

CLARK & ELTING.

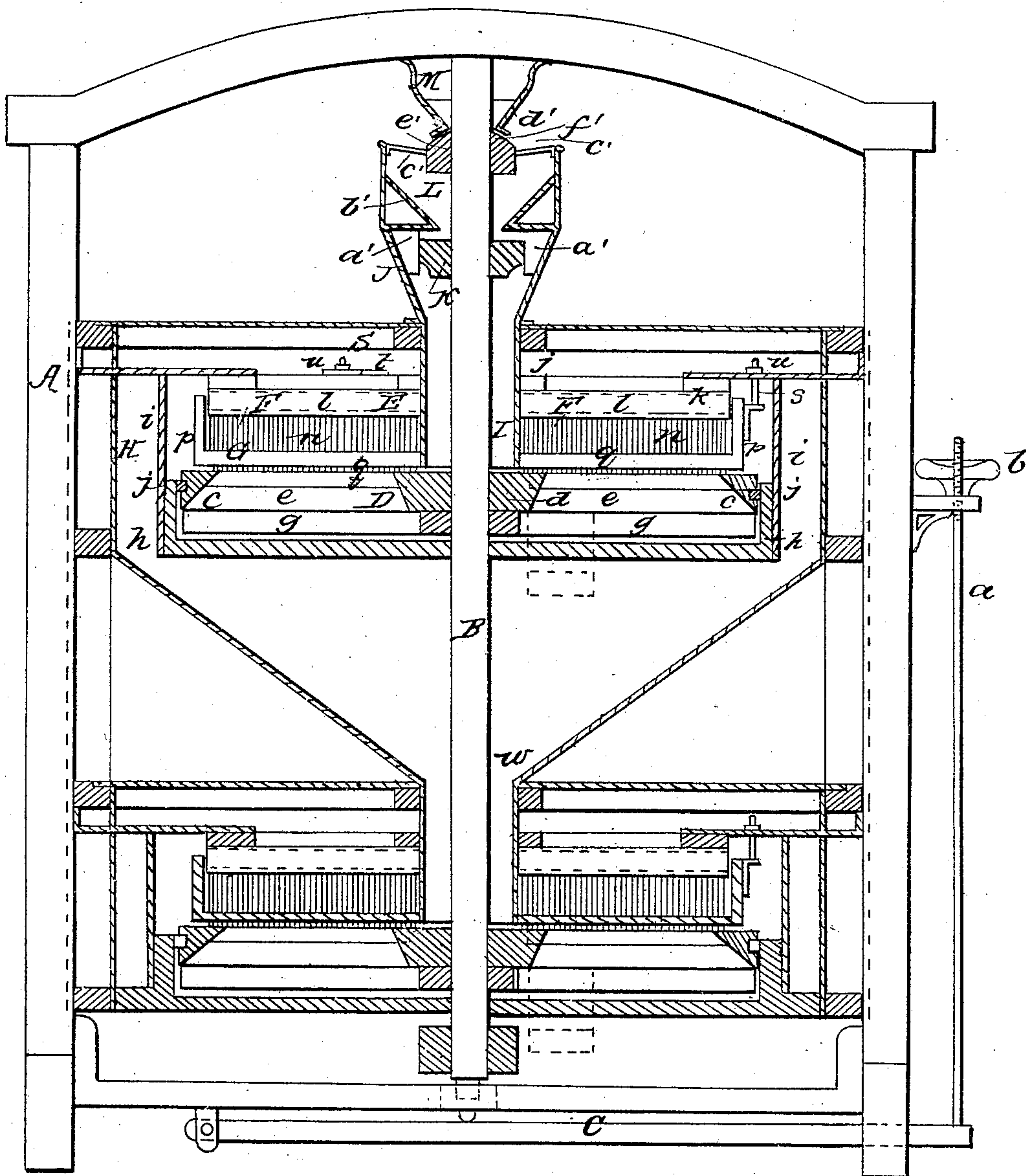
5 Sheets—Sheet 2.

Mill Bolt.

No. 31,371.

Patented Feb. 12, 1861.

