

(No Model.)

2 Sheets—Sheet 1.

J. C. POTTER.

MACHINE FOR OPENING AND CLEANING COTTON AND OTHER FIBERS.

No. 321,851.

Patented July 7, 1885.

Fig. 1.

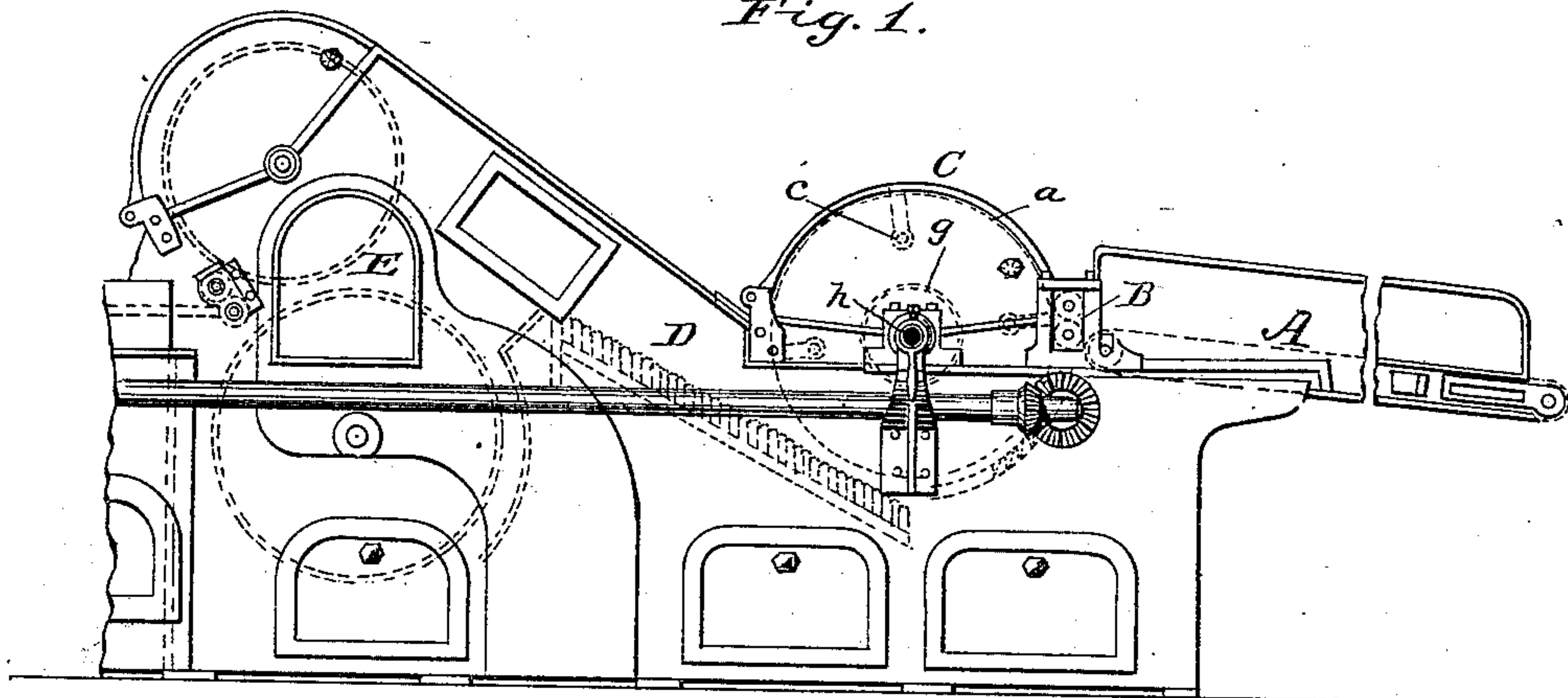
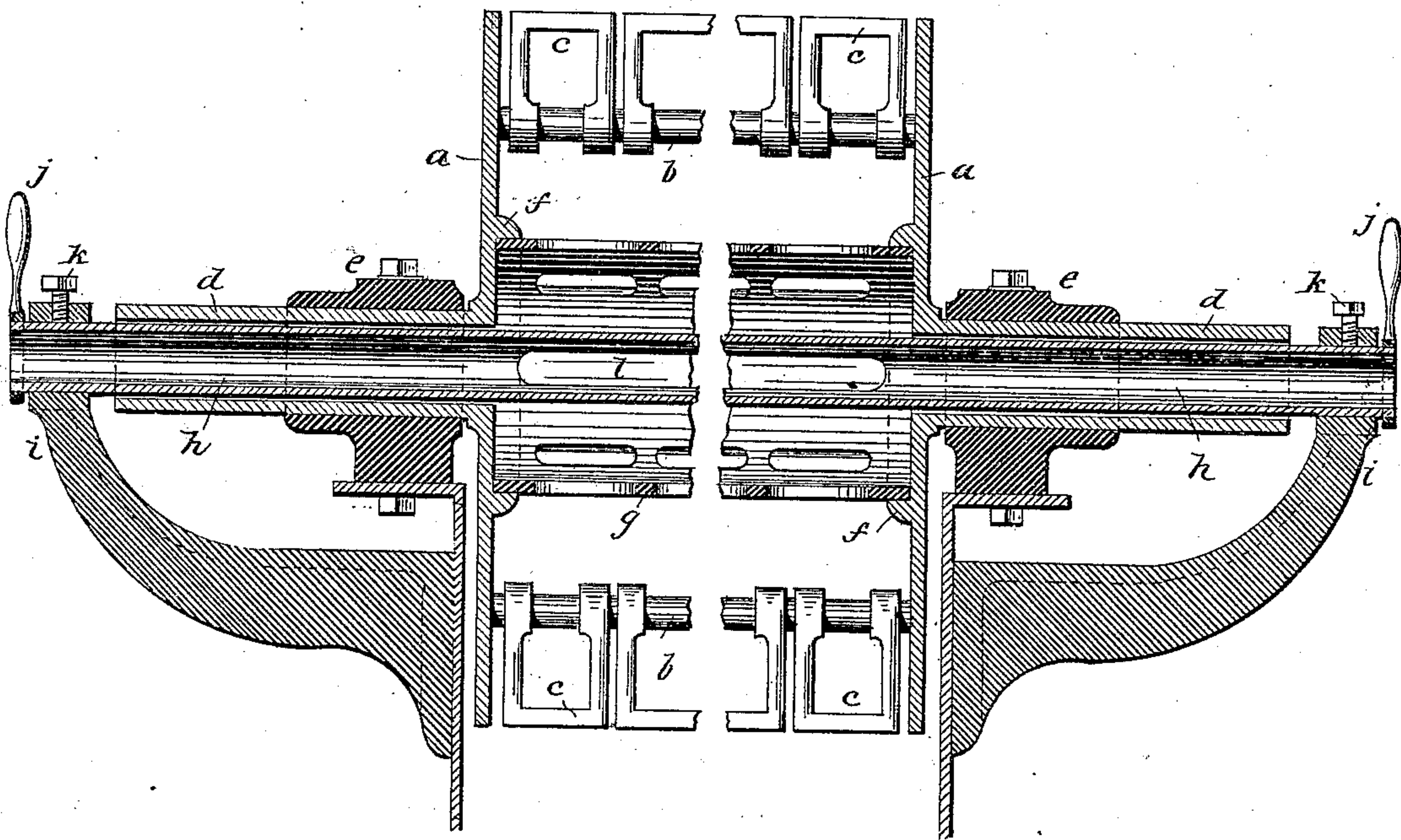


