

(No Model.)

3 Sheets—Sheet 1.

J. T. FULLER.
PNEUMATIC COTTON HANDLING MACHINE.

No. 604,037.

Patented May 17, 1898.

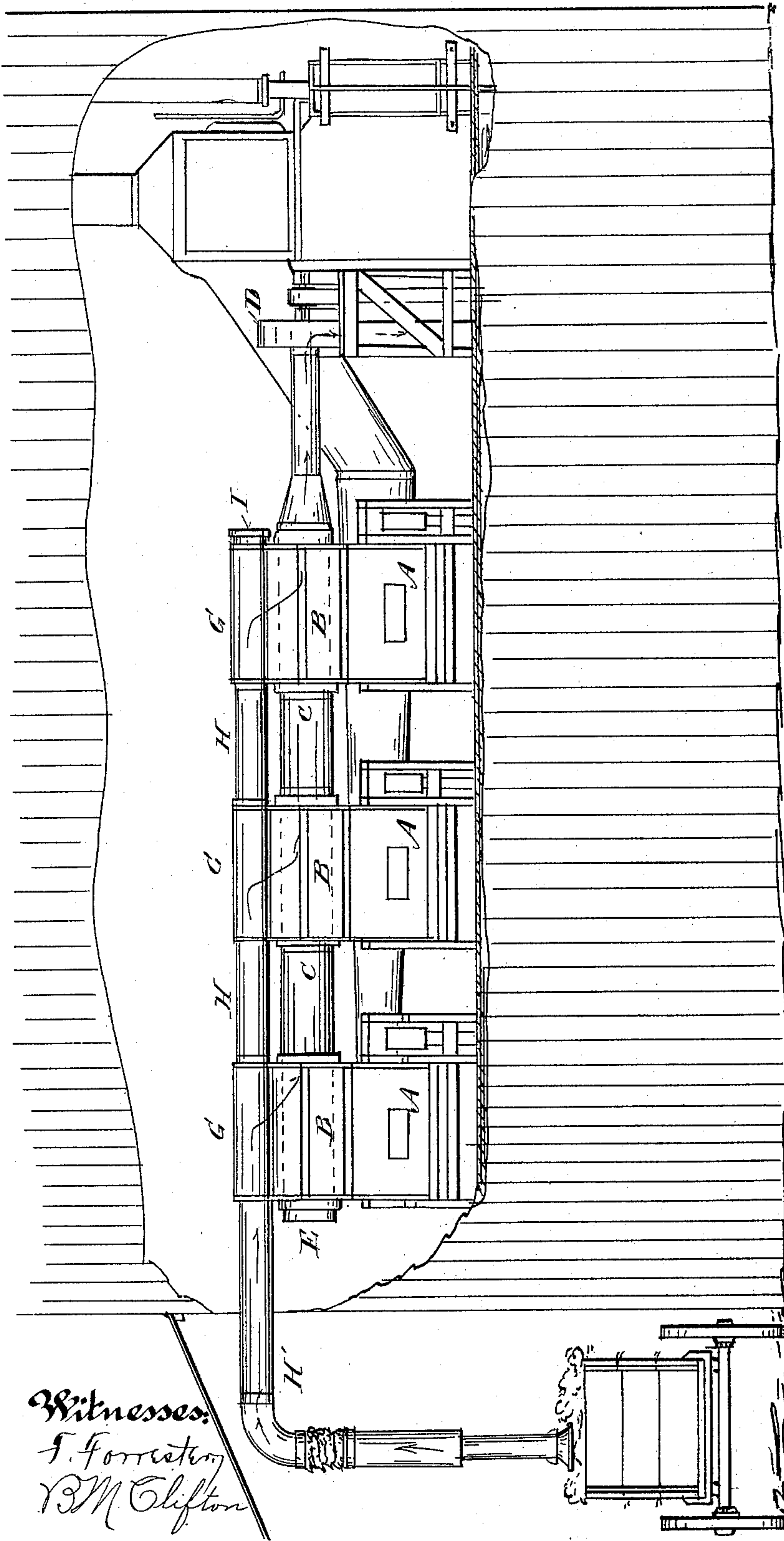


Fig. 1.

Witnesses:

J. Forrester
W. M. Clifton

Inventor,

James T. Fuller.

By W. M. Clifton.

Atty

(No Model.)

