July 15, 1958

B. WELLS

2,842,789

COMBINED SPONGE AND SQUEEGEE WITH DUPLEX CONTROL MEANS

Filed Jan. 25, 1954

2 Sheets-Sheet 1

FIG. 2.

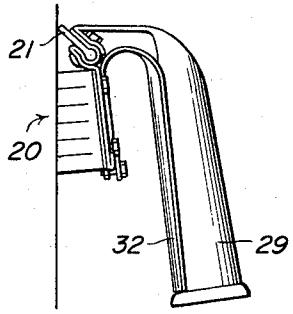


FIG. 1.

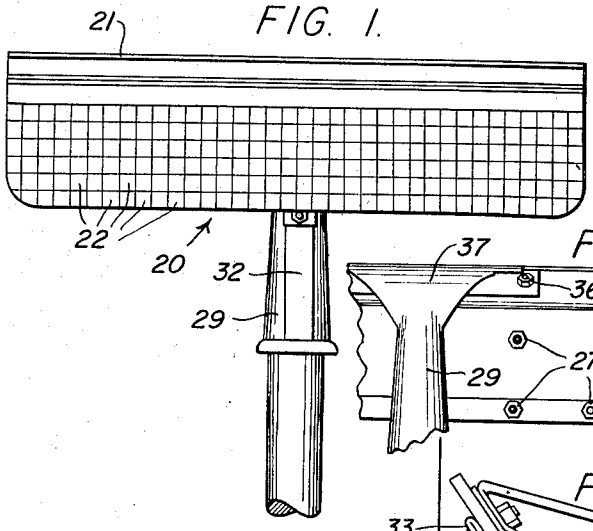


FIG. 7.

FIG. 3.

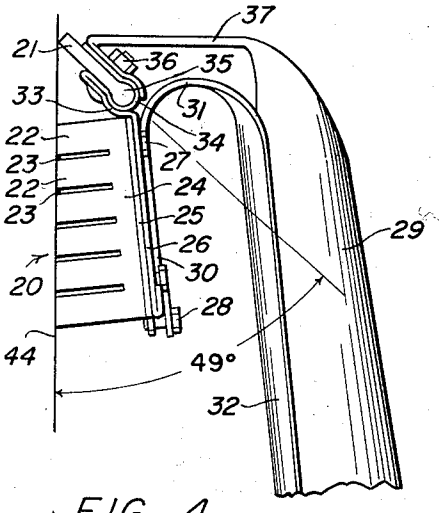


FIG. 5.

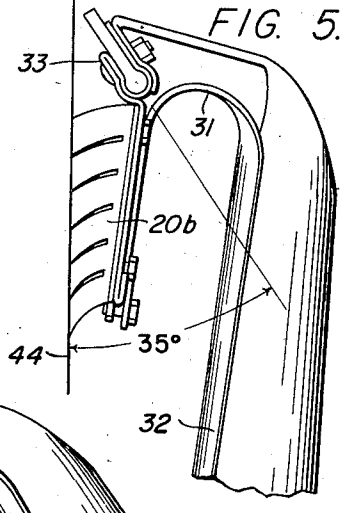


FIG. 4.

