

(No Model.)

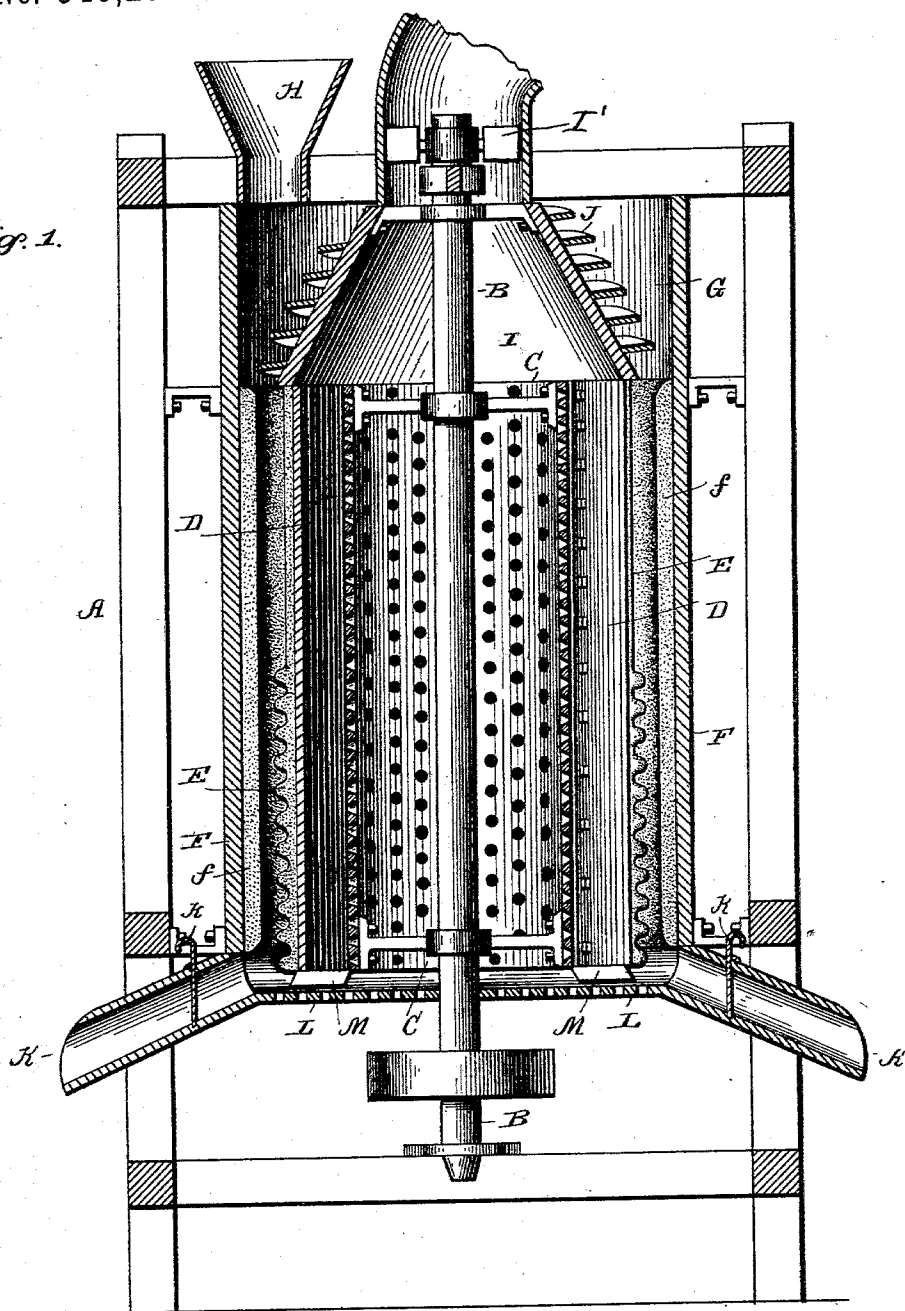
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J. J. FAULKNER.
COTTON SEED DELINTER.

No. 546,278.

Patented Sept. 10, 1895.

Fig. 1.



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Fig. 2.

