

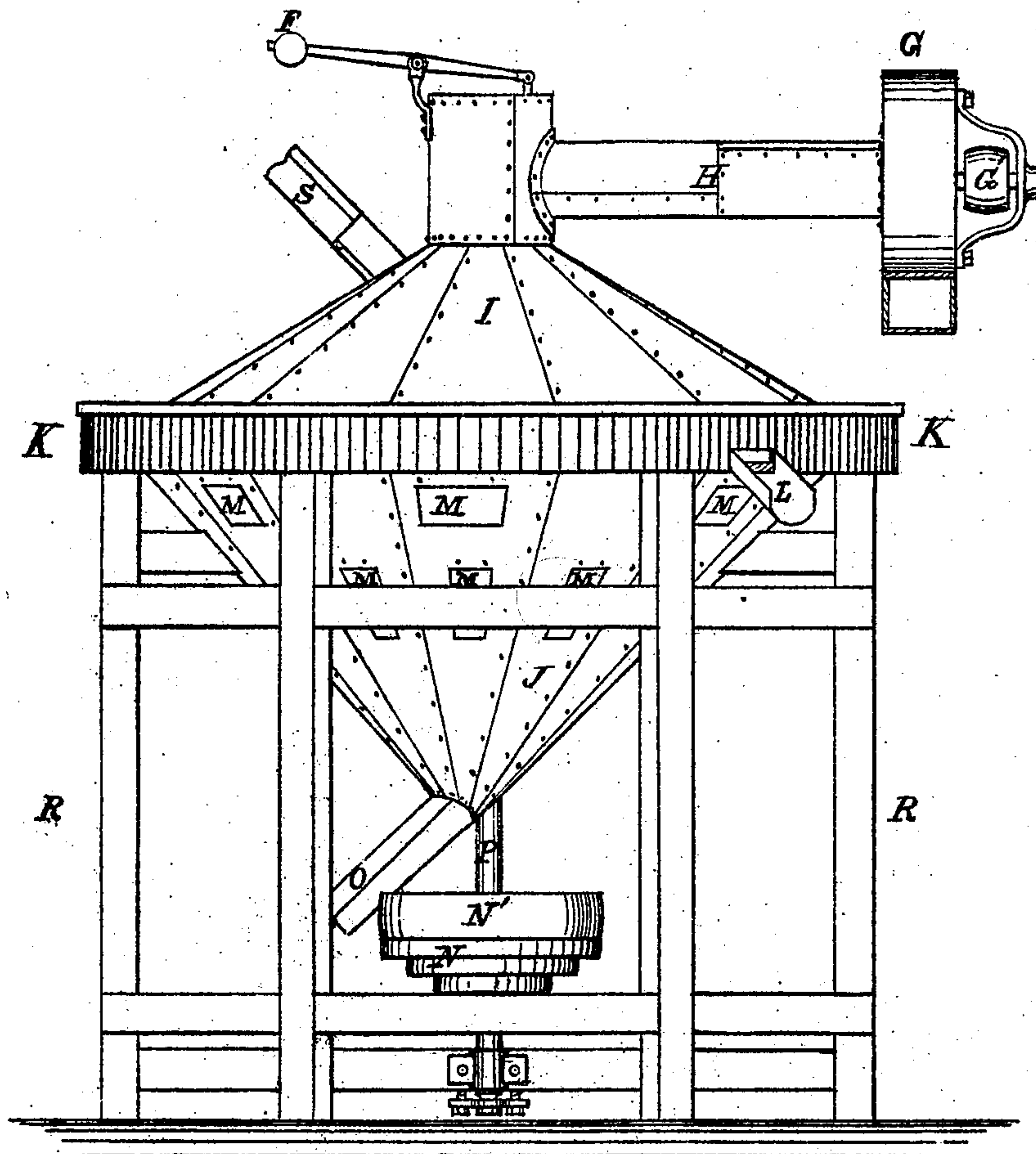
E. P. WELCH.

Middlings Purifiers.

No. 133,509.

Patented Nov. 26, 1872.

