

J. W. THORN.
Cotton-Cleaner.

No. 221,431.

Patented Nov. 11, 1879.
FIG. 1.

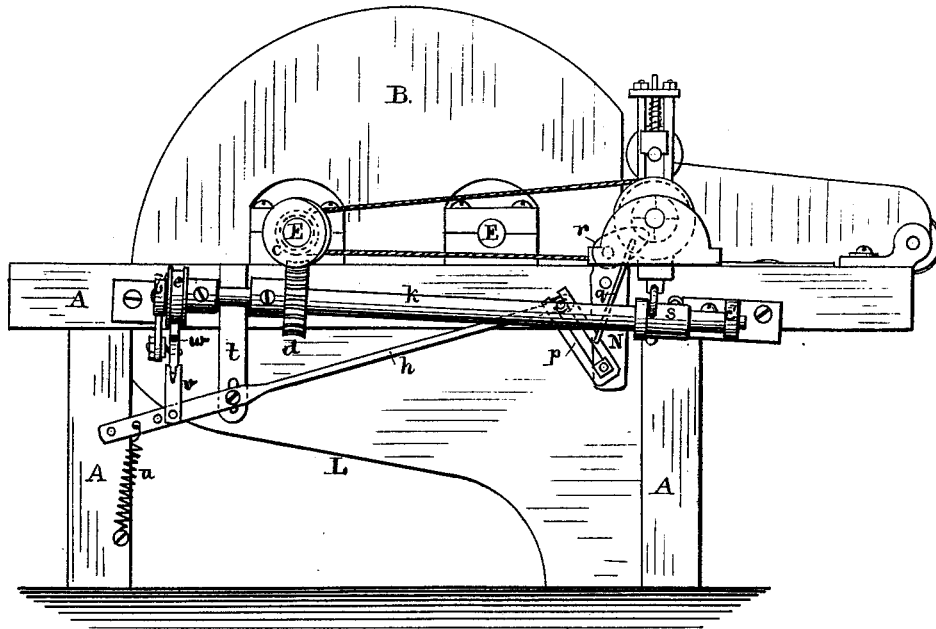
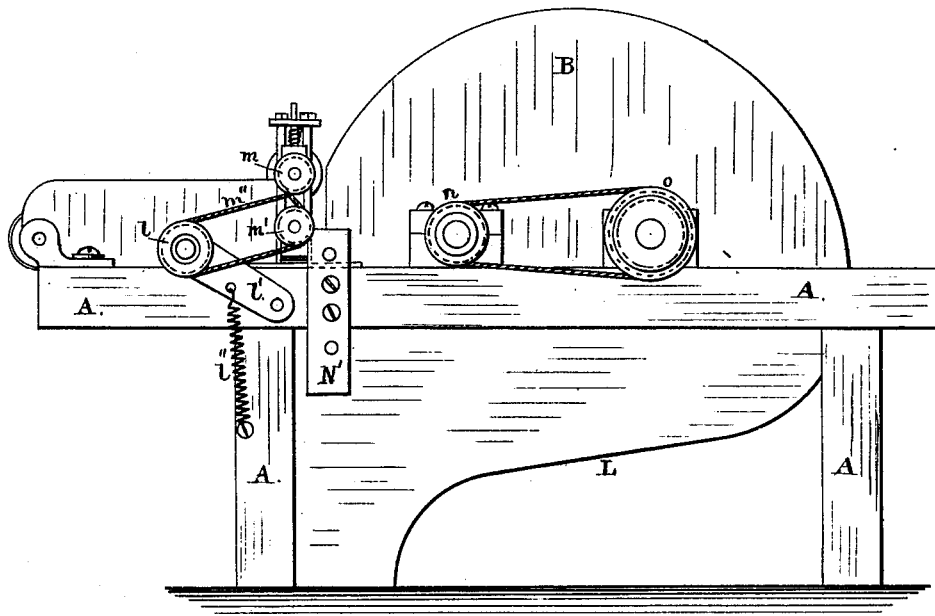


FIG. II.



