(No Model.)

S. D. KEENE.

MACHINE FOR OPENING AND CLEANING SPINNER'S STAPLE.

No. 244,393. Patented July 19, 1881.

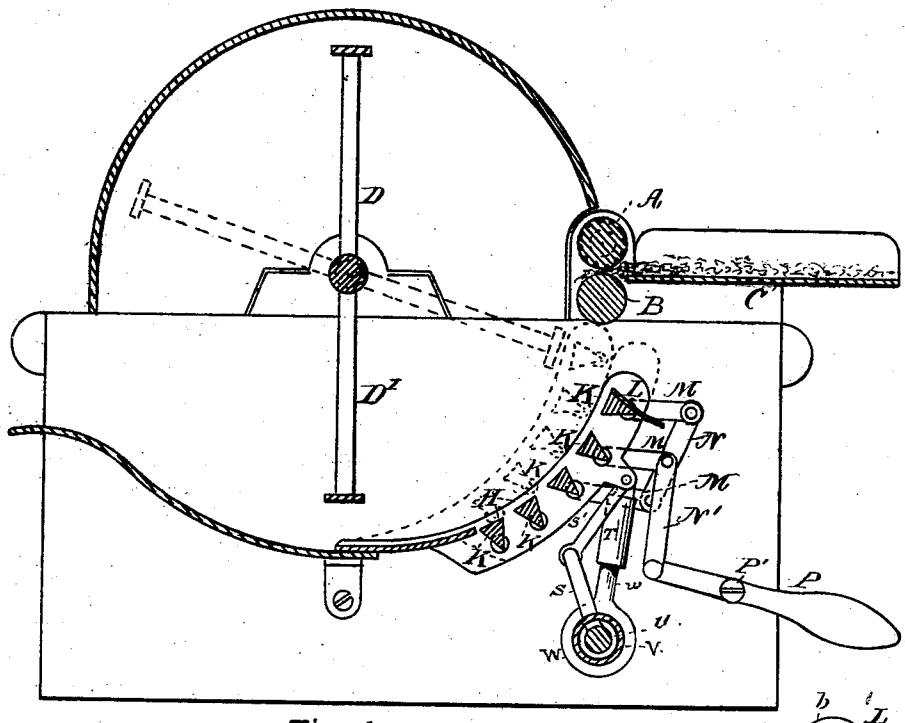


Fig. 1

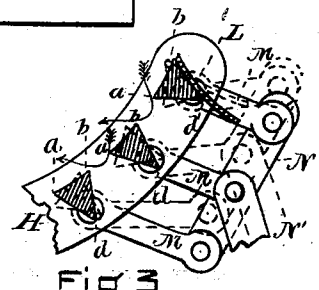


Fig 3

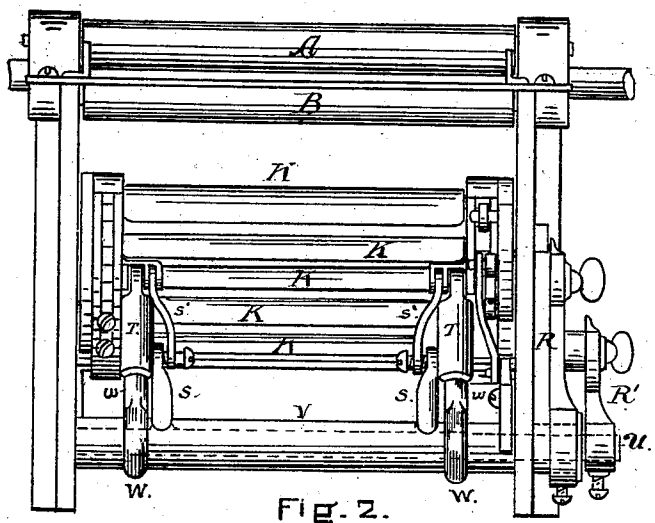


Fig. 2.

WITNESSES

M. J. Clagett

John C Schroeder

INVENTOR

Samuel D. Keene

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

SAMUEL D. KEENE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE PROVIDENCE EXTRACTOR COMPANY, OF SOUTHBRIDGE, MASS.

MACHINE FOR OPENING AND CLEANING SPINNERS' STAPLES.

SPECIFICATION forming part of Letters Patent No. 244,393, dated July 19, 1881.

Application filed April 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. KEENE, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Machines for Opening and Cleaning Spinners' Staples, of which the following is a specification.

My invention relates to improvements in machines for opening and cleaning spinners' staples—such, for instance, as cotton, wool, silk, or flax fiber; and its novelty consists in making the separator-grill adjustable toward or away from the beater, as well as vertically or nearly so, toward or away from the feed-rolls, and having its bars independently adjustable; and in the mechanism for producing such adjustments, all as more fully hereinafter described.

In the accompanying drawings, Figure 1 is a vertical section of my machine; Fig. 2, an end elevation; and Fig. 3 shows, in detail, the method of adjusting the upper bars of the separator-grill, and also the shape and arrangement of the bars.

In the drawings, A and B represent feed-rolls, and C the feeding-table. D D′ represent arms of the beater.

The above-mentioned parts—viz., the apron or table C, feed-rolls A B, and the beater D D′—are all made in the usual manner.