Fig. 2. Section.



witnesses

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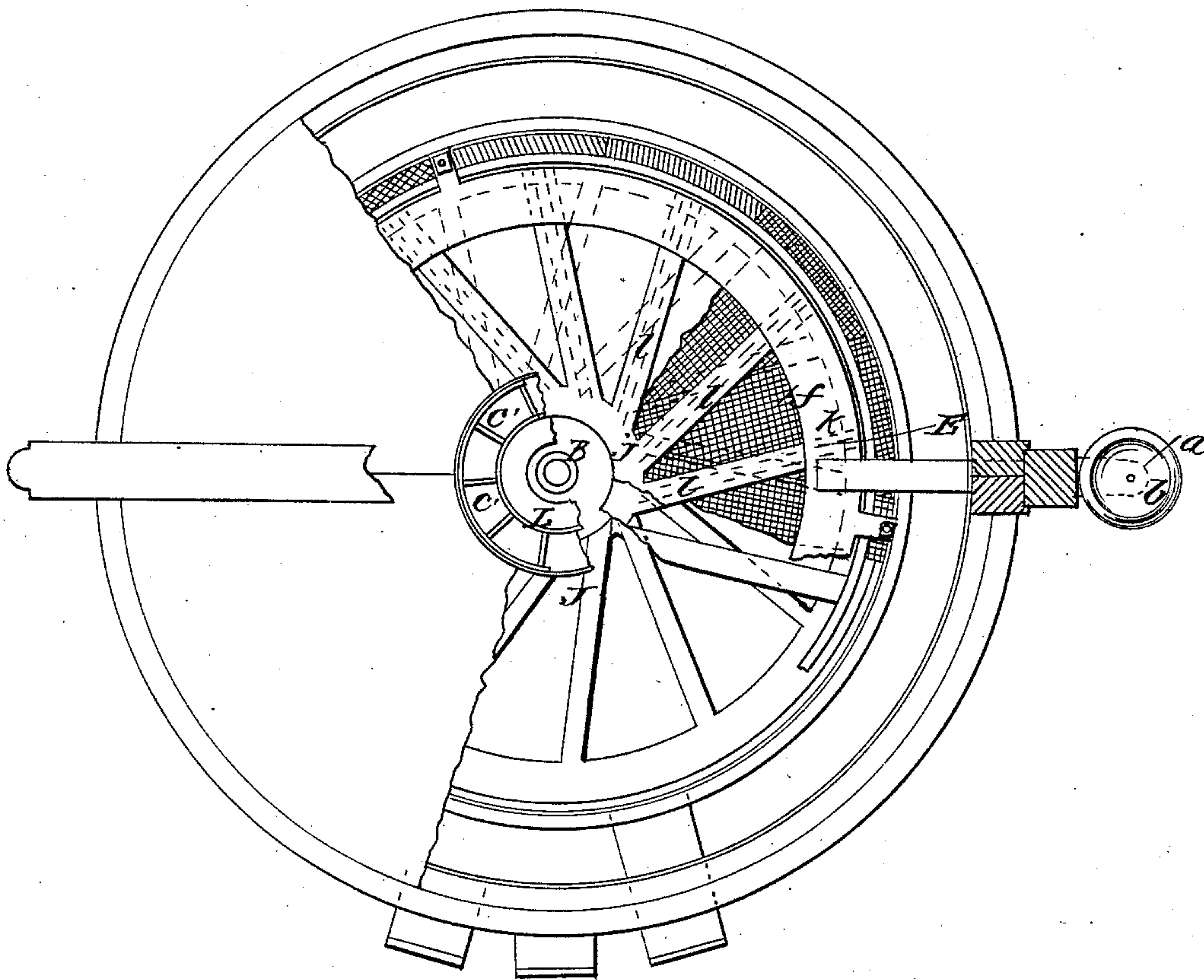
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Fig. 3