Fig. 2.



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Inventor:

Jas. C. Potter  
by Marshall Bailey  
his attorney

(No Model.)

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Fig. 3.

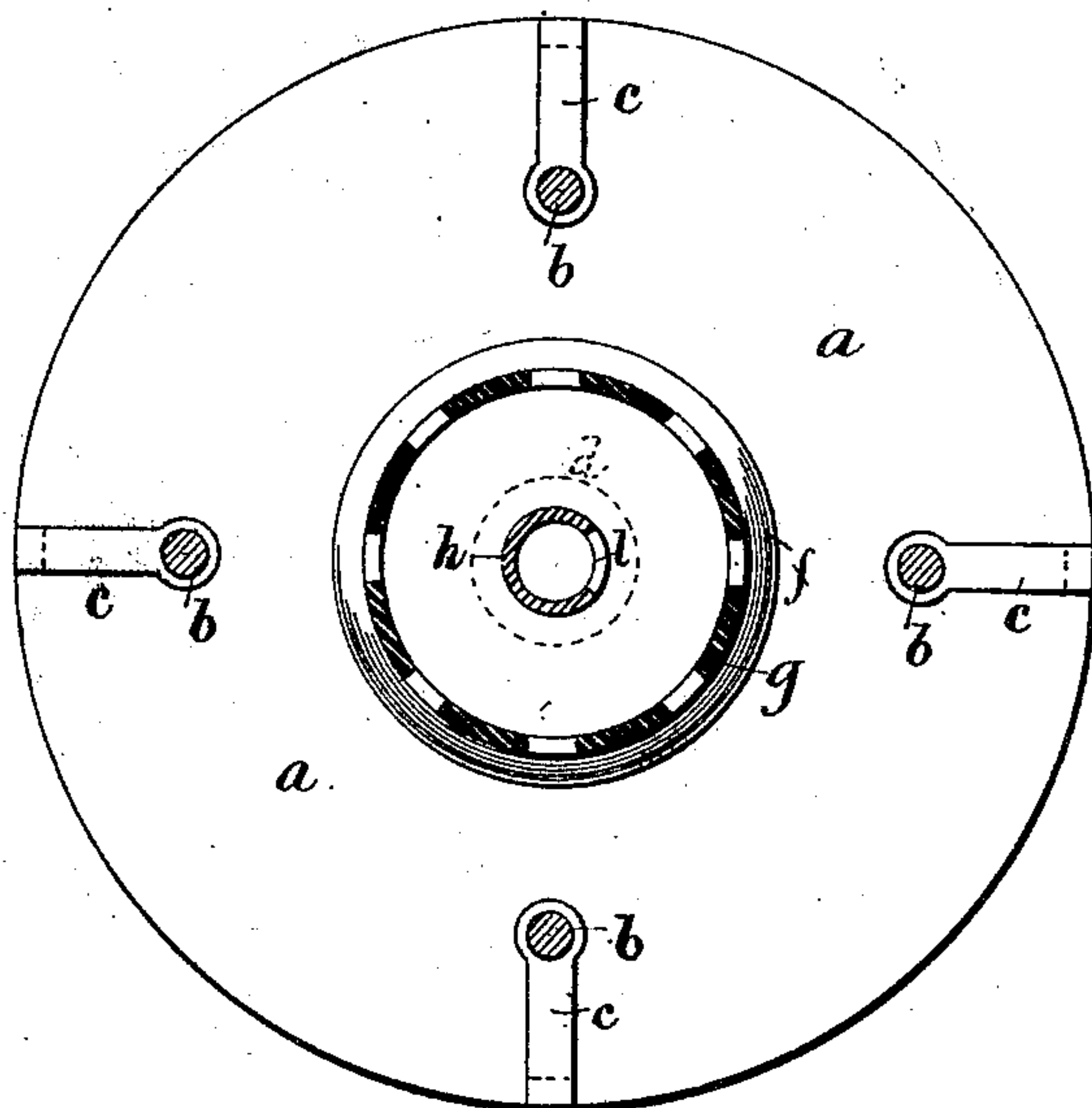
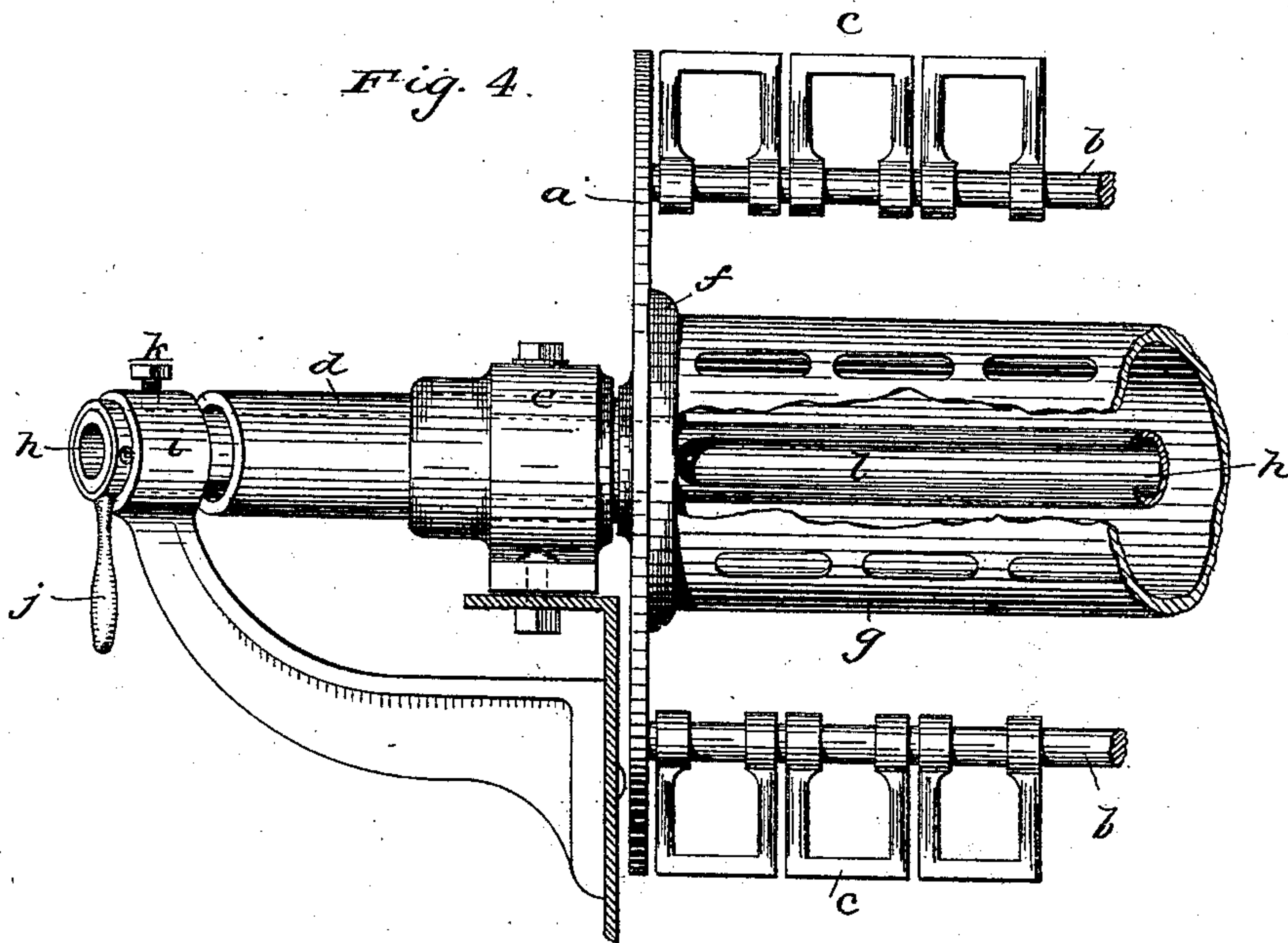


