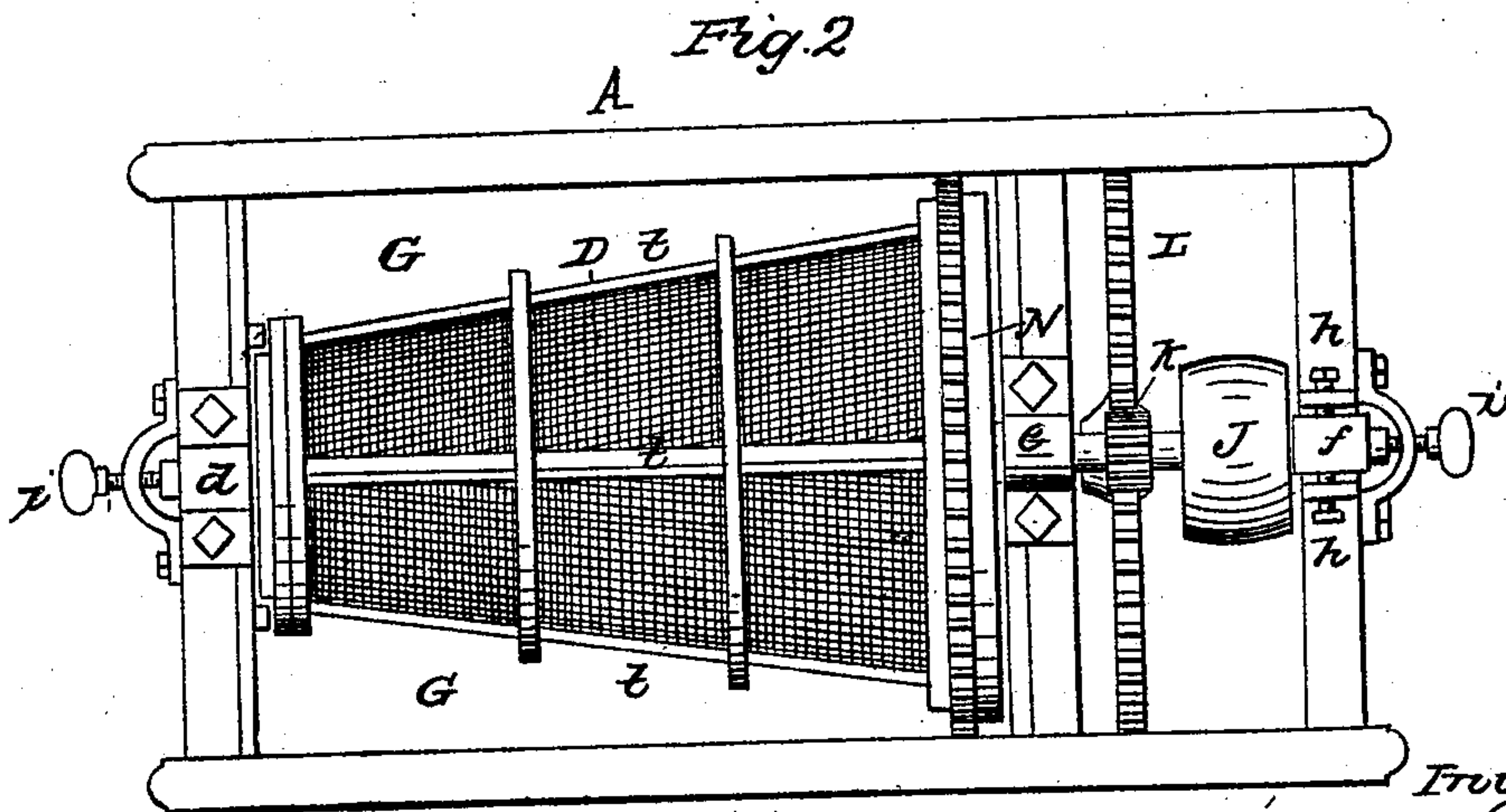
