March 24, 1959 W. CARR, JR 2,878,820

APPARATUS FOR CLEANING VENETIAN BLINDS

Filed Jan. 10, 1956 2 Sheets-Sheet 1

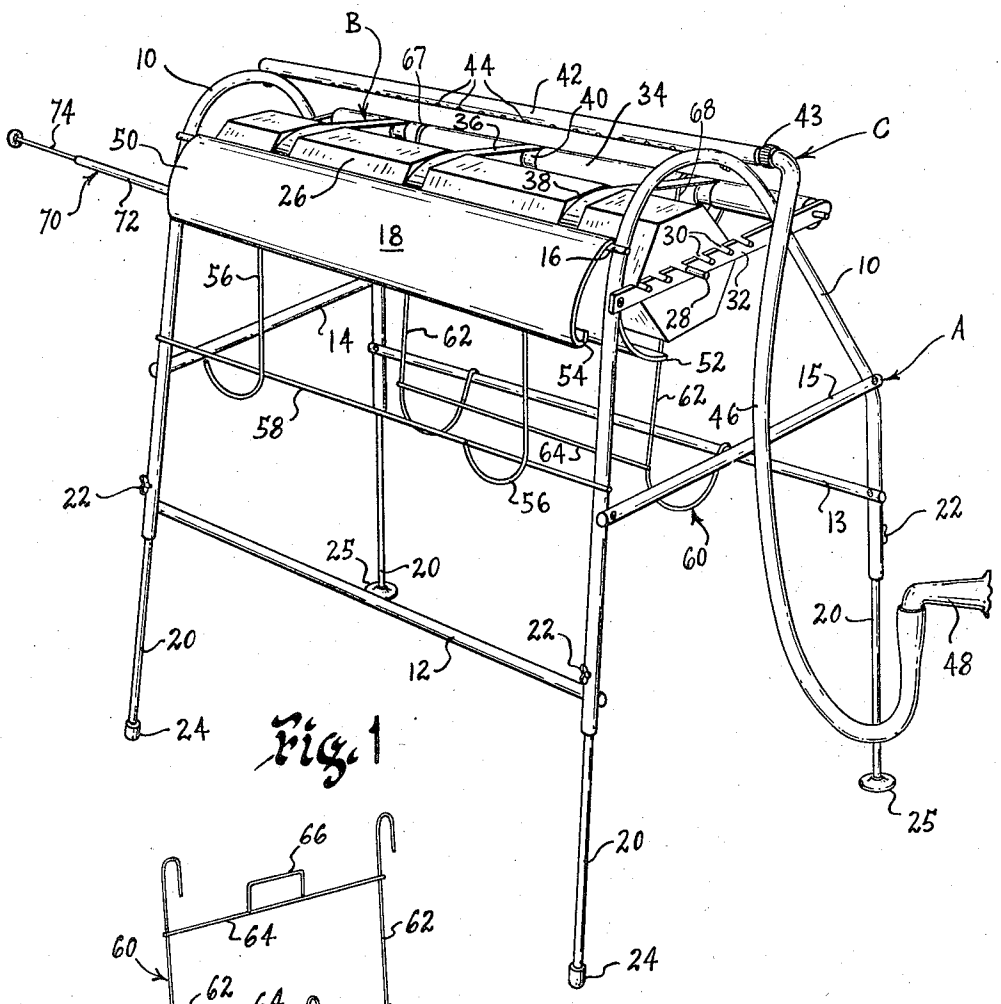



Fig. 1




Fig. 5

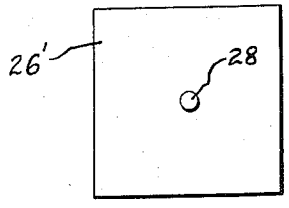



Fig. 4

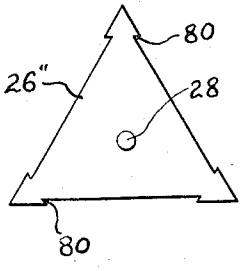



Fig. 3

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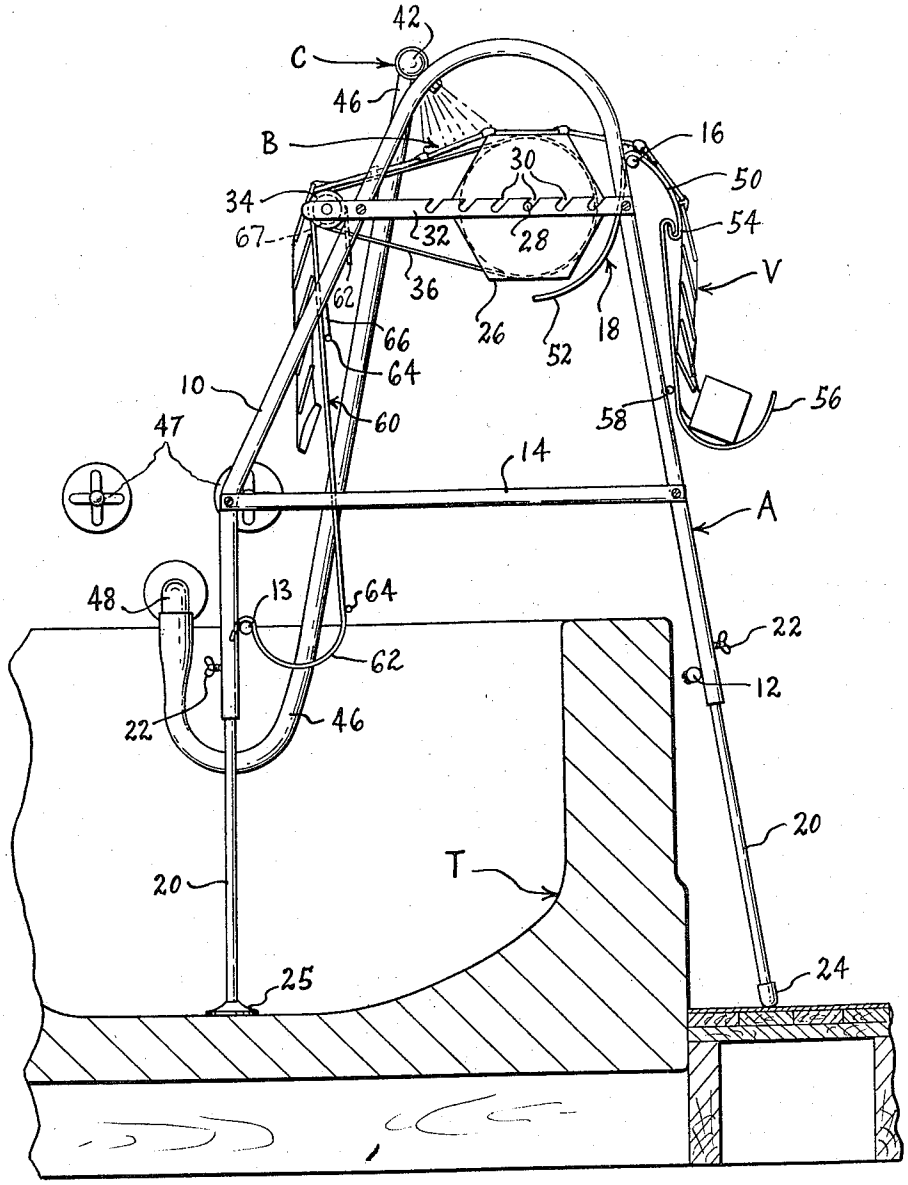



Fig. 2

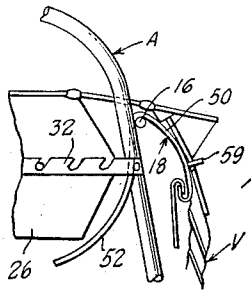



Fig. 6

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# APPARATUS FOR CLEANING VENETIAN BLINDS

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4 Claims. (Cl. 134—122)

This invention relates to washing and rinsing Venetian blinds, and it relates more particularly to apparatus especially useful in the private home so that a housewife, for instance, may clean her own blinds.

