2 Sheets--Sheet 1.

S. D. KEENE.

Machine for Cleaning Cotton.

No. 162,479. Patented April 27, 1875.

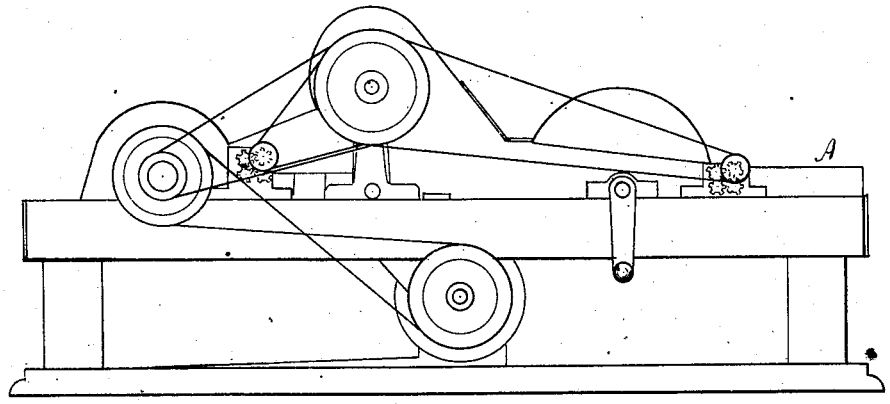

Fig 1

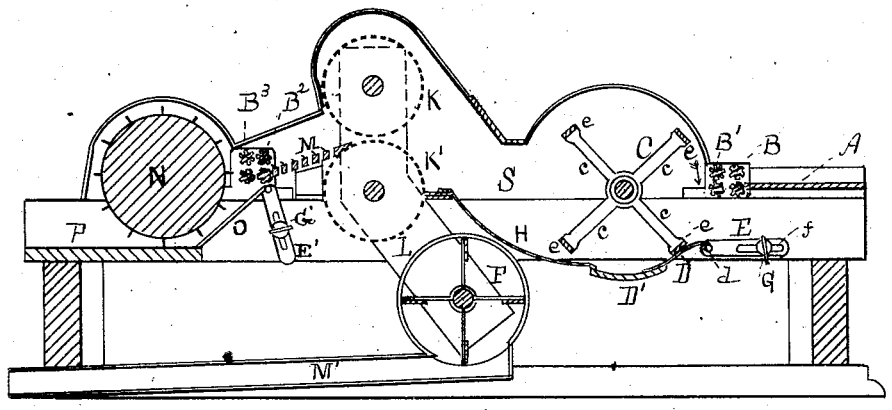

Fig 2

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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

S. D. KEENE.

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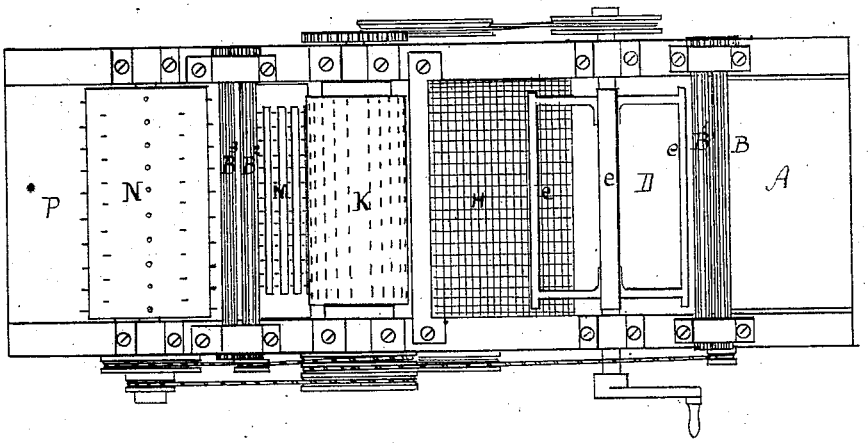

Fig. 3.

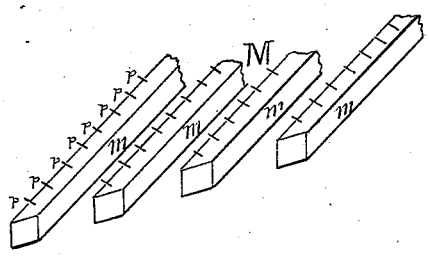

Fig. 5

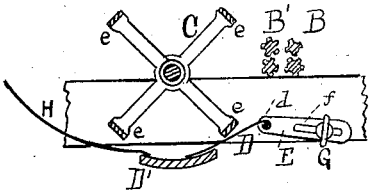

Fig. 4

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UNITED STATES PATENT OFFICE.

SAMUEL D. KEENE, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN MACHINES FOR CLEANING COTTON.

Specification forming part of Letters Patent No. **162,479**, dated April 27, 1875; application filed September 19, 1874.

To all whom it may concern:

Be it known that I, SAMUEL DAVIS KEENE, of Providence, in the county of Providence and State of Rhode Island, have invented a certain new and useful Machine for Cleaning Cotton, of which the following is a specification:

My invention consists, first, in combining with a set of drawing-rolls and a beater, or its equivalent, an adjustable mote-board; second, in combining, with a set of condensers and drawing-rolls, an inclined grill, over which the cotton is drawn after it has passed the condensers. This grill is provided with bars, each of which is covered with short spurs or pins extending upward for the purpose of separating the cotton, so as to loosen it sufficiently for it to allow the motes and dust to fall out.