The separator, to which my invention relates, Figs. 1 and 2, consists of a grill formed of a series of bars, K K K, which are connected by their ends to the pieces H H, the ends of each of the bars K having round bearings, which pass into the end pieces, H H, as shown, so that each of these bars is adjustable about its axis, and the deflector L is attached to the upper bar K and swings with it. This deflector and its mode of operation are described in my Patent No. 173,646, dated February 15, 1876, except that in the patent named it was pivoted to the end of the separator, while in this application it is secured upon one of the faces of the upper bar K, as shown in Figs. 1 and 3.

Several of the upper bars K K K have attached to their ends arms M M M, which are pivoted to the link N, which is operated by link N′ and lever P, lever P having its fulcrum at P′. By this device the bars K K K may be adjusted, as desired, so that the spaces between them may be wider or narrower; also, the angle of deflection due to their flat sides may be varied. This effect is accomplished in this wise: The handle of the lever P being pressed down, its opposite end raises the link N′ nearly vertically, and this in turn raises the link N, and this in turn the outer ends of the arms M M M, which in turn move the bars K K K upon their pivots, so as to change materially the course of air-currents passing between said bars, as is shown in dotted lines in Fig. 3. An opposite movement—to wit, raising the handle of the lever P—produces the opposite movement of the bars K K K, the position of said bars shown in Fig. 1 being the normal or usual position of said bars, requiring changes of position, however, to adapt them to the more perfect treatment of wet or damp fiber, or of long or short staple, or, indeed, in accordance with the humidity of the atmosphere where the machine is in operation. It should be understood in this connection that all of the bars K K K above named, as well as the deflector, are in the path of air-currents applied in a well-known manner. With this adjustment of the bars K K K upon their axles it also becomes necessary to adjust the grill as a whole both toward and away from the beater, the different conditions of the staple as regards length, humidity, cleanliness, and the like, requiring different adjustment of the grill with respect to said beater. To effect this adjustment of the grill the end pieces H H are connected to the main frame so as to move freely thereon, and said grill is operated by the levers R R′, as will now be explained.

The lever R is secured upon the sleeve or outside shaft, V, and the lever R′ similarly secured upon the inclosed shaft U. The sleeve or outside shaft passes through clamps W W, which are rigidly secured thereon, and are provided with arms *w w*, which are free to slide longitudinally in sleeves T T, pivoted to the end pieces H H. The inner shaft, U, has also secured to it arms S S, working in proper slots in the outer shaft, V, and to the inner ends of these arms S S is pivoted one end of links S′ S′, whose other ends are pivoted to the frame-pieces H H. Therefore, as will be seen, a

movement of the lever R′ moves the arms S S′, which carry up the sleeves T T, and raise the separator-frames and their bars vertically or nearly so. (See dotted lines, Fig. 1.) By movement of the lever R the same frame and its bars are moved in and out upon the arc of a circle, the shaft V representing the center of the same.

By these means, as will be perceived, the separator-grill, as a whole, is adjustable vertically, or nearly so, and also laterally, while its separate elements, the bars K K K, have their independent adjustment.

It should be understood that this machine may be used with or without a suction-fan, drawing in currents of air between the bars K K K. If used with a suction, the currents of air drawn in are to a certain extent met by the currents of air proceeding from the beater, and there should be such an adjustment of the separator-grill as a whole, or of its bars, or of both, as will preserve such an equilibrium of air-currents between the bars as will permit dirt and other extraneous matter to fall out by momentum and gravity and yet retain the fiber from escape and loss.

If no suction is used, it will be essential to remove the separator-grill a very considerable distance from the path of the beaters, and to so adjust the bars K K K as to leave but narrow openings between them. The result will be that the currents of air produced by the beater will be so slight at the openings between the bars that the dirt and other foreign matter will be expelled between the bars by momentum and gravity, while the fiber will not pass through or be lost.

The form, arrangement, and function of the bars K K K in the grill may be understood by the following explanation: A number of the upper bars of the grill are pivoted, as has been set forth, so that they may be turned about their axles. As each of these bars has three flat surfaces, *a b*, *b d*, *d a*, and three sharp angles, it will be seen by inspection of Fig. 3 that even a slight turning of the said bars, so that they may occupy the positions indicated by the dotted lines in Fig. 3, will cause a great difference in their effect upon the foreign matter or dirt that is being beaten from the staple. With this arrangement, combined with the other adjustments of the grill referred to, a most perfect and nice control of the currents of air and of the falling dirt can be effected.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. A separator-grill provided with the adjustable bars K K K, in combination with suitable adjusting-levers, whereby a rotary adjustment of the bars upon their axes is effected, and the grill as a whole is adjusted toward or from the beater substantially as described, and for the purposes set forth.

2. The combination, with a separator-grill provided with independently-adjustable bars K K K, of mechanism for adjusting said grill both vertically, or nearly so, and laterally, as well as the several bars thereof, upon their axes, substantially as described.

3. The combination, with the separator-grill having bars K K K and the deflector L, of mechanism for adjusting the said grill both vertically, or nearly so, and laterally, as well as the several bars thereof, upon their axes, substantially as described.

SAMUEL D. KEENE.

Witnesses:
M. J. CLAGETT,
J. C. SCHROEDER.