One of the greatest disadvantages of Venetian blinds is the difficulty in cleaning them when they become dirty from dust and soot which accumulate on the horizontal slats. To a certain extent such dust may be removed by a dry cloth, or feather duster or the like, but every so often, generally once or twice a year depending on the particular location, it becomes necessary to remove the blinds from the windows and either to have them cleaned by a professional cleaner or to wash them oneself. In order to save the expense of having the Venetian blinds cleaned, many housewives wash them by simply immersing them in a tub of soapy water and then hanging them up by one end on a rack of some sort so that the slats can be scrubbed to remove the dirt and then rinsed by sponging them with clear water.

This manner of cleaning Venetian blinds is obviously awkard and messy. The soapy water in which the blinds are dipped invariably spills on the floor and, in order to rinse the blind properly to prevent soap streaks on the slats and in the ladder tapes, they must be thoroughly sprayed with clear water which also splashes on the person doing the washing as well as on the floor and generally around the room. Moreover, when the blind is hung up to be rinsed, the soiled water on the top slats drains down onto the lower slats, making it difficult to rinse the blinds in this manner. On the other hand, if the blinds are dunked in a tub of rinse water after being removed from the wash water, the rinse water becomes soiled and may not even do a thorough rinsing job on one blind, not to mention others which are usually done at one time. In addition, where the slats are made of a thin light metal such as aluminum, they bend easily making it difficult if not impossible, to scrub them properly, either while being immersed in the wash water or while hung up to be rinsed.

A principal object of the present invention, therefore, is to provide a convenient, inexpensive apparatus for washing Venetian blinds which will overcome the disadvantages encountered heretofore. Another object of the invention is to provide apparatus which can be readily set up in the bath tub at home and is arranged so that wash and rinse water will not get on the floor or on the person washing the blind. It is also an object of the invention to provide a sturdy support for the slats of a Venetian blind so that they can be thoroughly scrubbed while at the same time making it convenient to wash each slat individually by bringing them one at a time onto the washing support.

Another important object of the invention is to provide means for rinsing Venetian blinds in such a manner that the soiled wash and rinse water from one slat does not drain down onto the slats below.

With the above objects in view and others which will be apparent from the description hereinafter, the invention consists generally in laying the endmost slat of a Venetian blind having horizontal slats on a horizontally disposed rotatable drum which is sufficiently long to accommodate blinds of any ordinary width. The rest of the blind hangs downwardly in front of the drum and is supported there in such a way as to take most of the weight of the blind off the endmost slat on the drum. Wash and rinse water are then sprayed from some convenient source onto the top of the drum and in back of it, so that the endmost slat of the blind is sprayed with water and can be scrubbed by hand on both sides while in position on the drum. This can be conveniently done while the slat is supported on the drum using a soapy sponge, wash rag or brush.

When the first slat is washed, the drum is rotated sufficiently with one hand to bring the next one into position to be washed. The first slat is simultaneously moved rearwardly on conveyor belts which carry it under the spray water where it is rinsed. This is repeated, slat by slat, until all the slats of the blind are washed. As each slat is washed it is moved on the conveyor belts which extend rearwardly under the rinse water and away from the washing drum so that the soiled rinse water and soapy wash water do not drain over them causing them to streak when dry. As the clean slats reach the end of the conveyor belts, they drop down and are eventually collected in a suitable rack in which the blind can be readily removed from the apparatus and hung up to dry when the washing and rinsing operations are completed.

While the invention is more particularly adapted for use by the individual housekeeper and is so described in the specific embodiment illustrated herein, it is readily apparent that it can be used to real advantage in some commercial installations as well.

The invention will be described in connection with the accompanying drawings which illustrate certain practical embodiments thereof.

