

(No Model.)

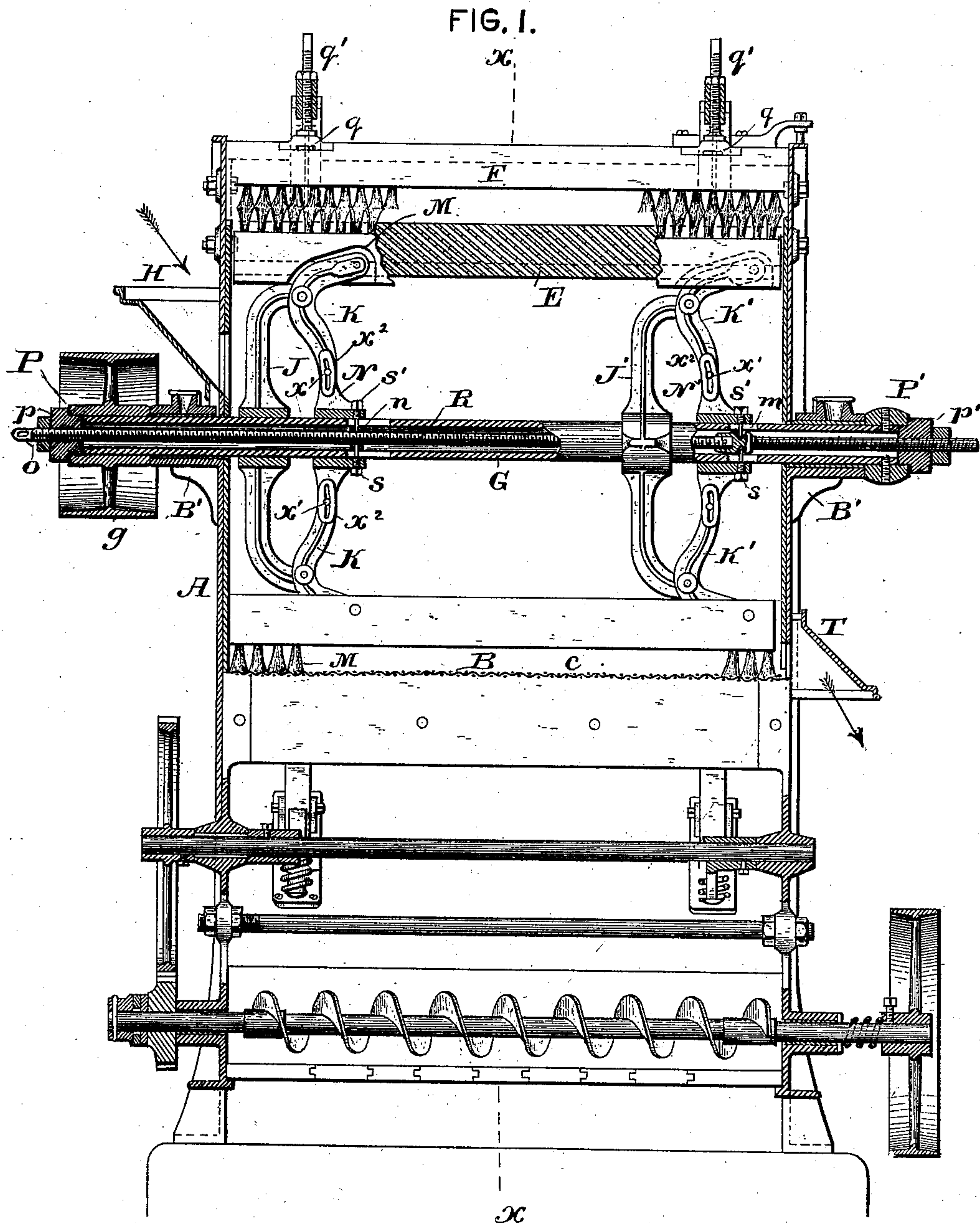
2 Sheets—Sheet 1.

J. B. ALLFREE.

BRAN DUSTER.

No. 373,327.

Patented Nov. 15, 1887.



ATTEST.

J. Henry Kaiser.  
C. Everett Ellis

INVENTOR.