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Fig. 4

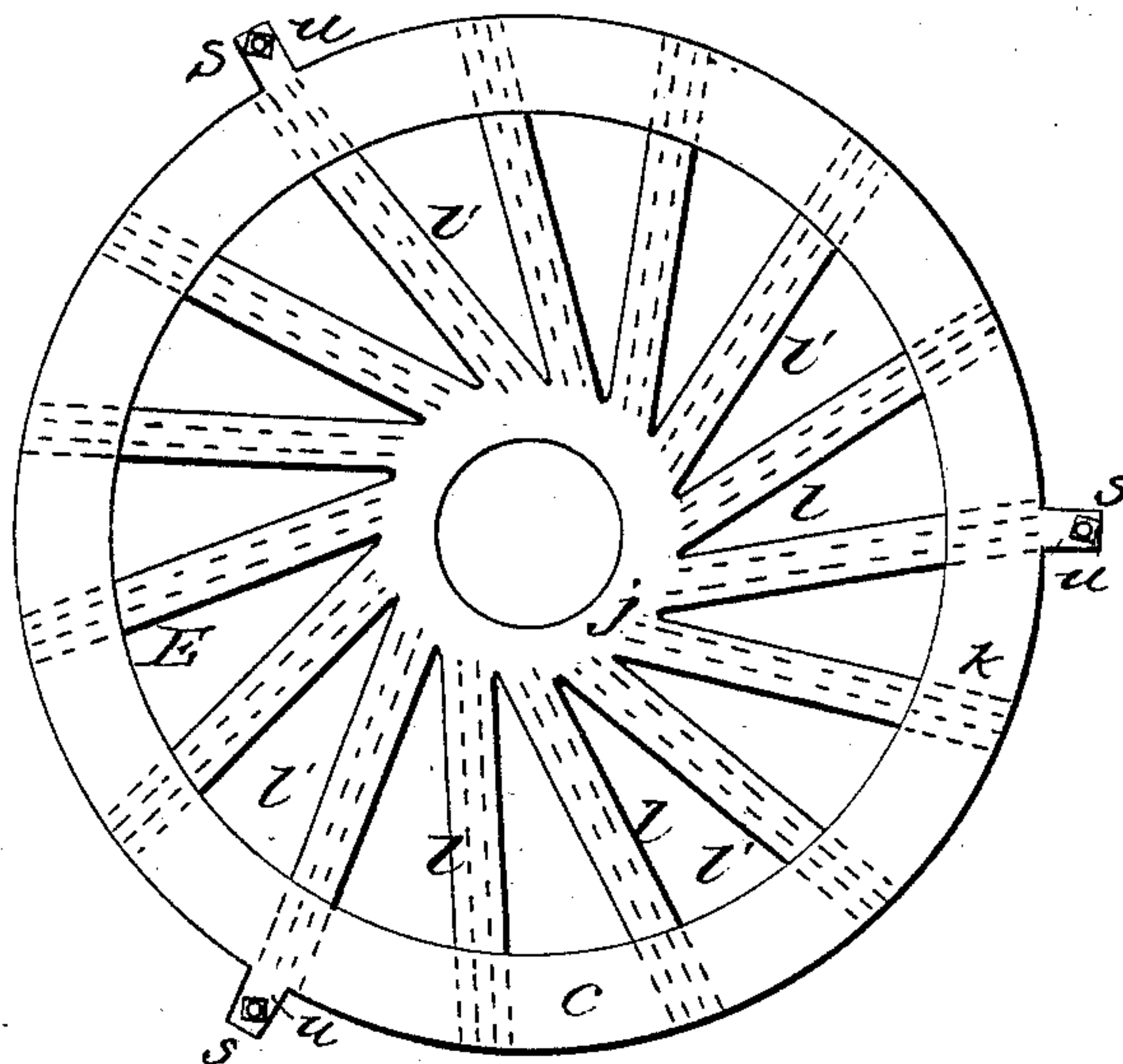
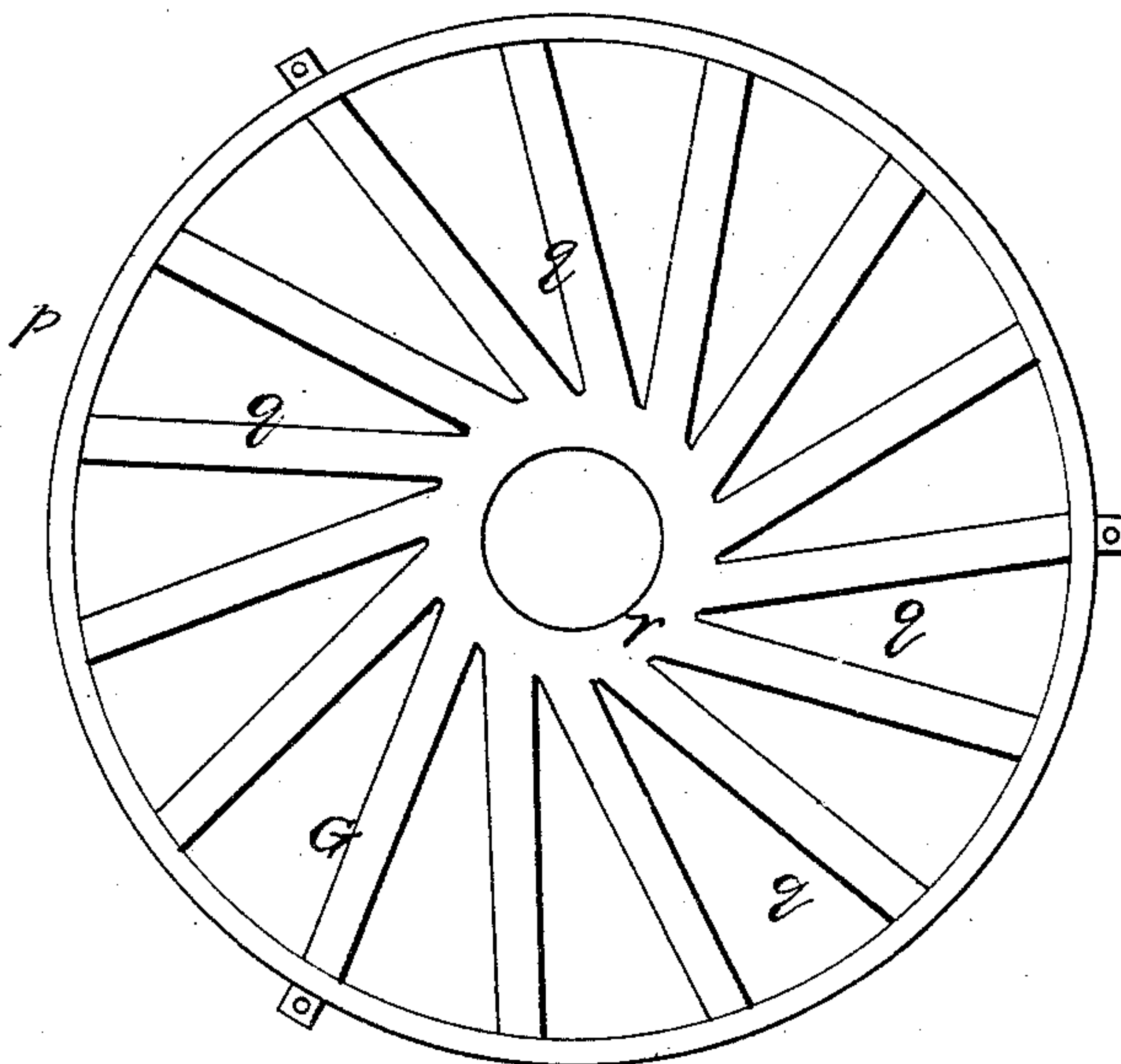


