

(No Model.)

2 Sheets—Sheet 1.

J. R. HOPKINS.
SEED COTTON CLEANER.

No. 391,744.

Patented Oct. 23, 1888.

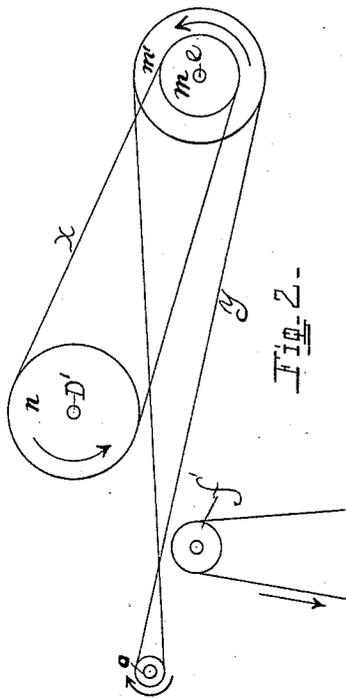


Fig. 2-

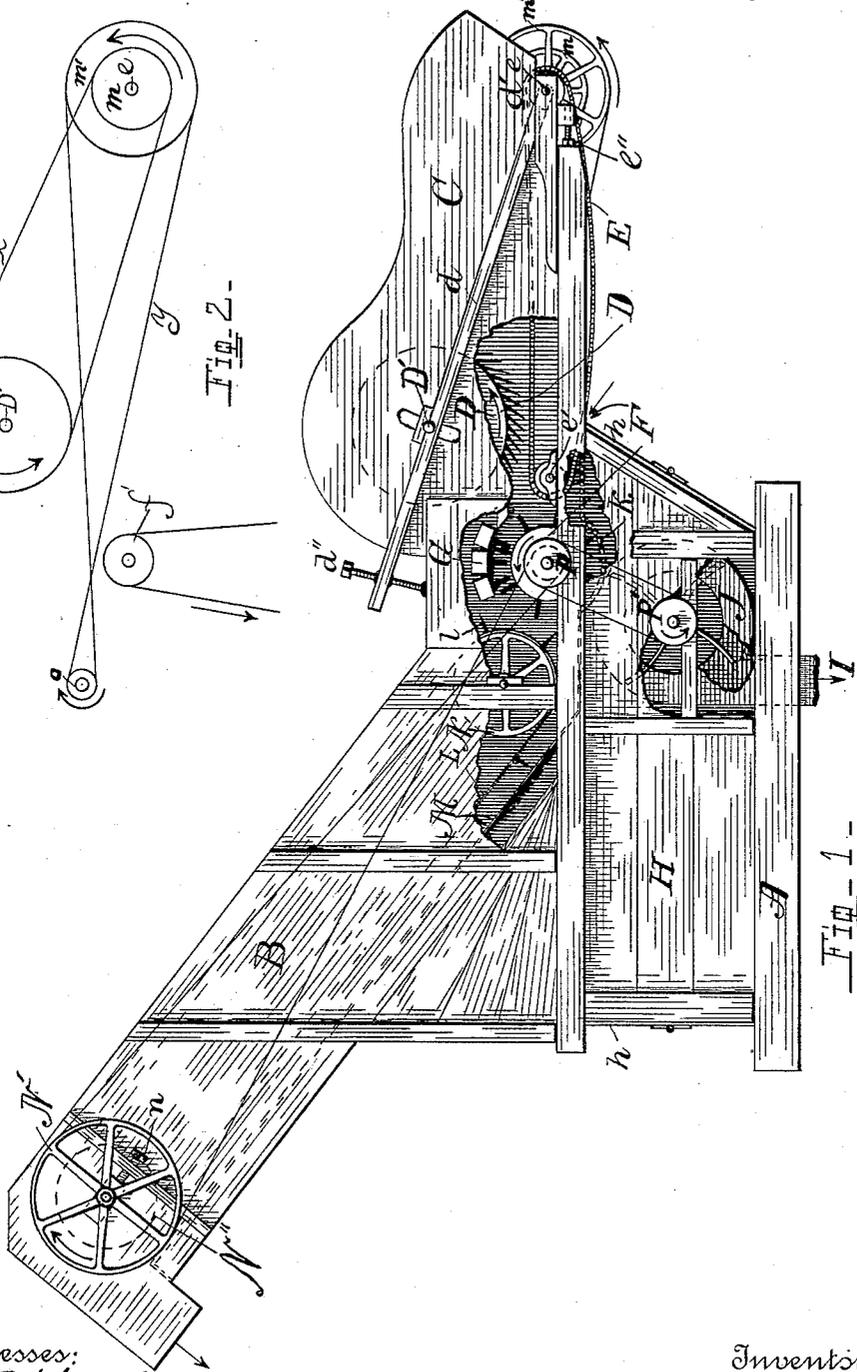


Fig. 1-

Witnesses:

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S. L. Hillier

Inventor:

John R. Hopkins

By his Attorney

Albert Wood

(No Model.)