Fig. 4.



Witnesses:

H. N. Low  
J. Walter Blandford

Inventor:

James C. Potter  
by Marcellus Bailey  
his attorney



# UNITED STATES PATENT OFFICE.

JAMES C. POTTER, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE  
ATHERTON MACHINE COMPANY, OF SAME PLACE.

MACHINE FOR OPENING AND CLEANING COTTON AND OTHER FIBERS.

SPECIFICATION forming part of Letters Patent No. 321,851, dated July 7, 1885.

Application filed March 31, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. POTTER, of Lowell, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Machines for Opening and Cleaning Cotton and other Fibers, of which the following is a specification.

This invention relates to machines for opening and cleaning cotton and other fibers, and it has reference more particularly to means for preventing the material operated on by the beater or opening cylinder from sticking to or gathering upon the same, and for assisting the proper passage of the material through the machine. As the instrumentality for this purpose I make use of air, which, during the revolution of the beater is taken in from the outside at the ends of the cylinder, and is thence discharged continuously through peripheral perforations or openings in the cylinder, so as to blow from the acting arms, blades, or teeth of the beater the fiber which otherwise might gather there and thus clog this part of the machine. This taking in and discharge of the air is induced by the rapid revolution of the cylinder, which in itself and without extraneous assistance is sufficient in most, if not in all, cases, for the purpose. I remark at the outset that this feature, broadly considered, is not new with me.

In British Patent No. 5,016 of A. D. 1824, a beater-cylinder is shown and described having annular end openings around its trunnions for taking in a continuous supply of air from the outside, and peripheral slits or perforations for the continuous discharge of this air at all needed points on the beater, in order to blow away the cotton from the acting-surface of the beater and to prevent the fiber from clogging the same.

In a later British Patent, No. 1,138 of A. D. 1857, the beater, in this instance of the "porcupine" type, is formed as in the patent first-above referred to, with a hollow perforated or slitted shell, and has hollow end bosses or trunnions to permit the passage of a stationary air-supply pipe carrying an air-supply chamber throughout its whole length, and having the opening laid close up against the inner wall or side of the perforated shell, so that the air from the chamber discharges

through the successive perforations or slits in the shell as they successively are brought opposite to the opening in the air-chamber during the rapid revolution of the beater. In this case a blower or fan is used in connection with the stationary pipe to insure the requisite supply of air.

