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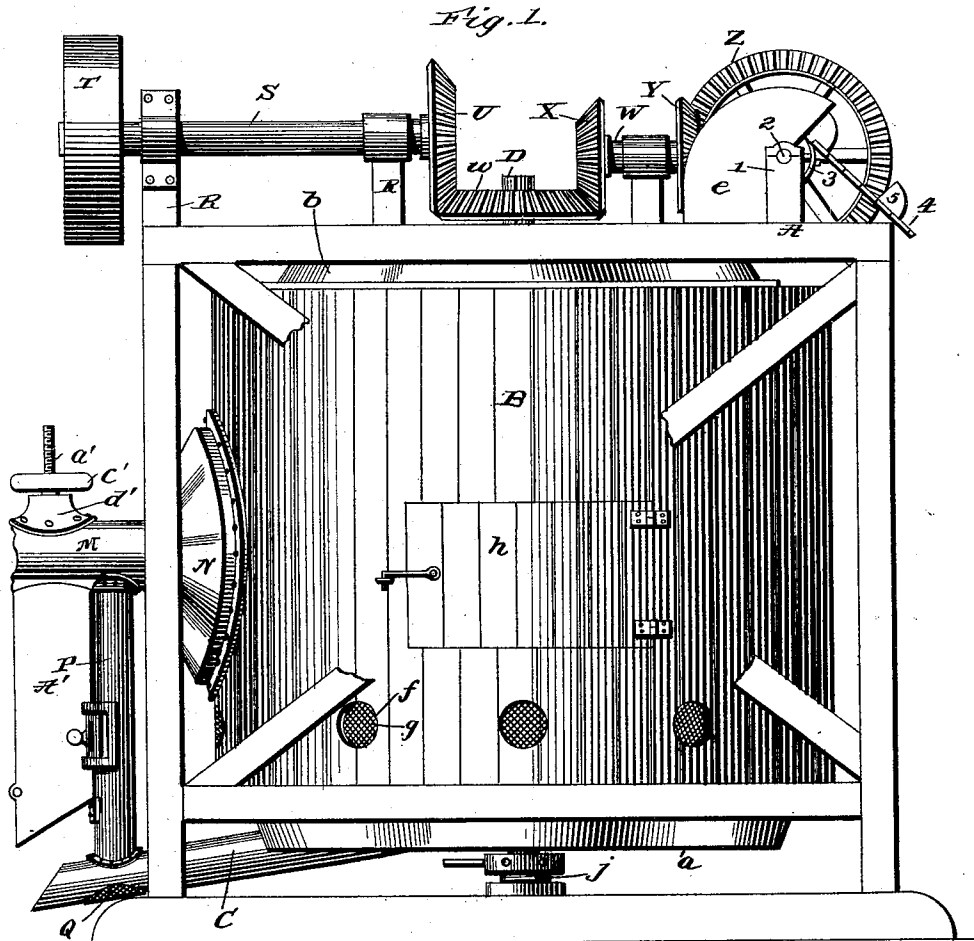
Patented Oct. 31, 1899.

