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BRUSH MOUNTING FOR FRUIT BRUSHES

Filed May 12, 1930

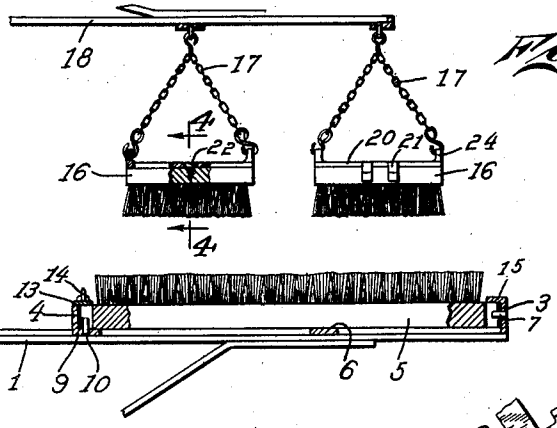

Fig. 2.

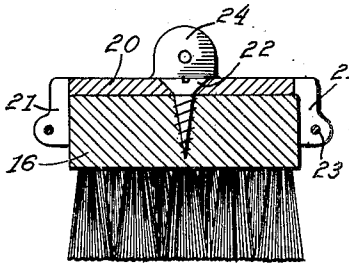

Fig. 4.

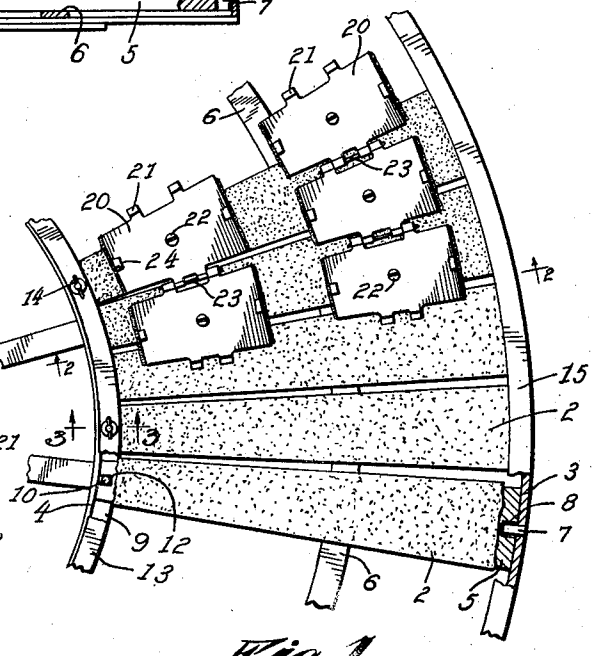

Fig. 1.

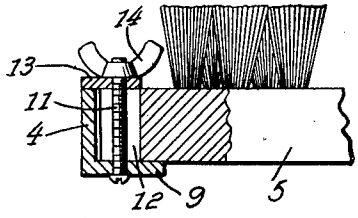

Fig. 3.

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UNITED STATES PATENT OFFICE

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BRUSH MOUNTING FOR FRUIT BRUSHES

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This invention relates to rotary brushes such as employed in the washing of citrus fruits or the like. In the operation of these machines the fruit is rolled between under brushes and upper brushes. The under brushes are mounted on a rotating frame or wheel and it is now customary to nail the brushes alongside of each other in a substantially radial position all around the wheel. This is not very satisfactory as it entails special fitting of the last brush that is inserted in the wheel. The upper brushes that rest on the upper side of the fruit and assist in cleaning it are suspended yieldingly in a substantially fixed position and perform their function as the rotary frame or wheel rotates.

The general object of this invention is to provide improved means for mounting and supporting these brushes. As regards the under brushes, one of the objects of the invention is to provide simple means for removably mounting the brushes in position, thereby enabling the entire circumference of the wheel to be divided into attaching points for the brushes spaced substantially equidistant all around the wheel.

As regards the upper brushes, it has been customary to nail them to backs that are suspended from an upper frame or spider. One of the objects of the invention is to provide improved means for supporting the upper brushes and connecting the brushes together so that they form a substantially continuous ring extending around over the wheel.

Further objects of the invention will appear hereinafter.

The invention consists of novel parts and combinations of parts to be described hereinafter, all of which contribute to produce an efficient brush mounting for fruit brushes.

A preferred embodiment of the invention is described in the following specification, while the broad scope of the invention is pointed out in the appended claims.

In the drawings:

Figure 1 is a plan of a short portion of a washer wheel embodying my invention, certain parts being broken away or shown in section. This view also shows several of the upper brushes lying over the wheel in substantially the position which they occupy when suspended over the wheel in actual use.