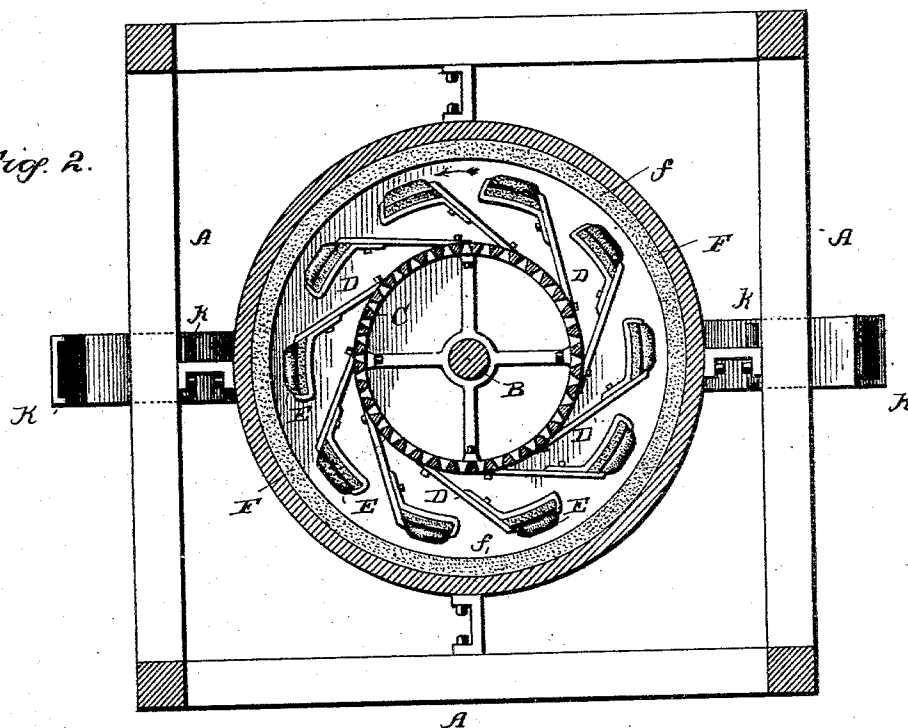
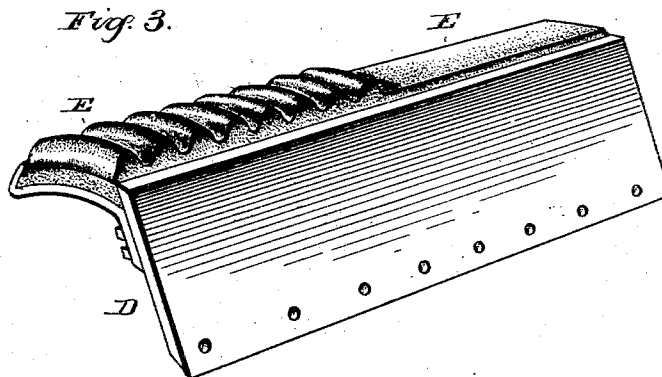


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES J. FAULKNER, OF MEMPHIS, TENNESSEE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STANDARD COTTON SEED COMPANY, OF ARKANSAS.

COTTON-SEED DELINTER.

SPECIFICATION forming part of Letters Patent No. 546,278, dated September 10, 1895.

Application filed July 2, 1895. Serial No. 554,750. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. FAULKNER, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Cotton-Seed Delinters; 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.

My invention relates to improvements in machines for treating cotton-seed, and particularly to improvements in that class thereof known as "delinters;" and it consists in the improved cotton-seed delinter whose construction and arrangement of parts will be hereinafter fully described, and particularly pointed out in the claims.

