J. BANDON & J. WIGGIM, Jr.

Middlings Purifiers.

No. 143,490. Patented Oct. 7, 1873.

Fig. 1.

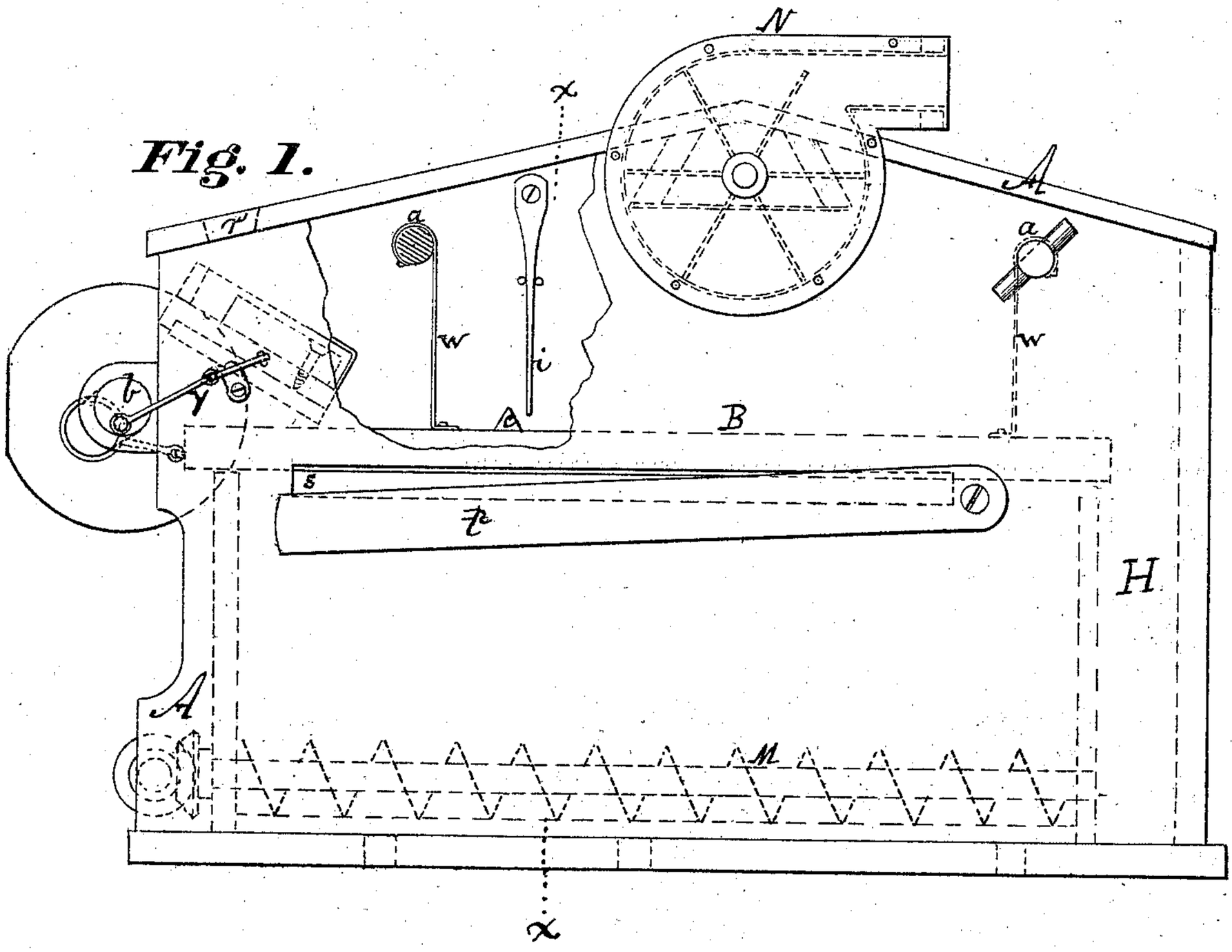


Fig. 2.

