Feb. 4, 1958 E. J. KASPER 2,821,736

SUCTION BRUSH FOR VENETIAN BLINDS

Filed April 13, 1954

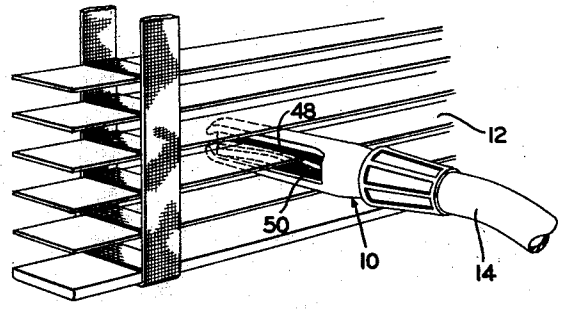

Fig. 1

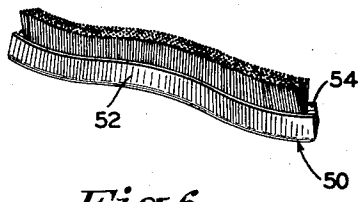

Fig. 6

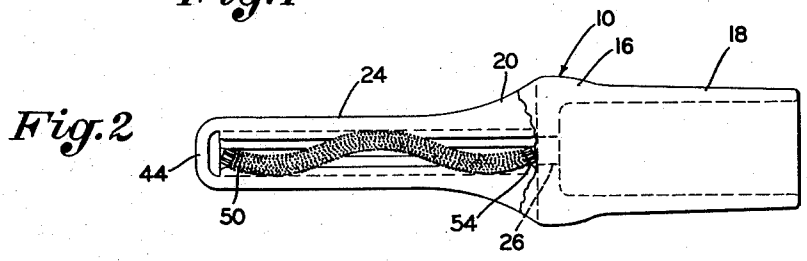

Fig. 2

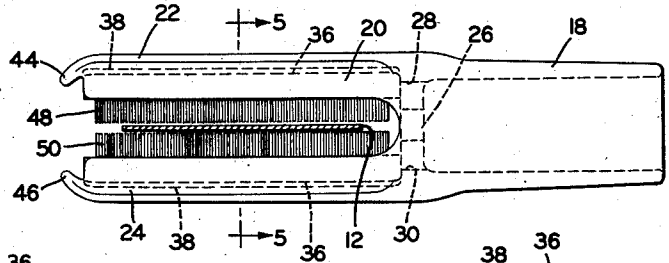

Fig. 3

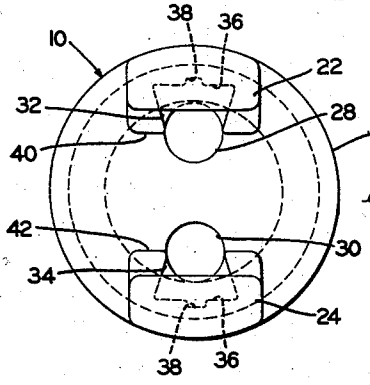

Fig. 4

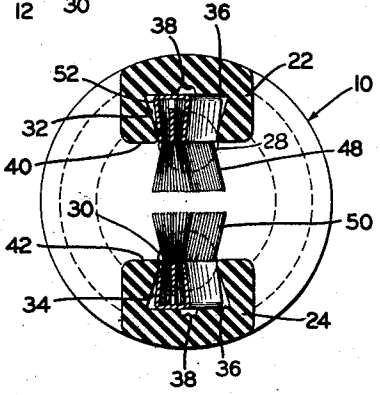

Fig. 5

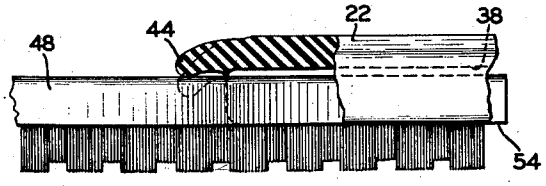

Fig. 7

INVENTOR.
Elmer J. Kasper
BY
Frease & Bishop
ATTORNEYS

United States Patent Office

2,821,736

Patented Feb. 4, 1958

2,821,736

SUCTION BRUSH FOR VENETIAN BLINDS

Elmer J. Kasper, Cleveland, Ohio, assignor to Royal Appliance Mfg. Co., Cleveland, Ohio, a corporation of Ohio

Application April 13, 1954, Serial No. 422,815

7 Claims. (Cl. 15—394)

This invention relates to a cleaner for the slats of Venetian blinds and the like. More particularly it pertains to a duster for use with a suction cleaner.