In the construction of cotton-seed delinters, the point to be first determined is a method of removing the lint separated from the seed by the action of the machine. It is a very simple matter to arrange means and devices for scouring the surface of the seed, but it is much more difficult to arrange for the complete and instantaneous removal of the lint from the seed as soon as it is scoured off the surface of the same. This removal is, however, necessary in order that the machine may operate successfully. Theoretically, as well as practically, the most advantageous point at which to effect the removal of the lint from the seed is the inside surface of the roll which the seed forms during the course of the delinting operation, as the lint naturally collects on the inner surface of said roll because of its lighter specific gravity. So great is the difference in specific gravity between the lint and the seed under treatment, that if the abrading action takes place between the casing and arms supported on the central shaft or cylinder and bearing on their outer ends abrading-surfaces, while the seed will form itself into an annular roll between the abrading-surfaces, the lint will tend to collect in the space between the inner abrading-surfaces and the central shaft or cylinder, in accordance with the construction used for the abrading-surfaces.

One object of my present invention is to

provide a machine in which the lint will be removed from the inner surface of the roll, which the seed forms when it is under treatment, through perforations in a central cylinder, and in which such lint will also be subjected to an end air-draft, whereby complete removal of the same is insured.

A further object of my invention is to provide an improved form of abrading-surface designed to force the seed into such a position as to compel its being subjected to the delinting operation.

In the machine which I have devised to fulfill the objects of my invention, the abrading-surfaces are arranged vertically, and consists of the emery-lined inner surface of a casing and emery-faced rotating blades, supported in a suitable manner by a central perforated cylinder, through the perforations of which the lint is removed by the suction of an air-draft caused by an air-flume which caps the upper end of the said perforated cylinder. Not only does the air-flume cap the upper end of the perforated cylinder, but it also caps and forms a cover for the space surrounding said cylinder between the same and the abrading-surfaces, so that the lint, as soon as it is separated from the seed by the scouring action of the abrading-surfaces, is subjected not only to an internal suction through the perforations of the central cylinder, but also to an end draft. The two air-drafts act conjointly to produce a complete and uniform separation of the lint from the seed. In machines of this class it is advisable to provide positive means for feeding the seed to the abrading-surfaces, as the travel of the seed through the machine is otherwise not sufficiently rapid. I therefore form a spiral conveyer on the outer surface of the air-flume, the end of which flume is made to rotate, and feed the seed directly upon the spiral thus formed. In this manner I economize space, and yet secure an efficient and direct feeding of the seed to the abrading-surfaces. To effect the removal from the machine of any coarse dirt which is separated from the seed by the delinting operation, and which is too heavy or too large to be drawn upward by the air-draft, I support below the

abrading-cylinder a perforated plate and form the lower ends of the rotating blades with projecting wings, which sweep across the surface of the perforated plate and force through the perforations thereof all the dirt which falls upon the same.

My invention is fully illustrated in the drawings which accompany and form a part of this application, in which the same reference-letters refer to the same or corresponding parts, and in which—

Figure 1 is a central section of my machine. Fig. 2 is a cross-section thereof. Fig. 3 is a detail view of one of the abrading-blades.

Referring to the drawings, A represents the machine-frame, in which is journaled the central shaft B. On this shaft is mounted the cylinder C, whose surface is perforated, and to which are secured the plates D, which bear on their outer ends the curved abrading-surfaced blades E. These blades are covered partly with a smooth abrading-surface and partly with abrading-blocks, the blocks being used on the lower half of the blades to insure a more thorough treatment of the seed. These blades are, moreover, curved inward from the surrounding casing F, whose inner surface is lined with an abrading emeried lining *f*. The result of so forming the blades is that the seed treated, which is caught between the broad end of the blade and the casing, is forced into a more intimate relation with the abrading-surfaces as the blade continues its treatment upon the same. In this manner a more perfect and satisfactory delinting action is obtained than could be otherwise secured.

A casing G is provided at the top end of the machine to form a receptacle for the seed, which is fed into the machine through the feed-spout H, and falls into the space between the walls of the casing G and the sides of the air-flume I. The air-flume is conical in form, revolves with the central shaft, and is broad enough at its base to cap not only the upper end of the perforated casing, but also the space surrounding the cylinder between the surface of the same and the inner abrading-surface formed by the rotating blades E. On the surface of the air-flume is formed a spiral conveyer J, which acts to feed the seed positively to the abrading-surfaces. The seed as it passes downward through the machine has scoured off its surface the lint adhering thereto. As soon as the lint is thus scoured off of the seed, it naturally seeks the inner surface of the roll formed by the seed under treatment, owing to the difference of its specific gravity, and in fact has been found to gather for the most part in the space between the surface of the perforated cylinder and the rotating blades E. At this point it is most readily subject to the air-currents, which are caused to exist by an exhaust-fan stationed in the air-flume I. A portion of the lint is drawn through the perforations formed in the cylinder C, and a portion thereof is drawn up-

ward by the end air-current caused by the air-flume I. These two currents act together, and by their conjoint action a complete separation of the lint from the seed is effected.

