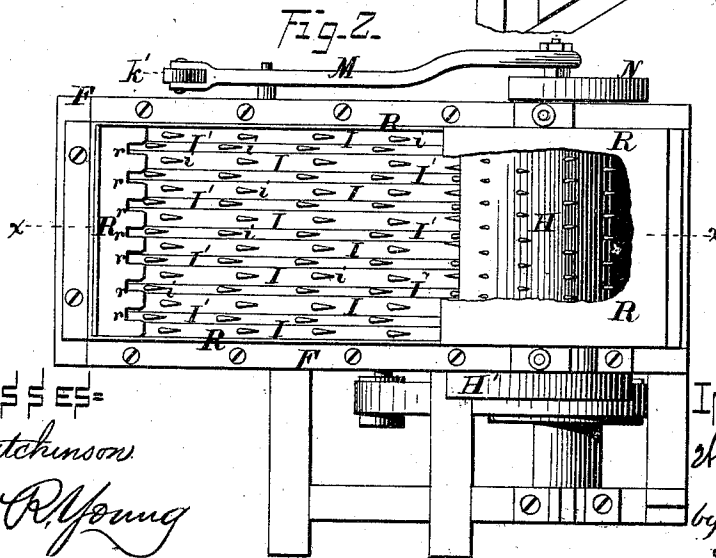
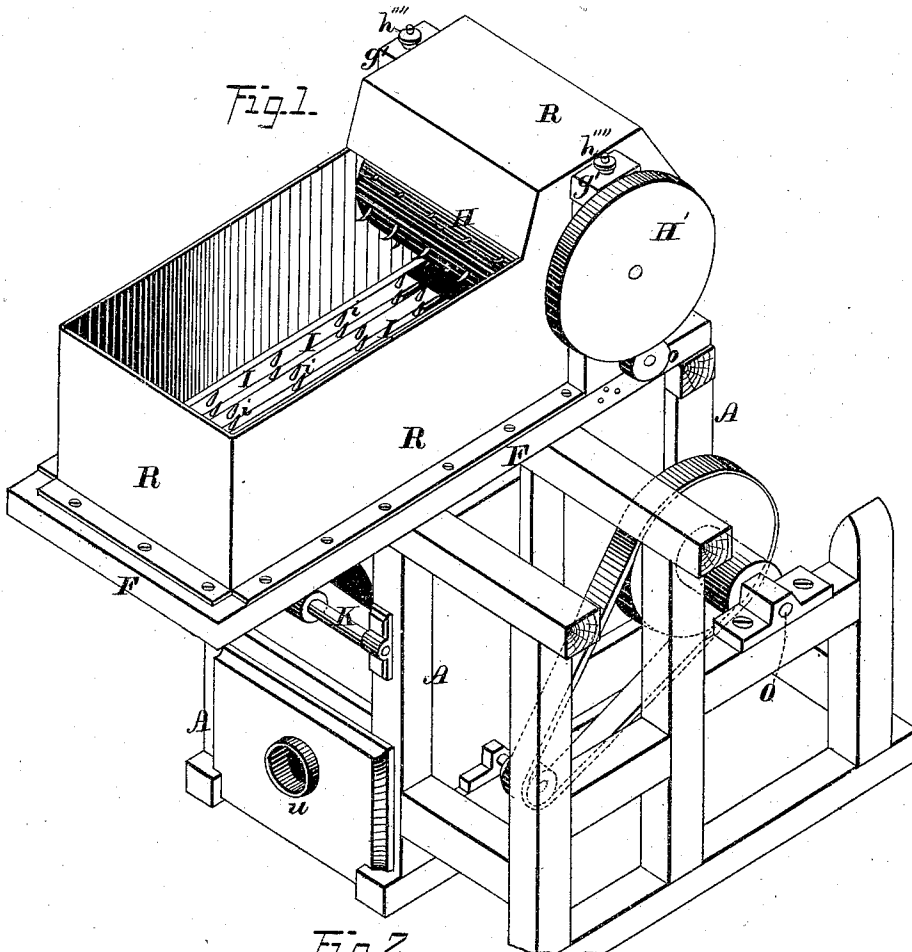


W. L. CROWSON.
SEED COTTON CLEANER.

No. 178,118.

Patented May 30, 1876.