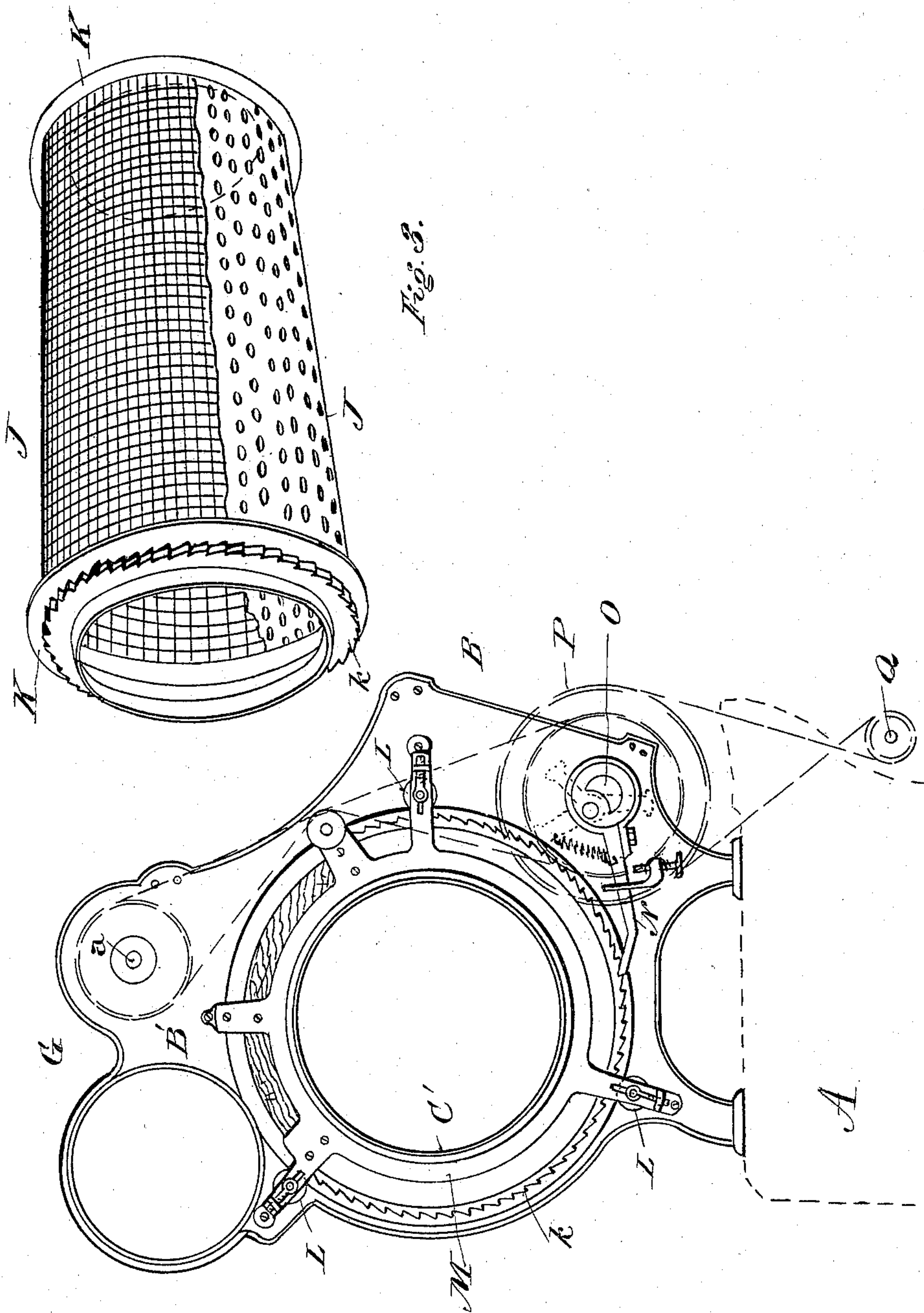
3 Sheets—Sheet 2.

J. T. FULLER.

PNEUMATIC COTTON HANDLING MACHINE.

No. 604,037.

Patented May 17, 1898.



Witnesses:
F. Forrester
B. M. Clifton

Inventor
James T. Fuller,
By H. M. Raisted,
his Atty.

(No Model.)

3 Sheets—Sheet 3.

J. T. FULLER.
PNEUMATIC COTTON HANDLING MACHINE.

No. 604,037.

