S. S. GETCHELL.

CARD-SCREEN.

No. 192,429. Patented June 26, 1877.

Fig. 1.

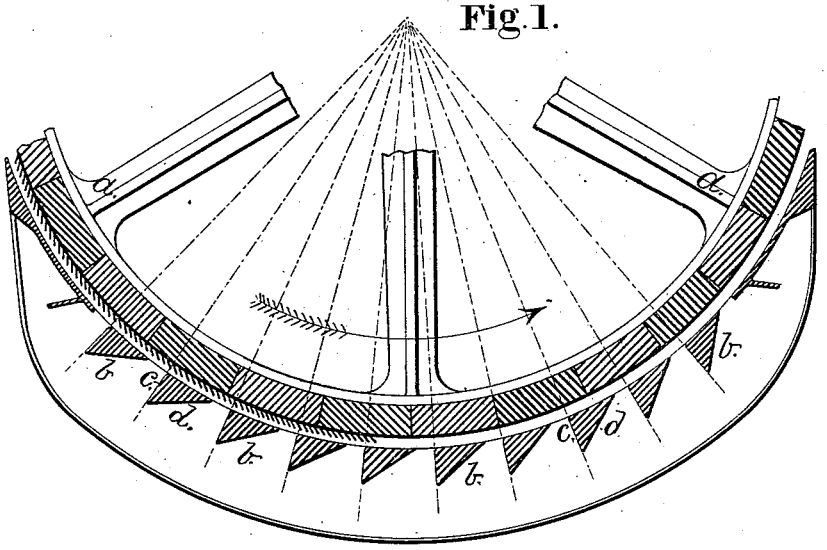
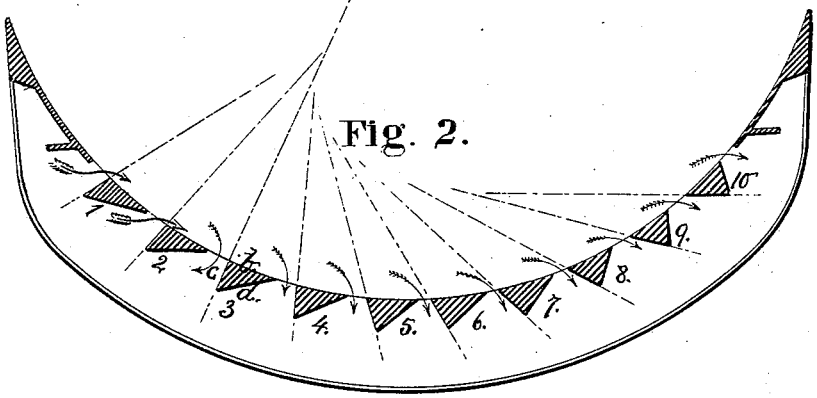


Fig. 2.



WITNESSES.

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SETH S. GETCHELL, OF WOONSOCKET, RHODE ISLAND.

IMPROVEMENT IN CARD-SCREENS.

Specification forming part of Letters Patent No. **192,429**, dated June 26, 1877; application filed April 3, 1877.

To all whom it may concern:

Be it known that I, SETH S. GETCHELL, of Woonsocket, in the county of Providence and State of Rhode Island, have invented new and useful Improvements in Card-Screens; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a sectional view of my improved card-screen, showing the arrangement of the same with reference to the main cylinder of a carding-engine. Fig. 2 is a problematic section of a card-screen arranged to show the relative difference and effect produced by the shape of the bars on the fiber.

In the drawings, *a* represents part of the main cylinder of a carding-engine. *b b b* are the bars of my improved screen. *c* is the face of the bar, and *d* the under side of the same.

The arrow and the set of the wires in the cylinder *a* show the direction in which it revolves.

The object of the invention is to so construct a card-screen that the bars will allow the impurities to pass between them, but will prevent the excessive air-currents by which a portion of the fiber is usually carried through and mixed with the impurities, which thus causes a great loss and waste of fiber.

The invention consists in arranging the bars of a screen so that their forward faces shall be on a line, or nearly on a line, with the axis of the main carding-cylinder, as indicated in broken lines in Fig. 1.

In a carding-engine the cylinder revolves at a high surface speed, and the projecting wires create a strong air-blast. When a screen is placed under the cylinder, each bar of the screen forms an abutment, and the angles of the faces of these bars exert a powerful influence on the fiber.

In Fig. 2 a hypothetical screen is shown, to illustrate the influence of the angles on the faces of the screen-bars with reference to the revolving cylinder. The face of the bar 1 forms an angle greater than an angle formed by the line drawn from the axis of the cylinder, and produces with the revolving cylinder parallel currents and an indraft of air through the screen. The bar 2 also causes an indraft, but less than the bar 1. The bar 3, being arranged with its face on a line with the axis of the revolving cylinder, forms an eddy in which there is no marked tendency either of an inward or outward draft of air, unless at some other point a surplus of air is drawn in or discharged. This is, therefore, the most favorable condition to discharge the impurities without wasting the fiber, as the impurities are thrown off by centrifugal force. The bar 4 favors a slight raising of the fiber on the cylinder, number 5 more so, and all the others gradually more, as the angle formed gets more nearly on a tangent with the periphery of the main cylinder, and will more readily deflect the currents of air.

The nearer the faces of the bars of the screen are on a line with the axis of the revolving cylinder the less fiber will be drawn out through the screen. With short staple the bar 2 will be preferable. With extra long fiber the bar 4 will be best, as it will allow the fiber to be slightly loosened; but for the average quality of fiber the bar 3^b, in Fig. 2, and all the bars shown in Fig. 1, are the best, and will produce the best and cleanest lap with the least waste.

The bars are made of triangular form, so as to increase the opening at the under side of the screen, and thus facilitate the discharge of the impurities.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A card-screen provided with permanently-fixed bars, the forward faces of which form planes on, or nearly on, radial lines from the center of the cylinder, and their upper surfaces are on lines parallel to the periphery of the cylinder, substantially as and for the purpose described.

SETH S. GETCHELL.

Witnesses:

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