James B. Allfree  
By atty J. M. C. Squire

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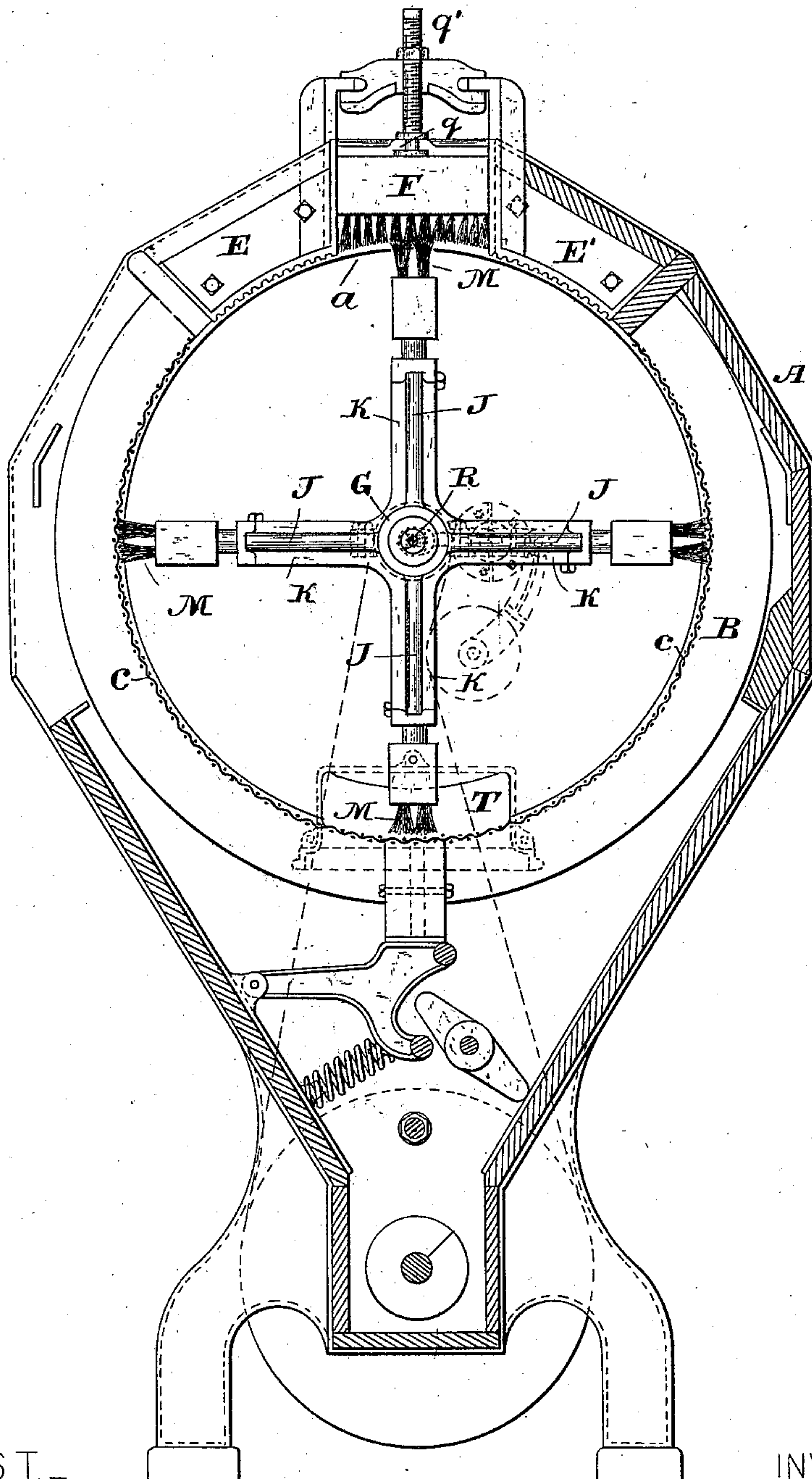
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FIG. 2.



ATTEST—

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E. E. Ellis

INVENTOR—

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# UNITED STATES PATENT OFFICE.

JAMES B. ALLFREE, OF CUMBERLAND, MARYLAND.

## BRAN-DUSTER.

SPECIFICATION forming part of Letters Patent No. 373,327, dated November 15, 1887.

Application filed June 1, 1886. Serial No. 203,807. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. ALLFREE, a citizen of the United States, residing at Cumberland, in the county of Alleghany and State of Maryland, have invented new and useful Improvements in Bran-Dusting Machines, of which the following is a specification.

This invention relates to improvements in bran-dusters; and it consists, substantially, in such features of construction and combinations of parts as will be distinctly pointed out and claimed.

The objects of the invention will be more fully understood from the description herein-after following, but it may be here stated, briefly, that the principal object is to provide simplified and effective devices by which the lighter particles of bran will be carried through and out of the machine more rapidly than the heavier particles, thus securing more action on the particles requiring the greatest amount of treatment than is obtained by many former inventions of a like character; further, to supply simplified means or devices for adjusting the revolving brushes employed, either at one end or at both ends, simultaneously, as the case may require, without opening or in any way dismantling the machine, and so as to keep said brushes in proper relationship to the wire cylinder in which they revolve.