WITNESSES:

Henry Blackford
Henry Powers

INVENTOR:

Joseph W. Thorn,

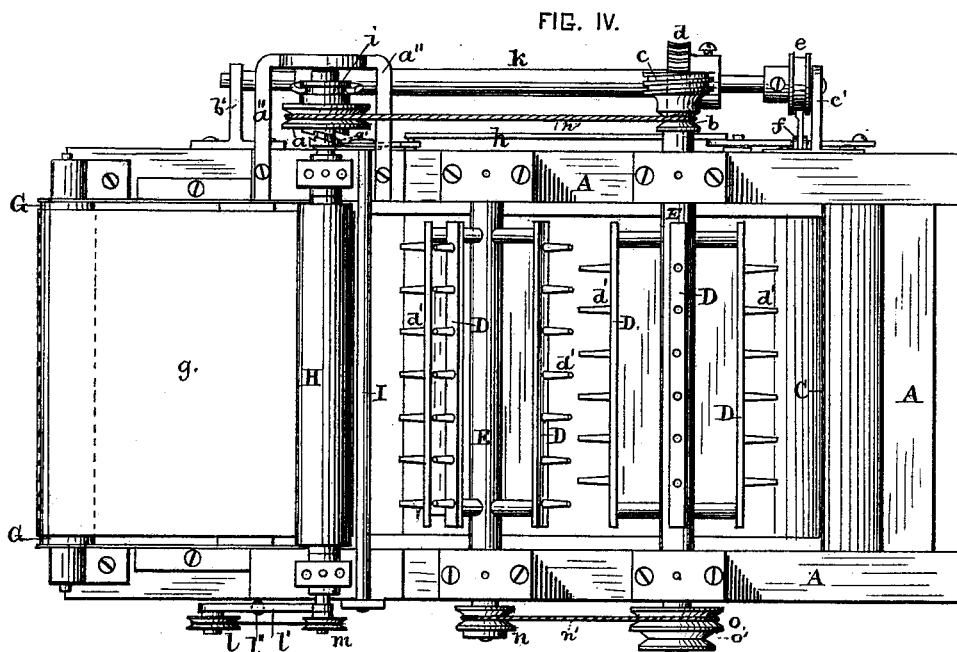
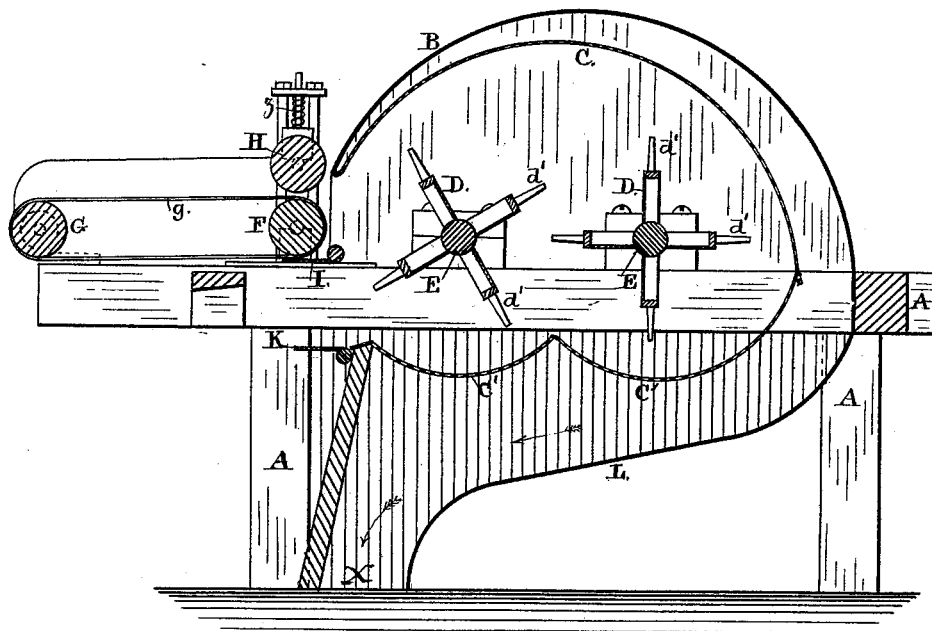
By *B. F. James.*

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FIG. III.



