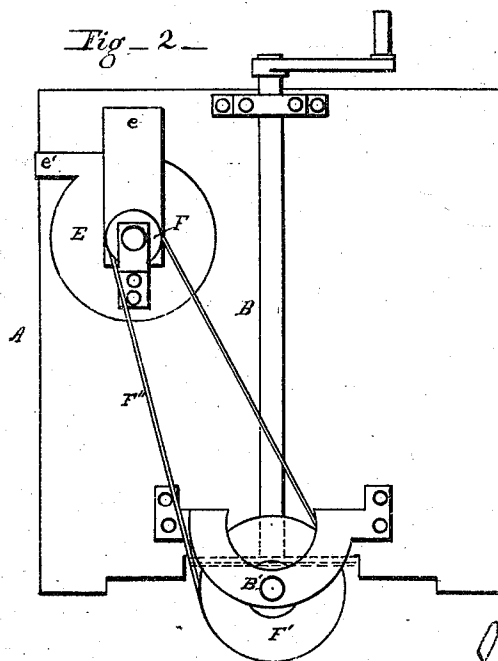
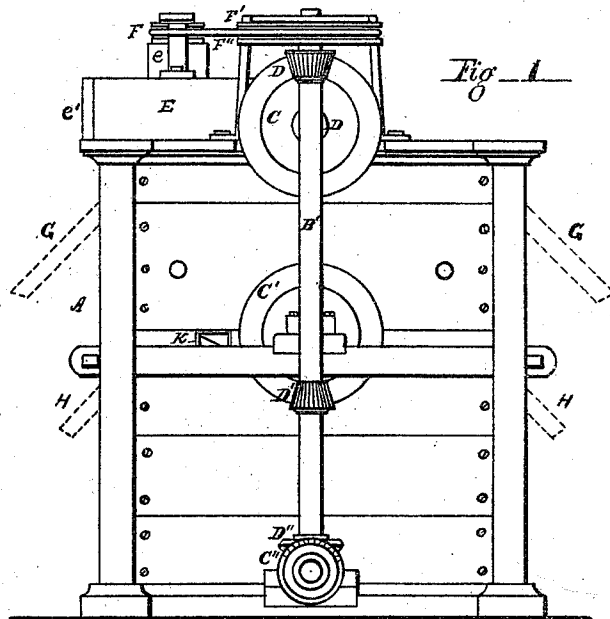


J. H. DEDRICK.
Middlings Purifiers.

No. 142,086.

Patented August 26, 1873.



WITNESSES—

H. A. Herring
J. S. Moffet

INVENTOR—

John H. Dedrick
By *Endley & Warner*
his Atty

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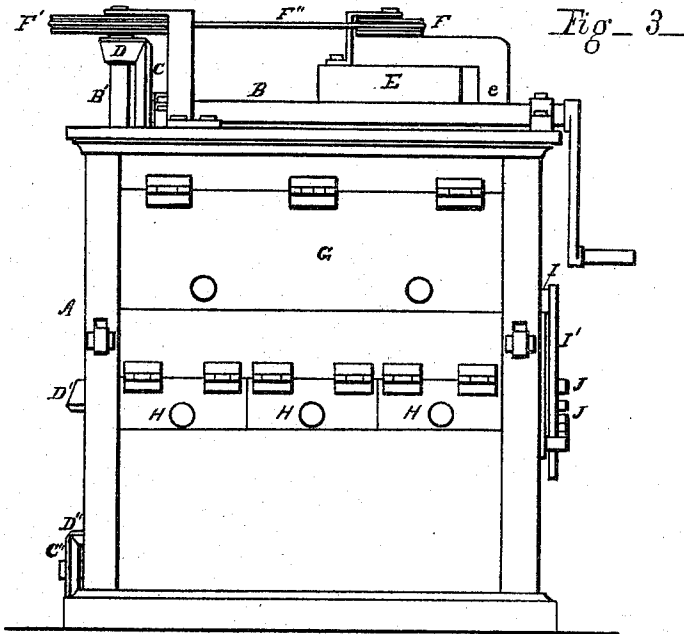