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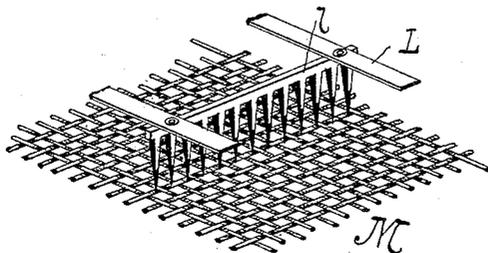


Fig. 3

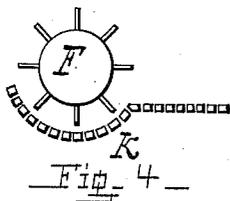


Fig. 4

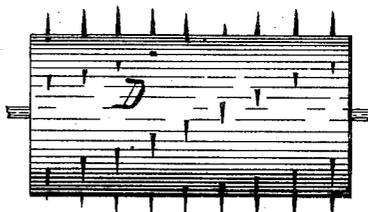


Fig. 5

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UNITED STATES PATENT OFFICE.

JOHN R. HOPKINS, OF NORCROSS, GEORGIA.

SEED-COTTON CLEANER.

SPECIFICATION forming part of Letters Patent No. 391,744, dated October 23, 1888.

Application filed July 25, 1887. Serial No. 245,284. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. HOPKINS, a citizen of the United States, residing at Norcross, in the county of Gwinnett and State of Georgia, have invented a new and useful Seed-Cotton Cleaner; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to machinery for cleaning seed-cotton, and, more specifically, for beating and blowing the seed-cotton, and thus loosening and removing all dust, leaf, and trash therefrom, and also lightening up and drying the cotton, which makes it gin much easier and sample better when so ginned.

The invention consists of automatic feeding mechanism, of beaters, conveyers, a device for furnishing a suction-blast throughout the entire machine, and other details, as will be hereinafter fully described, and then specifically claimed.

In the accompanying drawings, Figure 1 is a side elevation of my improved machine, partly broken away to show the operative parts of the machine. Fig. 2 is a diagram showing the manner of belting on the back side of the machine, as shown in Fig. 1, the belting of the front side being shown by lines in that figure. Fig. 3 shows a part of the screen and one of the spiked pieces of the conveyer. Fig. 4 is a detail showing the beater-roller and concave, and also the slatted extension of this concave. Fig. 5 is a view of the feed-roller, showing the manner of setting the teeth therein.

In these figures like reference-marks refer to corresponding parts in the several views.

A is the main frame, on which, in any suitable manner, is attached the chute B, which may be of any desired length.

C is the feed-hopper, into which the seed-cotton is placed preparatory to being fed into the machine, which feeding is accomplished in the following manner: The seed-cotton, being placed in the hopper C, is moved slowly toward the roller D by the movement of the slatted apron E, which is hung on rollers on

the shafts *e* and *e'*, adjustment of shaft *e* being accomplished by the screws *e''*. The adjustment of the shaft regulates the tension of the apron E. As the cotton is thus moved forward, the roller D, having spikes inserted in it in spiral circumferential rows and sloping backwardly, being slowly rotated in the direction of the arrow 1, Fig. 1, will allow only the desired amount of seed-cotton to pass under it, and also keep the cotton continually stirred. If the teeth came in contact with the cotton a row at a time, on account of the cohesion of the mass, the cotton would all be pushed back by them and none left to pass under the roller. Therefore I set the teeth spirally around the roller, in order that the teeth may hit the mass of seed-cotton one at a time. This roller runs on journals in boxes on the bars *d*, which bars are hinged to the frame at *d'*, and have each at the opposite end a screw, *d''*, by means of which the bars *d* may be raised or lowered, as desired, which operation will open or close the aperture under the roller D and regulate the feed. The belt E is continually moving in the direction of the roller D, which allows the last of the cotton to be fed into the machine. On leaving this belt E it is discharged onto the teeth of the spiked beater-roller F, which roller revolves in the direction of the arrow thereon in Fig. 1 and is carried partly around the roller, it coming while in transit in contact with the spikes in the spike-concave G, where it is torn and loosened up, and part of the dust and nearly all of the leaf and trash are taken out and carried partly by suction and partly by gravity to the chamber H, the suction being furnished by the exhaust-fan J. From the chamber H, the lighter refuse is taken through suction-fan J and thrown out through the flue I, while the heavier refuse remains in the chamber H, and is taken out when necessary through the doors *h* in each end of the chamber.

