March 19, 1929. R. IZAWA 1,705,767

DEVICE FOR POINTING BRISTLES OF BRUSHES

Filed March 3, 1927

Fig. 1.

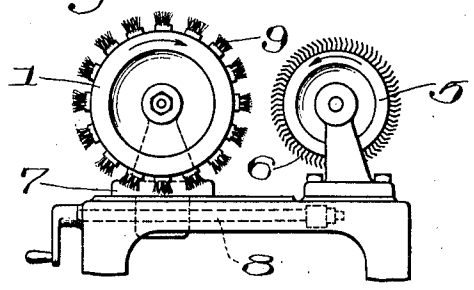


Fig. 8.

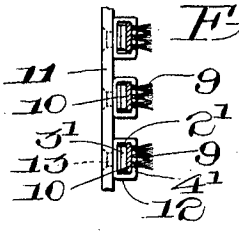


Fig. 4.

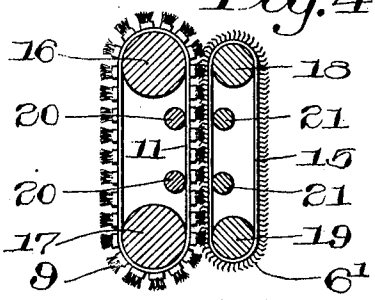


Fig. 2.

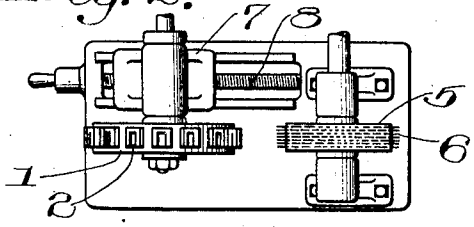


Fig. 3.

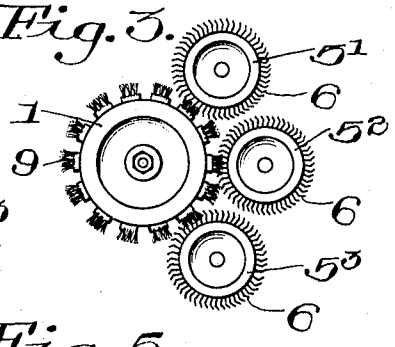


Fig. 6.

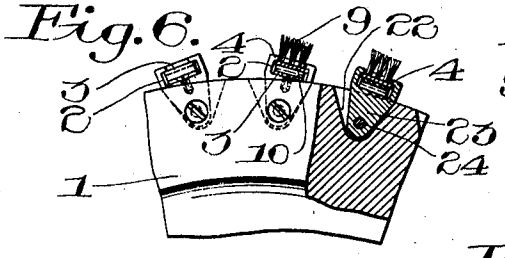


Fig. 5.

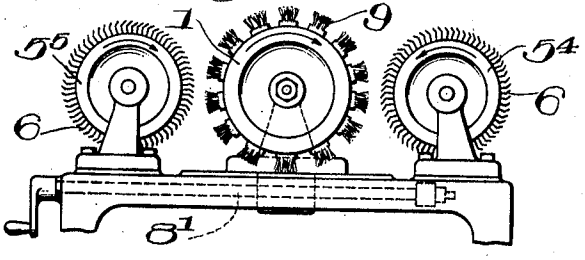
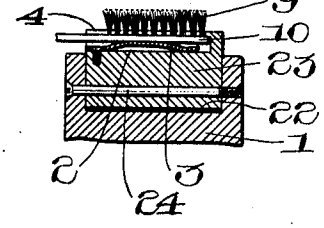


Fig. 7.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR POINTING BRISTLES OF BRUSHES.

Application filed March 3, 1927. Serial No. 172,277.

The present invention relates to a device for automatically pointing bristles of brushes, which device is provided with a movable bristle carrying member, and a movable abrading member having numerous pins provided on their surfaces with an abrading material. The object of the invention is to point the bristles after being secured in a brush back or handle or while temporarily bundled, in order to obtain soft and fine bristles.

The accompanying drawings show various examples of my invention, in which;

Fig. 1 is an elevation of the device having one abrading wheel;

Fig. 2 is a plan of the device shown in Fig. 1;

Fig. 3 is an elevation of the device having three abrading wheels;

Fig. 4 is an elevation of the device comprising a carrying belt and an abrading belt;

Fig. 5 is an elevation of the device having two abrading wheels on the opposite sides of the carrying wheel;

Fig. 6 is a front view, partly in section, of a part of a carrying wheel with brushes carried thereby;

Fig. 7 is a longitudinal section of the same;

Fig. 8 is an elevation of a part of a carrying belt, with brushes carried by it.