WITNESSES=

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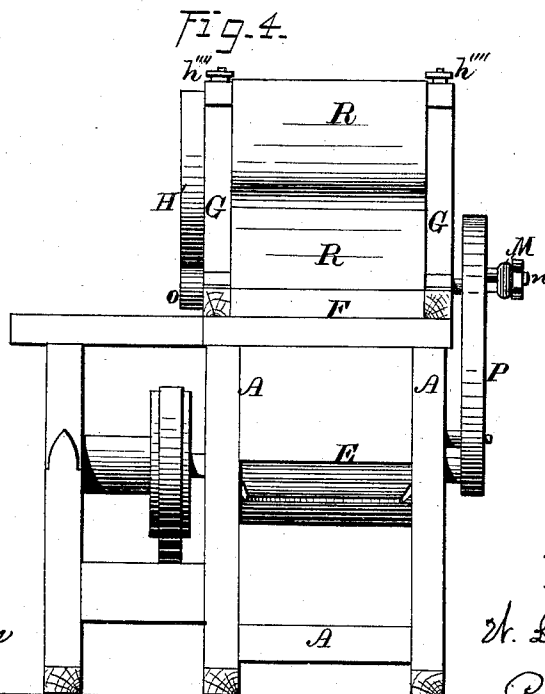
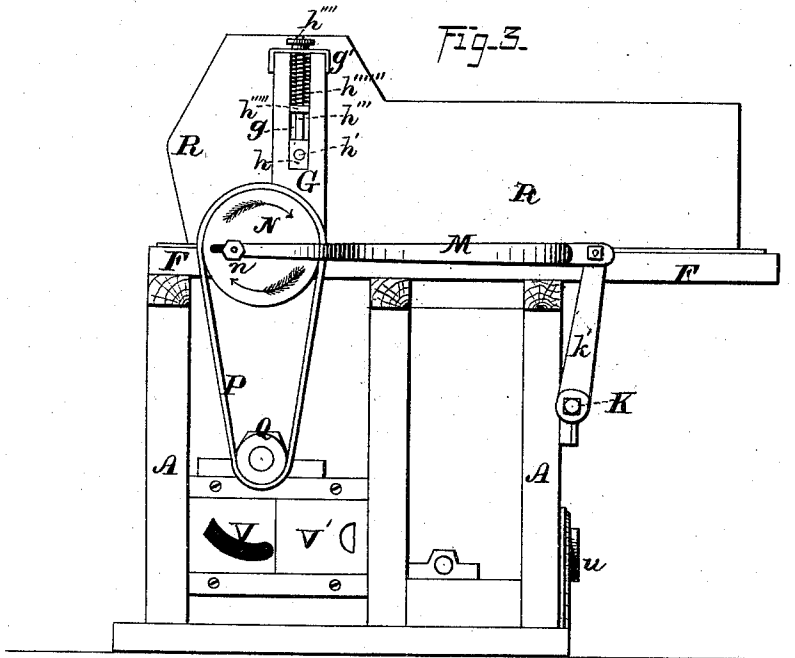
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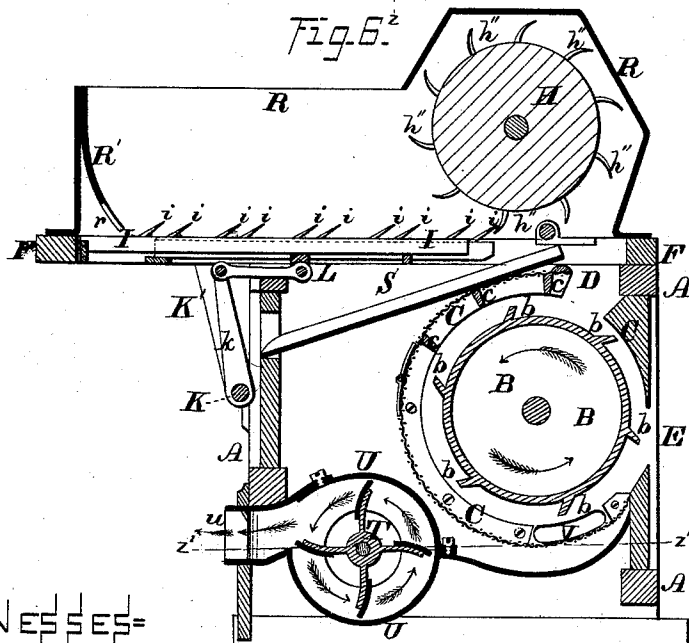
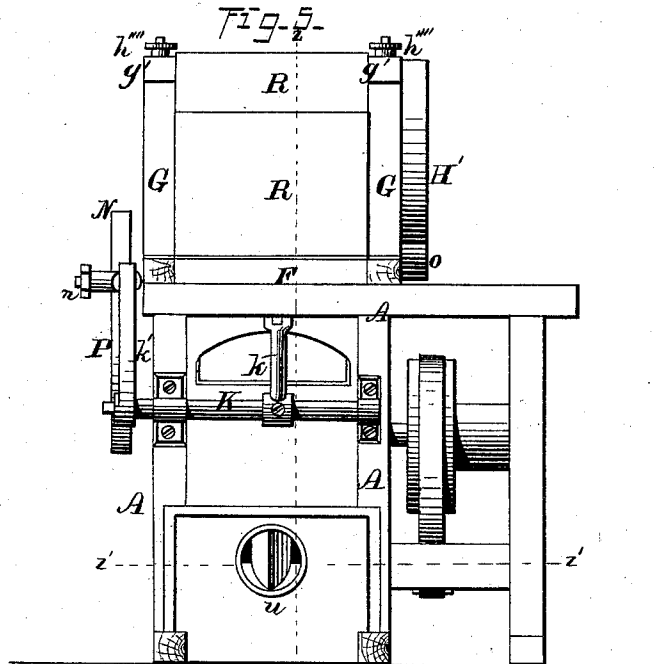
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UNITED STATES PATENT OFFICE.