Fig. 6



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Fig. 7

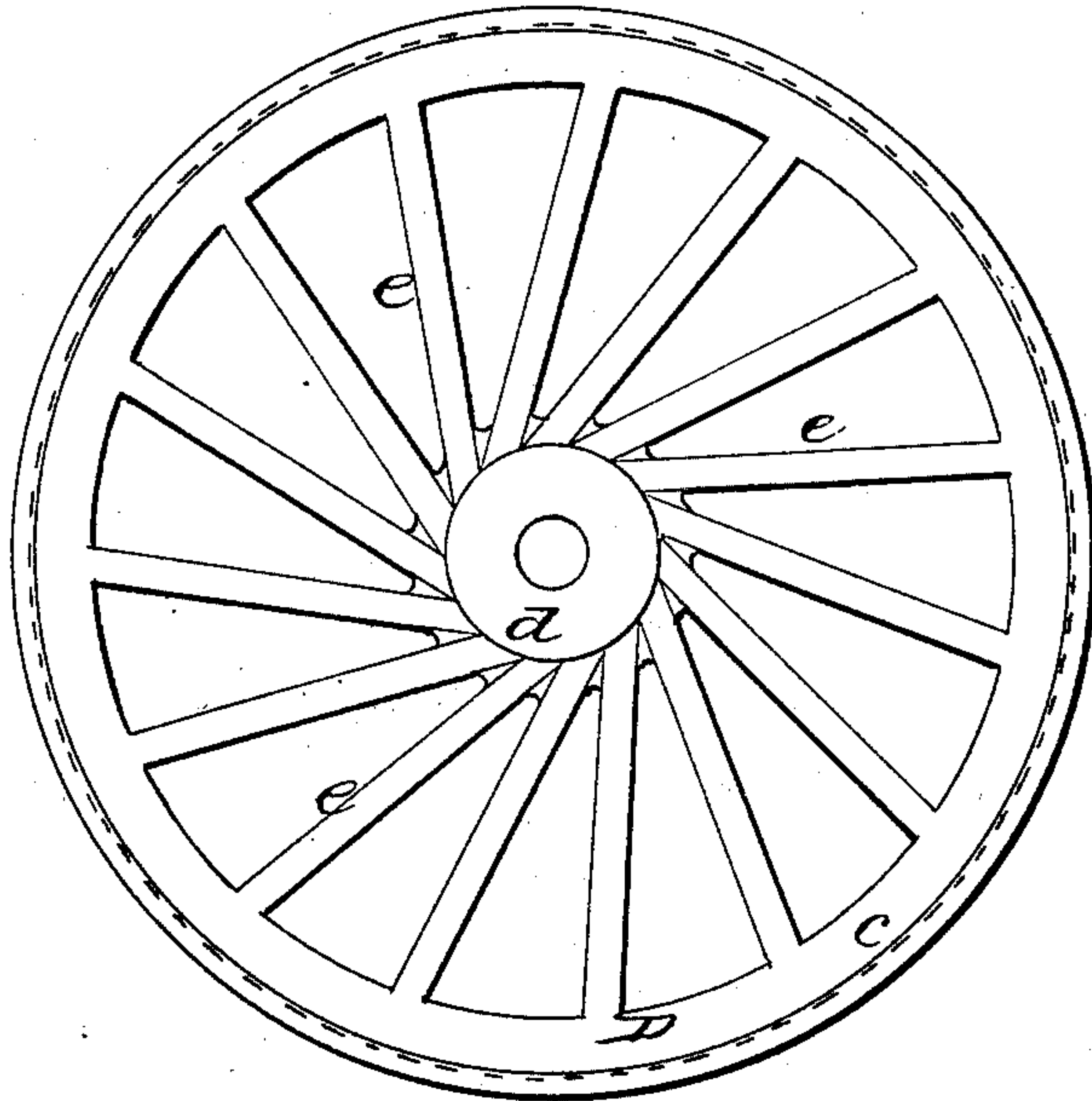


Fig. 5