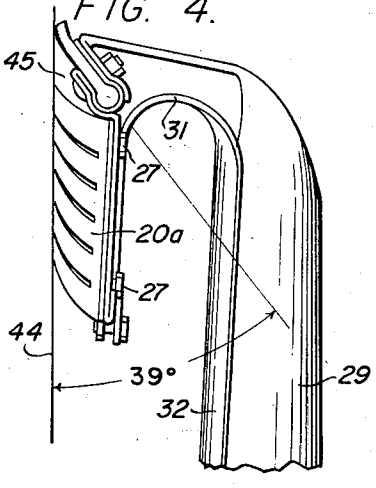
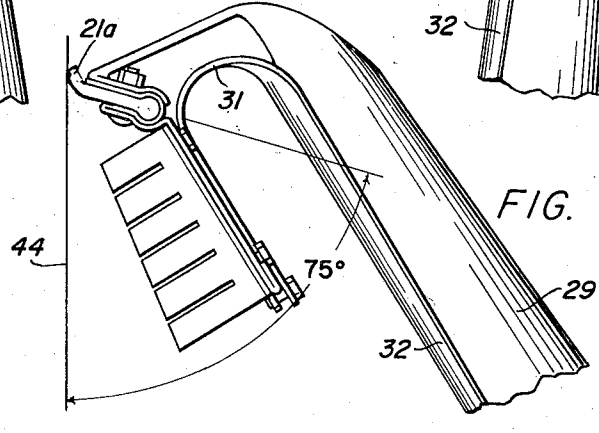


FIG. 6.



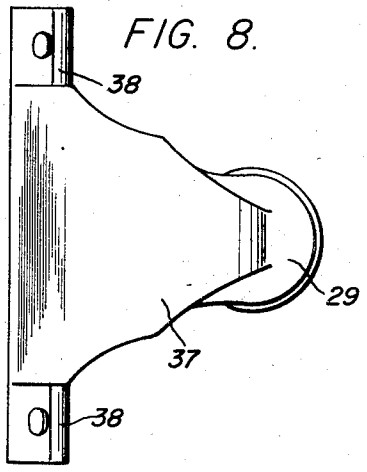
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FIG. 8.



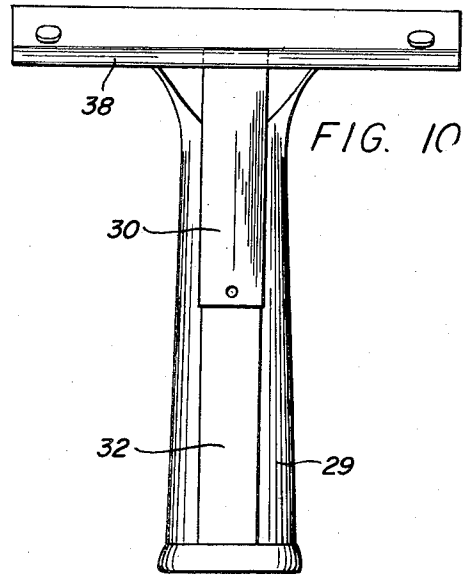


FIG. 10

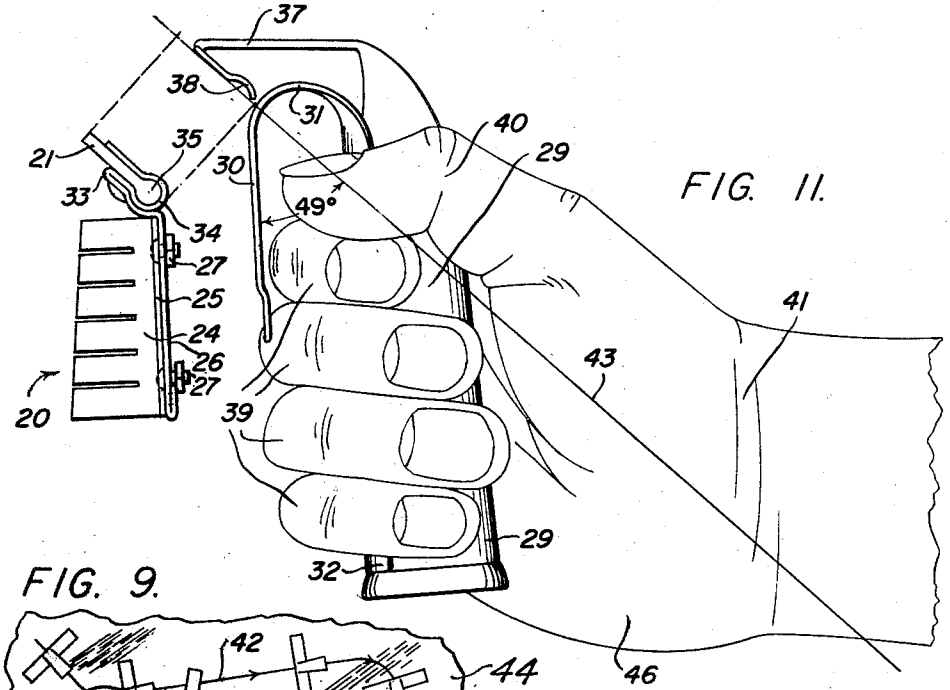
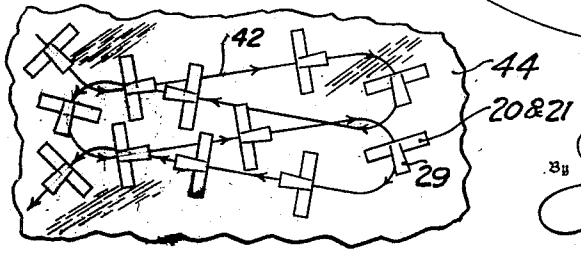


