M. SLEETH.

SEPARATING DEVICE.

APPLICATION FILED JAN. 28, 1916.

1,238,949. Patented Sept. 4, 1917.

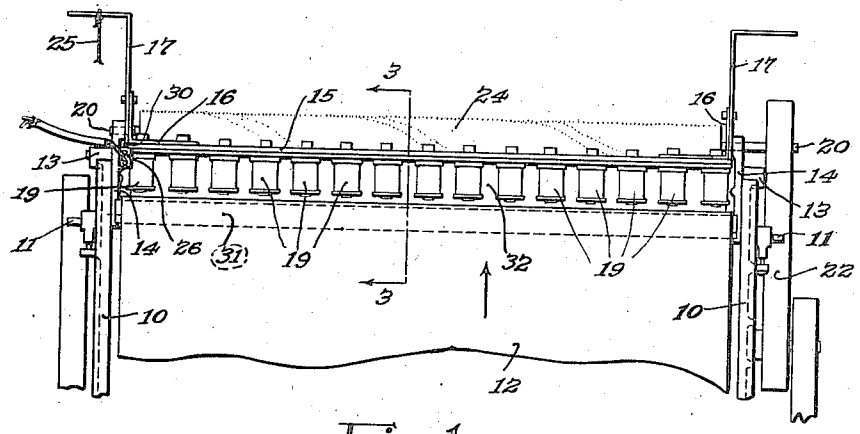


Fig. 1.

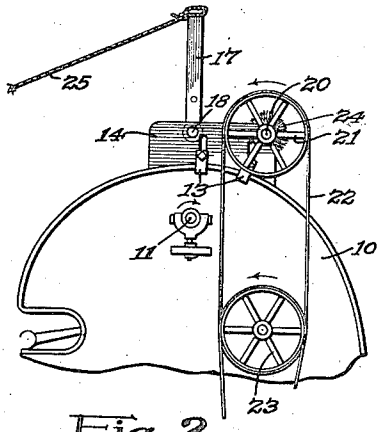


Fig. 2

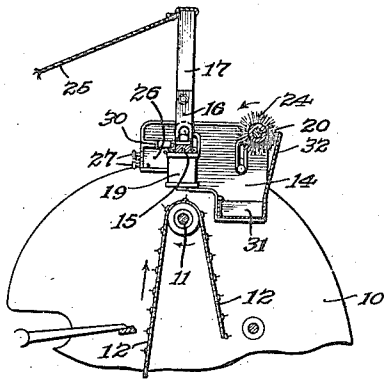


Fig 3

Fig. 4

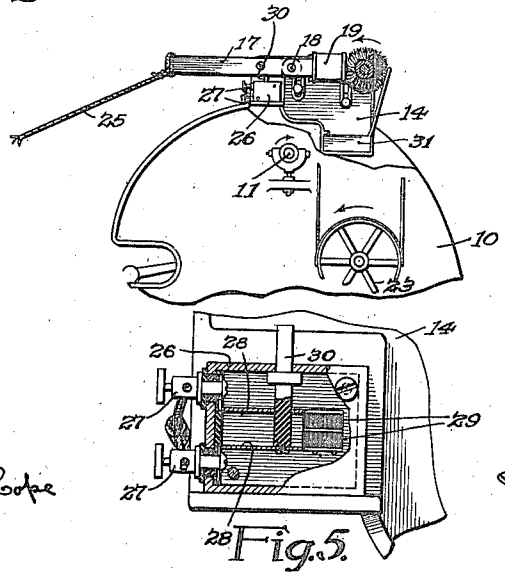


Fig. 5.

WITNESSES

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UNITED STATES PATENT OFFICE.

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SEPARATING DEVICE.

1,238,949. Specification of Letters Patent. Patented Sept. 4, 1917.

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To all whom it may concern:

Be it known that I, MONTGOMERY SLEETH, a citizen of the United States, and a resident of Bellevue, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Separating Devices; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention pertains to separating devices, and especially relates to magnetic devices for separating extraneous metallic articles from bulk cotton or the like. In the manufacture of mattresses, for example, it is usual to break up and mix the bulk cotton, or similar material, intended for filling the same. In such bulk cotton, there is usually to be found a quantity of foreign metallic articles, such as nails, small pieces of iron, etc. It is one of the objects of this invention to provide a magnetic device of a simple and economical construction for abstracting such foreign articles. It is another object of the invention to provide a separating device of this character with a simple and efficient means for effecting thoroughly the final removal of the articles separated. Still other objects of the invention will appear from the following specification taken in connection with the appended claim.

A separating device constructed in accordance with my invention is described, by way of example, in the following specification, and shown in the accompanying drawing. I wish it understood, however, that the device may be embodied in other ways, and that changes may be made in the embodiment shown and described, without exceeding the scope of the invention, as defined in the appended claim.