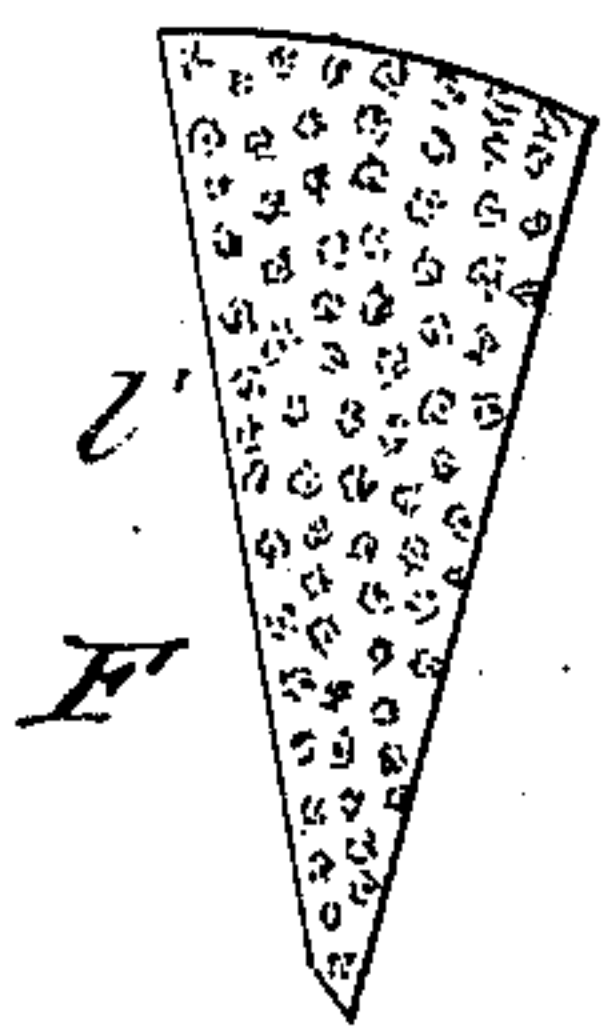


Fig. 8

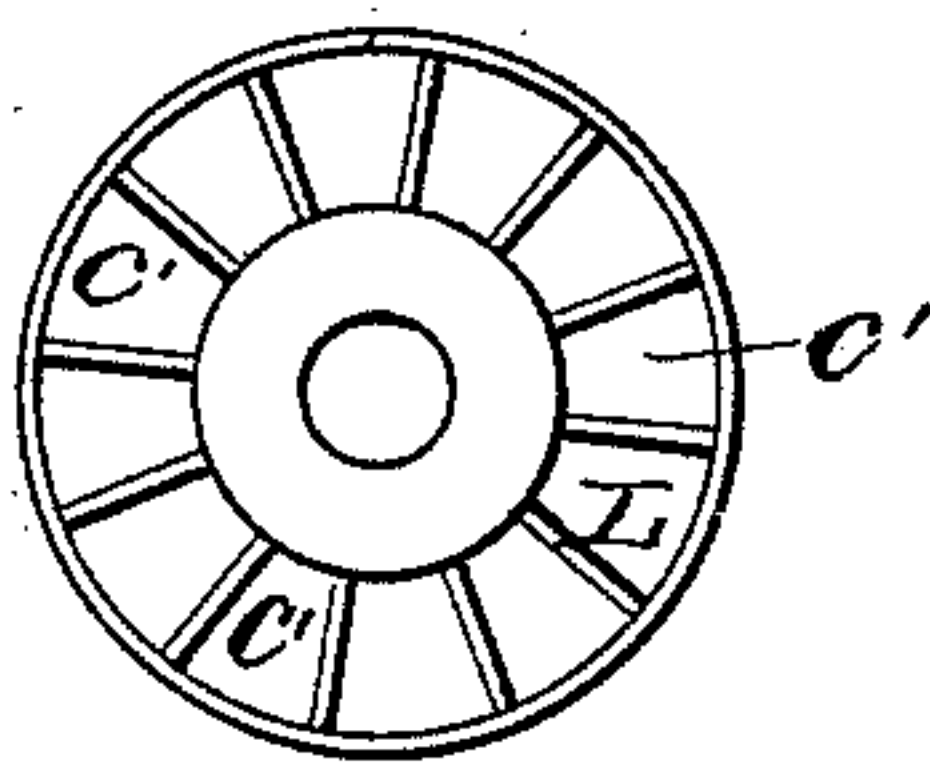
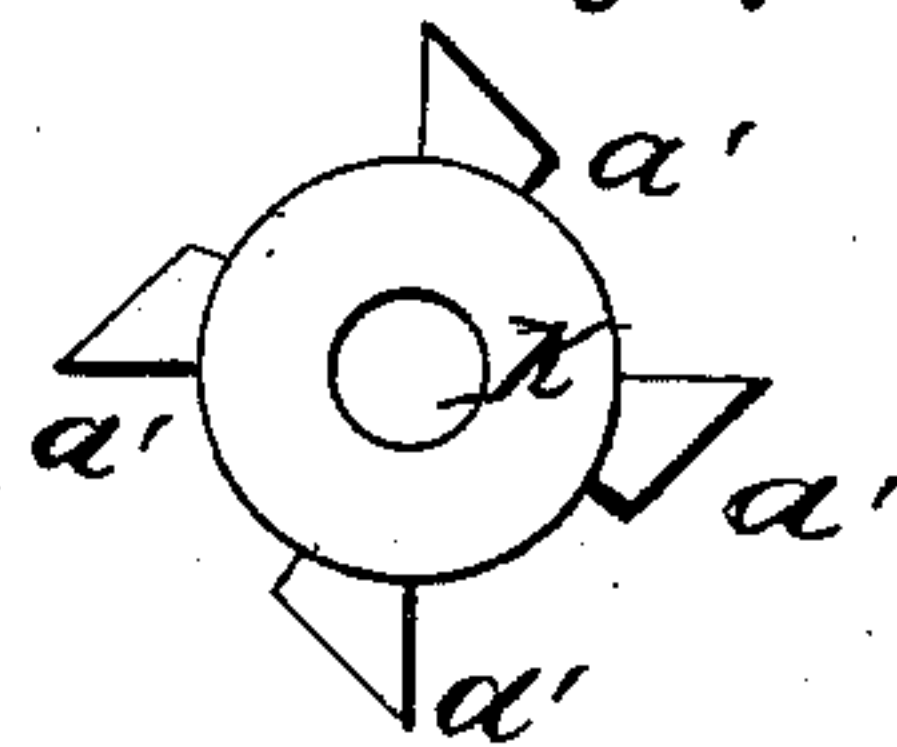