FIG. 11.

FIG. 9.



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COMBINED SPONGE AND SQUEEGEE WITH DUPLEX CONTROL MEANS

Bert Wells, Salt Lake City, Utah

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3 Claims. (Cl. 15—121)

This invention relates to window cleaners and more particularly to a combined sponge and squeegee with duplex control means.

The principal object of the invention is to provide a tool embodying unique features by means of which certain operations, such as window cleaning, may be performed expeditiously with a minimum expenditure of time and effort on the part of the user. While the tool is especially adapted to window cleaning, it is not necessarily so restricted.

A further object is to make it possible to completely wash and dry a window surface in substantially a single operation. A feature of the invention is the ease and simplicity with which this is accomplished and depends largely on the way in which the component elements of the tool are arranged relatively to one another.

In attaining the objects of the invention, the working edge of a squeegee is placed substantially in coincidence with an extension of the plane of the working face of a suitably constructed sponge or brush. This combination is associated with a control arrangement whereby the squeegee and sponge, either singly or together, may be selectively brought into suitable conjunction with the work to be performed. Results of extraordinary usefulness are obtained.

An important feature of the invention is that the plane of the squeegee is set at an acute angle with the face of the sponge, while a base fixture, preferably in the form of a handle, is spaced apart backwardly from the two. Independent cantilever members form respective direct connections to the handle, and are advantageously located to define a finger space. Furthermore, the acute angle of the squeegee intersects the handle intermediate the extremities thereof.

By means of the invention the various unitary operations involved in window cleaning, such as the application of water, the scrubbing action, and the final drying of a window surface may all be accomplished in instantaneous sequence, without pausing between the consecutive operations. Smooth attainment of the desired operations between the squeegee and the sponge, is secured by placing these in duplex relationship with each other so as to facilitate various usages.

Advantageously, the aforementioned control arrangement comprises independently mounted outrigger members, which latter spring independently from a base member, such as a handle. Accordingly, the squeegee is rigidly mounted on an outboard holder, which latter is supported by one outrigger, while the sponge is mounted on an outboard holder supported by the other outrigger. The outboard squeegee holder is disposed along one side of the aforesaid acute angle, this particular side being positioned to intersect the base handle intermediate its two extremities.

In the accompanying drawings, which illustrate an excellent embodiment of the invention,

Fig. 1 represents a front elevation or working face

view of one form of the tool mounted on a rod for use on high windows;

Fig. 2, an end elevation of the tool of Fig. 1, the rod being omitted;

Fig. 3, an enlargement of a fragmentary portion of Fig. 2;

Figs. 4, 5, and 6, views similar to Fig. 3, but showing the working parts in different operating positions;

Fig. 7, a fragmentary rear elevation of the tool of Fig. 1;

Fig. 8, a top plan of the handle and cantilever connecting structure per se;

Fig. 9, a diagram showing consecutive positions of the tool in being swung by a user through a typical curved path located, for example, in a plane of a window glass;

Fig. 10, a front elevation of the structure shown in Fig. 8; and

Fig. 11, an exploded view showing, in side elevation, a way of holding the tool of the invention, in use, and the separable character of the component structures.