WITNESSES:
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FIG. V.

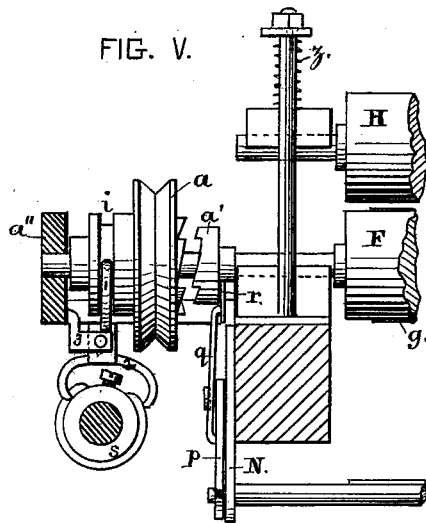


FIG. VI.

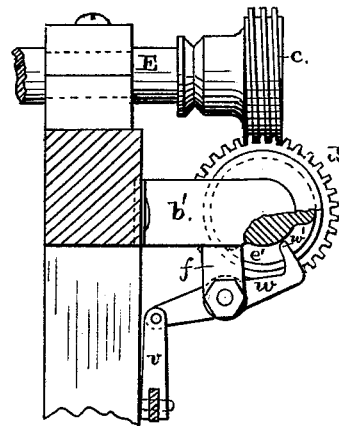
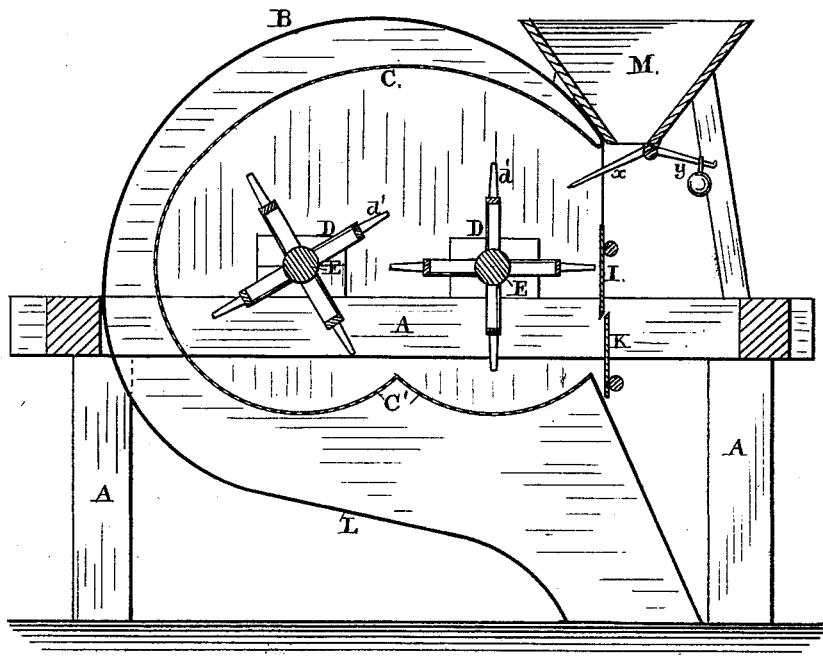


FIG. VII.