WILLIAM L. CROWSON, OF MEMPHIS, TENNESSEE.

IMPROVEMENT IN SEED-COTTON CLEANERS.

Specification forming part of Letters Patent No. **178,118**, dated May 30, 1876; application filed February 4, 1876.

To all whom it may concern:

Be it known that I, WILLIAM L. CROWSON, of Memphis, in the county of Shelby and in the State of Tennessee, have invented certain new and useful Improvements in Cotton-Cleaners; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my machine as arranged for use. Fig. 2 is a plan view of the upper side of the same. Fig. 3 is an elevation of the side of said machine opposite to that shown in Fig. 1. Figs. 4 and 5 are elevations of the ends of the same. Fig. 6 is a longitudinal section upon line *x x* of Fig. 2. Fig. 7 is a cross-section upon line *z z* of Fig. 6. Fig. 8 is a horizontal section upon lines *z' z'* of Figs. 6 and 7; and Fig. 9 is a vertical cross-section of the horizontal feed-bars.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency and ease of operation of mechanism for removing dust and dirt from seed-cotton; and it consists, principally, in a cylinder, provided with longitudinal flanges or ribs, which have a rearward and outward inclination, in combination with a concave that has similar flanges or ribs, which incline inward and forward, substantially as and for the purpose hereinafter specified. It consists, further, in combining with apparatus for beating seed-cotton, two exhaust-fans, placed side by side, and arranged to receive air at their sides and to discharge the same through one opening common to both, substantially as and for the purpose hereinafter shown. It consists, further, in the peculiar construction of the fixed and longitudinally-reciprocating feed-bars, substantially as and for the purpose hereinafter set forth. It consists, further, in the means employed for removing hard substances from the cotton before the latter reaches the cleaning mechanism, substantially as is hereinafter shown and described. It consists, finally, in the means employed for increasing the friction between the driving-wheel and driving-pulley, used for operating the feeding-cylinder, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A represents a rectangular frame or casing, which has any desired dimensions, and is employed for containing the mechanism used for operating upon seed-cotton. Within one end of the casing A, midway between its upper and lower sides, is journaled a cylinder, B, that is, preferably, covered with sheet metal, and has secured, at equidistant points around its periphery, longitudinal ribs *b* and *b*, which extend outward and rearward, as shown by Fig. 6. Surrounding the cylinder B, except at the side adjacent to the end of the casing A, is a concave, C, which is composed of wire netting or reticulated sheet metal, which extends between the sides of said casing, and is separated from the periphery of said cylinder by a space slightly greater than twice the radial dimensions of the flanges *b* and *b*. Similar flanges, *c* and *c*, are secured at suitable points across the inner face of said concave, and are arranged with an inward and forward inclination with relation to the motion of said cylinder. Between the upper end of the concave C and the end of the casing A is left an opening, D, for the downward passage of cotton, while the lower end of said concave terminates at the lower side of an opening, E, which is formed in and through said casing end, slightly below the center of the cylinder B. Secured to or upon the upper side of the casing A is frame F, which corresponds therewith in width, but has such length as to cause it to project some distance over the end of said casing, opposite to the cylinder B. Two posts, G and G, are secured within the upper face of the side pieces of said frame F, near its end, and extending vertically upward, are provided with longitudinal slots *g* and *g*, that contain the boxes *h* and *h* of the journals *h'* and *h'* of a second cylinder, H, which latter is provided around its periphery with teeth *h''* and *h''*, that have an outward and forward inclination.