Referring to the drawings, the numeral **20** indicates the water applicator portion of the tool and **21** the squeegee portion thereof. The water applicator preferably is made of sponge rubber, and, in one form thereof, has its working face divided into individual portions forming flexible fingers **22**, which, in the assembled aggregate, partake of the nature of a brush, the water being retained between the adjacent fingers. In the present instance, the spaces **23** between the various fingers **22**, which correspond to the bristles of a brush, extend only part of the way through the thickness of the applicator, thus providing a base portion **24**, from which the fingers **22** spring outwardly. The base **24** of the sponge rubber portion is fastened, preferably by cementing, to a flexible strip of textile or other formation **25**. The flexible strip is advantageously secured to a backing plate **26** by any suitable means, for example, bolts **27**.

At **29** is a handle, in this instance, a socket preferably made of metal on which the backing plate **26** is mounted indirectly by means of an outboard arm **30**. This outboard arm advantageously depends from a cantilever **31**, which extends from the upper portion of the socket **29**. In this instance the cantilever is arched and forms a fixed part of a reinforcement **32**, which, in turn, is fixed by brazing or otherwise to the socket **29**. Plate **26** is advantageously fastened to outboard arm **30** by a bolt and retaining clip assembly **28**, as indicated.

An advantageous way of supporting the squeegee, relative to the sponge, is by extending the plate **26** angularly upward as at **33** to form a bracket having an integral channel member **34**, which in cross-section conforms substantially to the bulbed rear portion **35** of the squeegee **21**. As illustrated, the backing plate and sponge are coextensive and are both coextensive lengthwise with the bracket and the squeegee.

The water applicator and squeegee assembly, composed substantially of the sponge **20** and the squeegee **21**, in addition to being supported by the outboard arm **30** is supported by an outboard cantilever arm **37** spaced upwardly from the cantilever arch **31**. The cantilever arm **37** at its back, springs from the handle socket **29** and has a forwardly extending claw **38** in which the squeegee channel **34** rests longitudinally, and is secured by any suitable means such as the bolts **36**, that pass through the squeegee to hold the same against longitudinal movement in the channel **34**.

In manipulating the tool, the operator grasps the handle in one hand somewhat after the manner indicated in Fig. 11, the fingers **39** and the thumb **40** being clasped around the handle. The operator, by twisting the wrist

41, can swing the tool in any desired manner which conforms to individual dexterity, a typical manner of swinging the tool being indicated in the diagram of Fig. 9 where the tool is shown as traveling in a reversely curved path 42.

In Fig. 11 it will be observed that the line 43, forming one side of the dominant angle of 49 degrees, or thereabouts, after intersecting the handle 29, passes directly into the palm of the operator's hand 46. This arrangement results in a control, centered in the operator's hand, so nearly perfect, that in actual use, the operator feels as though his hand actually extends around the squeegee and the water applicator.

As shown in Fig. 3, where the squeegee and sponge surface uniformly contact the surface 44, a direct pressure against the surface 44, compresses the sponge so as to apply water to the surface, whereupon in accordance with Fig. 9, the surface 44 can be scrubbed. Increasing the pressure and causing it to predominate upon the sponge, brings the original angle of 49 degrees down to 39 degrees, as indicated in Fig. 4. Now by further increasing the pressure upon the sponge, so that it forms a fulcrum for the entire tool, sponging or washing action upon the surface 44 results, the angle being reduced, for example, to 35 degrees. This is shown in Fig. 5.