J. H. McCORMICK.
COTTON SEED DELINTER.

(Application filed Mar. 20, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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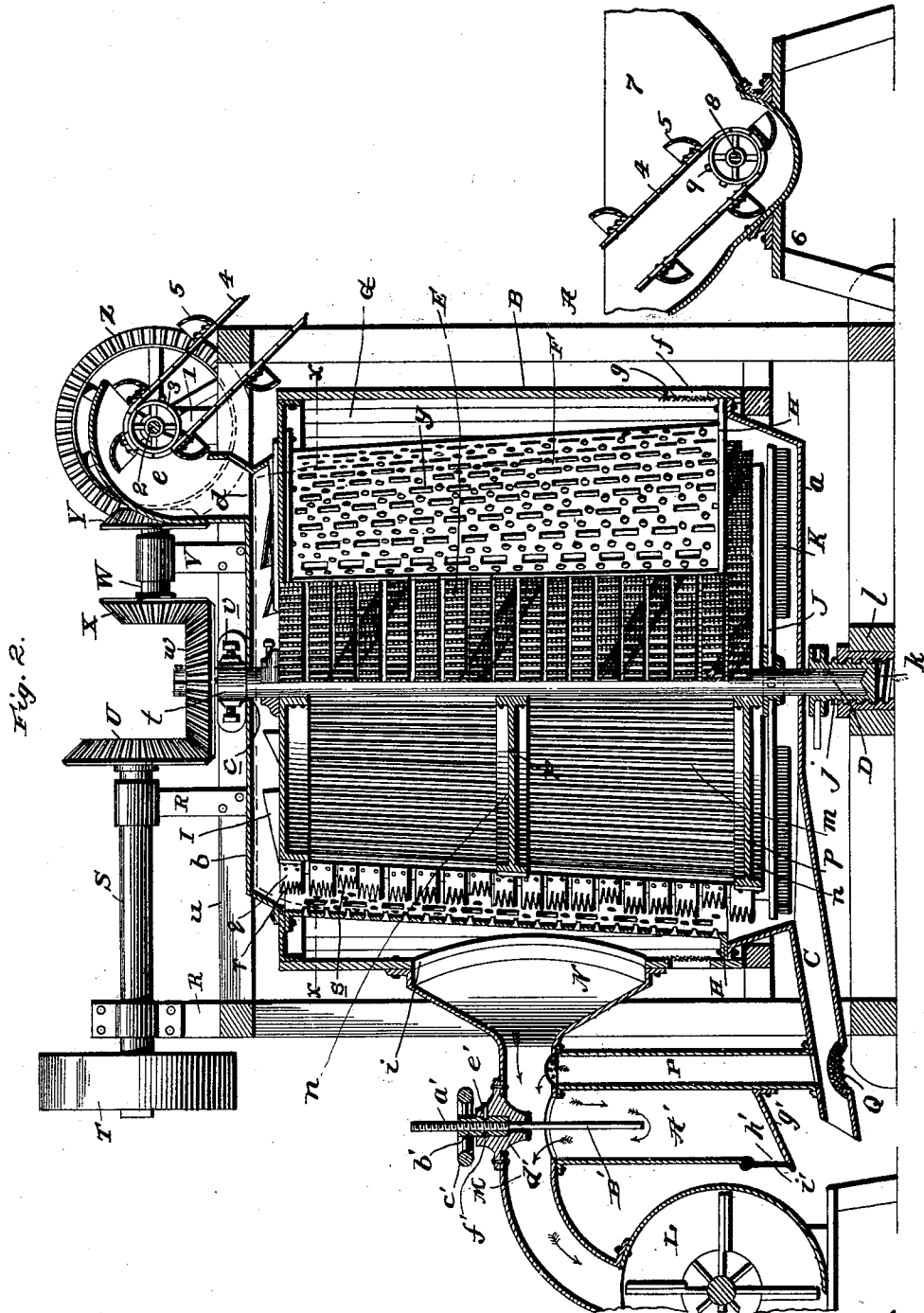
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 3.

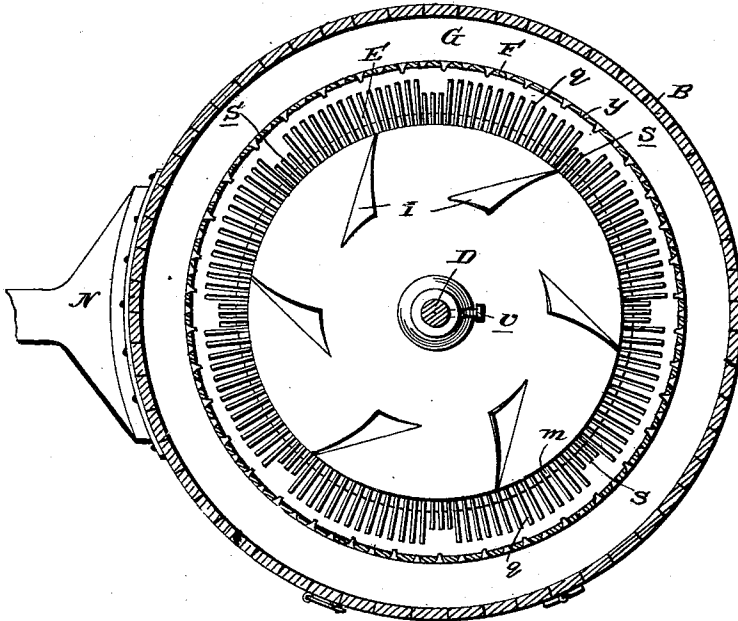
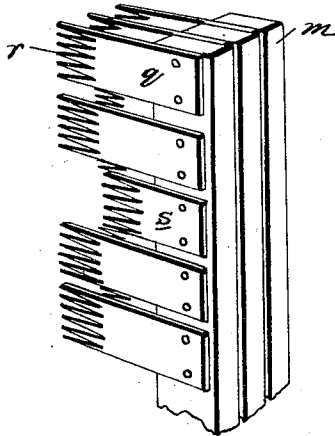


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN H. McCORMICK, OF NEW ORLEANS, LOUISIANA.