In the drawings,

Fig. 1 is a perspective view of a Venetian blind washing apparatus within the invention;

Fig. 2 is a view, in side elevation, of the washing apparatus shown in Fig. 1, and showing the unit as it may be mounted for use in a bathtub in the private home;

Fig. 3 is an end view of a modified form of washing drum which may be used in the apparatus shown in Figs. 1 and 2;

Fig. 4 is an end view of another modified form of washing drum;

Fig. 5 is a perspective view of a removable rack into which the blind is fed as it is washed and rinsed; and

Fig. 6 is a detail view, showing a modification which may be included in the apparatus.

Referring to Figs. 1 and 2, apparatus for washing Venetian blinds in accordance with the invention comprises a frame A on which is provided a washing platform and conveyor system, indicated generally by the letter B, and spray means C for spraying washing and rinsing liquid on a Venetian blind V which is placed on the washing platform and conveyor B, as illustrated in Fig. 2. Also as shown in Fig. 2, the apparatus may be conveniently placed partially within a batch-tub T, into which the washing and rinsing liquid will drain to avoid getting the floor wet. In the particular apparatus illustrated in the drawings, the frame A consists of two laterally spaced side members 10 of rigid tubing, preferably stainless steel, bent to form front and rear legs and an upwardly extending curved central portion. Horizontal braces 12 and 13 are rigidly fastened by any suitable means, such as bolts, to the pairs of front and back legs, respectively, and braces 14, 15 extend at right angles to braces 13, 14 between the front and back legs on each

side member 10. An additional horizontal brace or rod 16 is fixed to side members 10 and extends across the front of the frame A to provide support for a splash pan 18 to be described hereinafter. Rod 16, moreover, braces the side members 10 so that they can not move laterally.

Received within and extending downwardly from the open-ended leg portions of tubular side members 10 are adjustable legs 20 which are fixed within the side members 10 by means of thumb screws 22. The height of the apparatus or its particular angle forwardly and rearwardly can, therefore, be readily adjusted by simply loosening the thumb screws 22 and raising or lowering the legs 20 to the desired height, and then tightening the thumb screws 22, this usually being done one leg at a time. Since the particular apparatus as illustrated in the drawings is conveniently used with its rear legs within bathtub T and its front legs outside the bathtub, the lower ends of the front legs are provided with rubber feet 24 which prevent damaging the floor, and suction cups 25 are fixed to the bottoms of the rear legs. Suction cups 25 not only prevent scratching the inside of the bathtub but also grip the bottom of the tub to help keep the washing apparatus in place. On the other hand, if it is desired to use the apparatus outdoors in the summer time, for instances, spikes which will stick into the ground may be readily substituted for the rubber feet and suction cups shown in the drawings.

The washing platform and conveyor system B, on which the Venetian blind is supported as it is washed, consists of a drum 26 which is rotatably mounted in a horizontal position on the frame A. Drum 26 is supported on axle 28, the ends of which extend out beyond the ends of the drum and engage in corresponding notches 30 provided in support bars 32 secured to the front and rear portions of both side members 10 and extending parallel to and above braces 14, 15. As shown in Figs. 1 and 2, drum 26 is hexagonal in cross-section, each side of the drum being slightly wider than the width of a slat for a Venetian blind. If desired, drums of other shape may be used, such as the triangle shown in Fig. 3 or square as shown in Fig. 4. The drum could even be cylindrical but, as will be more apparent hereinafter, it is desirable to use a flat sided drum on which the slats of the blind can be scrubbed by hand using a soapy sponge and on both sides, if need be.

The rear ends of support bars 32 project beyond the rear portions of side members 10, or in other words to the left as viewed in Fig. 2, and a roller 34 is journalled in these rear end portions of bars 32 for rotation about an axis parallel to and approximately horizontal with the axis of drum 26. As may be best seen in Fig. 1, endless straps or belts 36, most desirably of elastic material, are stretched around the drum 26 and roller 34 to support the slats of the Venetian blind in a more or less horizontal plane after they have been washed on the drum 26. In the present instance three relatively wide flat belts 36 are used, which are equally spaced from each other along the length of the drum and roller. In order to maintain the relative lateral spacing of belts 36, both drum 26 and roller 34 are provided with circumferential grooves 38 and 40, respectively, in which the belts 36 are received. As each slat of the blind is washed when in position on the top of the drum 26, it is then moved rearwardly of the apparatus, i.e. to the left in Fig. 2, on belts 36 by rotating the drum 26 by hand in a counterclockwise direction, again as viewed in Fig. 2.