One of the problems in cleaning slats of Venetian blinds with a brush is that most of the loose dirt and dust is brushed off and settles on lower slats. This problem arises particularly with prior Venetian blind brush attachments for suction cleaners which are cumbersome and have too much brush with too little suction provided in the immediate vicinity of the brush bristles.

In addition, there is the problem of marring, scratching or chipping paint from the slats, by the hard surfaces of the cleaning implement.

Further, many implements are awkward to handle not only because they are too bulky to manipulate between slats, but because the confronting ends of the brush bristles are so disposed that the implement must be held rigidly perpendicular to the slat, and it must be moved carefully over the surfaces in order to achieve proper cleaning.

Finally, such implements usually are relatively expensive compared with the cost of other suction cleaner attachments. One part of the expense involves the metal parts that must be machined and finished for customer appeal. The other part of the expense is the use of specially fabricated brushes attached to the implement.

Accordingly, it is one object of the present invention to provide an improved suction cleaner attachment for brushing the slats of Venetian blinds having a single strip of brushes to be applied to each side of a slat and having a suction area not only surrounding each row of bristles but also disposed through the space between confronting bristles.

Another object of the present invention is to provide an implement of material which neither mars, scratches or chips paint from the slats.

A further object of the present invention is to provide an improved implement which is easy to manipulate because it is easily inserted between and over the slats and because it need not be held rigidly with respect to the slat as it is moved therealong, but may be tilted or rotated to achieve maximum cleaning.

Finally, it is an object of the present invention to provide a new suction cleaner attachment for cleaning the slats of Venetian blinds which is relatively inexpensive to manufacture and simple to assemble and disassemble.

These and other objects and advantages apparent to those skilled in the art from the following description and claims may be obtained by the combinations and elements which comprise the present invention, the nature of which is set forth in the following general statement, a preferred embodiment of which—illustrative of the best mode in which the applicant has contemplated applying the principles—is set forth in the following description, and which is particularly and distinctly pointed out and set forth in the appended claims forming part hereof.

The nature of the improvements in Venetian blind

cleaning attachments of the present invention may be stated in general terms as preferably including a cylindrical tubular head portion one end of which is adapted for connection to suction inlet of a suction cleaner and the other end of which has an integral bifurcated portion, the head also having an integral partition wall between the bifurcated portion and the tubular portion through which extends a pair of passages, a channel in the confronting sides of each furcation, the sides of which channel are inclined slightly toward each other, a lip integral with each furcation and extending from the outer edge thereof toward the longitudinal axis of the bifurcated portion so as to overlap the end of its corresponding channel, and a sinuous brush element having a head portion detachably mounted in each channel, the head of each brush being narrower than the channel, the bristles of each brush extending toward each other and terminating in a spaced relationship, the brushes being endwise insertable and removable by bending the lip out of the overlapping position, each of said passages communicating between one of the channels, and the tubular portion having its center aligned with the plane of the confronting face of the corresponding furcation.

By way of example, a preferred embodiment of the improved Venetian blind cleaning attachment is illustrated in the accompanying drawings forming a part thereof, wherein:

Fig. 1 is a perspective view of one form of improved suction brush, showing the manner in which it is applied to the slat of a Venetian blind;

Fig. 2 is a plan view partly broken away showing the manner in which one brush element is mounted;

Fig. 3 is an elevational view of the suction brush;

Fig. 4 is an enlarged end view of the suction brush with the brush elements omitted;

Fig. 5 is an enlarged sectional view of the suction brush, taken on the line 5—5, Fig. 3;

Fig. 6 is a perspective view of one of the brush elements showing the manner in which it is bent; and,

Fig. 7 is a fragmentary view, partly in section, showing the manner in which a lip portion of the suction brush is bent to permit insertion and withdrawal of a brush element.

Similar numerals refer to corresponding parts throughout the drawing.

In Fig. 1, a suction brush or implement, generally indicated at **10**, is shown disposed over a slat **12** of a Venetian blind. One end of the suction brush or implement **10** is detachably mounted on the end of a suction tube **14** which extends from a source of suction, such as a conventional suction cleaner.

Referring to Figs. 2 and 3, the suction brush **10** comprises a head **16** having a tubular portion **18** and a bifurcated portion **20** which portions are disposed along a longitudinal axis of the brush. It is the tubular portion **18** which is inserted into the open end of the tube **14** (Fig. 1). The brush head **16** is preferably made of an elastic material.

The bifurcated portion **20** consists of furcations, fingers or arms **22** and **24** which extend from the central portion of the implement **10** where there is disposed a partition wall **26** separating the interior of the tubular portion **18** from the bifurcated portion **20**. However, communication between these portions is provided by means of a pair of passages **28** and **30** which extend through the partition wall **26** and are parallel with the longitudinal axis of the implement **10**. Further description of these passages, together with their pertinence to the operation of the attachment, will be set forth hereinbelow.