There have been former inventions for the accomplishment of like objects, but many are found to be more or less defective in operation, and, besides, resort is made to mechanism or devices substantially differing from such as are herein employed.

In the annexed drawings, Figure 1 is a longitudinal section of the practical operative parts of the machine. Fig. 2 is a cross-section of same, taken in the vertical plane indicated by dotted line  $xx$  on Fig. 1.

In the annexed drawings, A represents the frame or case of the machine, provided on its interior with a fixed cylinder, B, composed in part of wire C, of the usual construction, and in part of two metal plates, E E', having their inner surfaces grooved diagonally, a space,  $a$ , being left between the plates, in which is fitted (thus completing the cylinder,) an adjustable brush, F. The case is also provided at its "head" with an inlet, H, and at the "tail" with an outlet, T. Attached centrally to the

ends of the case are bearings B', in which is adapted to be rotated the horizontal shaft G by means of the pulley  $g$ . This shaft is made tubular and of such dimensions as to admit the rod R, which has formed thereon at one part of its length the double collar  $m$ , and at another part has screwed thereon the nut  $n$ , the collar and nut being of such form and size as to fit neatly in the tubular shaft and to be capable of being moved freely therein.

On the inside of the machine, secured by suitable means to the shaft G, are spiders J J', having the ends of their arms bent, and adapted to have the levers K K' pivoted thereto. These levers are pivoted at or near their angle to the spiders J J', and are provided with curved slots  $x^2$ , in which studs protruding from the arms of sleeves N N' are received, so that their inner ends can be actuated by the said movable sleeves N N' on the shaft G. The sleeves are adapted to receive and hold firmly the inner ends of the levers K K', and are arranged to slide longitudinally on the shaft G, and at the same time are prevented from rotating thereon by means of screw-pins  $s s'$ , which are screwed into the sleeves, as shown, and pass through longitudinal slots in the shaft G far enough to take into or engage the nut  $n$  and the collar  $m$ .

Brushes M, long enough to sweep the whole length of the interior of the machine and of appropriate width, are attached to the outer ends of the levers K K', parallel to the axis of the shaft, as shown in Fig. 2. Said brushes are firmly held in position by the parts described, and are also free to rotate with the horizontal tubular shaft G, and are at the same time free to be adjusted at both ends by the movement to or fro on the shaft of the sleeves N N', attached to the levers K K'.

The rod R is designed to impart the desired movement to the brushes. In order to retain it at any position to which it may be set, it is provided at both ends with jam-nuts P P', which serve to lock it fast. To secure said nuts, I use lock-nuts  $p p'$ . The rod is screw-threaded at its ends to receive these nuts, and also projects a short distance beyond them where it is provided at one end with a hole,  $o$ , for the reception of a pin or suitable instrument to grasp for rotating or moving said rod when desired.



It will now be seen that when the rod is rotated the nut *n* will be caused to travel to or fro as the rod is turned to the right or left, and the sleeve *N* will be made to travel with it by means of the screw-pins *s s'*, thus adjusting the head end of the brushes. It will also be seen, if the nuts *p* and *p'* are loosened and the rod is adjusted or moved lengthwise without being rotated, that both the nut *n* and the collar *m* will travel together with it, and that both sleeves *N N'*, by means of the screw-pins *s s'*, will be caused to travel to or fro as the rod is moved, and that both ends of the brushes will be adjusted simultaneously.

It will further be seen that if the rod is rotated and then moved lengthwise, so as to restore the nut *n* to the position it had before the rotation of the rod, the sleeve *N'* will be caused to move in a corresponding direction, thus adjusting the tail end of the brushes.

The proper adjustment or tramming is ascertained by feeling the brush through the wire-cloth *e*, a suitable door in the casing being arranged to open for that purpose, and when obtained the jam-nuts *P P'* are screwed snugly to their places and secured by the lock-nuts *p p'*. It will be noticed that the whole operation of tramming the brushes is effected on the outside of the machine.

When bran is admitted to the cylinder through the inlet *H* and the shaft *G* is caused to rotate rapidly, the lighter particles are driven against the wire cylinder and carried by the air-current, caused by the rotation of the brushes *M*, to the top of the machine more rapidly than the heavier particles, and as the brushes are parallel to the axis of the cylinder the bran particles could not be carried through the machine without the assistance of some other device. In order to effect the object of carrying through the particles, I employ the diagonally-grooved plates *E E'*, placed in the upper part of the cylinder, whereby a screw action is set up with the tendency of carrying the particles coming in contact therewith toward the tail of the machine.

