

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

Cotton Opener and Lapper.

No. 160,558.

Patented March 9, 1875.

Fig. 1.

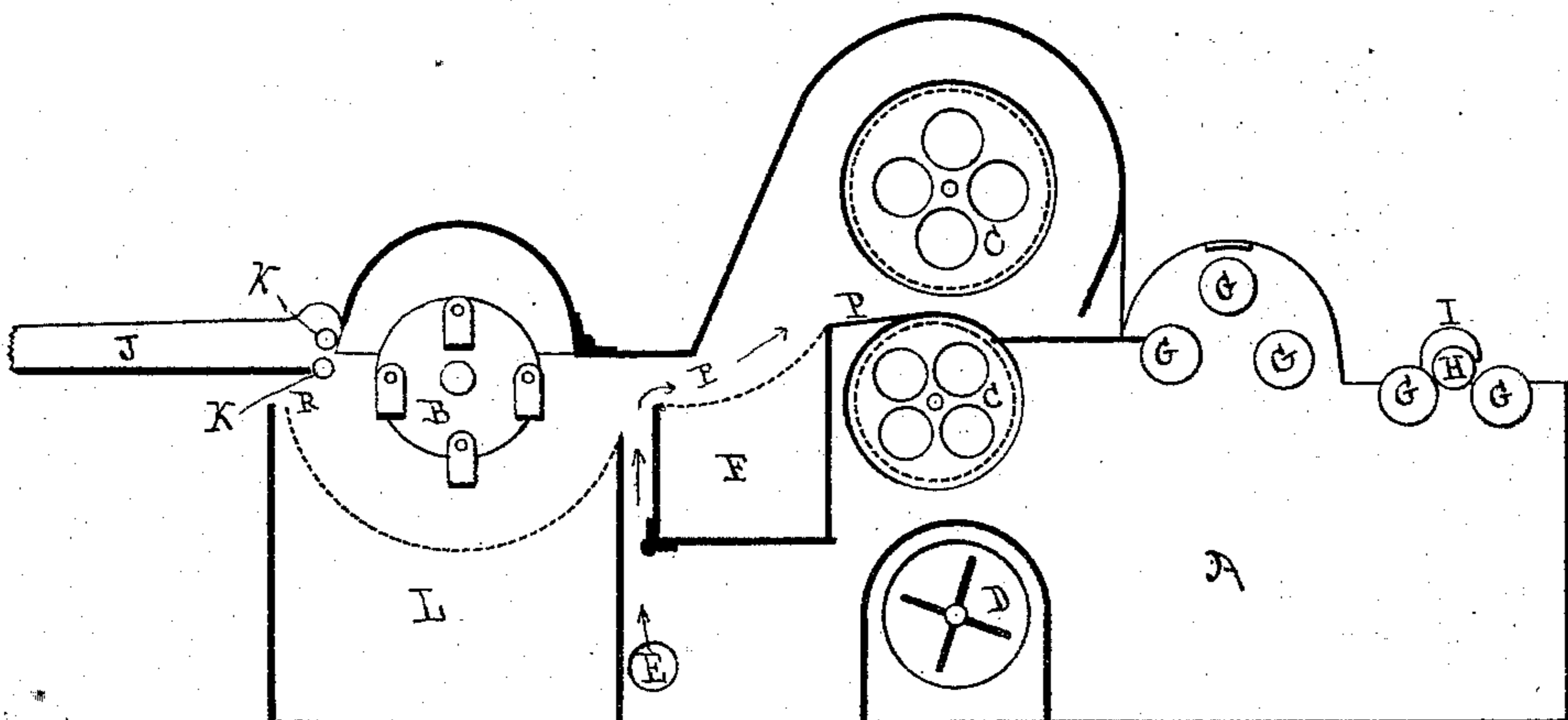


Fig. 2.

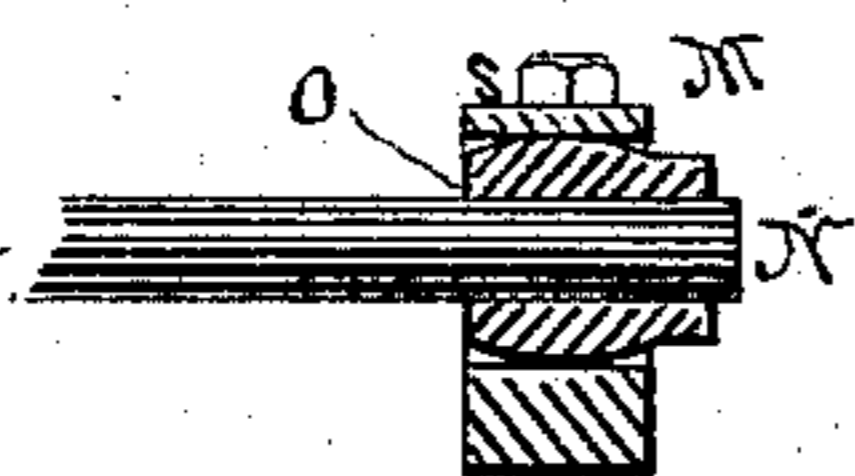
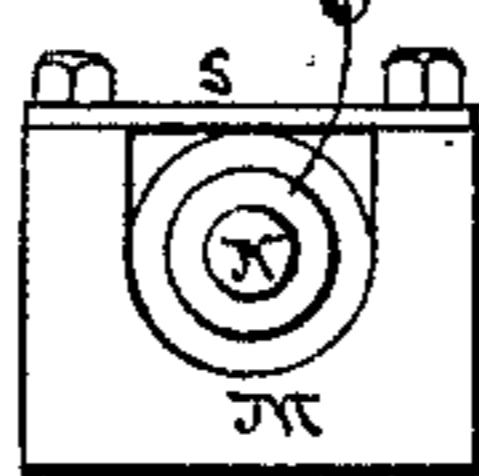


Fig. 3.