Patented May 17, 1898.

Fig. 5.

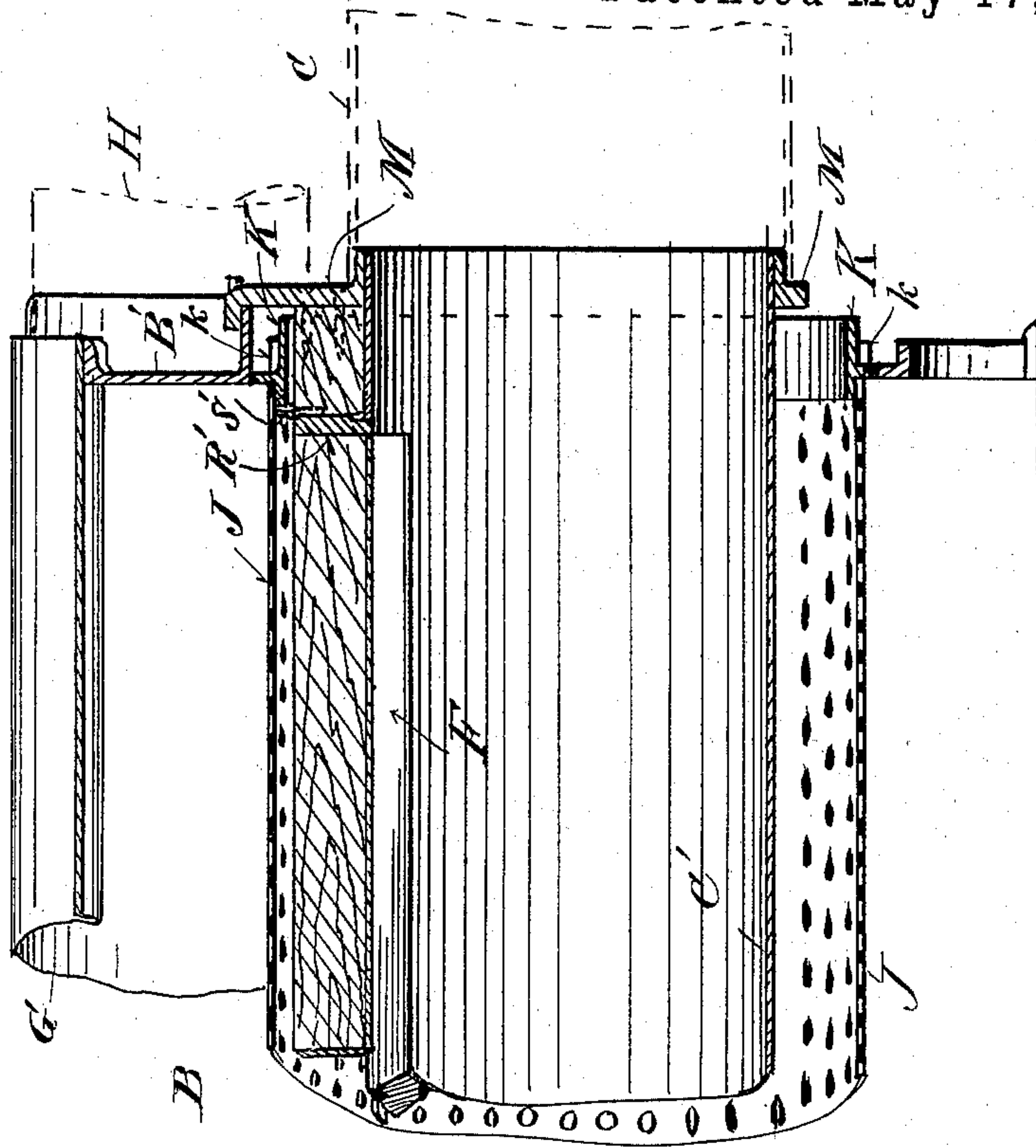