It is obvious that as the inlet and discharge orifices of the cylinder are open air will always be contained in said cylinder, and on revolving the brushes this contained air is disturbed, thus producing currents of it which tend to carry the lighter particles of material to the top of the machine more rapidly, as explained, and a further effect produced thereby is to keep the meshes of the wire cylinder clean or free from clogging, and also to cool the material as it is rubbed or brushed through said cylinder.

The brush *F*, interposed between the two grooved plates, serves to aid in the cleaning of the bran particles, and also as a stop to them in their passage from one plate to the other, causing the particles to halt in their course and fall toward the bottom of the machine. The heavier particles fall so as to escape the brushes, while the lighter particles are caught

and carried against the second plate, thus being carried forward and through the machine more rapidly than the heavier particles. The said brush *F* is held to its position and made capable of adjustment to its proper relation with the other parts by means of lugs *q*, fixed thereto, and suitable set-screws, *q'*, attached to the lugs and taking into the frame of the machine.

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

1. The combination, with the fixed cylinder having plates *E E'*, wire-gauze *e*, and adjustable brush *F*, of the hollow shaft and rod *R*, the revolving brushes *M*, and devices operating in conjunction with said shaft and rod by which either end of the revolving brushes may be adjusted, substantially as and for the purpose described.

2. In a bran-duster, a cylinder composed of wire-gauze, serrated plates, and a radially-adjustable brush, in combination with a contained revolving brush and means for operating the same, substantially as described.

3. The combination, with the fixed casing, of the horizontal cylinder composed of wire-gauze, the diagonally-grooved plates, the brush *F*, the revolving brush, and means for adjusting the latter, substantially as described.

4. In a bran-duster, the combination, with a spider, *J*, an adjusting-lever attached thereto, brushes *M*, the hollow slotted shaft, the screw-rod therein, and a movable sleeve, of a pin attached to the sleeve and passing through the slot of the shaft, and a nut, *n*, on the screw-rod engaged by said pin, substantially as described.

5. In a bran-duster, the combination of a cylinder constructed as described and applied in a casing, the hollow slotted shaft *G*, the spiders *J J'*, the screw-rod in said shaft *G*, the nuts on the ends thereof, the sleeves movable on this shaft, the nut *n* and collar *m*, the bent levers, the brushes *M*, having these levers pivoted to them, and the sleeves, also having said levers pivoted to them, substantially as described.

6. In a bran-duster, the combination of a suitable case, a cylinder therein composed of wire-gauze and diagonally-grooved plates, an adjustable brush between said plates, a revolving adjustable brush, and means, described, for adjusting this brush at one end or both ends, as set forth.

7. In a bran-duster, the combination, with a spider, *J'*, an adjusting-lever attached thereto, brushes *M*, the hollow slotted shaft, the screw-rod therein, and a movable sleeve, of a pin attached to the sleeve and passing through the slot of the shaft, and a double collar, *m*, fitted to the screw-rod in which the pin enters, substantially as described.

8. In a bran-duster, the combination, with a case, of a cylinder composed of wire-gauze *e*, diagonally-grooved plates *E E'*, and a radi-



ally-adjustable brush between said plates, and revolving adjustable brushes, substantially as described.

9. In a bran-duster, the combination, with 5 the spiders J J', adjusting-levers attached thereto, and brushes M, the hollow slotted shaft, the screw-rod therein, and the movable sleeves, of pins attached to the sleeves and passing through the slots of the shaft, and a 10 nut, *n*, and double collar *m* on the screw-rod, in which the said pins enter, substantially as shown, and for the purpose described.

10. In a bran-duster, the combination, with a suitable case and cylinder, of a hollow shaft, 15 a screw-rod passing through the shaft and carrying a nut, *n*, and a double collar, *m*, sleeves adapted to slide longitudinally on the shaft,