Witnesses.

Thomas Birchcliffe  
M. W. Conlan

Inventors

William E. Whitehead  
Abel T. Atherton

# 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. 160,558, dated March 9, 1875; application filed April 13, 1874.

*To all whom it may concern:*

Be it known that we, WILLIAM E. WHITEHEAD, of Miles Plating, 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, Lappers, &c., of which the following is a specification:

Our invention consists, first, in the construction of an air-passage outside of the chambers, beneath the whipper-cylinder, or other operating device, in order to furnish a current of air to assist the cotton onto the wire cages after it has been operated upon by said opening mechanism, and without the danger of a return to the cotton of the light particles of dust, &c., which have been separated from, and during the action of the opening mechanism upon, such cotton; secondly, of a journal-box consisting of a stand, movable bushing, and cap or plate, such journal-box being so constructed as to be capable of a lateral and horizontal adjustment.

The accompanying drawing represents our invention.

Similar letters of reference indicate corresponding parts of the machine.

A is the frame of the machine. B is the whipper-cylinder, composed of whippers loosely hung upon rods fastened to a reel or spider, such reel or spider being fastened to the shaft of such cylinder. C C are the wire cages upon which the cotton is collected after it has been operated upon by the opening mechanism. D is the draft-fan, by means of which all light particles of dust, &c., which escape through meshes of the wire cages, are drawn from the machine. E is an opening in the frame, outside of the dust-chambers, beneath the opening mechanism, by means of which a direct current of air is produced upon the cotton by the action of the draft-fan. F is a dust-chamber for the collection of all matters which may have been prevented from escaping into the chamber L. G G G G G are the calender-rolls, constituting, with the lap-roll H and device I, the lap-forming arrangement heretofore mentioned. J is the apron upon which the cotton is placed preparatory to its introduction to the opening mechanism by means of

the feed-rolls K K. L is a chamber formed beneath the opening mechanism, for the purpose of collecting and retaining all foreign matters removed from the cotton by the action of such opening mechanism. M is the stand, provided with set-screws and cap, which supports the adjustable bushing O, said bushing being turned "barreling" upon the part which rests in the stand M, and also on the part upon which presses the plate S. N is the shaft of the opening mechanism, resting in the bushing O. The upper surface of the stand M, upon which the bushing rests, and the lower surface of the cap S are made flat, to allow of the endwise adjustment of the bushing, which result could not be accomplished if the surfaces above referred to were made concave, as heretofore. P P is the passage-way for the cotton from the opening mechanism to the wire cages. R is an opening under the feed-apron to admit the air to supply the whipper-cylinder. S is a plate, fastened to the stand M by screws, and by means of which the bushing O is held in place.

When the machine is in operation the opening mechanism separates the cotton from the seed, sand, leaf, and whatever other impurities may be connected with it, after which it is intended to pass these impurities through the screen into the dust-chamber L, retain them there, and remove the same at leisure.

In other machines an air-passage is provided from the outside into the dust-chamber L, to supply both beater and fan with air; and as the current of air must pass up through the screen in order to furnish beater and fan, the greater portion of the leafy and other light foreign substances is necessarily forced back through the screen, or prevented from ever entering the dust-chamber L, and passes with the cotton to the wire cages, and from thence to the lap-roll. By our invention we admit the air to supply the beater at the opening R, and to supply the fan at the opening E; and by having no opening into the dust-chamber L for the admission of the air, no draft is created, and the foreign substances, once passed therein, remain there. Another advantage in the position of our opening E is, that we obtain a direct current of air, as in-

licated by the arrows, which we have found to be of the greatest advantage in assisting the cotton to the wire cages, and prevent such cotton from "clogging" previous to its arrival at the wire cages. Another advantage is, that by means of such current of air the cotton is distributed evenly over the surface of the wire cages, and a very even lap is formed on the lap-roll.

There is always a great amount of sand and other foreign matter in connection with the cotton when the same is acted upon by the beater. These foreign matters are continually collecting on the bearings of the beater and cause the collar of the shaft to cut the box, thereby in a short time destroying its efficacy. To remedy this defect, and also to accommodate the beater to any settling of the floor or machine, we have invented a journal-box, consisting of a stand, bushing, and plate or cap, such journal-box being capable of being adjusted lengthwise, and of accommodating itself to obviate the trouble above mentioned.

In all machines heretofore made in which loose whippers have been used, the cotton has simply been passed out of the machine at its rear end and delivered on the floor. This course necessitated the use of another machine to form such cotton into a lap for the carding-engines, thereby involving considera-

ble expense in the employment of more machines and laborers to operate them. By the combination of a lap-forming with an opening mechanism but one operation and machine is necessary from the time the cotton is taken from the bale until it is prepared in the form of a lap for the carding-engine. Heretofore, by the use of a rigid beater, the cotton could not be sufficiently well prepared for the carding-engines after passing through one machine; but the action of our whipper arrangement is such that but one machine is necessary to prepare the cotton direct from the bale for the carding-engines.

We claim as our invention—

1. The combination of a beater and the two separate dust-chambers L and F with the air-opening E, isolated from both chambers, as and for the purpose set forth.

2. The combination, with the shaft N and adjustable bushing O, of the stand M and plate S, the upper surface of the former and lower surface of the latter being made plain, to allow endwise adjustment of the bushing, as and for the purpose set forth.

WILLIAM ED. WHITEHEAD.

ABEL T. ATHERTON.

Witnesses:

THOMAS HINCLIFFE,  
M. W. CONLAN.