

UNITED STATES PATENT OFFICE.

ERNEST VOGEL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO JOHN L. WHITING-J. J. ADAMS COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

METHOD OF REDEEMING BRISTLES.

977,057.

Specification of Letters Patent.

Patented Nov. 29, 1910.

No Drawing. Original application filed April 30, 1910, Serial No. 558,615. Divided and this application filed July 16, 1910. Serial No. 572,262.

To all whom it may concern:

Be it known that I, ERNEST VOGEL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Methods of Redeeming Bristles, of which the following is a specification.

This invention relates to the art of brush making and has for its object to redeem, or in other words to arrange in condition suitable for use, and thereby save, such bristles as have been dropped or have fallen in the course of brush manufacture into such disorder as to have become practically waste material.

In brush making it is essential that all the bristles should be arranged in one way, their butt ends being placed together and secured to the body or handle portion of the brush, their outer ends being loose and free. In the various operations of sorting the bristles for length and placing them in the brushes, many of the bristles escape or are removed on account of being incorrectly placed, and fall in all directions upon benches, floors, etc. When such bristles are swept up and gathered together, they are in such confusion and so disordered as to be unfit for immediate use in brush manufacture, and are practically so much waste material.

My object is to provide a mode of treating such waste material whereby the bristles may be quickly and economically rearranged in orderly fashion with their corresponding ends all pointing one way, and thus may be redeemed and converted into stock suitable for the ordinary operations of brush making.

In accomplishing the foregoing object, I have devised a method of treating or acting upon bristles, which was originally described and claimed in connection with an apparatus for practicing the method, in an application filed by me April 30, 1910, Serial No. 558,615 for a bristle-redeeming machine. As the method is capable of being carried out by hand manipulation, requiring no other apparatus than a screen or foraminous plate, the claims directed particularly to the method were divided out of the aforesaid application, and are herein made the subject of a separate divisional application.

The practice of the method depends upon the fact that bristles used in making brushes

are split on the outer ends, and are compact at the ends which come from the skin of the animal, and are called the butt ends, and upon the further fact that such bristles have minute barbs pointing from the butt ends toward the split ends. As a result of the first noted characteristic the butt ends of the bristles are enabled to enter easily and pass through holes or perforations only slightly larger than the bristles themselves, while the split ends are prevented from entering such holes or perforations by reason of the interference of the branching parts of such split ends with the sides of the openings. As a result of the second characteristic, the bristles, when subjected to a back-and-forth rubbing action, are impelled butt end foremost by reason of their barbs being caught by the thing which is rubbed over them. In other words, if the bristles are laid upon a support and a rubbing member such as the hand of an operator, or any other instrument, is moved back and forth in contact with them, the barbs are engaged by the rubbing member when such member passes from the split end toward the butt end of any bristle. Conversely when the rubbing instrument moves from the butt end toward the split end of a bristle it slips over the barbs without engaging or being caught by them. At the same time the action of the barbs with respect to the support on which the bristles rest is exactly the opposite of their action with respect to the rubbing member. Thus such bristles as lie with their butt ends pointing in the general direction of movement of the rubbing member, are moved in that direction, while such bristles as lie with their split ends pointing in this general direction, remain stationary and the rubbing member passes over them. As a result of this explanation of the characteristics of bristles and the use which may be made of such characteristics, the series of steps which constitutes the method forming the subject matter of my present invention will be understood.

In practicing the method, the mass of bristles which is to be redeemed from waste into useful stock is placed upon a support having numerous perforations of a size great enough to admit the butt ends and to permit the bristles to pass freely through, and at the same time small enough to ex-

clude the branching split ends. This perforated support may be and preferably is a screen of sufficiently fine mesh, and for convenience will hereinafter be termed the screen. Such screen is the only piece of apparatus absolutely necessary to the practice of this invention, although, as will later appear, I may use in addition thereto a device or means for retaining the bristles in an orderly arrangement after they pass through the screen. The mass of bristles is then acted upon in such a manner, as by rubbing, stirring, tossing and otherwise agitating the bristles, that the butt ends of some of them are caused to enter the meshes of the screen, and are subsequently pushed through the screen. This rubbing and agitating action may be produced by the hand of the operator placed in or upon the mass of bristles and moved back and forth with or without a rotary motion, or it may be produced by other means manipulated by the hand of the operator, or actuated otherwise, in such a manner that a frictional surface travels in contact with the bristles, and the bristles are so stirred that they are inclined to the plane of the screen, whereby their butt ends are enabled to pass through the meshes of the screen. Those bristles which pass through the screen as hereinbefore described are, of course, arranged all in the same way, being not only parallel to each other, but with their corresponding ends together. They are then collected ready for the other operations through which they are passed in being made ready for and applied to the brushes.

I find it convenient and desirable to provide holding means for retaining the bristles after they pass through the screen, and such holding means may conveniently be a screen

of relatively coarse mesh, as shown in the application hereinbefore referred to, or a box having partitions or cross pieces of any sort dividing the space into which the bristles fall into compartments small enough to hold the bristles substantially upright when they are not packed closely together.

I claim,—

1. The method of arranging in orderly manner a disordered mass of bristles, which consists in placing the mass on a screen and stirring or rubbing the same to propel the individual bristles butt-end foremost toward and through the interstices of the screen.

2. The method of redeeming waste and disordered bristles, which consists in placing the bristles on a screen, rubbing or agitating the bristles to push them butt-end foremost through the screen, and collecting those bristles which pass through the screen.

3. The method of so arranging disordered bristles that their corresponding ends all point the same way, which consists in placing the disordered bristles upon a perforated support, moving such bristles about over the support to cause the butt ends thereof to pass into the perforations, rubbing the bristles which thus enter the perforations so that they are propelled, by engagement of their barbs with the rubbing agent, through the perforations, and retaining the bristles which pass through the perforations in the same relation to each other, as regards direction, occupied by them during their passage through the perforations.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ERNEST VOGEL.

Witnesses:

HARVEY W. HASEY,
S. DESMOND PURDY.