COTTON-SEED DELINTER.

SPECIFICATION forming part of Letters Patent No. 636,164, dated October 31, 1899.

Application filed March 20, 1899. Serial No. 709,838. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. McCORMICK, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Cotton-Seed Delinters, of which the following is a specification.

This invention relates to a cotton-seed-delinting machine, and is designed more particularly as an improvement upon the invention disclosed in the Letters Patent granted to me under date of August 23, 1892, No. 481,416, and the novelty and many advantages will appear from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a view in side elevation of my improved machine with the feeding or elevating apparatus and also the exhaust-fan broken away. Fig. 2 is a vertical sectional view with parts in elevation and the suction-fan and feeding or elevating device partly broken. Fig. 3 is a horizontal sectional view taken at the point indicated by the dotted line *xx* on Fig. 1, and Fig. 4 is a perspective view of a part of a series of the delinting-teeth attached to the ribs.

Referring by letters and figures to said drawings, A indicates a frame composed of suitable timbers and properly braced to support the various parts of my machine.

B indicates a cylindrical casing, which may be composed of wood or other suitable material, and has a bottom *a*, which may be composed of metal, and has tapering walls, so as to direct the seed to the floor. This casing is closed at its upper end by a top *b*, which may also be composed of sheet metal or other suitable material, and is provided with a central opening *c* for the passage of a vertical shaft, as will be hereinafter more fully described, and it has an opening *d*, which is surrounded by a hopper *e*, through which the seed is fed to the machine. This casing B is designed to remain in a fixed position in the frame and is provided in its side walls and preferably near its base with apertures *f*, which are protected by wire *g* or the like, and these apertures are designed to afford air-inlets, while the wire or screen will prevent the entrance of any foreign substance. The casing is also

provided with a door *h* to allow access to the interior of the machine, and it is provided in one of its side walls with an opening *i* for the outlet of the lint.

C indicates a chute which leads from the bottom of the casing and is directed laterally for the reception and discharge of the delinted seed.

D indicates a central vertical shaft. This shaft is stepped in an externally-threaded socket *j*, which in turn takes into a threaded bearing *k*, which is placed in the sill-beam *l* of the main frame, so that the shaft may be raised or lowered, as desired. This shaft has secured to it a tapering delinting-drum E, which preferably comprises vertical ribs *m* and rings *n*, which rings are secured to the shaft by means of arms *p*, although it is obvious that other means might be employed. I have shown three rings, with the smallest at the top, so that the taper will be from below upwardly, and the ribs may be secured to the rings by bolts, screws, or other suitable fastening devices. This drum is provided on its outer surface and from top to bottom with delinting teeth or combs of a peculiar construction, being composed of long and slender strips of steel *q*, having teeth *r* at their outer ends and secured at their inner ends to the ribs *m*. In arming the drum with these combs or teeth I provide some of less length than others, as indicated at *s*, and arrange the teeth *s* in a spiral manner around the circumference of the drum, so as to form channels or ways from top to bottom. These channels or ways are designed to assist in carrying the seed and also the cotton through the machine, and thereby prevent any tendency to choke during operation, and I would have it understood that I attach importance to this feature of the invention, as it serves effectively in delinting the seed and expedites the operation. The vertical shaft D, after passing through the top of the casing B, takes through a box or bearing *t*, which is secured to the cross-bar *u* of the frame, and it may be trued in position by means of screws or bolts *v*, having secured to its upper end a horizontally-disposed bevel-gear *w*, from which it receives rotary motion.