The furcations or arms **22** and **24** are provided with

channels 32 and 34, respectively, which extend longitudinally and centrally of the arms throughout the greater part of their length. Each channel 32 and 34 is disposed in its respective arm 22 and 24 with its opening in the inner side thereof and is provided with slightly inclined sides extending from a base 36 as shown in Figs. 4 and 5. Centrally of each base 36 is a groove 38 which is coextensive with each channel 32 and 34. The end of each channel 32 and 34 adjacent the partition wall 26 is partially aligned with one of the passages 28 and 30, respectively. As shown in Fig. 4 the center axis of each passage 28 and 30 is aligned with the plane of the inner surfaces of the corresponding arms 22 and 24 with which said surfaces are associated. These surfaces are herein referred to as confronting faces 40 and 42 on the arms 22 and 24, respectively. The ends of the arms 22 and 24 remote from the partition wall 26 include a pair of lips 44 and 46 which extend from the outer portions of the arms and are turned inwardly to overlap the channels 32 and 34 as shown in Fig. 3. The brush 10 including all of the foregoing described parts is embodied in an integral unit which is preferably fashioned from molded rubber.

The rest of the assembly consists of a pair of oppositely disposed brush elements 48 and 50 which are mounted in the channels 32 and 34, respectively, as shown in Figs. 3 and 5. The bristles of each brush element 48 and 50 are retained within a metal channel member 52, having inwardly inclined sides (Fig. 5). Each brush element 48 or 50 is a relatively simple article of manufacture, as shown in Figs. 2 and 6, being an element cut to desired length from an elongated sinuous brush strip commonly made and available on the market.

Referring to Fig. 5, the width of each channel 32 and 34 is greater than the width of each channel member 52 constituting the head of the brush element. Each element is seated within its corresponding channel where it is retained in an upright position by its sinuous shape which provides contact between the inclined sides of each channel member 52 and the inclined walls of each channel 32 and 34. When the channel members 52 are properly seated within the channels 32 and 34, each channel member abuts the base side 36 throughout its length as shown in Fig. 5. Thus the brush elements 48 and 50 are maintained assembled without maintaining close tolerances in the manufacture of elements 48 and 50 and the rubber fingers 22 and 24.

The groove 38 provides the means through which suction extends from the passages 28 or 30 in the partition wall 26 throughout the length of each channel 32 and 34. Satisfactory suction zones are thereby provided on each side of each brush element throughout the length thereof, because the grooves communicate with portions of the channels on either side of the brush elements and with the passages 28 and 30. The location of the passages 28 and 30 is such that a portion of each passage serves the channel with which it is associated and the other portion serves the area of the brush elements 48 and 50 between the confronting bristles.

In order to provide an uninhibited movement of suction toward the passages 28 and 30, the end portions of the bristles of each element are severed at 54 (Fig. 6) so that the ends of the channel members 52 abut the partition wall 26 and the end of the bristles is thereby spaced from its corresponding passage.

Further, the bristles may be notched as shown in Fig. 7 as an alternative brushing edge to enhance both the brushing action of the bristles and the suction zones along the bristles.

Referring to Fig. 7, the brush elements 48 and 50 may be inserted or withdrawn from their positions within the channels 32 and 34 by bending the lips 44 and 46 outwardly from their normal positions. This is possible due to the fact that the head 16 is composed of elastic material. Accordingly, when brush elements 48 and 50 are to be replaced, they may be withdrawn in the manner just described.

The confronting edges of the bristles of the brush elements 48 and 50 are so spaced (Fig. 3) that upon insertion around a slat of a Venetian blind, there is contact with the opposite surfaces of the slat no matter how the brush or implement 10 is held. Thus the brush spacing and the shape of the fingers 22 and 24, in addition to the sinuous shape of the oppositely disposed brush elements, permits the tool to be rolled (or turned) from side to side, without binding as the tool 10 is moved along the slat 12. That is, it is not necessary to hold the brush 10 firmly in one position during use; and the spacing of the bristles together with the shape of the brush elements permits the ordinary variations which are normal to the movement of the human hand. Furthermore, the finger shape, location and arrangement does not limit the amount of twisting to which the tool may be subjected in use.

Since the tool 10 is composed of rubber rather than of metal or other hard material, the tool may be used and freely moved in any manner without danger of marring, scratching or chipping paint from the surfaces of the slats.

In addition, the overall design of the tool incorporating elongated, slender lines having relatively narrow furcations or arms 22 and 24, renders it possible to insert the tool over the slat surfaces between the tapes and cords on which the slats are ordinarily suspended. Moreover, the inward turning of the lips 44 and 46 facilitates such insertion.

