparatus for simultaneously treating the opposite sides of an object, comprising a U-shaped frame adapted to straddle the object and be moved relative thereto, parallel guide rods extending from said frame at opposite sides of the object, interchangeable and reversible surface treating members carried by said guide rods, and connections extending between the members for coordinating and synchronizing the movements of the same when one or the other is actuated.

17. In a window cleaning device, a support adapted to straddle a window sash for movement thereon, rotatable guide members projecting from said support in parallel relation at the opposite sides of the sash, members having cleaning elements at their opposite edges simultaneously shiftable along said guide members, said members being also simultaneously reversible to present the corresponding cleaning elements thereof alternately to the opposed sides of the sash upon a turning movement being imparted to the same and to said guide members, and means carried by said support and engageable with the opposite sides of the sash for stabilizing the operative movements of the frame relative to the sash.

18. In a window cleaning device, a U-shaped frame adapted to straddle a window sash and having roller means for movement along the sash, depending guides having rotatable bearings in portions of the said frame and disposed in parallel spaced relation, and cleaning members adjustable lengthwise on the said guides, said cleaning members having oppositely disposed vertical edges and having cleaning elements along the said edges thereof and being rotatably adjustable on the rods to bring either element in contact with a window and to regulate the angular relation and pressure of said contact, connections in the said frame for constraining the said depending guides and the said cleaning members to simultaneous rotation, and means carried by said support and engageable with the opposite sides of the sash for stabilizing the operative movements of the frame relative to the sash.

19. In a window cleaning device, a U-shaped frame adapted to straddle a window sash and including an upper cylindrical member having side portions, a roller disposed on the said member for movement along the upper edge of a sash, vertical tubular bearings carried by the side portions of the frame, vertical tubular guides, the upper ends of which are rotatable in said bearings, in-

termeshing gears carried by said frame and said guides, a sleeve rotatable with the gears on said frame, whereby to constrain the guide members to simultaneous rotation, cleaning members vertically adjustable on and rotatable with the said guide members, and rollers carried at the opposite sides of said frame and engageable with the opposite sides of the same for stabilizing the frame in its operative movements relative to the object.

20. In an object treating device, a pair of object treating members having angularly arranged portions, a working element extending along each of the side edges of the said angular portions, and guides supporting said members for movement at opposite sides of the object to successively or simultaneously present said working elements in effective position when desired or necessary.

21. In an object treating device, a supporting frame, a guide carried by said frame, a working member movable on said guide and having angularly disposed edge portions, and working elements extending along the said edges of the said edge portions, whereby to permit the said elements to simultaneously or successively operate upon the object.

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