WITNESSES:

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James Bowers

INVENTOR:

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UNITED STATES PATENT OFFICE

JOSEPH W. THORN, OF IUKA, MISSISSIPPI, ASSIGNOR OF ONE-HALF OF HIS
RIGHT TO GEORGE W. MILLER, OF SAME PLACE.

IMPROVEMENT IN COTTON-CLEANERS.

Specification forming part of Letters Patent No. **221,431**, dated November 11, 1879; application filed
May 12, 1879.

To all whom it may concern:

Be it known that I, JOSEPH W. THORN, of Iuka, in the county of Tishomingo and State of Mississippi, have invented certain new and useful Improvements in Cotton-Cleaners; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in improvements in machines for cleaning cotton, primarily, from seed, dirt, or other material that would tend to injure its sale or use; but the same machine can be used for cleansing feathers and other substances of a fibrous character, without any material change in its construction and operation.

In order to enable others skilled in the art to which this machine appertains, I will proceed to describe its construction and operation, reference being had to the accompanying drawings, making part of this specification.

Figure I is a side elevation, showing the means used, and gearing, for operating and controlling the movement of the discharge-doors. Fig. II is a view of the opposite side of the machine shown in Fig. I, and showing the gearing for the feed-rollers. Fig. III is a longitudinal vertical section of the machine with the cover in position. Fig. IV is a top or plan view of the same with the cover removed. Fig. V is a detail view of the feed-roll gear enlarged. Fig. VI is an enlarged view of gear for tripping-lever. Fig. VII is a longitudinal vertical section of a modification in the mode of feeding cotton to the machine by means of a hopper instead of the end-less-apron mode of feeding.

The same letters in the several figures refer to the same parts of the machine.

A is the main frame of the machine, to and within which all its parts are secured. B is a close cover to the machine resting upon the top of the frame A, and over the fans and beaters D *d'*.

To the inner side of this cover is secured the perforated metallic inner lining, being in

form a segment of a circle, a space being left between this lining C and cover B. Such lining, when in position, abuts upon or slightly over a metallic perforated lining, C' C', the latter being continuous and below the fans and beaters, and in form the segments of two circles.

Below the lining C' C' is a metallic shield, L, that is practically a continuation of the cover B, leaving a space or chamber between it and the lining C' C', thereby completely covering the fans or beaters above and below.

The beaters are arranged transversely to the machine and secured to the frame A, in the manner shown in Fig. IV, upon the shafts E E.

n is a pulley upon the end of the forward shaft, and *o o'* is a double pulley upon the end of the rear shaft. *o'* can be used for the driving-pulley. The pulleys *n* and *o* are connected by means of the belt *n'*.

Upon the opposite end of the shaft E, on which is the pulley *o*, is secured the pulley *b* and worm-pinion *c* that plays in the gear-wheel *d*, causing the rotation of the shaft or rod *k*. The fans D are formed of a metallic plane surface, upon the top of which are secured the beaters *d'*. (Two fans and beaters are shown in drawings; but an additional number may be employed, if desired, by enlarging the frame and cover of the machine.)

F is the inner feed-roller, and G the outer feed-roller, around which revolves the feed-belt or apron *g*. H is a pressure-roller, located above the feed-roller F, playing loosely between suitable guides, and its action controlled by the spring Z.

To one end of the inner feed-roller shaft is secured the pulley *m'*, and near its opposite end is rigidly secured a clutching device, *a'*.

a'' is a frame or support to the extreme end of the inner feed-roller shaft, and upon this shaft is placed a loose clutch-pulley, *a*, engaging, at the proper time, with the clutching device *a'*.

One side of the clutch-pulley *a* is prolonged to admit of the formation upon it of the groove *i*, within which rest the forked arms 1, which, with their counterpart 2 at a right angle to each other, are secured to the frame or support *a''*, in the manner shown at 3, Fig. V. The

parts or forks 1 and 2 are connected together by means of a plate, the latter pivoted, as shown in Fig. V.

