

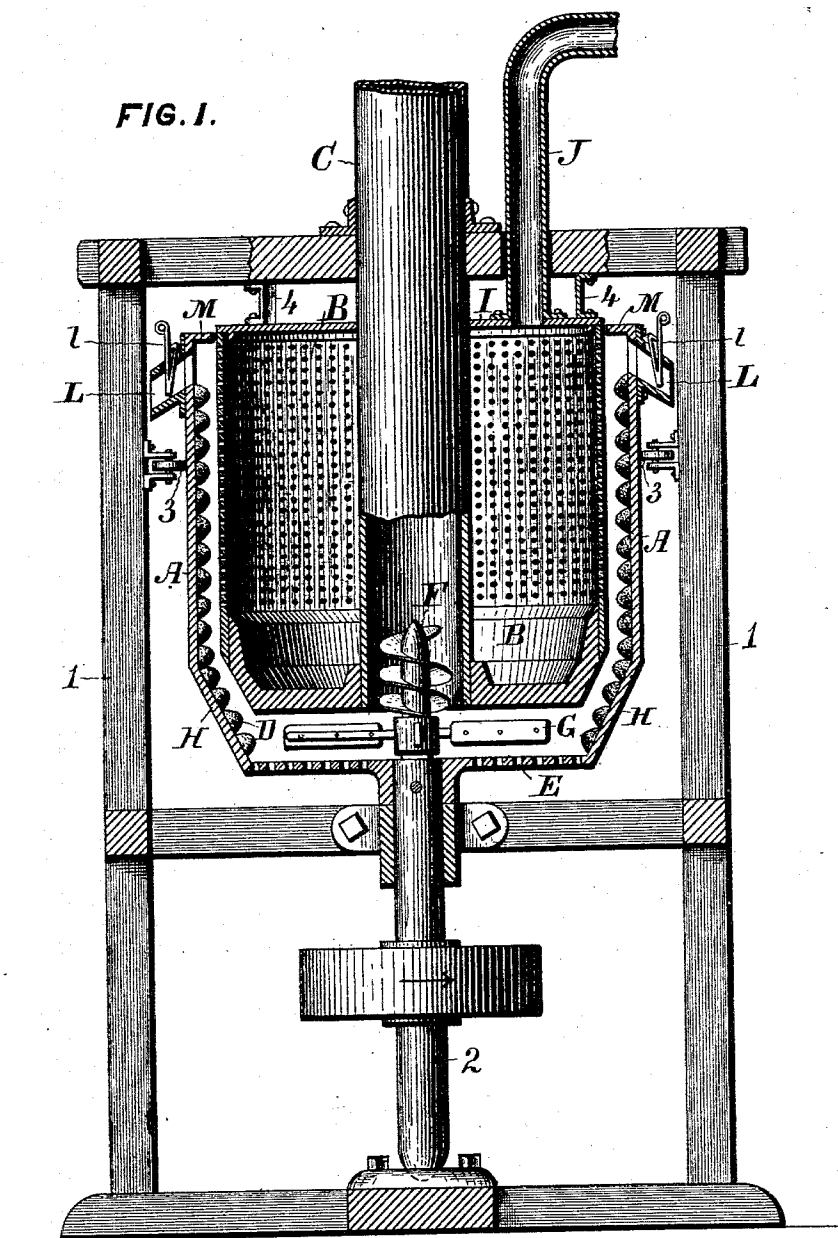
(No Model.)

2 Sheets—Sheet 1.

J. J. FAULKNER.
COTTON SEED DELINTER.

No. 546,272.

Patented Sept. 10, 1895.



Witnesses
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Inventor
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(No Model.)