Secured within the frame F, and extending between its rear end and the posts G and G, are a number of metal bars, I and I, which are arranged in parallel lines, and have between their edges narrow openings, as seen in Fig. 9. Between each pair of said bars I and I is placed a bar, I', which is connected with other similar bars I' and I', and the whole ar-

ranged to have a longitudinal motion equal to about one-sixth their length. Each of said fixed and movable bars is provided at suitable points, longitudinally, with teeth *i* and *i'*, which extend upward and toward the cylinder H. Motion is imparted to the movable bars I' and I' by means of a rock-shaft, K, which is journaled upon the rear end of the casing A, is provided at its center with an arm, *k*, that extends upward, and, by means of a rod, L, is connected to or with said bars, while to its outer end is secured a second arm, *k'*, which has pivoted to its upper end a bar, M, that from thence extends forward and has its opposite end pivoted to or upon the outer face of a circular disk, N. The disk N is secured upon the end of the shaft O, and is caused to revolve by means of a belt, P, which passes around its periphery and around a pulley, Q, that is attached to the projecting shaft of the cylinder B. As thus arranged, the motion of said cylinder will cause said disk or band-wheel N to revolve, and, by means of the bar M, rock-shaft K *k' k*, and bar L, will cause the feed-bars I' and I' to reciprocate. In order that the degree of movement of the feed-bars I' and I' may be regulated so as to increase or diminish the amount of cotton fed into the machine, the bar M is pivoted upon a pin, *n*, which is made adjustable at will toward or from the center of the disk N, so that by moving said pin outward, the circle traversed by it will be increased, while, by moving it inward, its circle will be lessened, and the movement of said feed-bars correspondingly changed.

In order that the feed-bars I and I' may be enabled to operate without clogging, and at the same time all dirt separated from the cotton while resting upon said bars, may be permitted to fall through the same, the following-described construction is employed: The stationary bars I and I have each a height and thickness about one-fourth greater than the like dimensions of the movable bars I' and I', and from the upper side of each of the former a flange, *i'*, extends horizontally outward, and incloses about one-third the space between its bar and the adjacent bar I. Between the contiguous edges of the flanges *i'* and *i'* is left a narrow space, through which the teeth *i* and *i* of the movable bars I' project upward, while between said flanges and the upper edges of said bars I' and I' (which are rounded) is left sufficient space to enable such dust and dirt, as passes between the former, to pass laterally into the openings between said fixed and movable bars.

By this construction of the feed-bars cotton is prevented from getting between and interfering with their action, while such dirt as can pass through the spaces between the fixed bars finds ready escape.

Motion is imparted to the cylinder H by means of a friction-pulley, *o*, which is attached to the end of the shaft O opposite to the wheel N, and bears against a friction-

wheel, H', that is secured upon the end of the shaft of said cylinder. To compensate for irregularities in the pulley *o* and wheel H', the boxes *h'* and *h'* of the cylinder H are each provided with a rod, *h'''*, which extends upward through the cap *g'* that incloses the upper end of the slot *g*, and has its upper portion threaded and provided with a nut, *h''''*. Near the lower end of the rod *h'''* is secured a collar, *h'''''*, and between the same and the cap *g'* is placed a spiral spring, *h''''''*, which encircles said rod, and bears against said collar and cap.

As thus arranged it will be seen that the springs operate to constantly press the journal-boxes downward to the limit permitted by the nuts, while in case it becomes necessary that said boxes should rise to accommodate the inequalities of the friction-surfaces, said springs will be compressed as the rods, collars, and nuts are moved upward.

The cylinder H is covered by a casing, R, except upon its lower rear side, while said casing is extended along the sides and across the rear end of the frame F, and forms a hopper, open at its upper side.