In the form shown in Figs. 1 and 2, the carrying member and the abrading member are in the form of wheels mounted for rotation in brackets supported on a suitable base. The carrying wheel 1 has formed on its periphery a plurality of channel-shaped members 2 disposed parallel with the axis of the wheel, said members being open at one end and having their upper edges bent toward each other to form retaining flanges 4, a spring 3 being secured at one end thereof to the bottom of each channel.

In the form shown in Figs. 6 and 7 the channels, instead of being formed directly on the wheel, are each formed in a separate block of approximately V shape in cross section, said blocks being secured by pivots 24 in recesses formed in the periphery of the wheel, said recesses being also of V-shape in cross section but of sufficient width to permit the blocks 23 to rock on their pivots. The abrading wheel 5 is provided with a plurality of pins 6, the surfaces of which are covered with an abrading material such as powdered emery. The bearing bracket 7 carrying the wheel 1 is mounted for sliding movement toward and from the abrading wheel, for which purpose a screw 8 is threaded through the base of said bracket and is swivelled at its inner end in the supporting base member and provided at its outer end with a crank handle for operating said screw.

In the operation of the device, bristles 9 are secured in brush backs 10, which are then inserted into the channels 2 through the open ends of said channels, the tension of the springs 3 acting to hold said backs against the flanges 4 of the channels. The wheels 1 and 5 are then caused to rotate, for instance in the directions indicated by the arrows in Fig. 1, and while so rotating the screw 8 is operated to move the wheel 1 toward the wheel 5 until the pins 6 engage the bristles 9 sufficiently to abrade said bristles to the desired extent. If desired, means may be provided for reversing the direction of rotation of the wheels for abrading the bristles in the opposite direction so as to point them evenly from opposite sides of the brush, although it will be obvious that the same result can be accomplished by removing the brushes from the channel members 2 and turning said brushes end-for-end and replacing them in the channels, and again causing the wheels to rotate as before. If the pivoted blocks shown in Figs. 6 and 7 are used, the blocks are swung on their pivots by contact of the bristles with the pins, whereby the action of the pins may be made more effective.

In Fig. 3, three abrading wheels, $5'$, 5^2 and 5^3 are provided, which are disposed in position to act upon the carrying wheel 1 simultaneously, thereby to increase the abrading capacity.

In Fig. 4, the carrying and abrading members are in the form of endless belts 11 and 15 respectively, said belts being mounted on pulleys 16, 17, and 18, 19 respectively, the contiguous parts of the belts being maintained in parallel relation by means of rollers 20 and 21. The carrying belt 11 is provided with a plurality of bristle-holding devices extending transversely of said belt and spaced apart along the entire length thereof, which devices, as shown in Fig. 8, may comprise holders 12 each having a channel $2'$ provided with flanged edges $4'$ and springs $3'$ similar to the devices of Figs. 1

and 2, said holders 12 being secured to the belt by means of rivets 13 or other suitable fastening devices. In like manner, the abrading belt 15 is provided along its entire length with abrading pins 6′ similar to those on the abrading wheel of Fig. 1.

In Fig. 5, the carrying wheel is shown associated with two abrading wheels 5^4 and 5^5 respectively, one at each side of the carrying wheel. Means may be provided for rotating the abrading wheels in opposite directions, and a screw 8′ is provided for causing the carrying wheel to fly from one abrading wheel to the other and vice versa, whereby the bristles may be abraded from both sides of the brushes.

Although the drawings show the examples having a carrying member and an abrading member both consisting of rotatable wheels or endless belts, it is obvious that one of said members may consist of a rotatable wheel and the other of an endless belt, that is to say, it is entirely practical to combine a carrying wheel or abrading wheel as shown in Figs. 1 and 5 with an abrading belt or carrying belt as in Fig. 4.

As stated above, according to this invention it being possible to bring all the bristles held by a carrying member into a position to undergo abrading operation equally, a large quantity of bristles can be abraded rapidly and uniformly. Further, as bristles may be abraded first from one direction and then from the other direction, they are pointed conically and are thus rendered soft and pliable.

Claims:

1. A device of the character described, comprising a movable carrier, a plurality of individual holding members disposed on said carrier so as to form an endless row, and a movable abrading member having a number of abrading pins extending therefrom in juxtaposition to said carrier.

2. A device of the character described, comprising a movable carrier, a plurality of individual holding members extending transversely of said carrier and disposed thereon so as to form an endless row, a movable abrading member having a number of abrading pins extending therefrom, and means for bringing said carrier and abrading member into and out of juxtaposition to each other.

3. A device of the character described, comprising a movable carrier, a plurality of individual brush holding members extending transversely of said carrier and disposed thereon so as to form an endless row, and a plurality of movable abrading members adapted to act simultaneously on brushes carried by said carrier.

In testimony whereof I have affixed my signature.

RIICHIRO IZAWA.