Fig. 9



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UNITED STATES PATENT OFFICE.

GEORGE CLARK AND PETER T. ELTING, OF SANDUSKY, OHIO.

BRAN-DUSTER.

Specification of Letters Patent No. 31,371, dated February 12, 1861.

To all whom it may concern:

Be it known that we, GEORGE CLARK and PETER T. ELTING, both of Sandusky, in the county of Erie and State of Ohio, have invented a new and Improved Bran-Duster; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view of our invention; Fig. 2, a vertical central section of the same; Fig. 3, a plan or top sectional view of the same; Fig. 4, a detached plan or top view of the brush frame with the brushes fitted therein; Fig. 5, a detached view of one of the brushes which are fitted in the brush frame; Fig. 6, a detached plan or top view of the adjustable frame through which the brushes pass; Fig. 7, a detached plan or top view of the wire cloth frame; Fig. 8, a detached plan or top view of the hopper guard; Fig. 9, a detached plan or top view of the fan.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a simple and efficient machine for thoroughly separating all flour from bran so that all the flour contained in a given quantity of wheat may be obtained, none being allowed to escape with the bran.

In machines of this class which are commonly termed bran dusters, the chief difficulty has been the thorough cleansing of the flour from the bran without cutting up the latter so fine that it will escape with the flour, a contingency due to a too rigid scouring operation, and which it is believed is fully avoided by our invention and at the same time the flour thoroughly separated from the bran. To this end we employ stationary brushes and revolving disk screens, one or more, in connection with a fan and other concomitant parts arranged as hereinafter fully shown and described, whereby the bran while being acted upon by the brushes is discharged out from the screen or screens so that it will not be unduly acted upon and still a thorough separation of the flour and bran effected.

To enable those skilled in the art to fully understand and construct our invention we will proceed to describe it.

A, represents an upright frame in which

a vertical shaft B, is placed, the lower end of the shaft being stepped on a bridge tree C, which is rendered adjustable by a screw rod *a*, and nut *b*, as shown clearly in Fig. 2. On the shaft B, there is secured a circular frame D, which may be described as being formed of a rim *c*, hub *d*, and tangential arms *e*, as shown clearly in Fig. 7. This frame is covered with wire cloth *f*, see Figs. 1 and 3, and to the under side of frame D, radial or tangential blades or wings *g*, are attached to form a fan, the blades or wings rotating within a hollow cylinder or box *h*, which is permanently attached to the frame A, by means of arms or brackets *i*, *i*, as shown clearly in Fig. 2. In the periphery of the frame D, there is fitted a packing *j*, which enables the fan blades to produce a suction through the meshes of the screen and prevents the escape of flour from the box *h*, see Figs. 1 and 2. To the brackets *i*, *i*, there is also attached a circular frame E, which is constructed similarly to the frame D, to wit, a center rim *j* connected to a rim *k*, by radial arms *l*, as shown clearly in Fig. 4. The arms *l*, project below the rim *j* and ring *k*, and are recessed or grooved at each side to receive the blocks *l'*, of V-shaped brushes F, the bristles *n*, being secured in the blocks *l'*, in the usual or in any proper way. The brushes F, when secured in the frame E, are not in close contact, spaces *o*, are allowed between them, said spaces corresponding to the position of the arms *e*, *l*, of the frames D, E.