The operation of the mechanism described is as follows: Cotton fed into the hopper R is caught by the teeth *i'* and *i'* of the movable feed-bars I' and I', and is moved forward with the latter. When said bars move rearward said cotton is caught by the teeth *i* and *i* of the fixed bars I and I, and held until said bars I' and I' again move forward, when it is released and carried with the latter until it reaches the feed-cylinder H, which carries said cotton over and drops it through the opening D. Upon passing downward through the opening D the cotton is caught by the cylinder B and is carried around to and discharged through the opening E, during which passage said cotton is beaten between the flanges or beaters *b* and *c*, and all dust contained therein is liberated. The inclination of the beaters *b* and *b* causes the cotton to be thrown violently outward and forward while the flanges *c* and *c* prevent the too rapid passage of said cotton, and turn the same inward against the cylinder, by which means the cotton is thoroughly beaten without injury to its fiber, as would be the case were teeth employed in place of the said flanges or beaters.

In order that stones, nails, and other substances of like character may be separated from the cotton and prevented from passing into the beater, a chute, S, extends from the rear end of the casing A forward and upward, and terminates nearly in a line with the forward edge of the cylinder H. Between the forward ends of the carrier-bars I' and I' and the corresponding end of said chute S is an open space, through which any hard substance may fall into said chute, when the inclination of the latter will cause such substance to pass rearward and downward until it falls from the machine.

To prevent the rear teeth *i'* and *i'* of the mova-

ble bars I' and I' from wedging cotton between the same and the rear end of the hopper R, a plate, R', is secured within the latter, and inclines downward and forward and terminates just above the surface of said bars. Within the lower edge of said plate are provided vertical openings *r* and *r*, through which the said teeth *i'* and *i'* pass as said bars move rearward, the result being that said plate detains all cotton that adheres to said teeth, and enables the latter to reach the rear limit of motion without obstruction.

Between the rear end of the casing A and the lower rear side of the concave C are placed two exhaust-fans, T and T, which are secured upon the same shaft and move together, but are provided with separate casings U and U, and are arranged so that each may take air from each side. From the casings U and U the discharge-pipes *u* and *u* extend rearward and are merged together at the rear end of the machine.

The object sought by the employment of two fans instead of one is economy in space, as said fans will perform as much and better work than could be obtained from a single fan having several times their diameter.

By means of the exhaust-fans all dust contained within the cotton will be drawn through the concave and discharged at the rear end of the machine, from whence, by the use of a pipe, said dust may be conveyed to a point where it will cause no inconvenience.

Suitable openings V and V for the admission of air are provided within the sides of the casing A, near the lower portion of the beater-chamber, and are inclosed, when desired, by means of slides V' and V'.

While this invention is designed for use in cleaning seed-cotton, it will, with equal facility clean cotton-seed; but when used for the latter purpose, the meshes of the screen should be sufficiently fine to prevent said seed from passing through the same.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The cylinder B, provided with longitudinal ribs or flanges *b* and *b*, which have an outward and rearward inclination, in combination with the concave C, provided with flanges *c* and *c*, that incline inward and forward, substantially as and for the purpose specified.

2. In combination with apparatus, substantially as described, for beating seed-cotton, two exhaust-fans placed side by side and arranged to receive air at their sides and to discharge the same through one opening common to both, substantially as and for the purpose shown.

3. The combination of the stationary bars I and I, provided with the laterally-projecting flanges *i'* and *i'* and upward and forward inclined teeth *i* and *i*, with the longitudinally-reciprocating bars I' and I', arranged to work between the former, made round upon their edges, and provided with teeth *i* and *i*, substantially as and for the purpose set forth.

4. In combination with the feed-bars I and I', the hopper R and the cylinder H, the inclined chute S, having its upper open end beneath said cylinder, substantially as and for the purpose specified.

5. In combination with each box *h'* of the cylinder H, arranged to move vertically within the opening *g* of the standard G, the rod *h'''* passing through the cap *g'* and secured within the upper side of said box, the nut *h''''* placed upon the threaded upper end of said rod above said cap, the collar *h'''''* secured upon said rod between said box and cap, and the spiral spring *h''''''* placed around said rod, between said cap and collar, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of January, 1876.

WM. L. CROWSON.

Witnesses:

JOHN R. YOUNG,
WILLIAM FITCH.