Fig. 3

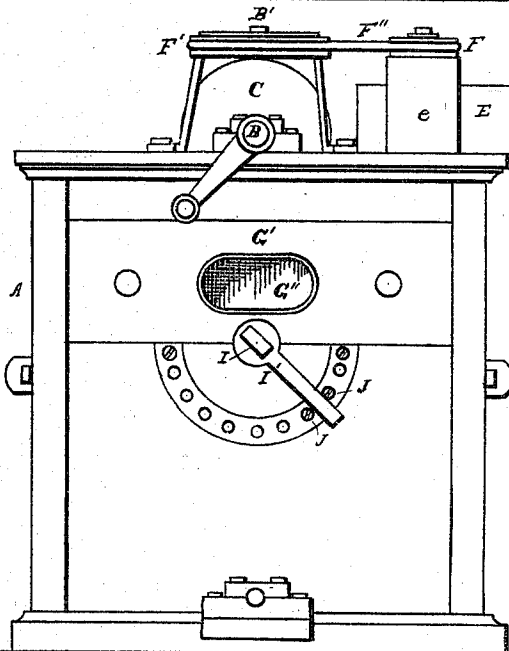


Fig. 4

WITNESSES —

T. A. Herring
J. S. Moffet

INVENTOR —

John H. Dedrick
By Lindsey & Warner
his Atty

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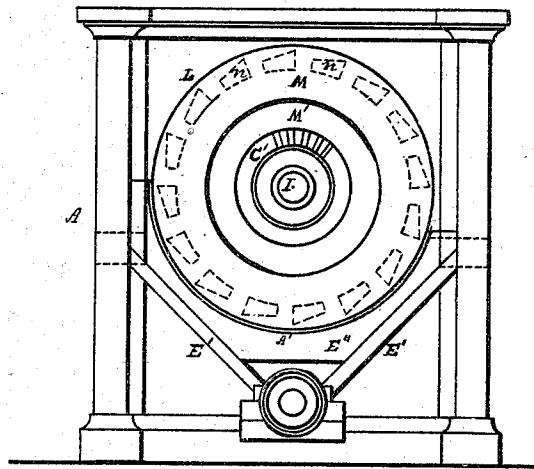


