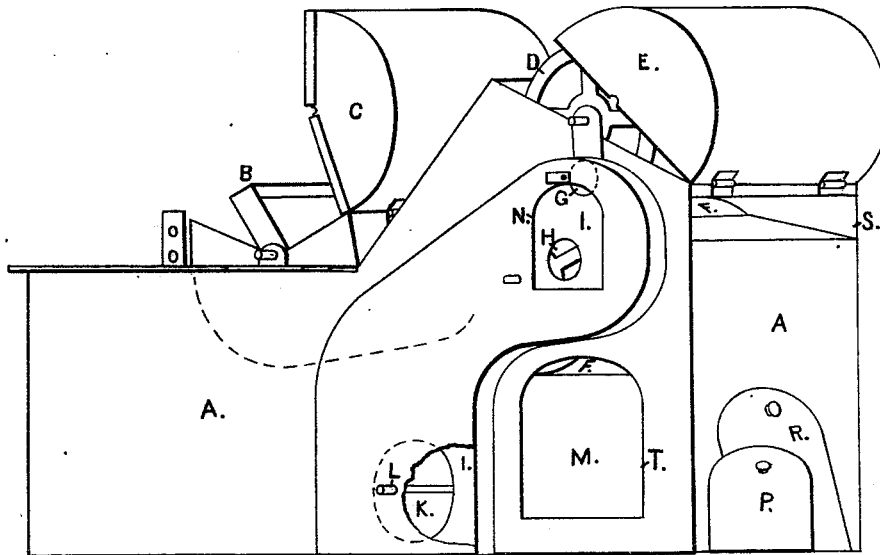


W. E. WHITEHEAD & A. T. ATHERTON.

COTTON-OPENER AND LAPPER.

No. 183,733.

Patented Oct. 24, 1876.



WITNESSES.

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INVENTORS

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# UNITED STATES PATENT OFFICE.

WILLIAM E. WHITEHEAD, OF MILES PLATTING, ENGLAND, AND ABEL T. ATHERTON, OF LOWELL, MASSACHUSETTS.

## IMPROVEMENT IN COTTON OPENERS AND LAPPERS.

Specification forming part of Letters Patent No. **183,733**, dated October 24, 1876; application filed June 8, 1876.

*To all whom it may concern :*

Be it known that we, WILLIAM E. WHITEHEAD, of Miles Platting, in the county of Lancaster, England, and ABEL T. ATHERTON, of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain Improvements in Cotton Openers and Lappers, of which the following is a specification:

The nature of our invention consists in the combination of a leaf-chamber, situated directly below the bottom cage-cylinder; an exhaust-fan, situated at one side of the leaf-chamber, and separated therefrom by an imperforate partition; and a dust pipe or pipes, extending obliquely from the end or ends of the cage-cylinder to the fan-chamber, substantially as hereinafter set forth.

The accompanying drawing represents our invention.

A is the frame of the machine. B is a beater, which acts upon the cotton. C is a hinged bonnet, which covers the beater. D is the top wire cage-cylinder, which acts in connection with the lower cage-cylinder in collecting the cotton after being operated upon by the beater. These wire cage-cylinders also serve the purpose of extracting from the cotton fine particles of dirt and leaf, which would otherwise be carried along with the cotton, to the detriment of the machinery which follows in the course of the further preparation of the cotton. E is a hinged bonnet over the top wire cage-cylinder, by means of which easy access is obtained to such cylinder for the purpose of removing therefrom all lint and other substances, which, by partially covering the meshes in the wire-netting, interfere with the successful working of the machine by preventing the escape of the air generated by the beater, and likewise the dust, &c., from the cotton. F is the lower wire cage-cylinder, through which a large amount of dust, leaf, and waste fiber of cotton passes, which is collected in the dust-chamber M beneath the same. G and H are openings through the frame of the machine, and located inside of the dust-pipe I, both being below the shaft of the upper cage-cylinder, so that the said dust-pipe may be entirely below the said shaft, and

