Oct. 26, 1926. 1,604,406

W. W. GAYLE

CLEANING, SEPARATING, AND PARALLELING TEXTILE FIBERS

Filed June 11, 1925

Fig. 1.

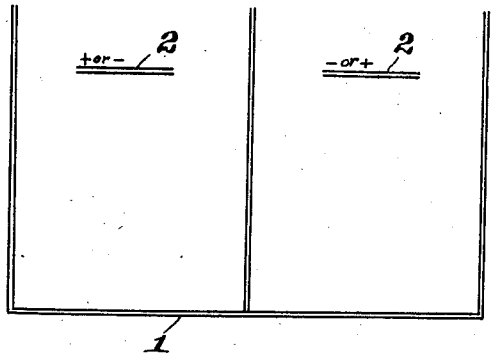


Fig. 2.

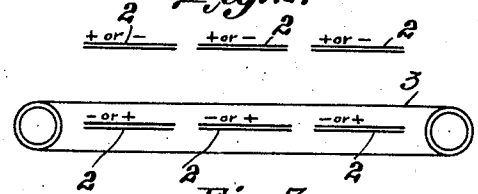


Fig. 3.

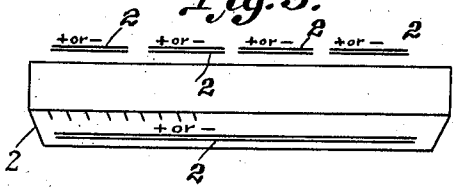


Fig. 4.

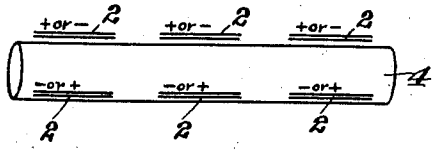


Fig. 7.

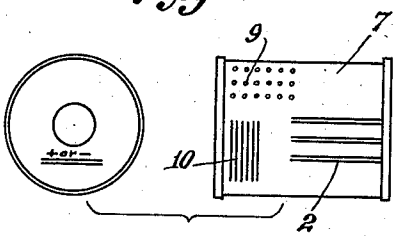


Fig. 5.

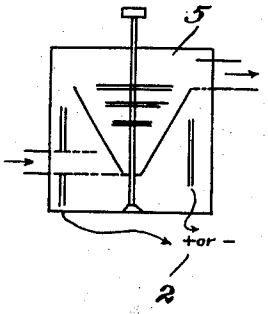


Fig. 8.

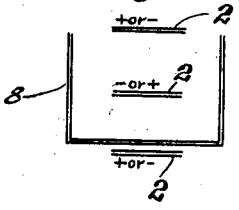
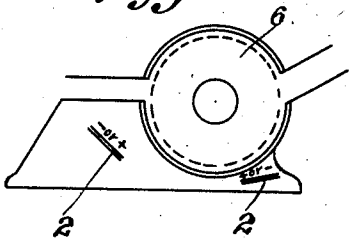


Fig. 6.



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UNITED STATES PATENT OFFICE.

WALTER WINN GAYLE, OF GREENVILLE, SOUTH CAROLINA, ASSIGNOR OF ONE-HALF TO NORMAN W. GAYLE, OF MONTGOMERY, ALABAMA.

CLEANING, SEPARATING, AND PARALLELING TEXTILE FIBERS.

Application filed June 11, 1925. Serial No. 36,541.

This invention has for its prime object to provide an improved method or process for opening, cleaning, separating and paralleling textile fibers, adapted to take advantage of the action of the fibers under electrical influence. It has been determined that when a current of high voltage or a wire supplied with high voltage is placed near textile fibers, the fibers tend to spring apart from each other and are attracted to the electrical conductor together with the undesirable matter. Sand and heavy sticks drop out of the fiber.

Other objects of this invention will appear during the detailed descriptions and in connection with the single sheet of drawings which are a part of this application.

In the drawing,

Fig. 1 represents a diagrammatic view of bins adapted to contain stock to be cleaned, the element charged with a suitable current of electricity being placed or located above the bins.