Fig. 5

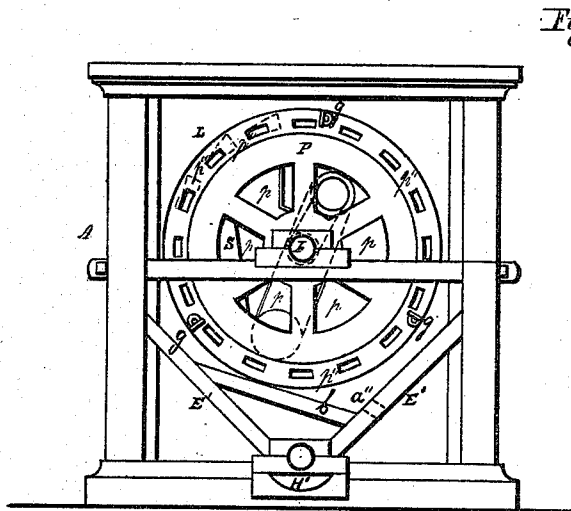


Fig. 6

WITNESSES__

F. A. Herring
J. S. Moffett

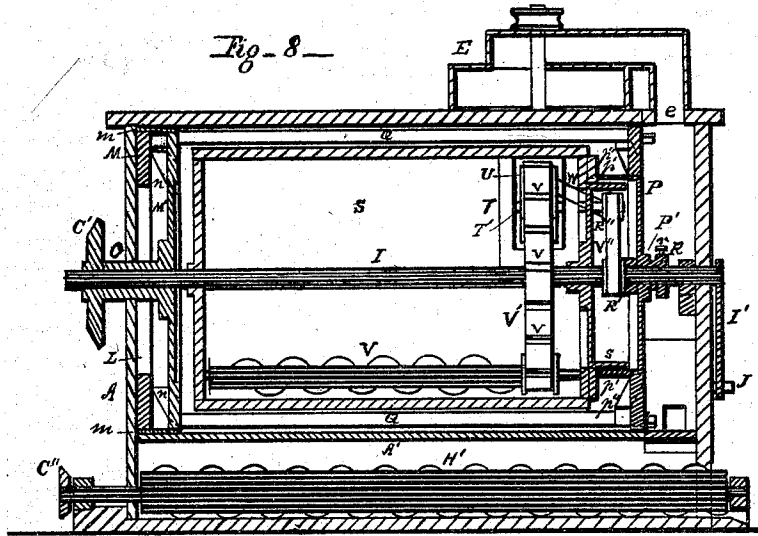
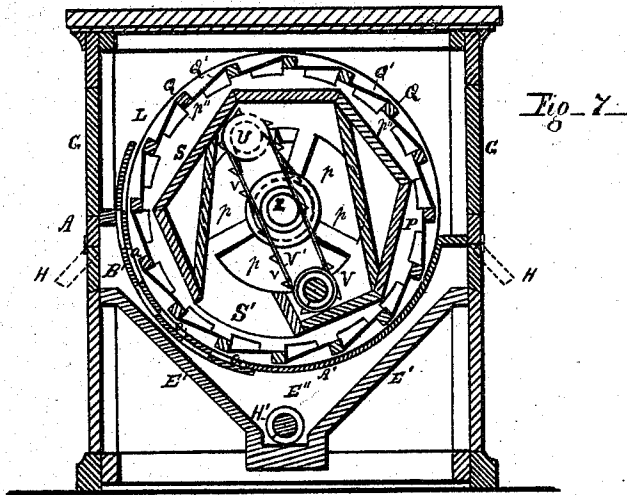
INVENTOR__

John H. Dedrick
By E. L. Warner
his atty
3

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WITNESSES—

F. A. Herring
J. S. Moffet

INVENTOR—

John H. Dedrick
By G. W. Warner
his atty

UNITED STATES PATENT OFFICE.

JOHN H. DEDRICK, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO MEDBERY, STEVENS & CO., OF SAME PLACE.

IMPROVEMENT IN MIDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **142,086**, dated August 26, 1873; application filed May 13, 1873.

To all whom it may concern:

Be it known that I, JOHN H. DEDRICK, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Middlings-Purifiers, of which improvements the following is a full, clear, and exact description, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a front elevation of my improved apparatus; Fig. 2, a top or plan view thereof; Fig. 3, a side elevation of the same; Fig. 4, a rear elevation; Fig. 5, a front elevation, the front wall and driving-gear being removed; Fig. 6, a rear elevation, the rear wall being removed; Fig. 7, a vertical cross-section; and Fig. 8, a vertical longitudinal section of the same.

Like letters of reference indicate like parts.

The object of my invention is to improve the means heretofore employed for the purpose of removing from the middlings those particles which tend to render the flour impure; and to that end it consists in certain novel features, hereinafter particularly described and set forth, relating to the construction and arrangement of the various parts of the purifier.

In the drawing, A represents the wall or case of the apparatus, which is made sufficiently tight, when closed, to operate, in connection with a sucker or blower, in the manner hereinafter particularly described. B is the driving-shaft, to which motion may be communicated in any suitable manner. C is a beveled gear-wheel, rigidly attached to the shaft B. D is a beveled pinion, engaging the wheel C; and B' is an auxiliary driving-shaft, to which it is rigidly attached. D' and D'' are beveled wheels, also rigidly attached to the shaft B'. C' and C'' are also beveled gear-wheels, one of which is engaged by the wheel D', and the other by the wheel D''. E is an ordinary sucker, the induction of which enters the apparatus, as shown at *e*, Fig. 8. The eduction of the sucker is external to the case A, as shown at *e'*, Fig. 1. F is the driving-

wheel of the sucker; and F' is a belt-wheel, rigidly attached to the shaft B'. F'' is a belt, arranged on the wheels F and F', for the purpose of driving the sucker or blower. G G are doors in the side of the case A for the purpose of access to its interior, and H H are doors for the purpose of admitting air thereto. I is a shaft, and I' is an arm, by means of which it is rotated. J J are removable pins, arranged to engage the arm I', and prevent its movement after the shaft I and its attachments are properly set or adjusted. G' is a removable piece, to admit of access to parts arranged in the rear end of case; and this piece may be provided with an opening, covered by a glass, as represented at G'', so that the operation of the apparatus may be readily observed. K is a feed-trough.

I deem it preferable to make the case A of a suitable frame, and of walls made in readily-removable sections, as is clearly shown in Fig. 1, so that the mechanism within the frame may be readily examined and repaired without being removed, and so that it may be readily removed for that purpose when necessary.