G, is a frame which is similar to the frames D, E, to wit, a rim *p*, connected by tangential arms *q*, to a center ring *r*, as shown in Fig. 6. The rim *p*, of the frame G, is attached by screw rods *s*, to arms *t*, of the frame E, and the frame has a concentric position with the two frames D, E. The bristles *n*, of the brushes F, pass through the spaces between the arms *q*, of the frame G, and the latter may be raised or lowered by turning the nuts *u*, of the screw rods *s*, and the arms *q*, of frame G, may consequently be raised and lowered in the spaces *o*, between the brushes F.

The above described parts; to wit, the frames D, E, G, and fan box *h*, are inclosed in a cylindrical case H, which is secured in the frame A, and the box *h*, is provided with a discharge spout *v*, which projects through the case H, at its side, and the lower

part of said case is of conical form and provided with a discharge passage *w*, at its bottom as shown in Fig. 2.

I, is a tube which is fitted centrally in the frames E, G, as shown clearly in Fig. 2, and J, is a spout which is placed centrally on the case H, in line with the tube I. The lower part of the spout J, is of inverted conical form and within it on the shaft B, there is placed a small fan K, having oblique or inclined wings *a'*. In the upper part of the spout J, there is placed a conical basin *b'*, the lower part of which communicates with the spout directly above the fan K, and at the upper end of the spout on the shaft B, there is placed a wheel L, having slightly inclined spokes *c'*, as shown clearly in Fig. 1.

M, is a conical hopper which is attached to the upper part of the frame A, and has a flaring flanch *d'*, at its bottom which flanch is concentric with the hub of the wheel, said hub having an oval upper surface as shown clearly in Fig. 2, a space *f'*, being allowed between the flanch *d'*, and the hub *e'*.

The operation of the machine is as follows: The shaft B, is rotated by any convenient power and the bran to be operated upon is poured into the hopper M, and passes down between the flanch *d'*, at the lower end of the hopper and the face of the hub *e'* of wheel L, which rotates with shaft B. The spokes *c'*, of wheel L, by their rotation throw out all large foreign substances from the bran and the latter passes down the conical basin *b'*, and through tube I, and falls on the center of the wire cloth *f*. The fan K, produces a suction in the spout J, and draws down the bran insuring a proper and even feed or supply thereof to the screen *f*, which rotates with the shaft B. The bran as the screen *f*, rotates is forced under the brushes F, and the flour brushed or scraped therefrom, the bran working out during the revolutions of the screen, in the spaces *o*, toward the periphery of the screen. The brushes F, and the ribs *e*, upon which the screen cloth rests, being set obliquely to the radii of the disks, in opposite directions, act in a manner similar to the dress of a mill stone to equally distribute and act upon the bran and gradually forward it outward to the place of discharge. The flour as it is scoured from the bran is drawn by the suction of the wings *g*, through the screen *f*, into box *h*, while the cleaned bran passes off

the edge of the screen and is discharged through the opening *w*, of case H.

The bristles *n*, of the brushes F, may be rendered more or less rigid by adjusting the frame G, higher or lower in the spaces *o*, and the screen *f*, may also be adjusted higher or lower through the medium of the bridge tree C.

By the adjustment of the frame G, and the screen *f*, the bran may be subjected to a greater or less rubbing or brushing action as may be desired, the screen *f*, being adjusted at any time during the operation of the machine. If necessary the bran discharged at *w*, may pass through a succeeding operation, an arrangement of stationary brushes and a screen being placed below and arranged precisely the same as the ones previously described.

This invention has been practically tested and operates rapidly and well, thoroughly cleansing or separating the flour from the bran.

It is evident that without changing the principle of our invention or its mechanical effect, the fan (*g*) may be detached from the screen and the said screen remaining stationary the brush may revolve.

Having thus described our invention what we claim as new and desire to secure by Letters Patent; is—

1. A horizontal disk screen provided on its under side with fan blades rotating within or above a packed chamber *h*, to produce a downward suction through the meshes of the screen as set forth.

2. In combination with the screen *f*, and brushes F, the adjustable frame G, arranged substantially as shown to regulate the stiffness, elasticity or yieldingness of the brushes for the purpose specified.

3. The horizontal brush E, F, formed with oblique or tangential spaces *o*, operating in combination with a horizontal disk screen substantially as and for the purposes set forth.

4. The employment or use of the wheel L, in connection with the oval faced hub *e'*, and the flanch *d'*, of the hopper M, arranged to operate as and for the purpose set forth.

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