Fig. 1.



Witnesses

J. C. Brecht,
O. E. Duff,

Inventor

Edward P. Welch

By James H. Manderville
att'y

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Fig. 2.

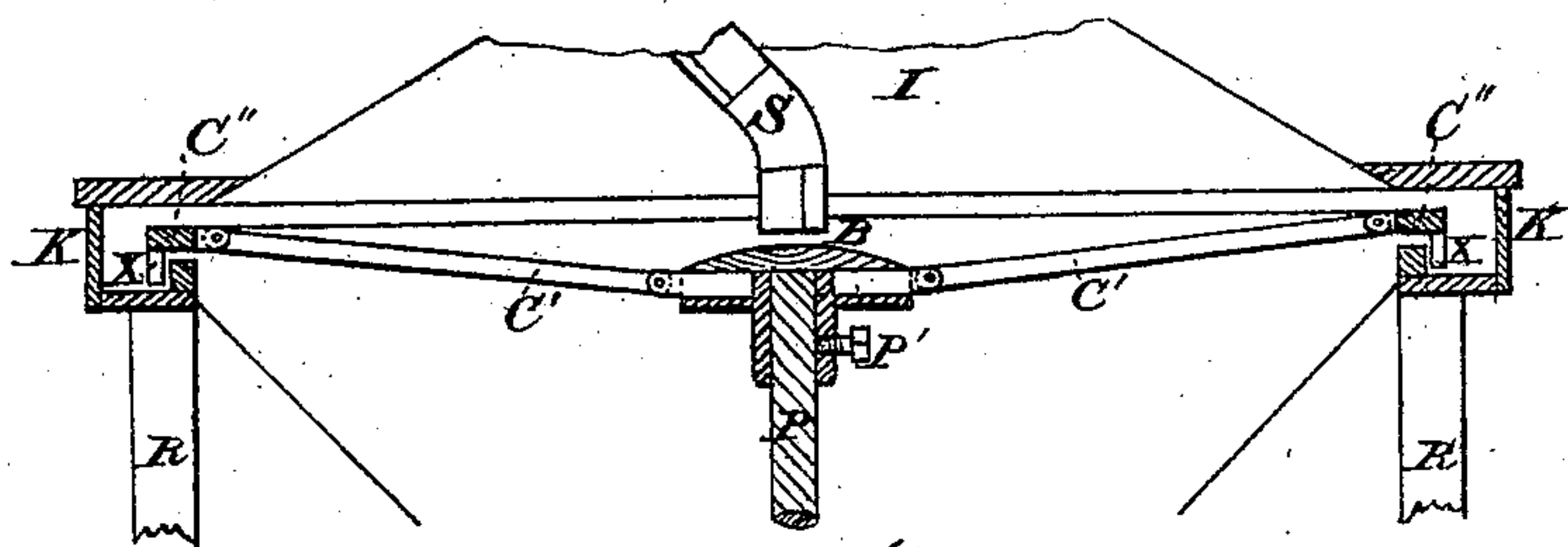
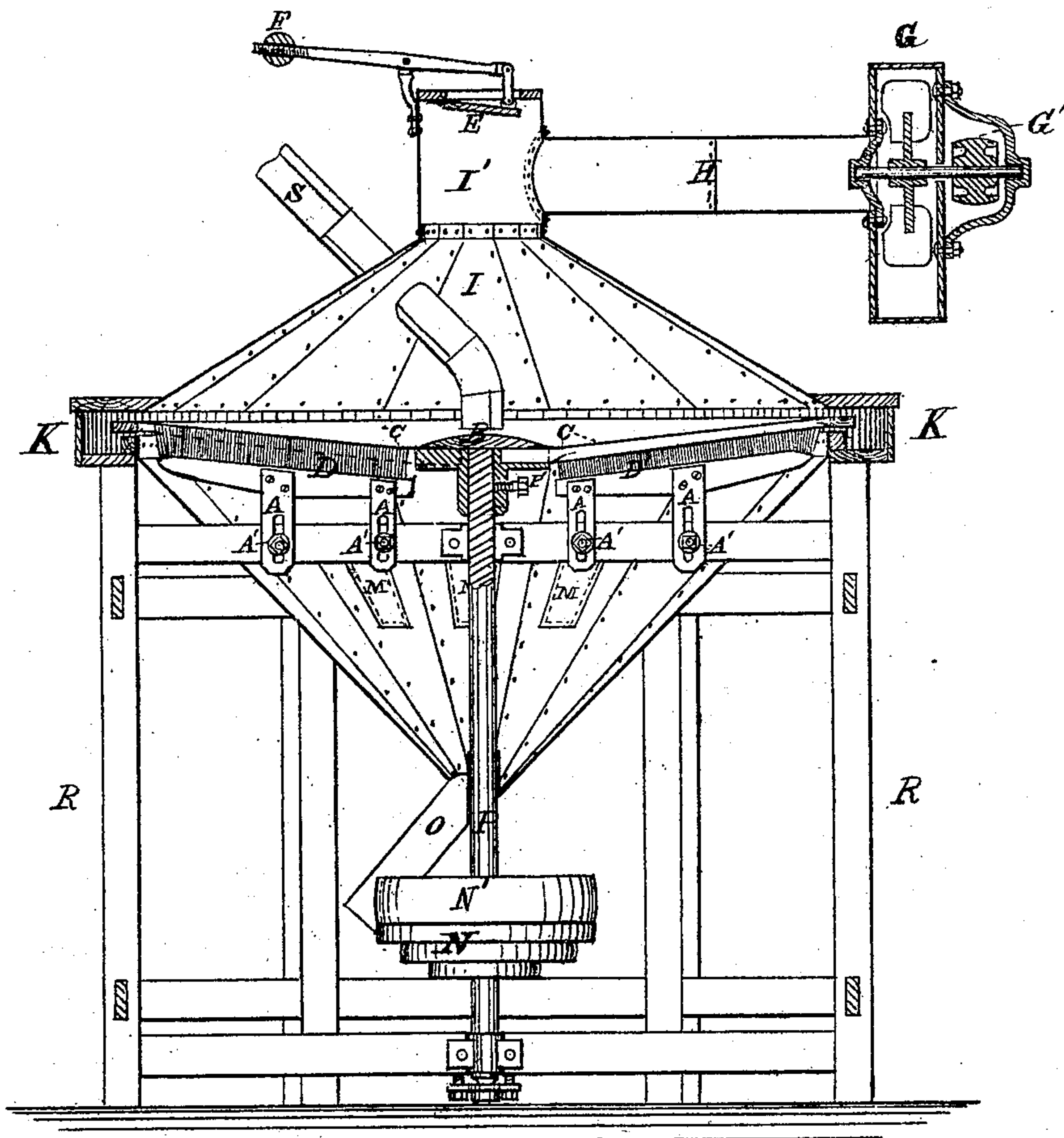