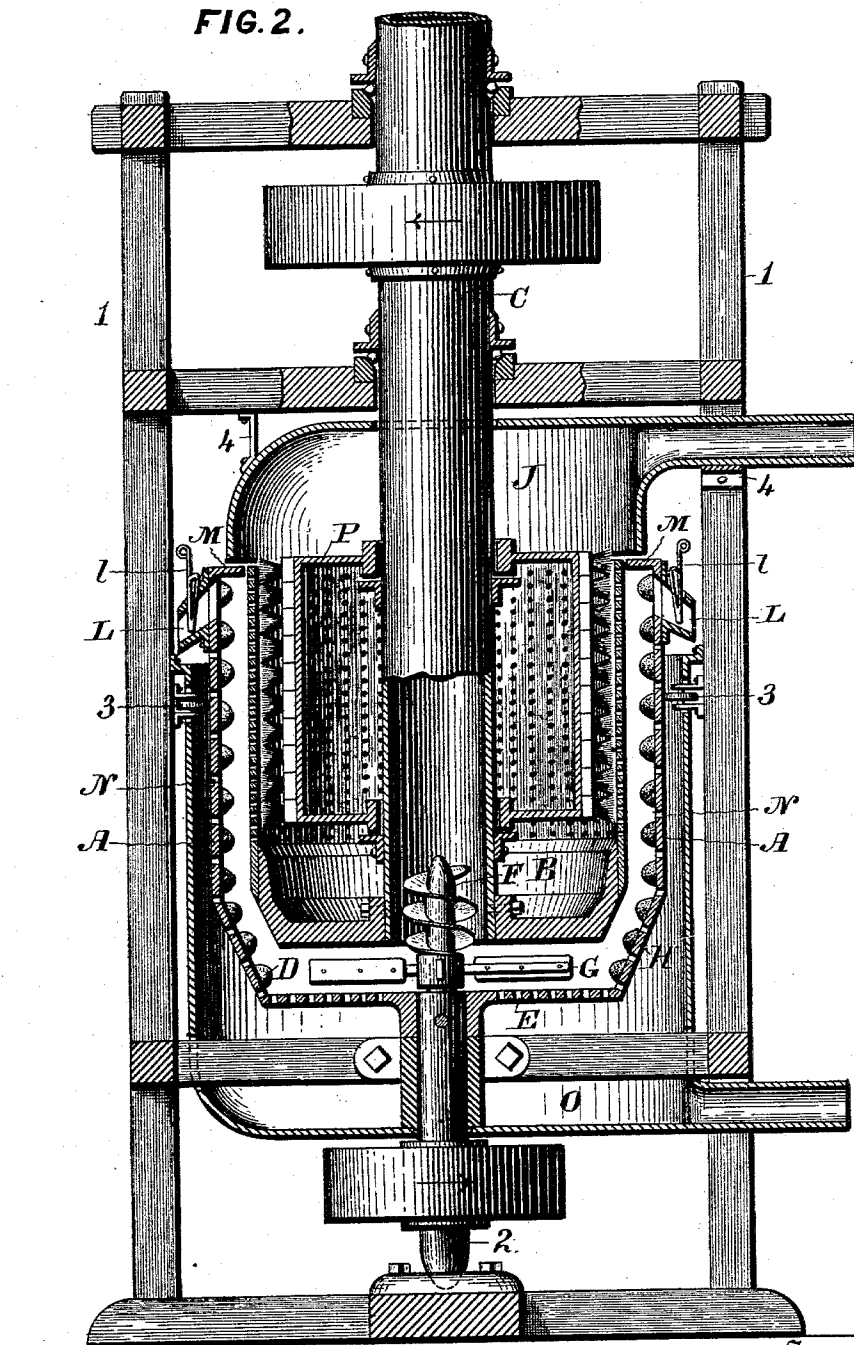
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FIG. 2.



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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. 546,272, dated September 10, 1895.

Application filed June 4, 1895. Serial No. 551,627. (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 an improved cotton-seed delinter whose construction and arrangement of parts will be hereinafter described, and particularly pointed out in the claims.

The removal of lint separated by the action of cotton-seed delinters has usually been effected either through an opening in the casing for the delinting-cylinder or by making such casing perforated over its entire circumference. Theoretically, as well as practically, however, it is best to remove the lint from the seed through what corresponds in the usual construction to the delinting-cylinder itself—that is to say, it is best to remove the lint from the inner surface of the roll which the seed forms in a cotton-seed delinter as a consequence of its centrifugal motion, as the seed, being the heavier body, naturally seeks the outside of such roll, while the lint remains on the inside surface of the same.