The suction brush 10 includes relatively inexpensive parts; namely, an integral suction head having a bifurcated portion 20 and a tubular portion 18 fabricated from an elastic material, such as molded rubber, vinyls, and the like; and a pair of brush elements 48 and 50 which may be cut to desired length from brush strip material available for a multitude of purposes. The combination of such elements enables a brush of the type described to be made at a price substantially lower than brushes for Venetian blinds which are fabricated from metal parts and incorporate brush elements of special design.

Moreover, the particular construction and arrangement of the improved tool 10 and particularly the relative location of and small size of the openings 28 and 30, with respect to the ends of the brush bristles, are such that swift suction air currents move across the ends of the bristles as the tool is being manipulated and moved to clean a slat. These air currents entrain substantially all the dust dislodged by the bristles as the air currents are sucked through openings 28 and 30, so that no dust drops loosely from the slat being cleaned to one or more slats below the same.

A common difficulty with prior suction cleaner Venetian blind cleaning tools is the brushing of dust from the slats loosely from the slats out of range of the suction or air currents induced through the tool. This difficulty is magnified when prior tools are not held with the bristle ends parallel to the surfaces being cleaned. With the improved tool construction, the tool may be turned or otherwise manipulated as it is moved along a slat to effectively dislodge the dust particles from the slat surfaces, and at the same time such dislodged dust is entrained in the high suction air currents passing along the ends of the bristles.

Finally, the particular arrangement of the brush bristles in a narrow and preferably sinuous strip shape enables the brushes to conform to any of the usual cross sectional Venetian blind slat shapes whether flat or curved.

Accordingly, the present invention provides a new and different suction brush, implement or tool for cleaning Venetian blinds which incorporates the new and advantageous features described, overcomes prior art difficulties, and solves longstanding problems in the art.

I claim:

1. A suction cleaning brush for slat blinds comprising a head having a tubular portion at one end and having

a bifurcated portion at the other end, the head also having a partition wall separating the bifurcated portion from the tubular portion, the furcations having a longitudinal channel in each of their confronting faces, each furcation having a resilient lipped end portion remote from the tubular portion extending inwardly toward the longitudinal axis of the bifurcated portion and normally overlapping the end of its corresponding channel, brush elements including head and bristle portions, each end portion being movable between overlapping and non-overlapping positions, one of said brush head portions being detachably mounted in each channel, the bristles of each brush element extending towards the other and terminating in spaced relationship with respect to each other, the brush elements being endwise insertable in and removable from said channels by moving the lips outwardly from overlapping positions, the partition wall having a pair of passages therethrough, each passage communicating between one of the channels and the tubular portion, and the greater portions of the sides of each brush element being spaced from the sides of the corresponding channel, whereby the sides of the brush elements are within range of air currents movable through the passages.

2. A suction cleaning brush for slat blinds comprising a head having a tubular portion at one end and having a bifurcated portion at the other end, the head also having a partition wall separating the bifurcated portion from the tubular portion, the furcations having a longitudinal channel in each of their confronting faces, each channel having sides inclined towards each other, each furcation having a resilient lipped end portion remote from the tubular portion extending inwardly toward the longitudinal axis of the bifurcated portion and normally overlapping the end of its corresponding channel, brush elements including head and bristle portions, each end portion being movable between overlapping and non-overlapping positions, one of said brush head portions

being detachably mounted in each channel, the bristles of each brush element extending towards the other and terminating in spaced relationship with respect to each other, the brush elements being endwise insertable in and removable from said channels by moving the lips outwardly from overlapping positions, the partition wall having a pair of passages therethrough, each passage communicating between one of the channels and the tubular portion, each brush element having a head narrower in cross section than the channel, each brush element being longitudinally sinuous in shape, and the overall width of each sinuous brush element being as wide as the channel.

3. The suction cleaning brush construction of claim 2 in which each channel is provided with a groove in the base side coextensive with the length of the channel.

4. The suction cleaning brush construction of claim 2 in which the center of each passage is aligned with the plane of the confronting face of the corresponding furcation.

5. The suction cleaning brush construction of claim 4 in which the tubular portion, the bifurcated portion, the lips, and the partition wall are integral.

6. The suction cleaning brush construction of claim 5 in which the integral member is composed of elastic material.

7. The suction cleaning brush construction of claim 6 in which the bristles of the brush are notched.

References Cited in the file of this patent

UNITED STATES PATENTS

890,987	Kindel	June 16, 1908
1,671,334	White	May 29, 1928
2,290,894	Rivanov	July 28, 1942
2,608,710	Zaidan	Sept. 2, 1952

FOREIGN PATENTS

124,330	Germany	Oct. 8, 1901