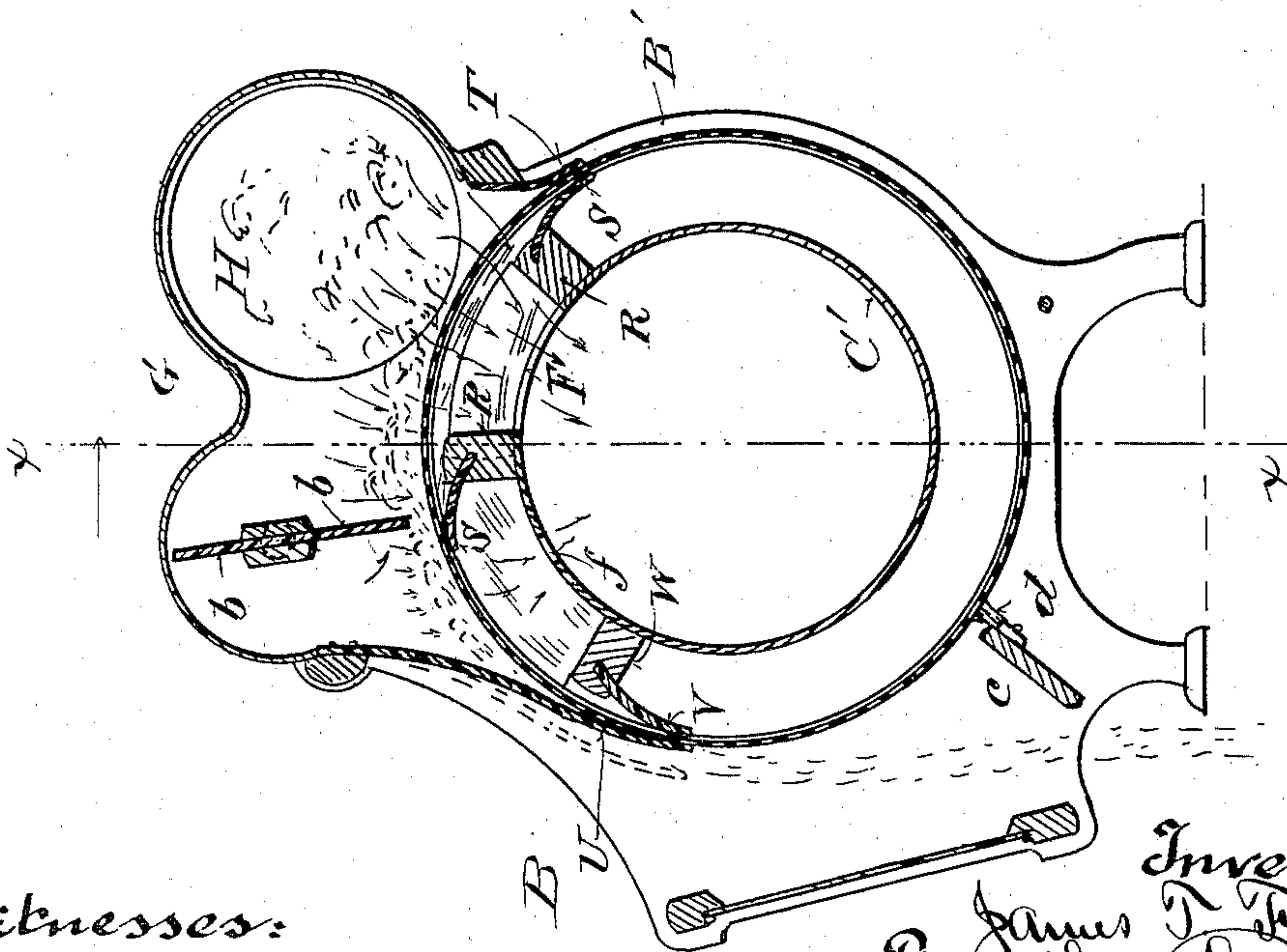