Underneath the roller F is a concave, K, which is composed of slats, of a material sufficiently durable to withstand the wear of any material that may come against it, which material will enter the concave by gravity from the endless conveyer-belt E, and be discharged through the openings between the slats into the chamber H, the cotton which might fol-

low the spikes entirely around the roller F being prevented from discharging into the chamber H by the slats of the concave. The cotton is discharged by centrifugal force from the roller F, and is thrown over and under the shaft of the carrier-roller N between the two belts L of the conveyer and onto the screen M, where it is taken by the spikes *l* on the conveyer and carried across the wire screen M and subjected to a suction by the exhaust-fan J, which takes out the residue of small leaf, trash, and dust remaining after the action of the beater-roller F, and passes it through the flue under the screen M into the chamber H. It is on this perforated strip that wet or damp cotton is dried by coming in contact with the blast caused by the suction of the fan J, the air entering the discharge-opening of the chute B.

The conveyer in the chute is constructed as shown in Figs. 1 and 3, and consists of two or more belts, Z, of leather or other material suitable for the purpose, having attached at intervals the spiked pieces *z*, for the purpose of conveying the cotton, as above described, over the screen. This conveyer-belt is mounted on and propelled by the carriers N and N'. The shaft of the carrier N' is adjusted by means of the screws *n*. The adjustment of this shaft regulates the tension of the conveyer-belt.

The centralization of the air-currents all toward the fan J, coming, as they do, from all parts of the machine, will keep the dust out of the room and throw it all through the floor, as it is my intention, in setting the machine up, to carry the flue I through the floor, and for this reason will carry the refuse away, no matter in what part of the operation it is detached from the cotton, which obviates one of the worst difficulties heretofore experienced in cleaning seed-cotton, which objection has been that the small leaf and hulls are detached in one part of the machine and have to follow the cotton for a distance, which causes them to be thoroughly mixed into the cotton, which, from the nature of their surface, renders them more difficult to extract than before the original extraction.

The beater-roller and fan necessarily run at a high rate of speed, while the other running parts are run comparatively slowly. For this reason I prefer the arrangement of belting shown, although I do not confine myself to this specific arrangement. This arrangement of belting connects the pulleys of the various shafts, so that they will run at the desired relative rates of speed, which rates of speed de-

pend upon the relative size of the pulleys. The belt *x* connects the pulley *m* on the shaft *e* with a large pulley, *n*, on the shaft D' of the drum D. On the shaft *e* a larger pulley, *m'*, than that connected with the drum D is connected by the belt *y* with a smaller pulley, *o*, on the shaft of the carrier N. From a pulley on one end of the shaft of roller F a belt extends to the pulley N' on the shaft of the carrier *n'*; also from another pulley, *p*, on the same end of roller F a belt extends down to pulley *p'* of the same size on the fan-shaft. On the shaft of the roller F is also the pulley *p''*, which is connected by a belt with the power for driving the machine. By this system of belting and comparatively larger or smaller pulleys the drum D is driven much slower than the feeding-belt E, and the spiked roller F is driven much faster. The carrier is run comparatively slowly, while the fan makes the same number of revolutions as does the roller F. By this arrangement it will be seen that the relative rates of speed necessary for the proper working of the machine will be produced.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the apron E, the roller D, having spirally-set teeth sloping backward, the movable arms *d*, the adjusting-screws *d''*, and the hopper C, having its sides slotted to allow the adjusting of roller D.
2. In a seed-cotton cleaner, the combination of the roller F and concaves G and K with feeding mechanism consisting of the apron E and roller D, as shown and described.
3. In a seed-cotton cleaner, the combination of the chute B, the conveyer L, carriers N and N', the screws *n*, the screen M, and the suction-fan J, as described and for the purpose specified, with suitable feeding mechanism.
4. In a seed-cotton cleaner, the combination of the apron E, roller D, the bars *d*, the screws *d''*, for adjusting the bars *d*, the roller F, provided with teeth, the concaves G and K, the fan J, the chute B, and the conveyer L, the carriers N and N', the screen M, and chamber H, with the necessary flues, all constructed and operating substantially as shown and described, and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. HOPKINS.

Witnesses:
A. P. WOOD,
LUTHER HOPKINS.