In order to provide a liquid spray, which delivers water for washing the slats while in position on the drum 26 and which rinses them thoroughly as they are moved rearwardly while the succeeding slats are being washed, a spray tube 42, which is closed at one end and has a hose coupling 43 at the other, is secured to the upper curved portions of side members 10 above the washing and conveyor means B. Spray tube 42 extends between the side members 10 the whole width of the apparatus and has a row of spray apertures or nozzles 44 on its under side so as to direct liquid spray along the full length of the drum 26 and on a slat of a blind placed thereon, as well as on the washed slats as they are carried on belts 36 toward the roller 34. A length of hose or tubing 46 is connected to the hose coupling 43 and to a source of washing and rinsing liquid, such as an ordinary water faucet 48. By regulating the valves 47 (Fig. 2), water of any desired force or temperature can be sprayed on the blind as it is washed by hand on the drum 26 and then automatically rinsed as the slats of the blind are moved rearwardly on the conveyor belts 36.

An important feature of the apparatus shown is the provision of the conveyor means comprising the belts 36 and roller 34 whereby the washed slats are prevented from hanging vertically one above the other as they are being rinsed. By thus making the slats extend rearwardly at an angle to the vertical, and most desirably almost horizontally, they may be completely rinsed without any danger of the soiled soapy wash water running down from the slats above onto those below which have already been washed and rinsed. Thus, by the time the first slat to be washed has reached the roller 34 and drops down behind it, those immediately following it have been completely rinsed and, as they pass the roller 34, any water which may drain from them onto the slats below will not streak or stain them, as would be the case if the rinsing operation took place directly above the already rinsed slats. Consequently, much time and effort is saved in washing and rinsing the blinds in this manner. Moreover, less water, or at least no more water, is used in washing and rinsing Venetian blinds by using the present apparatus than in any of the other methods of washing used heretofore.

In order to prevent water from splashing over or draining onto the person washing the blind or onto the floor, the previously mentioned splash pan 18 is mounted on the rod 16 between the side members 10 and is shaped to provide a forwardly and downwardly extending guiding surface 50, over which the slats of the blinds slide as they are moved up into washing position on the top of drum 26. An inwardly or rearwardly curved portion 52 of splash pan 18 (best viewed in Fig. 2) extends from its upper edge, which is located adjacent the upper surface of said drum 26 down the front side of the drum and well under it to catch all the wash water draining from the drum during the washing and rinsing operations and to deposit it away from the feet of the person standing in front of the apparatus. When used in connection with the bathtub as shown in Fig. 2, the water will drain into the tub and will not run out onto the floor where it would have to be cleaned up or might cause damage.

The front edge of splash pan 18 is bent under, as shown at 54, to provide a smooth surface which will not catch or mar the Venetian blind as it is moved up over the guide surface 50 while the blind is being washed. This bent-under edge, moreover, provides means for mounting front supports 56 comprising two large outwardly facing hooks having their upper ends bent outwardly so that they may be hooked onto the bent-under edge 54 of splash pan 18. A rod 58 may be secured, as by welding or soldering, across the back of support hooks 56 to fasten them together, rod 58 extending far enough out on both sides of supports 56 to rest against the front side of side members 10. Rod 58 will, therefore, prevent the supports 56 from swinging back under the apparatus when a Venetian blind is placed in them. It would not be desirable to permit the supports 56 to thus swing under the apparatus, because this would tend to make it more difficult to slide the blind up over the guide surfaces 50. It is, moreover, one of the purposes of hooks 56 to support most of the weight of the blind so

that very little strain is placed on the ladder tape in order to facilitate turning each of the slats over individually when in place on the washing drum **26** so that both sides of the slats may be washed if desired. If the supports **56** are permitted to swing too far back, the blind is more difficult to handle and it is harder to turn the slats over to wash them.