Figure 2 is a vertical section taken about on the line 2—2 of Figure 1 but showing the brushes in elevation and broken away at points to further illustrate the invention.

Figure 3 is a vertical section taken in the plane of the line 3—3 of Figure 1 upon an enlarged scale and particularly illustrating the means for clamping the inner ends of the brushes in position.

Figure 4 is a cross section through one of the upper brushes taken about on the line 4—4 of Figure 2 and upon an enlarged scale.

Referring more particularly to the parts, 1 represents the lower rotary frame or wheel that carries the lower brushes 2. In applying my invention to the wheel, I provide the same with an outer ring 3 and an inner ring 4 and I provide the brushes 2 with backs 5 that are supported near their middle point on an intermediate ring 6. Between the ends of the brushes and the rings 3 and 4 I provide an interlocking connection such that the brushes can be laid into place and held there. One or the other of the rings is provided with a removable clamping ring which when removed will permit all of the brushes to be removed. The brushes are all tapered in form, being smaller at their inner ends. In other words, I provide a plurality of means around the rings 3 and 4 for holding the brushes equidistant from each other. In this way a certain number of brushes fit in the wheel at a uniform distance from each other. This avoids the necessity for fitting in a special brush completing the insertion of the brushes in the wheel.

An suitable interlocking connection may be employed between the brushes and the rings. In the present instance I provide the outer ring 3 with a plurality of inwardly projecting pins, such as the pins 7 (see Figure 1), and these pins are received in a vertical slot 8 formed in the end wall of the brush back.

These pins 7 project radially inwardly. The other ring, for example the inner ring 4, is constructed with a horizontal flange 9 that

projects toward the other ring and which is located at the under side of the ring 4. This flange is provided with a plurality of upwardly extending pins 10 and bolts 11 which are received in slots 12 formed at the inner ends of the backs 5. After all the brushes are in place a clamping ring 13 is laid over their inner ends and fastened down by wing nuts 14. A sufficient number of clamping bolts 11 are employed to insure that the clamping ring 13 will be securely held in place.

The outer ring 3 may be also of angle iron form but with its flange 15 disposed upwardly. In placing the brushes in position their lower ends would be aligned under the flange 15 with the brush back resting on the intermediate ring 6 and the brush is then swung in a vertical plane on the ring 6 as a fulcrum so as to cause the outer end of the brush to move upwardly against the under side of the flange 15, the inner end of the brush becoming depressed against the upper face of the flange 9.

Brushes constructed as described can be manufactured at very small increase of cost and they greatly reduce the amount of labor necessary in placing them in the wheel. Furthermore, any worn brushes can be very readily replaced by a new brush or brushes.

Above the rotary wheel 1 there are provided a plurality of upper brushes 16. Upper brushes such as these are usually supported on chains 17 from an upper frame or spider 18. It is the customary practice to nail or otherwise attach these brushes to their hangers. According to my invention, I secure the backs of these brushes to brush carriers preferably in the form of plates 20 having the shape of the brush and provided at their sides with dogs 21 that project down on the sides of the backs and hold the same in place. This enables a single fastening device, such as a screw 22, to be inserted from above, passing downwardly into the brush back.

According to my invention I link these carrier plates 20 together and this is preferably accomplished by connecting the lug 21 by means of hinge pins 23. For this purpose, the hangers are constructed with two lugs 21 on each edge, the lugs on one side, being sufficiently far apart to enable them to receive between them the lugs on the next adjacent hanger plate. The hanger plates or carriers 20 are all tapered so that their side edges are disposed substantially radially from the center of the wheel and in this way the connected brushes form an arc about the center of the wheel. The hanger plates 20 are supported on the chain 17, preferably by hooking the lower ends of the chains into perforated lugs 24 on the ends of the hangers.

It is understood that the embodiment of the invention described herein is only one of the many embodiments this invention may take, and I do not wish to be limited in the practice of the invention, nor in the claims, to the particular embodiment set forth.

What I claim is:

1. In a rotary washer wheel for washing fruit, the combination of an outer ring and an inner ring, a plurality of substantially radially disposed brushes mounted between the said rings, and means disposed substantially equidistant on the said rings and substantially in radial alignment with each other for removably holding the brushes in place.

2. In a rotary washer wheel for washing fruit, the combination of an outer ring and an inner ring, a plurality of substantially radially disposed brushes mounted between the said rings, and means disposed substantially equidistant on the said rings and substantially in radial alignment with each other for removably holding the brushes in place, said means being in the form of interlocking parts on the backs of the brushes and the said rings.