The action of this invention can be best understood from the more full description which follows.

Figure 1 is a side elevation of my invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a plan of the same. Figs. 4 and 5 show parts in detail.

Let A represent the lap or apron upon which the cotton to be cleaned is placed. From this apron the cotton is fed into the sets of drawing-rolls B and B′. These drawing-rolls are made in the usual manner—that is, they are fluted—and the set B′ are arranged to run faster than the set B, so that the mass of cotton or lap is stretched and opened in its passage. From these rolls the cotton is delivered to the action of the beater C. The beater C consists of a set of arms, *c c c c*, Fig. 2, and the bars *e e e e*. The bars *e e e e* extend longitudinally, as shown in Fig. 3, and, as the beater revolves, comes in close contact with the set of drawing-rolls B′, so as to strike or beat the cotton as it passes out from between the rolls. This action of the beaters divides the cotton so as to allow the motes to be thrown out. The mote-board D rests loosely on the bottom board D′, and is so arranged that it may be readily adjusted lengthwise of the machine, so as to bring the front edge of the mote-board at a greater or less distance from a line drawn vertically down from the feed roll B′, without varying the space between the mote-board D′ and the beater C. To do this I attach to the edge of the mote-board, at each end, a pin, *d*. (See Figs. 2 and 4.) These pins *d* are each attached to a plate, E, said plates E being each provided with a slot, *f*, through which a clamping-screw, G, passes.

To adjust the mote-board D, I have only to loosen the clamping-screw G, which will allow the plates E, and consequently the mote-board D, to be moved as desired.

To understand this part of my invention, the operator must keep in mind this fact, namely, that, as the bars *e e e e*, which are in rapid motion, strike the cotton as it is delivered from the rolls B′, it, the cotton, together with the motes and dirt, is thrown tangentially down, as indicated by the arrow, Fig. 2. The motion thus given to the cotton and motes is greatly modified by the current of air created by the beater in its revolution. The resultant effect is that the heavy parts—*i. e.*, the motes and dirt—to a large extent pass nearly straight down by the edge of the mote-board into the waste-box, while the cotton, being light, is carried by the air-current onto the mote-board, and thence to the other parts of the machine.

I find, in practice, that different grades of cotton require different positions for the edge of the mote-board, and that the satisfactory working of the machine depends upon the adjustment of the mote-board, so that its position may meet the requirements of the kinds of cotton being worked upon. A knowledge of the proper adjustment of the mote-board will be acquired by a skillful workman after a few experiments with the cotton to be acted upon. After the cotton has passed through the operation, as above described, it passes into chamber S, and thence through the perforating condensing-rolls K K′.

H is a sheet of wire gauze, and, from its nature, allows much of the dust and fine dirt to sift out of the cotton. F, Figs. 1 and 2, is a fan-blower, arranged, as shown, to inhale from the condensers K K′, through the pipe L, and then out through the pipe *m′*, Figs. 1 and 2. As the peripheries of the condensing-rolls K K′ are perforated, it is evident that a strong current of air will flow from the chamber S toward and into them. This action of the air will draw the cotton in the chamber S upon

the rolls, and allow the rolls to condense the loose cotton into a lap. At the same time more of the dust will be freed from the cotton. After the cotton has passed through the condensing-rolls K K′, it is delivered upon the grill M, and from thence passes through the drawing-rolls B^2 B^3 to the combing-cylinder N, and is finally delivered at P, to be worked into a lap of cleaned cotton.

The grill *m*, shown in Fig. 2, and plainer in perspective section in Fig. 5, consists of a set of bars, *m m m m*, each of which is provided with short pins *p p p p*. The object of these pins is to open the cotton as it passes from the condensers K K′ to the drawing-rolls B^2 B^3, so as to allow the entangled mote, leaves, &c., to drop out through the openings between the bars.

The mote-board O in Fig. 2 is adjustable at its front end by means of slotted plates E′ and set-screws G′, whereby, when desired, the angle of slope of said mote-board may be varied, and also the position of the front edge of the same, in respect to a vertical line drawn through the rear end of the grill, it being essential, in the treatment of various kinds of cotton, to vary the space between the combing-cylinder N, the feed-rolls B^3 B^2, and the mote-board, so that in the operation of combing and beating performed by the cylinder N the mote-board shall be so inclined that the motes and leaves, &c., remaining in the cotton shall fly over the front edge of the mote-board, while the cotton shall always move down its incline.

I am aware that mote-boards have been made adjustable vertically in cotton-gins; but as the same were not adjustable longitudinally, and were not used in connection with feed-rolls of varying speeds, I do not claim such mote-boards; but

I claim as my invention—

1. The combination of a beater and drawing-rolls, driven at different speed, with an adjustable mote-board, all operating together, substantially as described, and for the purpose set forth.

2. The combination of the condensing-rolls K K′ and the drawing-rolls B^2 B^3 with the grill M and the combing-cylinder N, all operating together, substantially as described, and for the purpose set forth.

SAMUEL DAVIS KEENE.

Witnesses:

FRANK G. PARKER,

WILLIAM EDSON.