In some instances, it may be desirable to provide support pins **59** along the front edge of splash pan **18** (Fig. 6) which pins extend forwardly between the slats of the blind and therefore take the weight of the blind at a point near the slat which is being washed. This will facilitate washing both sides of the slats but makes it necessary to lift several slats at a time over the support pins every once in a while, instead of simply sliding the slats over the guide surface **50** as may be done when the support pins are not used. The problem of stretching the blind at the point where the slat is washed, due to the weight of that portion of the blind which has already been washed and which extends rearwardly over the roller **32**, is taken care of for the most part by the conveyor means B which support the blind for some distance in a more or less horizontal position, thereby reducing the pull on the ladder tape rearwardly due to the weight of the blind at that end. Moreover, the slat which is at the bottom of the Venetian blind when installed in a window is usually washed first. Since this end of the blind is light as compared with the top of the blind, which consists of the operating mechanism and housing therefor, the problem of supporting the blind at the back of the apparatus is less critical than at the front.

On the back side of the washing apparatus, that is, to the left as viewed in Fig. 2, a rack **60** is provided for holding those slats which have been washed and rinsed while the rest of the blind is being cleaned. As may be best seen in Fig. 5, rack **60** is in this instance similar to the front support **56** in that it has two hook-shaped members **62** connected together by means of cross braces **64**. The upper ends of hooks **62** are bent into U-shape in order to fit over the roller **34**, as shown in Fig. 2, from which the rack **60** is hung. The lower ends of hooks **62** are likewise bent into U-shape so that they may be hooked over and rest on brace **13** of frame A. The upper brace **64** of rack **60** carries a handle member **66** by which the rack may be lifted from the apparatus when a blind has been completely washed and rinsed. The blind is then carried in the rack **60** to a convenient place where it can be hung to dry. If desired a solid sheet metal bottom can be provided in the rack **60** to prevent water dripping from the washed blind as it is carried to wherever it is to be hung up to dry. In order to locate the position of rack **60** laterally on the washing apparatus and to avoid any interference with the travel of the blind on the belts **36**, the roller **34** may be provided at **67** and **68** (Fig. 1) with two narrow peripheral grooves spaced the same distance apart as hooks **62**, into which the upper U-shaped ends of hooks **62** will fit. Grooves **67**, **68** are most desirably deep enough to permit hooks **62** to lie substantially flush with the surface of roller **34** as shown in Figs. 1 and 2.

As shown in Fig. 1, adjustable side supports **70**, only one of which is shown in the drawings, may be secured to the side members **10** of the frame of the apparatus and extend laterally into contact with an adjacent wall or other permanent structure, in order to steady the apparatus. Side support **70** may consist of a hollow internally threaded rod **72** attached by any suitable means (not shown) to the frame of the apparatus and an externally threaded rod **74** received by the rod **72** outwardly thereof. Rod **74** has at its outer end a rubber cup or other suitable protecting means for engaging the wall. Side support **70** can, therefore, be lengthened or shortened to provide firm support for the apparatus on one side. If the washing apparatus is placed between two walls, a second support **70** can be provided on the other side of the apparatus to hold it rigidly in place.

In using the apparatus, the blind is first placed in the supports **56** at the front of the washing apparatus and the spray means C turned on. The slat at one end of the blind (preferably the bottom) is then lifted over the guide surface **50** of the splash pan **18** onto the top of drum **26** where it is held with one hand and washed with the other, using a sponge or brush to which may be applied a cleansing composition provided in a suitable container (not shown) at any convenient place on the frame of the apparatus or next to it. When the first slat has been washed, on both sides if necessary, the drum **26** is rotated by hand, bringing the next slat up into washing position on the drum while the one that has just been washed rides on the conveyor belts **36** under the rinsing spray. This procedure is repeated with each slat, one after the other, until all the slats have been washed.