The object of my present invention is to provide a construction whereby the lint separated by the action of the delinter may be removed interiorly through a central perforated cylinder instead of exteriorly through a casing, as has heretofore been done. This object can be accomplished in two different ways, both of which are embodied in the machine which forms the subject of this application: First, the lint can be removed by making the abrading-surface of the delinting-cylinder the inner surface of the same and arranging a cylinder interiorly of the delinting-cylinder, such cylinder being so formed as to permit the lint to be withdrawn therethrough, and serving the purpose of keeping the seed under treatment

in contact with the abrading-surface; second, by making the periphery of the delinting-cylinder perforated and providing an interior air-current whereby the lint can be drawn through the surface of the delinting-cylinder itself. In my present machine I make the interior surface of the delinting-cylinder the abrading-surface and support inside of the same a cylinder, which cylinder may simply perform the ordinary object of a casing—that is, may simply prevent the seed from falling out of the range of action of the delinting-cylinder—or may itself be provided with an abrading surface, so as to form an additional delinting-surface, and may be given a motion independent of and opposite to the motion of the outside cylinder. In my present machine I also make use of an upward feed and of an interior supply-pipe, transferring the seed to be treated from the supply-pipe to the abrading-surfaces by a suitably-mounted sweep and feeding the seed downward to the action of the sweep by a spiral stationed in the supply-pipe. To facilitate the forward passage of the seed, I form the lower portion of the delinting-cylinder and that of the cylinder mounted interiorly thereof with inwardly-inclined sides, and to provide for the escape of the dirt and dust which naturally are present with the seed as it is fed into the machine I make the bottom of the delinting-cylinder perforated, so that the seed as it is fed from the supply-pipe to the abrading-surfaces passes over a perforated surface and is freed from the dirt and impurities there present.

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

Figure 1 is a section of my machine, showing the construction of the parts thereof and the relation they bear to each other; and Fig. 2 is a similar view of a modified form thereof.

Referring to the drawings, 1 represents the machine-frame, in which is supported in suitable bearings the upright shaft 2, which has secured to its upper end the delinting-cylinder A. As this cylinder is subjected to considerable strain in the action of the machine, I

sometimes provide antifriction-wheels 3, mounted on the machine-frame and bearing against the outer surface of the delinting-cylinder in order to steady the same. The cylinder B is supported interiorly of the delinting-cylinder partly by supports 4, extending downward from the top of the frame, and partly by the feed-pipe C, which is supported in the machine-frame, extends centrally through said casing, and opens at the bottom thereof into the space between the delinting-cylinder and said interior cylinder. The cylinder serves the purpose of keeping the seed under treatment in contact with the abrading-surface. It performs the same function as the ordinary delinting-cylinder casing, and, like such casings, is covered with a coating of emery.

The delinting-cylinder is preferably somewhat cup-shaped, as shown in the drawings. Its inner surface is lined with abrading material, such as emery, corundum, or black diamond. Abrading-blocks D may be used or the scouring-surface may be formed in any other suitable manner. The bottom of the delinting-cylinder is formed with perforations E, through which dirt and impurities may pass as the seed is transferred by the spiral F downward and the sweep G outward to a point where it is exposed to the scouring action of the abrading-surfaces. During this passage it must go over the perforated bottom E of the cylinder, and the dirt and impurities will be sifted out therefrom. The lower portion of the delinting-cylinder is inwardly inclined, as shown at H, in order to assist the seed in its upward movement and in order to prevent any blocking of seed at this point. The abrading action takes place between the abrading-surface of the delinting-cylinder and the abrading-surface of the cylinder B. This cylinder is perforated to permit the removal of the lint separated by the action of the machine therethrough, and is preferably formed with a smooth emiered surface. The metal forming the same is made thicker than the length of the fiber to be removed from the seed in order to prevent such fiber wrapping around adjacent openings and obstructing the lint-outlet. The cover I is provided for the inner cylinder, and an air-flume J leads therefrom; but any other construction may be used, if desired. The discharge of the seed is effected through discharge-spouts L, stationed at the top of the delinting-cylinder, the inwardly-projecting flange M regulating and controlling such discharge in connection with the valves l, which operate to close the discharge-outlets. In the construction thus shown the delinting-cylinder is the only revolving surface. In Fig. 2 I have, however, shown a construction where the inner cylinder may also be revolvable, if desired, and may move in any desired relation of direction or speed to the revolution of the exterior cylinder, or may itself be rotated and the exterior cylinder remain sta-