Fig. 4.



Witnesses:
F. Forrester,
B. M. Chilton

Inventor
By James T. Fuller
His Atty.

UNITED STATES PATENT OFFICE.

JAMES T. FULLER, OF CALVERT, TEXAS.

PNEUMATIC COTTON-HANDLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 604,037, dated May 17, 1898.

Application filed February 25, 1897. Serial No. 625,040. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. FULLER, a citizen of the United States, residing at Calvert, in the county of Robertson and State of Texas, have invented certain new and useful Improvements in Pneumatic Cotton-Handling Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in machines for the pneumatic handling of cotton, whereby it is elevated, cleaned, distributed, and fed directly to the gins. The peculiarities of this construction will be hereinafter fully described and claimed.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a set of gins with my improved system applied thereto; Fig. 2, an elevation of one of my pneumatic feeders; Fig. 3, a detail view of my rotatable screen-cylinder detached; Fig. 4, a transverse sectional view of my pneumatic feeder; Fig. 5, a partial sectional view of the same on the line X X, Fig. 4.

Referring to Fig. 1, the letters A A A represent any approved type of gins to which cotton is to be fed. Upon the top of each gin is a feeder B, connected at the centers or otherwise with a pipe C, at one end of which is located the exhaust-fan D, operated by suitable machinery. Within the feeders B is a cylindrical pipe C', supported by the ends B', Fig. 5, and matching with the connecting-pipes C to form a continuous dust-pipe. A cap E on the last feeder closes the end of the pipe. Thus an air-chamber is formed, from which the air is more or less exhausted by the fan D. An opening F in the cylinder C' provides an inlet for the dust-laden air from the hood-top G of the feeder, connected by the pipes H and H', leading to the intake for the cotton in the wagon, warehouse, or elsewhere. A cap I closes the open end of the cotton-supply pipe opposite the intake. Within each feeder and surrounding the section C' of the dust-pipe is located a cylindrical screen J, of perforated metal, wire, or other suitable material, having at its ends bearing-rings K, by which it is rotatably mounted upon rollers L, which are adjustably carried by a spider M,

which surrounds the dust-pipe. A flange on the hub of the spider conveniently forms a sleeve for the connecting-pipes C between the feeders. The collar K also has ratchet-teeth k, which are engaged by the pawl N, mounted eccentrically on the shaft O, supported by the feeder-frame, and rotated by a pulley P, belted to the gin-shaft Q or otherwise. Other means for rotating the screen-cylinder may be employed.

The sides of the opening F have air-stops R R, provided with packing-strips S bearing against the interior of the screen-cylinder in opposite directions, as shown in Fig. 4. Each end of the opening F is likewise protected by an air-stop and packing-strip R' S', Fig. 5. An exterior air-stop strip T is mounted opposite the packing-strip on one side of the opening F, while a flexible valve U closes the opposite side of the chamber formed in the top of the feeder. The valve U is preferably secured at one edge of the hood-top of the feeder and contacts with the exterior of the screen-cylinder at its lower edge, but opens freely outward for the passage of the cotton-bat as the cylinder rotates and delivers it into the breast of the gin below. An interior air-stop and packing-strip W V is mounted on the pipe opposite the lower edge of the valve U and acts therewith to prevent the entrance of air from outside. Between the stop W and the adjacent stop R one or more small openings f are formed in the pipe C'. The loose cotton, drawn through the intake-pipe by the air-currents, will be carried along the pipes H and H', forming a supply-pipe with the hoods of the feeders, and will be drawn down upon the rotating screen-cylinders and carried onward in a continuous bat out of the respective valves U. The cotton will follow strongest air-currents, and thus leave no exposed portion of the screen uncovered, while the dust-laden air will be carried downward through the screen into the dust-chamber pipe. To facilitate the formation of an even layer of cotton and to prevent clogging, I provide a leveler in the top of the feeder, consisting of a rotatable axle a with blades b, turning against the travel of the bat upon the screen-cylinder. The leveler is driven by pulley and belt from the shaft O or otherwise, and is preferably located so as to act on the bat of

cotton opposite the middle stop R and throw backward any surplus thickness. The blade *b* is preferably flexible—such as rubber, canvas, belting, or other suitable material. As the bat passes onward from the opening F, opposite the smaller opening *f*, the suction is reduced, while still sufficiently maintained to hold the bat upon the cylinder until it passes the valve U and corresponding strip V, when it is released from the suction of the fan and readily discharges from the screen. The guide-board *c* carries a stiff brush *d*, that contacts with the outside of the screen-cylinder to arrest clinging particles of cotton and clean the screen. A leveler acts upon the layer of cotton just at the point where the heavy suction ceases and the lighter suction begins, thus readily removing the surplus cotton and delivering an even, smooth bat to the gin-breast.

When the gin is to be stopped, the driving mechanism of the feeder is disengaged by throwing out ratchet-pawl N or otherwise stopping the screen-cylinder, whereupon a mat of cotton is formed opposite the air-inlet F, and as the cylinder does not now revolve the supply-pipe will carry the cotton past this feeder and distribute it among the other feeders. The amount of feed is controlled by the speed of the screen.