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD P. WELCH, OF GEORGETOWN, DISTRICT OF COLUMBIA, ASSIGNOR
TO HIMSELF, JAMES H. WELCH, ROSIA W. WELCH, HERBERT P. WELCH,
AND JAMES A. MALONEY, OF SAME PLACE.

IMPROVEMENT IN MIDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. 133,509, dated November 26, 1872.

To all whom it may concern:

Be it known that I, EDWARD P. WELCH, of Georgetown, in the District of Columbia, have invented new and useful Improvements in Machines for Purifying Middlings, or for dressing flour, of which the following is a full, clear, and exact description:

The nature of my invention consists, first, in the combination and arrangement, as hereinafter more fully set forth and claimed; second, in a horizontally-revolving bolt rotating within a combined bolting-chest and draft-chamber, both of conical form; third, in a horizontally-revolving bolt, capable of adjustment so as to increase or decrease its concavity; fourth, in an arrangement of stationary brushes, adjustable to suit the convexity of this bolt.

In the accompanying drawing, Figure 1 represents a side elevation of my invention. Fig. 2 represents a central vertical section; and Fig. 3, a detail view.

R represents the general frame-work of the machine, within which is built the bolting-chest J, of conical form, its apex being the lowest point, where the purified middlings are discharged through a spout, O, into a conveyer, not represented in the drawing. Surmounting the frame-work is arranged a circular hopper, K, to receive the tailings, which scrapers X, depending from the bolt, convey to a spout, L, which discharges them into a conveyer, to be carried off for subsequent operations. The bolt C is a disk covered with bolting-cloth, and revolving horizontally within and at the top of the chest J. It is mounted upon a vertical shaft, P, suitably stepped in the frame-work by means of a collar, B, adjustable on the shaft by a set-screw, P'. This set-screw is reached through an opening in the bolting-chest. The object of adjusting the collar upon the shaft is to make the bolting-cloth slope toward the center or at its point of attachment to the collar. This adjustment is effected as follows: The ribs C' of the bolt are hinged or pivoted at one end to the collar B, the other end being similarly attached to the peripheral hoop C'' of the bolt. By these means the bolt can be concaved more or less. The pivoted or hinged rib C' may be dispensed with and

replaced with elastic ribs rigidly attached to the collar and hoop of the bolt, without departing from the spirit of my invention. By lowering the collar the concavity of the bolting-disk is increased, thus preventing the fine middlings from being discharged with the tailings into the hopper K, in the event of the too rapid rotation of the bolt. The tailings, being coarser than the fine middlings, will not be drawn up by the air, but, by the centrifugal action of the bolt, will be discharged over into the hopper and carried away, as described. Mounted upon slotted arms A A, held by set-screws A' to a cross-beam, are stationary brushes D D', which can thus be accurately and evenly adjusted, to the convexity or under side of the bolt. Fitted over the bolting-chest, and fastened to the frame-work, is an air-tight conical draft-chamber, I, its apex pointing upward, and surmounted by a chimney, I', in the top of which is an adjustable draft regulator or valve, E, adjusted, as shown in the drawing, by a screw-ball, F, or in any other convenient manner. In any suitable position adjacent to the draft-chamber there is connected to it, by means of an air-duct, H, a fan, G, revolved at such a velocity, by means of a pulley, G', as to produce enough of a draft to carry off the fine deleterious substances, such as bran, dust, or other extraneous matter so injurious to the flour. The removal of these foreign substances, which are lighter and finer than the tailings, is thus easily effected. The draft-regulator may also be located in the air-duct H without departing from my invention. By adjusting the draft-regulator according to the speed of the fan, the draft of air which enters the bolting-chest through the openings M, and thence upward through the bolting-cloth C, is kept uniform, and that although the speed of the fan may vary, thus never being too strong to carry upward anything but foreign substances. The openings M may be provided with automatic draft-regulating gates, to form the subject of a future application.

The unpurified middlings enter the machine through a spout, S, falling perpendicularly upon the surface or spreader B, instead of up-

on the bolt itself, so that the middlings may be made to evenly distribute themselves, by centrifugal action, over the entire surface of the cloth. Motion is communicated to the machine by means of a cone-pulley, N, above which is a loose pulley, N'.

I do not broadly claim, in a middlings-purifier, drawing currents of air through the bolt, that being old; nor do I broadly claim a horizontal rotary bolt; nor do I claim the application, broadly, of brushes to such a bolt, it being a common expedient for clearing the meshes; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a middlings-purifier, the combination of a conical bolting and draft chamber, adjustable draft regulator or valve, horizontally-re-

volving adjustable bolting-disk, stationary adjustable brushes and exhaust-fan, all constructed and arranged substantially as described.

2. A horizontally-revolving bolting-disk, in combination with a conical bolting-chest and draft-chamber.

3. The horizontally-revolving bolting-disk C, adjustable as to its concavity by means of the hinged ribs C' and adjusting-collar B.

4. A horizontally-revolving adjustable bolting-disk, in combination with stationary adjustable brushes D D', as and for the purpose set forth.

EDWARD P. WELCH.

Witnesses:

I. W. BROWN,
W. W. BARNES.