thereby allow the bonnet of the upper cage-cylinder to uncover as much of the said cage-cylinder as desired, and opening respectively from the cage cylinders into the dust-pipe, for the passage of the air and dust from the cage-cylinders, through the dust-pipe I and opening K, to the exhaust-fan located within the frame forward of the cage-cylinder, so as not to occupy the room directly beneath the cage-cylinders, and revolved by the fan-shaft L. The dust-pipe I first extends forward from the ends of the cage-cylinders, and thence downward to the end of the fan-chamber, in order to allow free and direct access through the side of the machine into the dust-chamber M, located beneath the lower cage-cylinder. M is the separate dust-chamber, located directly beneath the lower cage-cylinder F, and receives the dust and leaf which pass through said cylinder. This dust-chamber also affords an easy opportunity to remove from the cage-cylinder any lint or foreign matter, which is continually collecting upon the cylinder, as upon the top cage-cylinder. N is an opening into the dust-pipe I, said opening, when the machine is in operation, being closed by the door P. The door R is for the purpose of closing the opening T into the dust-chamber M. S is a passage-way for the escape of the cotton after it has been operated upon by the different parts of the machine.

When the machine is in operation the cotton passes between feed-rolls or other devices to the beater B, which operates upon it and passes it to the wire cages D and F. These cage-cylinders collect it into a sheet, extract what dust and leaf that is possible from it, and deliver the cotton at the rear end of the machine through the opening S.

The advantages of our invention are these: By means of the peculiar shape of the dust-pipe I, in connection with the hinged cover E, we are enabled to obtain a direct draft by the fan from the cage-cylinders, and at the same time have easy access to the wire cage-cylinders, to keep them in perfect working order, as stated heretofore.

Dust-pipes of a similar action to those of our invention have been in use; but they have been so constructed as to render it impossible

to obtain access to the cage-cylinders without removing a great portion of the machine from the frame; and as it is necessary to clean these cage-cylinders frequently during each day, to insure perfect working of the machine, the merits of our invention, in this respect, are clearly apparent. Machines have also been constructed having a hinged bonnet; but they have perpendicular dust-pipes attached to the sides of the machines, and have their air-passages to the fan connected by means of large pipes, placed at right angles to the dust-pipes located within the frame, and occupying the greater portion of the machine, within which is located our dust and leaf chamber M. These pipes also, of necessity, come into close proximity with the lower cage-cylinder, so that the dust or dirt collected upon the pipes was continually in contact with the bottom cage-cylinder, thereby being taken up by the cage-cylinder and carried along with the cotton. Besides this, the dirt and dust upon the pipes, by continually being in contact with the cylinder, very soon wear off the bands which hold the wire-netting to the spiders, and thereby destroy the cylinder.

The dust-pipes, by being perpendicular, of necessity cover up that portion of the machine represented in our invention by the opening T into the dust and leaf chamber M, and, of course, prevent any access to the machine beneath the lower cage-cylinder without great

inconvenience, caused by removing portions of the working parts of the machine. So large a body of dust and leaf collects under the lower cage-cylinder within the dust-chamber M as to necessitate its removal a number of times every day.

We do not claim, in a machine for opening and cleaning cotton, a dust-pipe having a direct draft from the cage-cylinders to the fan, when the same is made in combination with a fixed bonnet over the top cage-cylinder. Neither do we claim, in a machine for opening and cleaning cotton, a hinged bonnet in combination with a perpendicular dust-pipe, the same being connected to the draft-fan by means of pipes connected thereto at right angles to said dust-pipe; but

What we do claim as our invention is—

In a machine for opening and cleaning cotton, the combination of a leaf-chamber, situated directly below the bottom cage-cylinder, an exhaust-fan, situated at one side of the leaf-chamber, and separated therefrom by an imperforate partition, and a dust pipe or pipes, extending obliquely from the end or ends of the cage-cylinder to the fan-chamber, substantially as and for the purpose herein specified.

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ABEL T. ATHERTON.

Witnesses:

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