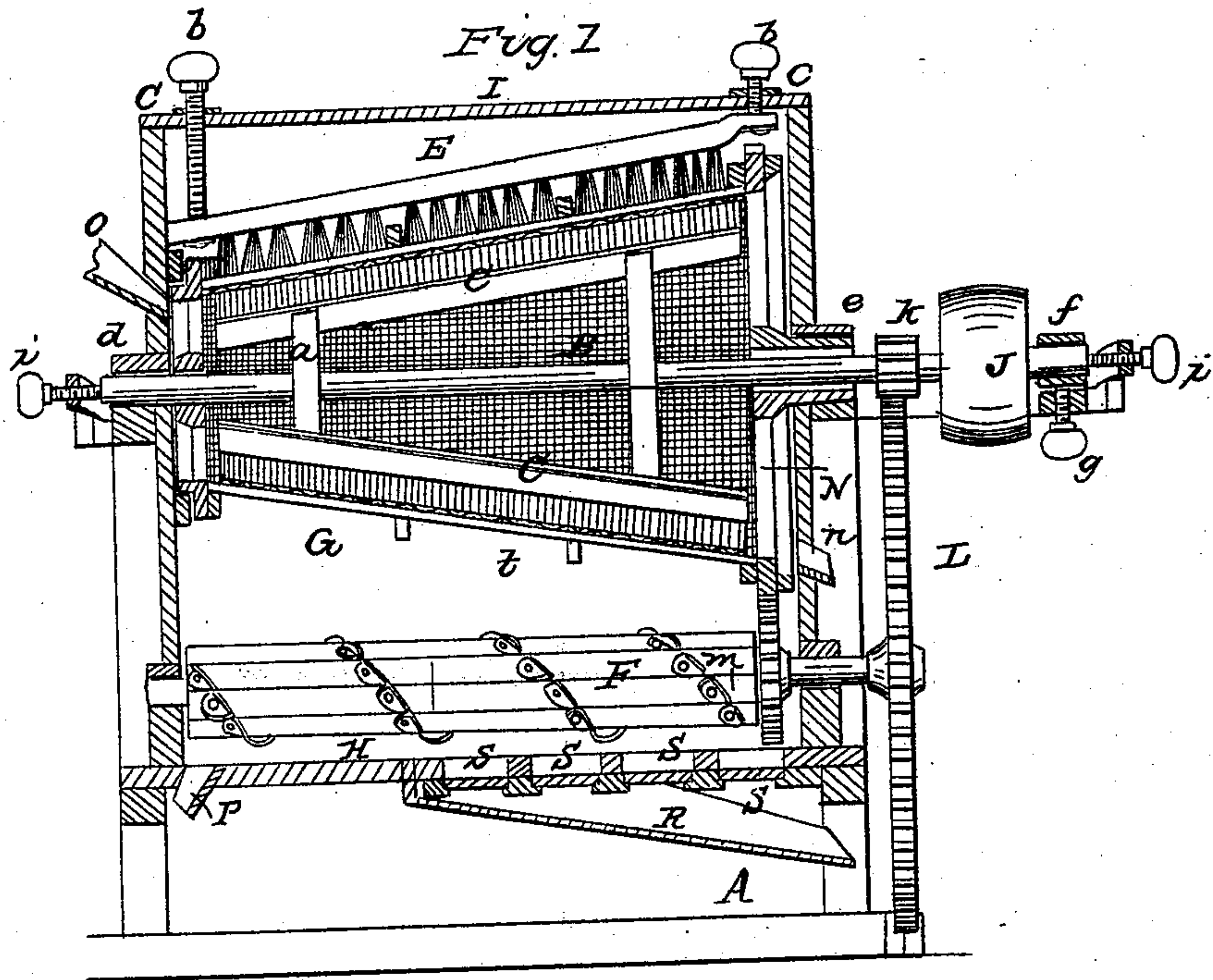