The seed passes out of the machine through the outlet-openings K, which are formed at the bottom of the delinting-cylinder casing and are provided with valves *k* to restrict the discharge in accordance with the condition of the seed under treatment. The regulation thus afforded is very perfect, as the seed, in order to remain in the machine, must bank up against the centrifugal action of the seed under treatment, thus exerting a considerable pressure. The coarse dirt, such as leaves and bolls, will for the most part be drawn upward into the air-flume I, but a portion thereof will fall upon the perforated plate L, which is supported underneath the delinting-cylinder. Accumulation of dirt on this plate is prevented by wings M, which project downward from the rotating blades E and pass closely over the surface of the said perforated plate.

The operation of my machine is as follows: Seed is fed to the machine through the feed-spout H; is conveyed to the abrading-surfaces by the spiral conveyer J, formed on the air-flume I; is subjected to a delinting action between the abrading-surfaces, formed by the inclined plates D and the lining of the casing F, and is finally discharged in quantities, regulated by its condition, through the outlet-spouts K. The lint separated from the seed by the action of the machine is in part drawn inward through the perforations in the perforated cylinder C and in part drawn upward by the air-current caused by the exhaust fan I', stationed in the air-flume I, which current exists in the space between the cylinder and the abrading-surfaces. The separation of the lint thus effected is very complete. The coarse dirt which falls upon the perforated plate L is forced through the perforations therein by the wings M, which rotate in close proximity thereto. A complete separation of all the products is thus effected. I do not herein claim the form of abrading-projection shown, as this is claimed in a companion application filed by me April 22, 1895, Serial No. 546,667.

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

1. In a cotton seed delinter, the combination with a cylindrical casing, of a perforated cylinder having an open end journaled within the same, said cylinder having secured thereto arms bearing abrading surfaces, means for rotating said cylinder, seed inlet and discharge openings, an air flume capping the open end of said cylinder and the space between the same and the abrading surfaces, and means for causing an outward air current to exist in the air flume, substantially as described.

2. In a cotton seed delinter, the combination with a perforated cylinder having abrad-

ing surfaces supported thereby, and a casing therefor, of a feed opening at one end of said cylinder, an air flume capping the feed end of said cylinder, conveyer devices formed on said air flume, and a seed discharge opening, substantially as described.

3. In a cotton seed delinter, the combination with a perforated cylinder having abrading surfaces supported thereby, and a casing therefor, of a feed opening at one end of said cylinder, a revoluble air flume capping the feed end of said cylinder, a spiral conveyer, secured to said air flume, and a seed discharge opening, substantially as described.

4. In a cotton seed delinter, the combination with a perforated cylinder having arms bearing abrading surfaces secured thereto, and a casing therefor, of an air flume capping the feed end of said cylinder and the space between the same and the abrading surfaces, conveyer devices formed on said air flume, and seed inlet and discharge openings, substantially as described.

5. In a cotton seed delinter, the combina-

tion with a vertically arranged perforated cylinder having arms bearing abrading surfaces secured thereto, and a casing therefor, of an air flume capping the upper end of said cylinder and the space between the same and the abrading surfaces, conveyer devices formed on said air flume, and seed inlet and discharge openings, substantially as described.

6. In a cotton seed delinter, the combination with a vertically arranged cylinder having abrading surfaces secured thereto, and a casing therefor, of seed inlet and discharge openings, means for removing the lint separated by the action of the machine, a perforated plate supported below the cylinder, and arms, carried by said cylinder, which move across the surface of said plate, substantially as described.

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

JAMES J. FAULKNER.

Witnesses:

C. L. BERLIN,
JOHN HALLUM.