tionary. When so actuated the interior cylinder performs the function of a delinting-cylinder and the outer cylinder that of the casing therefor. As shown in this figure, the feed-pipe C is mounted in suitable bearings in the frame and is stepped in such a manner as to enable it to remain in proper position, such pipe forming in effect a power-shaft, which may be given any desired rotation by the power-wheel keyed thereto. In this construction I have also shown perforations N in the delinting-cylinder A and an exhaust-flume O, by means of which lint may be removed from such delinting-cylinder exteriorly as well as interiorly through the perforations formed in the inner cylinder. In this construction I may also use a brush P, mounted loosely on the feed-pipe C and acting to free the inner surface of the inner cylinder from lint.

The operation of my machine is as follows: Seed is fed into the machine through the feed-pipe C, which forms in effect a stand-pipe to regulate and control the operation of the machine. In order to insure the proper action of a machine of this character, it is necessary to provide a positive feed for the seed to the abrading-surfaces, and the spiral F and sweep G serve, therefore, to positively feed the seed outward to the action of the abrading-surfaces. As soon as the seed reaches the inclined portion H of the delinting-cylinder, it begins to climb up the same, owing to the centrifugal motion which is imparted to it, and is rapidly cleaned and scoured by the abrading action to which it is thus subjected. The dirt and impurities are removed from the seed during its passage over the perforated bottom E of the delinting-cylinder. The lint is removed therefrom by the interior air-current through the perforations in the inner cylinder, either alone or in connection with the exterior air-current, which acts to draw the lint through the perforations in the delinting-cylinder itself. Owing to the centrifugal motion of the seed, the lint, which is lighter than the seed, lies on the inner surface of the roll of seed formed by the action of the machine, and thus is more subject to the inner draft through the delinting-cylinder. A very perfect and complete separation of the lint from the seed is afforded and the quality of lint obtained is very good. The seed-discharge takes place through the discharge-spouts L, regulated by valves l and flange M, as the running conditions of the machine demand.

I do not herein claim the use of a stand-pipe to govern and control the condition of the seed under treatment, as that is claimed in a companion application filed by me on May 4, 1895, Serial No. 548,146; nor do I claim the means shown for freeing the inner surface of the inner cylinder from lint, as that is the subject of claim in an application filed by me June 3, 1895, Serial No. 551,558.

Having thus 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 vertically arranged delinting cylinder having abrading material secured to its inner surface, means for rotating the same, and means for preventing the seed under treatment falling out of the range of action thereof, of a feed pipe extending down through the center of the cylinder to the lower end thereof, means for transferring the seed from said pipe to the abrading surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

2. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder having abrading material secured to its inner surface, an inner cylinder for preventing the seed under treatment falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring the seed from said pipe to the abrading surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

3. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder having abrading material secured to its inner surface, and having a closed bottom, an inner cylinder for keeping the seed under treatment from falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring seed from said pipe to the abrading surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

4. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder having abrading material secured to its inner surface, and having a closed perforated bottom, an inner cylinder for keeping the seed under treatment from falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring seed from said pipe to the abrading surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

ing surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

5. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder, having abrading material secured to its inner surface, the lower end of said cylinder being bent inwardly, an inner cylinder also having its lower end bent inwardly for preventing the seed falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring seed from said pipe to the abrading surface, means for removing the lint separated by the action of the machine, and a seed discharge outlet, substantially as described.

6. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder having abrading material secured to its inner surface, an inner perforated cylinder for preventing the seed under treatment falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring the seed from said pipe to the abrading surface, means for causing an air current to sweep over the inner surface of the inner cylinder, and a seed discharge outlet, substantially as described.

7. In a cotton seed delinter, the combination with a vertically arranged delinting cylinder having abrading material secured to its inner surface, and having a closed perforated bottom, an inner perforated cylinder for preventing the seed under treatment falling out of the range of action thereof, and means for giving one of said cylinders motion relative to the other, of a feed pipe extending downward through the center of the inner cylinder, means for transferring seed from said pipe to the abrading surface, means for causing an air current to sweep over the inner surface of the inner cylinder, and a seed discharge outlet stationed at the top of the delinting cylinder, substantially as described.

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

JAMES J. FAULKNER.

Witnesses:

C. L. BERLIN,
JOHN HALLUM.