J. RICHMOND.

Bran Duster.

No. 52,886.

Patented Feb. 27, 1866.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES RICHMOND, OF LOCKPORT, NEW YORK.

IMPROVEMENT IN BRAN-DUSTERS.

Specification forming part of Letters Patent No. 52,886, dated February 27, 1866.

To all whom it may concern:

Be it known that I, JAMES RICHMOND, of Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Bran-Dusters; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central longitudinal vertical section of my improved machine; Fig. 2, a plan of the same with the top removed.

Like letters of reference designate corresponding parts in both drawings.

The nature of my invention consists in the combination of a conical horizontal revolving wire-cloth cylinder with an adjustable beater-cylinder and an arrangement for separating the fine from the inferior grades of flour; and also in the means of keeping the conical cylinder from becoming clogged by flour in its meshes.

In the drawings, A A represent the rectangular frame of my bran-duster.

B is a horizontal axis, to which are secured, by means of radial arms *a a*, four or more brush-beaters, C C, as shown in Fig. 1. These brush-beaters revolve within the conical horizontal wire-cloth cylinder D, to whose inclined sides they conform.

The cylinder D may be of any ordinary construction. In the drawings the wire-cloth is represented as fastened to the inside of a frame composed of a series of rings connected by longitudinal pieces or ribs *t*. The cylinder at its smaller end has for its bearing the axis B, on which it revolves, while at its opposite end it is provided with a sleeve-bearing, loosely through which, so as to be adjustable therein, as presently described, passes the axis B, the sleeve extending beyond the cylinder so as to rest and revolve in journals *e* in the main frame.

Outside of this cylinder is a clearing-brush, E, Fig. 1, represented above the cylinder D, with which it comes in contact, being adjusted vertically by means of the two thumb-screws *b b*, which screw downward through nuts *c c* on the top of the semi-cylindrical top or cover I of the machine.

The axis B, at its front end, has a rigid stationary bearing, *d*, while at its rear end it

passes loosely through a bearing, *e*, so as to be adjustable therein, and at its extreme end through a bearing, *f*. At this end the axis and bearing *f* are adjusted vertically by means of the set thumb-screw *g* from beneath, Fig. 1, and laterally and horizontally by means of two similar screws, *h h*, Fig. 2. The axis B is also adjusted endwise or longitudinally by the thumb-screws *i i*, which press against, but do not enter, the ends of the axis, so that when the brush-beaters become so worn by use as to fit too loosely within the wire-cloth cylinder the conical form of the latter enables this defect to be easily remedied by this longitudinal adjustment.

The sides G G of the machine incline and converge at the bottom so as to form a conveyer or creeper box, H, in which revolves in the direction of the arrow the conveyer or creeper F, of the ordinary construction.

Motion is imparted to the machine by means of the pulley J on the axis B. A pinion, K, on the same engages with a spur-wheel, L, on the end of the axis of the creeper I, by which the necessary motion is imparted to the latter.

A pinion, *m*, on the creeper-axis meshes with the gear-wheel N, to which the cylinder D is secured in any suitable or desired manner, whereby it receives the required motion.

O is a hopper, through which the bran is fed into the cylinder D at its smaller end. *r* is a spout at the opposite end of the machine, through which the bran escapes from the lower or larger end of the same cylinder, and *p* is a similar spout, through the bottom and at the front end of the creeper-box, for the passage of the flour.

Graduating-slides *s s* are provided at the bottom and rear portion of the creeper-box, of which there may be any number desired, and which open into the spout R, for a purpose presently to be described.

The operation of my improved bran-duster thus constructed is as follows: The machine being set in motion, the bran is fed into the cylinder D through the hopper O, when the flour adhering to the bran is separated and sifted through the wire-cloth composing the shell of the cylinder by the friction of the brush-beaters, which revolve with a much greater rapidity than the cylinder. The diverging form of the cylinder causes the centrif-

ugal force, as well as the gravity of the meal, to give the latter a gradual movement toward the opposite end of the machine, where the bran is discharged through the spout *n*. The outside brush or cleaner, *E*, removes the flour that adheres to the wire-cloth of the cylinder, which would otherwise obstruct the passage of the flour through the same, the brush striking the longitudinal ribs *t* of the cylinder as the latter revolves, when the recoil or jar of the bristles composing the brush, as it passes over them, clears them from the flour which would otherwise obstruct and foul them.

It is evident that the best and finest quality of flour is that which first passes through the cylinder, or through the front or eduction end, the fineness gradually decreasing to the opposite or discharge end of the same.

The inclined sides *G* of the machine guide the flour to the creeper or conveyer box at the bottom of the machine, where the different qualities are deposited. When the slides *s s* are shut it is evident that the action of the creeper would transfer all the flour in the box *H* to the front end, where it would be discharged through the spout *p*. By opening the

slide *s* at the rear of the machine the most inferior quality of flour, which is deposited there, would fall through the same into the spout *R*, while the remainder would be transferred and discharged, as before, through *p*. By opening the next slide, also, the next inferior quality would likewise fall through into *R*, leaving the remainder, which is discharged at *p*, of a better quality. By opening all the slides *s* it is manifest that all but the finest quality of flour would be discharged at *R*, the finest only being separated from the rest and discharged through *p*.

What I claim as my invention, and desire to secure by Letters Patent, is—

The outside adjustable cleaning-brush, *E*, in combination with a revolving wire-cloth cylinder, *D*, arranged and operating substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES RICHMOND.

Witnesses:

JAY HYATT,
LOUIS FEESER.