Fig. 2 illustrates a diagrammatic view of a travelling belt or conveyor adapted to convey suitable stock, and having the electrically charged element either above or below the conveying side of the belt.

Fig. 3 represents a diagrammatic view of a box, having as a part thereof, either plain or grid bars, the electrically charged element being suitably located either above or below the bars.

Figs. 4, 5, 6, 7 and 8 illustrate modified forms of Figs. 1, 2 and 3, showing containers, conveyors and the like for stock consisting broadly, of textile fibers, and having properly located in respect thereto, electrically charged elements.

In this invention any suitable form of container or conveyor may be used for the stock which consists ordinarily of textile fibers, these containers or conveyors may be of various types such as bins 1, boxes 8, belt conveyor 3, box having grids 2, pipe conveyors 4, vertical opener 5 Fig. 5, horizontal openers 6 Fig. 6, screen, or any other suitable type.

Numeral 2 represents any element that may be properly charged with a current of electricity.

In Fig. 1, the stock may be in bins while the charged element is located above thereby causing the stock to loosen up and fibers disentangle, in Fig. 2 the charged element is shown placed above and below the conveying side of a belt, preferably having perforations therein, the element above the conveyor tending to open up the stock while the elements below would tend to open the stock and draw the undesirable items down and out.

Fig. 3 is a modification showing a trunk or box having either a plain surface or grid bars, the elements having the same effect as described above. The conveyor pipe shown in Fig. 4 is adapted to allow the stock to pass through, the electrically charged elements effecting it in the manner above disclosed.

Figs. 5 and 6 show diagrammatic forms of stock openers of the vertical and horizontal types, the horizontal type being plain or having grids, and supplied with feed rolls or blast fed, the charged elements tending to disentangle the fibers of the stock in a manner claimed by this invention.

Fig. 7 discloses the charged element adapted to open up stock passing over or inside of a screen, while Fig. 8 designates the charged elements placed over, under, inside or at the side of any box or conveyor of stock. Numeral 9 represents perforations in the material 7 for forming a screen. Numeral 10 designates a modified form of perforations that might be used in making the screen. It is to be understood that the screen in this invention may be formed, having perforations of any suitable size or shape.

In operation this method consists of passing matted stock over or under an element suitably charged with a current of proper voltage. The fibers tend to disentangle themselves and separate from each other and are drawn toward this element. If the fibers rise to a point where they contact with the element, they become immediately of the same potential, and drop down, the undesirable material either collecting on the element or dropping past into a box below, however, to clean the stock it is not necessary that the fibers touch the element.

This invention provides a novel method for opening, cleaning and blooming cotton or textile fibers without any damage to the staple, the undesirable matter falls out, or is drawn to the element. By this method the stock may furthermore be considered as "bloomed", to regain its natural fibers put in better condition for the machines that are used after

this method or process has been resorted to.

What I claim is:

1. A method for opening, cleaning and blooming textile fibers, consisting of passing matted stock near an element suitably charged with a current of proper voltage.

2. A method for opening, cleaning and blooming textile fibers, consisting of passing matted stock near an element suitably charged with a current of proper voltage, the element being located in a position adapted to disentangle the fibers and separate them from each other, thereby allowing undesirable matter to drop away from the stock.

3. A method for opening, cleaning and blooming textile fibers, consisting of passing matted stock near an element suitably charged with a current of proper voltage, the element being located in a position adapted to disentangle the fibers and separate them from each other, the fibers coming in contact with the element will become of the same electrical potential and drop, whereupon the undesirable matter in the stock will either collect on the element or pass into a suitable receptacle.

4. A method for opening, cleaning and blooming textile fibers, consisting of passing matted stock near an element suitably charged with a current of proper voltage, the element being located in a position adapted to disentangle the fibers and separate them from each other, an element placed above the stock tending to open up the material while the element below would tend to open the stock and draw the undesirable matter down and out of the stock.

In testimony whereof I affix my signature.

WALTER WINN GAYLE.