In a still later and quite recent case in this country the stationary air-supply pipe and chamber connected therewith have been dispensed with, and the fan or blower has been arranged to discharge air directly into the perforated shaft or shell of the beater, in this instance of the type known as "skeleton" beater.

In practice I have found it desirable to provide means for modifying and controlling the discharge of the air, in order to obtain from it the best results, both as concerns keeping the beater clear of clogging fibers, and as concerns the passage of the fibers through the machine; and it is to this end that my present improvement is directed. In carrying it out I make use of a beater cylinder, shell, or shaft perforated or slitted and supplied with air from the outside, as in the British patent first-above cited, and I supply the air to the interior of the same by a slotted pipe passing through the journals or trunnions of the cylinder, as in British Patent No. 1,138 of 1857, said pipe being stationary in the sense that it does not rotate with the cylinder. I do not, however, find it necessary to connect this pipe with a fan or blower, nor do I arrange it with its opening against the inside walls of the cylinder in such manner that air is discharged through the successive slots or perforations of the revolving cylinder; but I place it so that it is out of contact with the walls of the cylinder, thus insuring continuity of the air-current through all the perforations, as in British Patent No. 5,016 of A. D. 1824. This air-supply pipe is made adjustable—that is to say, it can be rotated on its axis, so as to turn its air-discharge slit or slot toward or away from the feed end of the machine more or less, as desired. By thus adjusting the air-supply pipe, I can modify and control the air-currents, so as to obtain with precision and ease the desired action of the same upon the fibers, as they pass from



the beater to the usual collecting-cages. Machines of this class are frequently provided with glass windows through which the action of the machine can be watched. By observing the fibers as they are driven along to the collecting-cages, and at the same time turning the air-supply pipe in one direction or the other, as circumstances may demand, the adjustment can be made accurately and quickly.

This improvement is applicable generally to the beaters of machines for opening cotton and other fibers. In the accompanying drawings I have represented it as applied to a cotton-opener of the "Whitehead and Atherton" type—such, for instance, as set forth in Patent No. 240,484.

Figure 1 is a side elevation of so much of the machine as is needed for the purpose of illustration. Fig. 2 is a vertical axial section of the beater-cylinder together with its bearings, and also those of the air-supply pipe. Fig. 3 is a cross-section of the beater. Fig. 4 is a side elevation of a portion of the cylinder, together with parts adjacent thereto.

The machine being of well-known type requires no detailed description. It is sufficient to say that A is the feed-apron. B are the feed-rolls. C is the case containing the rotating beater. D is the grid-passage (indicated in dotted lines) leading from the beater-case to the case containing the revolving collecting-cages E, also indicated in dotted lines. A machine of this general kind is illustrated in the above-named Letters Patent No. 240,484, which may be referred to for further information. The beater itself is the Whitehead and Atherton whipper-beater, illustrated in Re-issued Patent No. 7,159, consisting of heads *a*, between which extend rods *b*, on which are hung the whippers *c*. The heads are cast in one with hollow hubs or trunnions *d*, which are supported, as usual, in suitable bearings, *e*, on the frame of the machine. On the interior opposite faces of the hub are cast annular

flanges *f*, within which fit, and are secured by bolts or other suitable means, the ends of a perforated metal cylinder or shell, *g*, which extends between the two heads. This is the perforated cylinder or shell from which the air taken in from the outside is continuously discharged through all the perforations. The air for this purpose is supplied through the air-supply-pipe *h*, which passes centrally through the trunnions *d* and the perforated shell *g*, and is supported in place by bracket-bearings *i*, which receive the ends of said pipe that project beyond the trunnions. One or both ends of the pipe, with a view to convenience of adjusting it, may be provided with a handle, *j*, or the like; and a set-screw, *k*, is provided in each bearing *i* to fasten the pipe in place after it has been properly adjusted. That portion of the pipe within the perforated cylinder is slotted longitudinally, as indicated at *l*, and through this slot passes the air which is supplied to the perforated cylinder.

I have described in the first part of this specification the function and mode of operation of these air-supplying devices, and the same need not be repeated here.

Having described my improvement and the best way known to me of carrying the same into practical effect, what I claim, and desire to secure by Letters Patent, is—

The combination, with the beater provided with a hollow perforated cylinder or shell and hollow trunnions, of the slotted air-supply pipe extending through said cylinder and trunnions, and supported in end bearings in which it can be rotated or turned for purposes of adjustment, substantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 26th day of March, 1885.

JAMES C. POTTER.

Witnesses:

A. T. ATHERTON,  
E. E. RIPLEY.