F indicates a toothed and perforated cyl-

inder. This cylinder is preferably composed of sheet metal, and the perforations, which may be of an oblong form, are made by cutting the cylinder at numerous points, as shown at *y*, and the teeth, which are disposed on the inside, are preferably formed by punching or displacing the metal so as to leave the roughened and displaced metal on the inside. These teeth cooperate with the teeth on the drum in thoroughly removing the lint from the seed, while the slots or perforations *y* are designed to afford passages for the cotton to pass into the lint-chamber G. The lint-chamber G may be closed at its bottom by a disk or annulus H, so that the lint entering the chamber will be prevented from passing out with the seed which has been cleaned. The toothed and perforated cylinder F is fixed in position, and owing to the configuration of said cylinder it will be seen that the lint-chamber is larger at its upper than at its lower end.

On the top of the tapering drum I provide blades I, which are arranged obliquely in a spiral manner, so as to cast the seed as it leaves the feed-hopper into the toothed cylinder, where it will be acted upon by the teeth of said cylinder in conjunction with the combs or teeth of the drum. Secured to the vertical shaft below the drum E are arms J, carrying brushes K, preferably composed of wire or other bristles and designed to sweep over the bottom of the casing, so as to remove the delinted seed as it falls from the machine and direct it into the chute C.

L indicates an exhaust-fan, which may be of the type usually employed in machines of this character and is arranged at a suitable distance to one side of the frame. Leading from the casing of this fan is a pipe M, which terminates at its opposite end in a flared or bell-mouthed receiver N and is secured to the casing over the opening *i* therein. This pipe M forms a conduit for taking the lint from the casing of the machine.

P is a pipe or uptake which connects the seed-chute C near its discharge end with the pipe M, and at a point just below the connection the chute C has an aperture Q, which is preferably covered with a wire-gauze, as shown. By this means any lint that may have adhered to the seed during its passage through the machine will be drawn off through the pipe P and carried to the fan through the pipe M. In order to regulate the force of draft so that the seed may not be carried up the pipe P, I provide said pipe with an opening and a slide, as shown.

Interposed between the uptake P and the exhaust-fan is a dust-box A', which is disposed vertically and has its upper end opening into the pipe M, as shown. This dust-box is provided with a regulating slide or valve B', which is vertically movable, and extends into the said box from the upper end thereof, so as to regulate the passage and form an eddy therein for the dust-laden lint

as it comes from the opening N or the uptake P, or both. I have shown this valve or regulator as provided with a screw *a'* at its upper end, and which screw or threaded rod takes through a sleeve *b'*, which is internally threaded to engage the threads of the screw or rod on the valve or slide, and it is also provided with a hand-wheel *c'*, by which it may be turned to raise or lower the valve. The sleeve may be prevented from rising out of its seat *d'* by means of a pin *e'* taking into a slot *f'* of said sleeve. I do not wish to be understood as limiting myself to this construction for accomplishing the up and down movements of the slide or valve, as it is obvious that any other suitable construction might be employed for this purpose. The dust-box is preferably provided with an inclined bottom *g'* and a lateral opening *h'* at its lower end, which is closed by a flap door or gate *i'*. By this construction it will be seen that such lint-carrying dust or broken shells as may pass from the uptake P will be freed from such substances by the eddy formed by the regulating slide or valve B', and the heavy particles, such as dust and broken shells, will be deposited on the floor of the dust-box, while the lighter particles, the freed lint, will pass under the valve or slide in the direction indicated by the arrows and to the fan-chamber. The suction caused by the fan during operation will hold the flap *i'* normally closed; but when the pressure caused by an accumulation of dust and the like becomes great it will open the flap and discharge such substances, so that the action of discharging the dust and broken shells is automatic, and the slightest stoppage in the operation will effect a discharge of such dust and shells from the box A'.

R indicates two uprights which are provided at their upper ends with boxes or bearings in which a horizontal shaft S is journaled, the uprights being secured on the cross-bar *u* or other suitable part of the main frame. On one end of this shaft S, I provide a pulley T to receive a drive-belt, and on the opposite end I provide a vertically-disposed bevel-gear U, which meshes with the horizontally-disposed gear *w* on the upper end of the shaft D. V indicates another upright or standard which rises from the cross-bar *u* and carries a bearing for a horizontal shaft W, which has secured at one end a bevel-pinion X, which meshes with the gear *w*, and at its opposite end a bevel-pinion Y, which meshes with a bevel-gear Z. The gear Z is mounted upon suitable standards 1, and its shaft 2, which extends through the hopper *e*, carries a sprocket-wheel 3, over which the endless chain or band 4, carrying the elevating-buckets 5, passes.