In Fig. I, *k* is a gear-shaft, having secured upon it the grooved cam *e*, gear-wheel *d*, and cam *s*. *b'* and *c'* are hangers for the ends of shaft *k*. *h* is a connecting-rod for the tripping-gear, and is pivoted to the upright A of the frame. *u* is a spiral spring attached to the connecting-rod *h* and to frame A. *r* is a link pivoted to rod *h*, and also to lever *w*, the latter being also pivoted to a hanger, *f*, on the hanger *b'*.

A pawl, *w'*, is formed upon the free end of lever *w*, and strikes into the notch *c'* formed within the grooved cam *e*.

The cam *s* is secured upon the forward end of the shaft *k*, and the forked arms 2 impinge upon it, but not in the same plane.

By the revolution of the cam *s* upon the shaft *k* the clutch-pulley *a* is forced in and out of gear with the clutch device *a'* by means of the forked arms 1 and 2.

t is a hanger with slot supporting the rod *h*. *p* is a slotted lever, in which the rod *h* plays, and is secured upon one end of the shaft, to which the door K is secured. *q* is a rod, connecting lever *p* to crank *r*, which is secured upon the end of the shaft to which the door I is secured. *N N'* are hangers on either side of the machine, in which the ends of the shafts to which the doors I and K are attached, are supported. *v* is a pivoted lever, secured to frame A, upon the end of which is placed the pulley *l*. *l'* is a coiled spring, to keep the lever in proper position, to which it is attached, as well as to the frame A. *m'* is a pulley on end of inner feed-roller, and *m* pulley on end of presser-roller, connected and operated by the belt *m''*.

The operation of the machine is as follows: The cotton or other material to be cleaned is placed as evenly as is convenient upon the apron *g*, and is carried forward until it comes in contact with beaters and is drawn into the machine. The rapid revolution of the fans and beaters disintegrates the fibrous material, and the impurities contained in it are carried through the perforations C C' C' into the dust chamber or receptacle and expelled from the bottom of the same, following the direction of the arrows. (Shown in Fig. III at X.)

At every revolution of the grooved cam *e*

the door-tripping mechanism, consisting of the rod *h*, slotted lever *p*, rod *q*, crank *r* connected with the shafts on which the doors I K are hung, causes the doors to open, and the cleaned material or cotton is allowed to pass out, and at every revolution of the cam *s* the clutch-pulley is forced in contact with the clutch device, on the end of the feed-roller shaft, by the means hereinbefore described, thereby giving motion to the feed-roller shaft, and the cotton is then fed to the machine. Upon the retraction of the clutch-pulley from the clutch device, the process of cleaning the cotton still goes on, and the cleaned cotton is discharged by the tripping mechanism operating upon the doors, thereby imparting alternate operations to the feeding and cleaning mechanisms of the machine, and the opening and closing of the exit-doors through which the cleaned cotton is discharged.

The hopper, as seen in Fig. VII, may be placed at one end of the machine above the beaters, and, being filled with cotton, which is pressed down in any suitable manner sufficiently to engage with the arms of said beaters, the cotton is in that way drawn into the machine. At the bottom of the hopper is placed a weighted lever, *x y*, that can be closed after a proper supply of cotton has been cleaned by the machine, and opened when a new supply is required.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the shaft *k*, provided with gear-wheel *d* and grooved cam *e* with worm-pinion *c*, connecting-rod *h*, link *v*, and lever *w*, having pawl *w'*, slotted lever *p*, rod *q*, crank *r*, doors I K, and mechanism for operating the whole, in the manner and for the purpose herein described.

2. The combination of the shaft *k*, provided with the cam *s*, and mechanism for operating said shaft with forked arms 1 and 2, clutch *a'*, and clutch-pulley *a*, in the manner and for the purpose herein described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOSEPH W. THORN.

Witnesses:

GEO. P. HAMMERLY,
ANTHONY T. SCRUGGS.