3. In a rotary washer wheel for washing fruit, the combination of an outer ring and an inner ring, a plurality of substantially radially disposed brushes mounted between the said rings, means disposed substantially equidistant on the said rings and substantially in radial alignment with each other for removably holding the brushes in place, said means being in the form of sockets and pins and one of said rings having a fixed flange projecting over the backs of the brushes, and a removable clamping ring on the other ring for engaging the backs of the brushes at their other ends for securing the same in place.

4. In a rotary disc mounted in horizontal position for washing fruit, the combination of a pair of coaxial rings, a plurality of brushes having backs, interlocking means between the ends of the brush backs and said rings for seating the brushes between the rings, and a clamping ring removably secured to said disc in position to engage and secure the brushes in position.

5. In a rotary disc mounted in horizontal position for washing fruit, the combination of a pair of coaxial rings, one of said rings having a relatively fixed flange and having pins adjacent to said flange, a plurality of brushes having backs engaging under said fixed flange and having sockets receiving said pins respectively, means on the other ring for engaging the ends of the brush back to hold the same in place, and a removable clamping ring secured to said disc in position for clamping over the brush backs to hold the same on the said rings.

6. In a rotary washer wheel for washing fruit, the combination of an outer ring and an inner ring, one of said rings having a relatively fixed flange and the other ring having a removable clamping ring, a plurality of brushes having brush backs, the ends of said brush backs and said rings having

interlocking means for holding the ends of said brushes under the said fixed flange and the clamping ring.

7. In a rotary disc adapted to be supported in horizontal position for washing fruit or the like, the combination of an outer ring, an inner ring, a plurality of brushes having backs disposed on the disc between said ring and supported thereby, interlocking means between the brush backs and one of said rings for detachably positioning said brushes, and clamping means cooperating with said brush backs and the other of said rings for securing said brushes in position.

8. A fruit washing disk, a plurality of brushes, said disk supported in a substantially horizontal position, including inner and outer concentric rings, one of the rings being shaped to engage the brush backs, the other ring supporting another edge of the brush backs, means engaging the backs of the brushes for detachably clamping said brushes in position between said rings, and means on one of said rings for engaging said brushes and preventing rotation thereof relative to said ring.

9. A fruit washing disk, a plurality of brushes, said disk supported in a substantially horizontal position, including inner and outer concentric rings one of the rings being shaped to engage the brush backs, the other ring supporting another edge of the brush backs, means engaging the backs of the brushes for detachably clamping said brushes in position between said rings, and pins for preventing relative rotation between one of said rings and said brushes.

10. A fruit washing disk, a plurality of brushes, said disk supported in a substantially horizontal position, including inner and outer concentric rings, one of the rings being shaped to engage the brush backs, the other ring supporting another edge of the brush backs, and means engaging the backs of the brushes for detachably clamping said brushes in position between said rings, said clamping means having a circumferential portion in contact with one of said rings and another portion parallel to said first mentioned portion clampingly engaged with the backs of said brushes.

11. In a washing machine the combination of: a shaft, a frame radiating from said shaft; an outward facing annular channel member provided upon said frame, said member having a substantially smaller radius than said frame; an inward facing annular channel member provided on said frame near the periphery thereof; a series of segmental brushes adapted to have their opposite ends extend into said channel members to rigidly mount said brushes on said wheel to form an annular brush member between said channel members; means for mounting a portion of one of said channel members on said frame to permit said portion to be shifted away from the group of said brushes to release the latter and permit their removal and replacement, there being apertures provided in said brushes; and pins provided on said frame and adapted to enter said apertures for preventing rotation of said brushes relative to said frame when said brushes are engaged by said channel members.

12. A fruit washing disc comprising a plurality of brushes supported in a substantially horizontal position, a pair of concentric rings supporting opposite edges of said brushes, means engaging the backs of said brushes for detachably clamping the brushes in position on said rings, and means engaging with said brushes to prevent rotation thereof relative to said rings.

13. A fruit washing disc comprising a plurality of brushes supported in a substantially horizontal position, a ring supporting an edge of said brushes, a channel ring concentric with said first named ring for receiving the opposite ends of said brushes, means for mounting a portion of said channel ring to permit the same to be shifted away from said brushes to release them, and means engaging with the brushes to prevent rotation thereof relative to said ring and channel ring.

Signed at Santa Monica, California, this 5th day of May, 1930.

LLOYD E. JONES.