As the succeeding slats are being washed, those which have already been washed travel a substantial distance in a plane which is at a relatively large angle to the vertical, and which is most desirably substantially horizontal, where they are thoroughly rinsed with water that is at all times clean and unsoiled from previous rinsing operations. As has already been pointed out hereinabove, an important feature of the invention is the manner in which the slats which have been washed are carried back a considerable distance so that once they are rinsed clean, they do not become soiled again due to rinse or wash water draining onto them from the succeeding slats. After all the slats have been scrubbed and thoroughly rinsed in this manner, the blind, which drops down into the carrying rack **60** as the slats ride over the roller **34**, is removed from the apparatus in the rack **60** and is hung up to dry as previously described.

It will be noted that the whole washing and rinsing operation can be done by a person sitting in a chair in front of the apparatus, which is adjusted by means of the telescoping legs to any comfortable height. On the other hand, if it is desired to wash the blinds while standing up without having to lean over in a back-breaking posture, the legs can be adjusted to bring the apparatus up to the desired height.

It has been mentioned hereinbefore that washing drums of different shape from that shown in Figs. 1 and 2 might be found to be desirable. Thus, in order to accommodate blinds having wider slats, the square drum **26'** may be used. On the other hand, in order to ensure gripping of the slats by the corners of the drum as it is rotated to pull the blind up from the front supports **56**, a triangular drum **26''** as shown in Fig. 3 may be used. In this particular illustration the central portion of each side of the drum is countersunk slightly as shown to provide notches **80** which engage the edges of the slats so that the blind will be positively gripped by the drum in order to move each slat into washing position. It will be noted that the corners of the drum, and more particularly the arrowhead-shaped corners of the drum shown in Fig. 3, will project between the slats and engage the edges thereof.

Drums of various sizes and shapes can be readily interchanged without changing the size of the belts **36** by simply inserting the drum endwise from the side of the apparatus through the belts **36** and then pulling the drum forwardly against the belts until the ends of the axle **28** engage a suitable set of the notches **30** in the bars **32**.

It will be understood, that if the apparatus is to be used in a commercial installation, the washing platform and conveyor system B may be power driven by simply connecting suitable power means to the shaft **28** of drum **26**. This and other modifications may be made without departing from the scope of the invention.

What is claimed is:

1. Apparatus for use in cleaning Venetian blinds which comprises, in combination, a frame having opposite side

members, a drum rotatably mounted in horizontal position between said side members adjacent the front of the apparatus, a roller supported by said frame rearwardly of said drum for rotation about an axis parallel thereto and substantially level therewith, a plurality of endless conveyor belts passing around said drum and roller in spaced relation along said drum to form a conveyor for carrying a Venetian blind rearwardly of said drum with its slats extending parallel thereto, an elongated spray tube mounted on said frame above said conveyor and extending the full width thereof, said spray tube having spray nozzles along its side which faces said conveyor, together with means for connecting a supply of water under pressure to said spray tube, and a splash pan mounted on said frame in front of said drum on the opposite side thereof from said roller, said splash pan being close to said drum throughout the whole extent of splash pan with its upper edge located adjacent the upper surface of said drum and with a portion extending downwardly below the under surface of said drum to prevent water splashing or draining onto a person standing in front of said apparatus.

2. Apparatus as defined in claim 1, wherein the upper edge of said splash pan is formed such that the pan bends downwardly and forwardly of the frame to provide a guide surface over which the slats of a blind slide as they are moved into washing position on top of the drum.

3. Apparatus as set forth in claim 1, wherein said drum is hexagonal in cross-section providing flat surfaces on which the slats of a blind may be washed.

4. Apparatus as set forth in claim 1, wherein said drum is triangular in cross-section and is provided with notches adjacent the corners thereof for positively engaging individual slats of a blind upon rotation of said drum to move the slats successively into washing position on said drum as the already washed slats are carried away from said drum on said conveyor belts.

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