Referring to the drawing:

Figure 1 is a front view of a portion of a cotton breaking and mixing machine having a separating device constructed in accordance with my invention applied thereto;

Fig. 2 is a side elevation of the same, looking from the right-hand side of Fig. 1;

Fig. 3 is a sectional elevation, the section being taken on the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a view similar to Fig. 2, but showing the magnet supporting frame swung into the position in which the attached articles are removed therefrom, part of the side-members being broken away, and

Fig. 5 is an enlarged detail view of the electric switch, part of the casing being broken away so as better to display the parts.

Like reference characters refer to like parts throughout the following specification and the several figures of the accompanying drawing.

Referring now to the drawing, 10 indicates the frame of a cotton breaking and mixing machine, in which is rotatably mounted the shaft 11 of a band conveyer 12. This conveyer 12 maintains a continuous forwarding movement, and is provided with a plurality of pickers, which pick up the cotton from a supply hopper and carry it over to a delivery box, with the result that the cotton is broken up and mixed in the process. Machines of this general nature are already known in the art, and no further description of the same is necessary.

Removably secured, by means of clamps 13, between the side walls of the frame 10 is a pair of plates 14, one of said plates being clamped to each of the side walls. A bar 15 extends between the plates 14 directly above, and parallel with the axis of, the shaft 11. To the ends of the bar 15 are secured by means of angle irons 16, levers 17. One of the levers 17 is pivotally connected, at 18, with each of the plates 14. The cross bar 15 carries a plurality of electro-magnets 19 of such dimensions that their lower ends are situated close to the conveyer 12, when the parts are in the position shown in Figs. 1–3.

Rotatably mounted between the plates 14 is a shaft 20 carrying at one end a pulley 21, which is connected by a belt 22 with one of the pulleys, as 23, of the cotton breaking and mixing machine. The shaft 20, which is thus continuously rotated, carries a cylindrical brush 24 which extends throughout the entire distance between the plates 14. A rope 25 or the like is connected to one of the levers 17, by pulling upon which the bar 15 can be shifted from the position shown in Fig. 3 to the position shown in Fig. 4, in which latter position the outer ends of the magnets 19 engage against the rotating brush 24. By releasing the rope 25, the bar

15 is permitted to return to its original position.

In order that current may be shut off from the magnets 19 when it is desired to remove therefrom any articles which may have adhered thereto, I provide a switch which is adapted to be engaged and operated by one of the levers 17, when the parts are in the position shown in Fig. 4. In the construction now being described, this switch is mounted upon the plate 14 shown at the left-hand side of Fig. 1. The switch includes an inclosing casing 26, carrying a pair of binding terminals 27 which are connected in series with the circuit of the electro-magnets. Mounted within the casing 26, and electrically connected with the binding terminals 27, are a pair of springs 28, carrying at their ends carbon blocks 29, which are normally in contact with each other. Secured to the lower spring 28, and passing loosely through the upper spring and through the top of the casing 26, is a plunger 30. It will be seen that when pressure is exerted downwardly upon the plunger 30, the blocks 29 will be separated, thereby breaking the circuit through the electro-magnets. When the pressure is removed, the blocks come together again and reëstablish the circuit. The switch is so positioned that when the magnets are swung into the position shown in Fig. 4, one of the levers 17 will strike and press downwardly upon the plunger 30, thereby breaking the circuit through the electro-magnets.

The plates 14 are provided with guides for receiving slidably the ends of a tray 31, which has a guard plate 32 extending upwardly to the rear of the brush 24. In the operation of the device, the magnets are normally in the position shown in Fig. 3, in which they pick up any iron particles which may be present in the cotton passing beneath them. When it is desired to remove these particles from the magnets, this is effected by pulling upon the rope 25 until the magnets are in the position shown in Fig. 4. In this position, the circuit through the magnets is broken by the engagement of the lever 17 with the plunger 30 of the switch, thereby enabling the majority of the particles to fall away from the magnets. Any small particles, which might be held in place by residual magnetism, are brushed off by the rotating brush 24. The particles fall into the tray 31, which may be removed at will to permit them to be discarded.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

The combination with a cotton breaking and mixing machine having a material-conveyer, of means detachably secured thereto for separating iron or steel particles from the material to be carried by said conveyer, said separating means comprising a plurality of electromagnets, a receiver, a rotary brush associated with said receiver, a normally stationary pivoted U-shaped frame for supporting said electromagnets in coöperative relation with said conveyer, means for rocking said frame to bring said electromagnets into coöperative relation with said receiver and into engagement with said rotary brush, whereby the latter brushes the particles from said electromagnets into said receiver, an electric switch controlling the circuit of said electromagnets, and a plunger for actuating said switch, said plunger being disposed in the path of one of the arms of said U-shaped frame so as to be operated thereby when said frame is swung to bring said electromagnets into engagement with said brush.

In testimony whereof, I the said MONTGOMERY SLEETH, have hereunto set my hand.

MONTGOMERY SLEETH.

Witnesses:

A. D. P. MILLER,

CHARLES G. COPE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."