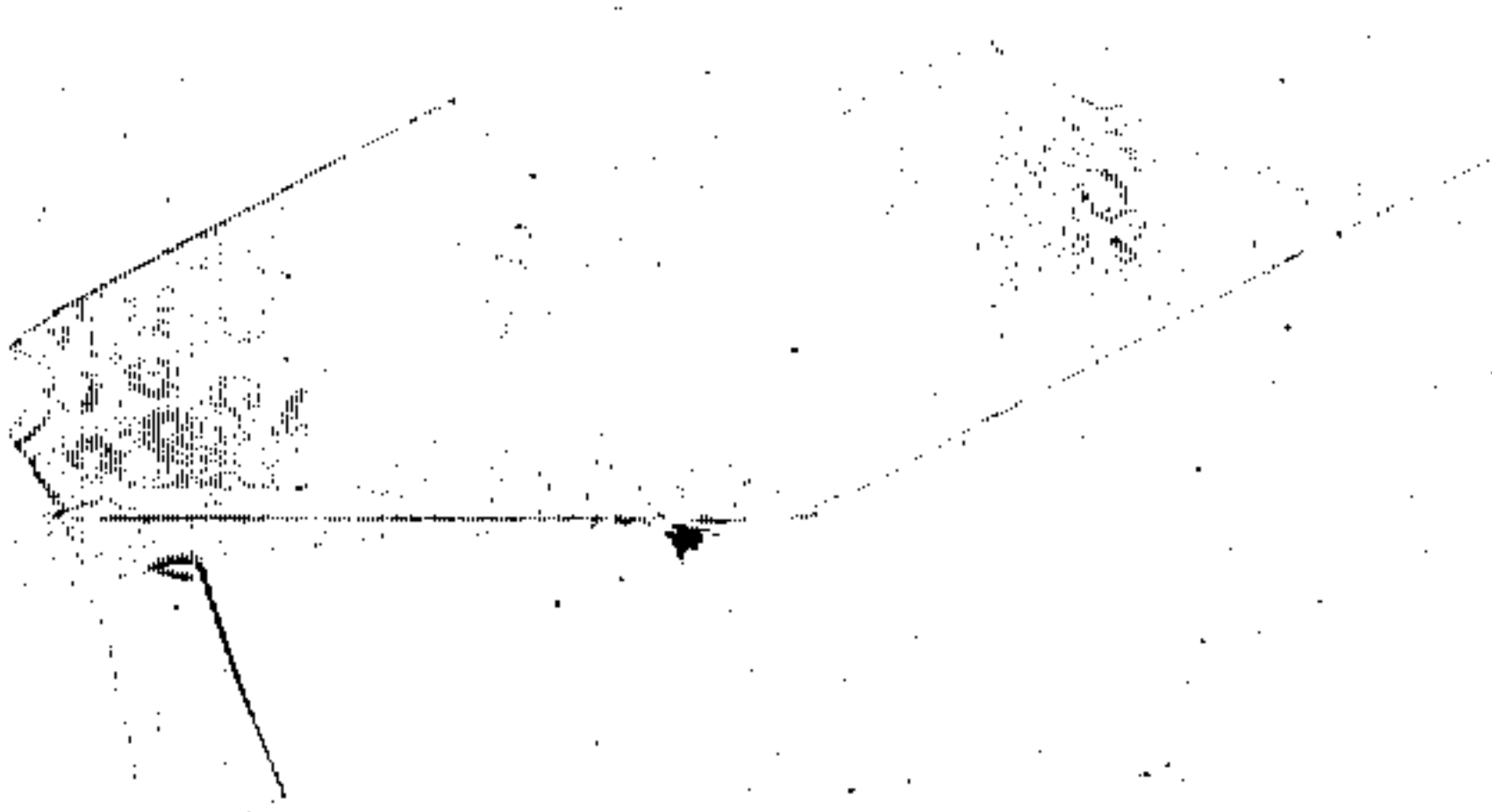
pins passing through slots in the shaft connecting the nut and the collar with the sleeves, spiders J J', secured to the shaft, levers at- 20 tached to the spiders and to the movable sleeves, revolving brushes M, carried by the levers, and means for retaining the screw-rod in position within the shaft, whereby the said brushes may be adjusted at either end singly 25 or both ends simultaneously, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES B. ALLFREE.

Witnesses:

EDGAR A. BROWN,  
LATHAM DAVIS.



Correction in Letters Patent No. 373,327.

It is hereby certified that Letters Patent No. 373,327, granted November 15, 1887, upon the application of James B. Allfree, of Cumberland, Maryland, for an improvement in "Bran-Dusters," was erroneously issued to the inventor as sole owner of the patent; that said Letters Patent should have been issued to said *Allfree and Robert Shriver and Harrison Swartzwelder*, jointly, said Shriver and Swartzwelder being assignees of one-half interest therein; and that the proper correction has been made in the files and records of the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 6th day of December, A. D. 1887.

[SEAL.]

D. L. HAWKINS,  
*Acting Secretary of the Interior.*

Countersigned:

BENTON J. HALL,  
*Commissioner of Patents.*