L is the bolting-reel. M M' is the front head of the reel L. The part M is an annular piece, and the part M' is a disk, equal in diameter to the part M. The peripheries of the parts M M' are rigidly attached, by means of the circular part *m*, so that a considerable space will exist between the parts M and M'. The part M is sufficiently broad to form a channel of considerable depth between it and the part M', as shown. O is a hub or sleeve loosely mounted on the shaft I, and rigidly attached to the part M' and to the wheel C'. *nn* are inclined and bottomless buckets, projecting outward from and attached to and extending through the part M', and so constructed and arranged that, during the rotation of the reel L in the proper direction, they will pick up the middlings deposited by the trough K into the channel between the parts M and M', and dump them upon the bolting-cloths, hereinafter described. P is the rear head of the reel L, and P' is its hub, loosely mounted upon the shaft I. Q Q are the reel-bars, rigidly attached to the head of the reel. Q' Q' are the bolting-

cloths, attached to the under side of each bar Q, and to the upper side of each succeeding bar, as shown, so that the cloths will be inclined. The head P is cut away, as shown at *p p*, Figs. 6 and 7, and is provided with an annular flange, *p'*, projecting inwardly, as shown in Fig. 8. It is also provided with the discharging-buckets *p'' p''*, also constructed and arranged to collect the material remaining on the bolting-cloths, and discharge it through the head P during the operation of the reel. The reel L is prevented from moving laterally on the shaft I by means of the collar R, which is attached to the shaft I by means of the set-screw *r*, so as to be readily removable and adjustable. R' is a pulley or belt-wheel rigidly attached to the hub P'. S is an air-chamber rigidly attached to the shaft I. S' is a longitudinal opening in the chamber S, and the only opening therein, excepting that the head thereof adjacent to the head P is provided with openings corresponding to the openings *p p*. The open head of the chamber S is also provided with an annular flange, *s*, projecting outwardly, and arranged to lap the flange *p'* closely, as shown in Fig. 8. T is a frame, arranged in the chamber S and supporting the shaft T', to which the belt-wheels R' and U are rigidly attached. V is an ordinary conveyer arranged in a channel in the chamber S, as shown in Figs. 7 and 8, and V' is a belt arranged over a pulley on the conveyer or shaft, and over the wheel U. The belt V' is provided with elevator-buckets *v*; and V'' is a belt arranged over the wheels R' and R''. W is a spout attached to the frame T, and arranged to receive the contents of the buckets *v v* and conveying it through the openings *p*. The buckets *v v* are arranged to pick up any matter that may be deposited in the channel in which the conveyer V is arranged; and this conveyer is constructed to carry such material to the said buckets. A' is a semicircular shield, arranged below the reel L, and provided with longitudinal openings *a a*. The shield A' extends from the doors H in one side of the apparatus to the doors H in the other side, as shown in Fig. 7. B' is a slotted slide, so constructed and arranged that the openings *a a* may be alternately opened and closed by moving the slide B' for that purpose. In Fig. 3 three doors, H H, are shown on each side of the case A, and I make a corresponding series of openings, *a a*, and slides, B'. E' is a cant-board, provided with vertical partitions E'', by means of which each series of openings *a a* is separated from the laterally-adjacent series. All communication between the doors H H and that part of the apparatus which lies above the shield A' is shut off, as nearly as possible, except through the openings *a a*. H' is an ordinary conveyer, to the shaft of which the wheel C'' is rigidly attached; and this conveyer is constructed and arranged to carry away all the material which may be conducted to it by means of the cant-board E'. *a''* is an opening in that part of the cant-board

which is external to the head P, and *b* is inclined floor for the purpose of conducting to the opening *a''* all matters discharged by the buckets *p''* and the trough W. *g' g'* are scrapers for the purpose of pushing the matter on the floor *b* toward the opening *a''*.

It will be perceived from the foregoing description that the sucker E, reel L and its attachments, elevators *v v*, conveyer V, and conveyer H are set in motion simultaneously, and that the opening S' may be readily adjusted to any section of the shield A'.

When the apparatus or purifier is operated the current of air enters any one or more of the doors H H, passes through corresponding openings *a a*, through the bolting-screen into the chamber S, out through its open head, and through the openings *p p* into the induction *e*, and thence out through the eduction *e'*.