Now by fulcruming the tool on the edge of the squeegee 21*a*, the sponge is lifted entirely off the surface 44, allowing the exclusive wiping action of the squeegee to be exerted upon the surface 44. In this position of the tool the working angle is 75 degrees. This is shown in Fig. 6. It is to be noticed that the total variation in the working angle is equal to the difference between the maximum angle of 75 degrees and the minimum angle of 35 degrees, thus leaving 40 degrees as the maximum difference, and therefore, the limit of swinging movement of the operator's wrist.

In Fig. 4, it will be observed that compression of the water applicator, in assuming the position 20*a*, pushes the discharging water into the space 45, thereby enhancing the washing action of the sponge in the position 20*b* when the tool is pushed into the position of Fig. 5.

While the foregoing description is more or less specific, it is to be understood that various changes may be made therein without departing from the scope of the invention as defined in the following claims.

What is claimed is:

1. A combined sponge and squeegee tool, comprising elongate handle means; outrigger squeegee means extending transversely from said handle means and including an outboard arm and a transversely extending elongate squeegee holder secured to the end of said arm and lying in a plane disposed angularly with respect to said handle means, so the said plane extended, intersects the said handle means intermediate its extremities; outrigger sponge means extending transversely from said handle means at the same side thereof as the said squeegee means, and including an outboard arm having a portion extending substantially parallel with said handle means in a direction away from said squeegee means and spaced apart from the said handle means so as to, at least partially, define a hand hold along said handle means, and having an elongate sponge holder secured to the end and extending transversely of said outboard arm portion; a squeegee disposed in said squeegee holder; and a sponge disposed on said sponge holder.

2. A window cleaning tool, comprising an elongate backing plate; sponge material substantially coextensive with and secured to one face of said backing plate, so as to present a broad working face; an elongate, squeegee-receiving bracket substantially coextensive lengthwise with said backing plate and extending along one longitudinal margin thereof, said bracket projecting from said one face of the backing plate at an acute angle relative to the said working face of the sponge, so as to define a channel between bracket and sponge; an elongate squeegee substantially coextensive lengthwise with said backing plate, sponge, and bracket; means securing the squeegee to said bracket with its working edge lying approximately in a plane in common with the said working face of the sponge; an elongate handle spaced apart from the opposite face of said backing plate and extending transversely thereof and approximately parallel therewith in a direction away from said squeegee; and cantilever means securing said handle to said backing plate.

3. A window cleaning tool, comprising an elongate backing plate; sponge material substantially coextensive with and secured to one face of said backing plate, so as to present a broad working face; an elongate, squeegee-receiving bracket substantially coextensive lengthwise with said backing plate and extending along one longitudinal margin thereof, said bracket projecting from said one face of the backing plate at an acute angle relative to the said working face of the sponge, so as to define a channel between bracket and sponge and being of channel formation bent to shape from an extension of the corresponding margin of said backing plate; an elongate squeegee substantially coextensive lengthwise with said backing plate, sponge, and bracket; means securing the squeegee to said bracket with its working edge lying approximately in a plane in common with the said working face of the sponge; an elongate handle spaced apart from the opposite face of said backing plate and extending transversely thereof and approximately parallel therewith in a direction away from said squeegee; and cantilever means securing said handle to said backing plate.

References Cited in the file of this patent

UNITED STATES PATENTS

559,510	Bridwell	May 5, 1896
1,489,799	Tiscornia	Apr. 8, 1924
1,690,581	Hoff	Nov. 6, 1928
1,977,483	Koukal	Oct. 16, 1934
1,984,370	Goldsmith	Dec. 18, 1934
2,008,615	Rogers	July 16, 1935
2,446,401	Ziskind	Aug. 3, 1948
2,642,609	Hruska	June 23, 1953
2,722,701	Blum et al.	Nov. 8, 1955

FOREIGN PATENTS

137,698	Switzerland	Apr. 1, 1930