Arranged on a suitable frame 6 and at one side of the machine is a receiver 7 for the deposit of seed to be fed to the machine. In this receiver is journaled a shaft 8, on which is arranged a sprocket or chain wheel 9 and

which receives the belt or chain of the elevator.

The shaft of the fan is of course provided with a suitable pulley or band-wheel to receive a belt or band for operating the same. It will be seen that when motion has been imparted to the shaft S through the medium of a band and the pulley T such motion will be communicated through the medium of the bevel-gear U to the bevel-gear W and from thence to the vertical shaft, which will drive the tapering drum. The blades I will first throw the seed as it is fed into the hopper *e* between the drum and the toothed cylinder, where such seed will be subjected to the action of the teeth in the cylinder and those on the combs or blades *q* and *s*, the teeth or blades *s* not only serving to assist in delinting the seed, but also serve, in conjunction with the blades *q*, in forming the spiral grooves or channels to relieve the machine from any tendency to choke during operation. It is obvious that the power may be applied to the shaft below the casing instead of on the top, as I have shown, and in such cases a belt might be taken to a pulley on the shaft 2 of the elevator. In the present construction of driving mechanism the same power which operates the delinting-drum also operates the elevator through the medium of the pinions X and Y and the gear Z.

While I have described my invention as being used for delinting cotton-seed, yet it is obvious that it might be used for cleaning grain of various kinds, and while I have described very specifically and in detail the parts as shown, yet I would have it understood that I do not wish to confine myself to such precise construction and arrangement of devices, as I am aware that many of the parts might be changed without departing from the spirit of my invention.

Having thus described my invention, what I claim is—

1. In a cotton-seed-delinting machine, the drum comprising ribs or staves suitably connected together, and long and short radially-disposed, metallic combs *q* *s* provided with teeth at their outer ends and having their inner ends interposed between and connected to the ribs or staves; the short combs *s* being so arranged with reference to the drum and long combs *q* as to form a spiral way extending throughout the length of the drum, substantially as specified.

2. In a cotton-seed-delinting machine, the combination with a tapering delinting-drum having straight teeth (as *q*) formed on strips of steel and spirally-arranged teeth (as *s*) also formed on strips of steel and of less length than the teeth *q*, a toothed and perforated cylinder surrounding the drum, and a lint-cham-

ber surrounding the perforated cylinder, substantially as specified.

3. In a delinting-machine, the combination with a casing, an exhaust-fan connected therewith, a tapering drum armed with teeth formed on strips of steel and having spiral grooves also provided with teeth similarly formed, and a toothed and perforated cylinder arranged within the casing and exterior to the drum, substantially as specified.

4. The combination with the casing; of the exhaust-fan arranged at one side of the casing, the pipe leading from said fan and having a flared or bell-mouthed receiver connected with the side of the casing, a seed-chute leading from the bottom of the casing, a pipe leading from the seed-chute to the pipe of the bell-mouthed receiver and having a draft-regulator therein, and suitable delinting mechanism, substantially as specified.

5. In a cotton-seed delinter, the combination with the frame; of the vertical shaft and delinting-drum secured thereto, the horizontal rotatable gear on said shaft, the vertical gear X meshing with the horizontal gear, the pinion Y, the gear Z, the sprocket-wheel on the shaft of the latter gear, and the endless elevator taking over the sprocket-wheel, substantially as specified.

6. In a cotton-seed-delinting machine, the combination with the casing and an exhaust-fan connected therewith; of a dust-box interposed in the connection between the fan and casing, and a regulating slide or valve in said box, substantially as specified.

7. In a cotton-seed-delinting machine, the combination with the casing, and exhaust-fan connected therewith; of a dust-box having a valve or slide for regulating the passage through the same, and also having a flap or valve at its bottom for discharge of dust, substantially as specified.

8. In a cotton-seed delinter, the combination with a casing and a seed-chute leading from the bottom thereof; of an exhaust-fan arranged at one side of the casing, a pipe connecting the casing with the fan, a lint-uptake connecting said pipe and seed-chute, a dust-box leading from the pipe connecting the casing with the fan and having a regulating-slide to form an eddy therein, and also having a flap door or gate adapted to open and close by the action of the air-currents, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN H. McCORMICK.

Witnesses:

WALTER B. OTERO,
GEO. W. DEARING, Jr.