The flanges *p'* and *s*, by being arranged as closely together as may be, in the manner described, without creating undue friction, cut off all draft, except as above specified, thus rendering the operation of the machine effectual for the purposes intended.

When the middlings are poured into the trough K they fall into the channel between the parts M M' of the forward head of the bolting-reel, and are picked up by the buckets *n n* as the reel L rotates. As the buckets *n n* move upward they discharge their contents upon the inner side of the bolting-screens. The rotary motion of the reel L causes the middlings deposited upon the bolting-cloths to slide and fall from one section of the same to another. While the middlings are thus moving on the bolting cloth or screen, and passing through it, they are met by the current of air, which passes through the apparatus in the manner described; and the current may be regulated by means of the adjustable opening S', slides B', and doors H H, so as to strike the bolting-screen at a point where the strongest current is required. The lighter particles of the middlings are then separated from the heavier particles and carried out with the current of air. Those particles which enter the chamber S, and are too heavy to be carried out through the sucker, lodge in the said chamber, and are so prevented from returning to the bolting-cloth and mingling with the middlings deposited thereon. These particles, which remain in the chamber S, are carried by the conveyer V to the elevator-buckets *v v*, and dumped by the latter into the trough W, and delivered upon the floor *b*; and from the floor *b* they pass through the opening *a''* into any suitable receptacle. The lighter parts remaining on the bolting-cloth move toward the buckets *p''*, and are picked up by them, dumped upon the floor *b*, and pass from the floor *b* through the opening *a''*, in the manner described. Those parts of the screenings which pass through the bolting-cloth also pass through the openings *a a*, and fall upon the cant-board E', and are ejected from the apparatus by means of the conveyer H'.

I deem it preferable, in practice, to arrange the sections of the bolting-cloth upon the reel at an inclination of from nineteen to twenty-one degrees.

The reel L should be rotated at such a velocity that the bolting-screen will move from one hundred and seventy-five to two hundred feet per minute, so as to cause the middlings on the screen to move with a continual sliding movement. At a less velocity the middlings would be liable to move and fall in a mass, and on that account they would not be properly swept by the blast of air.

The reel L should be from seven to nine feet in diameter, and the air-chamber and its openings should be arranged as near the bolting-cloth on said reel as can be conveniently worked. The reel L may be of any desired length, nine to twelve feet being sufficient.

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

1. The stationary open air-chamber S, attached rigidly to the adjustable shaft I, in combination with the bolting-reel of a middlings-separator, and with a sucker or blower and openings for the induction and eduction of air to and from the said chamber, substantially as and for the purposes specified.

2. The open air-chamber S, provided with the flange s, and rigidly attached to the adjustable shaft I, in combination with the bolting-reel loosely mounted on said shaft, and provided with the flange p', arranged to lap the flange s, substantially as and for the purposes specified.

3. In a middlings-purifier, the air-chamber S, arranged within the bolting-reel, and provided with a conveyer and with an elevator

device, for the purpose of discharging the particles lodging in the said chamber, substantially as described.

4. The open buckets n n, arranged in the forward head of the bolting-reel, for the purpose of feeding the middlings through the said head to the bolting-screen, substantially as specified.

5. The open buckets p' p'', arranged in the rear end of the bolting-reel, for the purpose of discharging through the said head the matter which does not pass through the bolting-screen, substantially as specified.

6. The bolting-reel L, having a head provided with a channel to receive the middlings from a feeding-trough, and with the open buckets n n and p' p'', arranged in the heads of the reel, respectively, to feed the middlings through the forward head to the bolting-screen, and to discharge from the latter, through the rear head, that part of the middlings which do not pass through the bolting-screen, substantially as specified.

7. The shield A', arranged below the bolting-reel, and provided with one or more series of openings, a a, and slides B', in combination with corresponding doors in the case, substantially as and for the purpose specified.

8. The removable pins J J, arranged in the arc of a circle, in combination with the arm I', attached to the rotary shaft I, as a means of adjusting and locking the air-chamber S, rigidly attached to the said shaft, substantially as specified.

JOHN H. DEDRICK.

Witnesses:

N. C. GRIDLEY,
E. P. WHALING.