I prefer to use a perforated metal screen for the cylinder J to effect tight joints at the packing-strips. I do not confine myself to this particular kind of screen, however, and in Fig. 3 have shown both wire and perforated metal.

It will be observed that the portion of the hood opposite the large inlet-opening to the dust-cylinder forms practically a continuation of the connecting supply-pipe sections between the hoods. In other words, the hood forms a portion of the supply-pipe, open at the bottom and practically on a level with the screen, which latter thus forms a temporary bottom or guide to the currents of air carrying the loose cotton along as it is distributed to the several feeders.

While it is desirable that the leveling device should be used, yet it may be dispensed with and the hood more or less reduced in size. One or more inlet-openings and any suitable packing may be employed.

It will be observed by referring to Fig. 4 that a portion only of the rotating screen is subject to the exhaust-fan—viz., the upper portion, opposite the openings into the dust-chamber, which are covered by the hood of the casing. I may inclose more or less of the circumference of the screen by increasing or diminishing the protecting hood or casing, as circumstances may require. It is preferred, however, to construct the machine in the relative proportions substantially as shown and herein described. Thus the imperforate portion of the inner dust-chamber cylinder forms a bottom for the hood or matching outer portion of the casing, and the packing

on the inside and the outside of the rotating screen makes the contents of the dust-chamber and the hood and the connecting supply-pipes all subject to the suction of the exhaust-fan, as hereinbefore described.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bank of gin-feeders, each feeder comprising end plates and a pipe-like hood open at the side thereof toward the center of the feeder, an air-tight dust-pipe open at the side thereof opposite to the said hood-opening, a revoluble perforated cylinder surrounding said dust-pipe, and forming the bottom of said hood substantially in line with the bottom of the connecting-pipes between adjacent hoods, means to rotate said perforated cylinder, opposing packing-flaps placed against said perforated cylinder for the hood and the dust-pipe, and sets of pipe connections for the hoods and dust-pipe, whereby a continuous supply-pipe with lateral openings opposite the feeders is formed, in combination with an exhaust-fan communicating with said dust-pipe, an intake-pipe communicating with the hood-sections, and adapted to supply the cotton to said feeders under the suction produced by said fan.

2. A bank of gin-feeders located in an axial line, each comprising end plates B', pipe-hood G, a central dust-pipe C supported by said ends and open laterally at F toward said hood, a perforated cylinder J rotatably mounted and surrounding said dust-pipe, packing for the joints at said lateral openings in the hood and dust-pipe respectively against said perforated cylinder, means to rotate said cylinder, pipe-sections C and H for connecting the dust-pipes and pipe-hoods respectively, an intake connection for one end of said pipe-hood, a cap for the other end of the line of hoods, an exhaust-fan for one end of said dust-pipe, and a cap for the other end of the line of dust-pipes and connections.

3. A gin-feeder comprising end plates B', offset substantially as shown, and a pipe-hood G with an opening below, a dust-pipe passing through said plates, spider and ring supports for said dust-pipe, a perforated cylinder J having a ratchet on one end and mounted to rotate around said dust-pipe in said offset end plates, a push-pawl engaging said ratchet at one end, and an eccentric connection at the other end of the pawl.

4. A pneumatic gin-feeder comprising a central dust-chamber having a large and a small inlet-opening at the side, a screen-cylinder encircling said dust-chamber, packing-strips around said openings filling the interposed space between said chamber and screen-cylinder, a hood above said packed openings, matching packing-strips between said hood and screen-cylinder, means to allow the exit of the cotton-bat, a rotatable leveler in said hood adapted to act on the bat as it passes away from said large opening, and exhaust

means to effect a suction of the air through said inlet-openings to the dust-chamber, and hold the bat with varying pressure as the screen carries it past said inlet-openings.

- 5 5. A pneumatic gin-feeder comprising a central dust-chamber having large and small inlet-openings, a rotatable screen-cylinder encircling said chamber, interior packing interposed around and between said inlet-openings and the screen-cylinder, a hood above
10 said openings, exterior packing between the hood and cylinder matching the interior pack-

ing, a rotatable leveler consisting of a shaft having flexible blades mounted opposite the interior middle packing, a supply-pipe and 15 exit-opening for the cotton-bat for said hood, and exhaust means communicating with said dust-chamber.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES T. FULLER.

Witnesses:

JAMES J. LAUDERDALE,
H. ALBERT BYBEE.