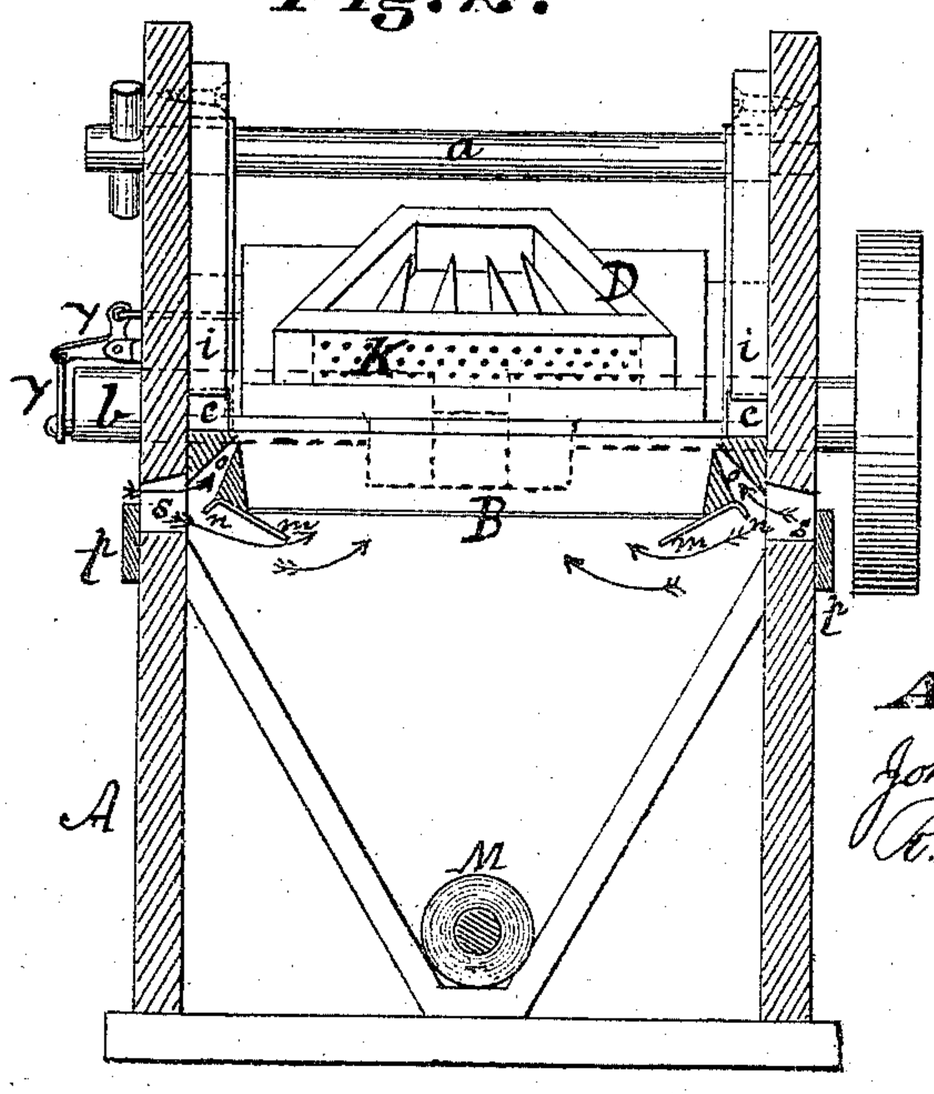
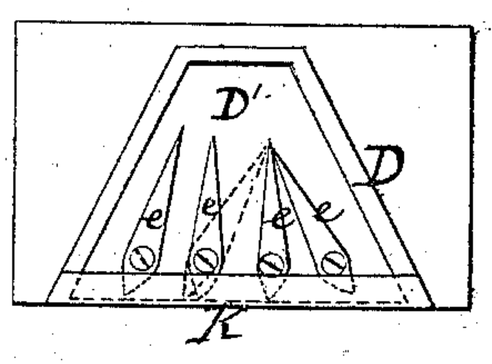


Fig. 3.



Attest.

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Inventors,

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per H. P. K. Peck, Attorney

UNITED STATES PATENT OFFICE.

JOHN BANDON AND JOHN WIGGIM, JR., OF DAYTON, OHIO.

IMPROVEMENT IN MIDDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **143,490**, dated October 7, 1873; application filed May 29, 1873.

To all whom it may concern:

Be it known that we, JOHN BANDON and JOHN WIGGIM, Jr., of Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Machines for Purifying Middlings; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 represents a side elevation of our improved machine, with a portion of the case broken away to exhibit the operating mechanism. Fig. 2 represents a vertical transverse section of the same, taken at *x x* of Fig. 1. Fig. 3 represents the distributing-feeder, detached.

This invention relates to the class of machines used for separating impurities and bran from that product of flouring-mills known as middlings; and it consists in certain improvements in such machines, whereby the middlings may be perfectly purified, and used to manufacture the best quality of flour.

In our improved machine, in which a fan, a cloth screen, a distributing-feeder, and discharging mechanism are used, we have provided devices for perfectly regulating the ingress of the air, and for directing its currents through the machine. The distributing-feeder and the cloth screen are shaken by suitable mechanism, and the latter is subjected to a slight percussive action to prevent it from becoming clogged.

In the drawings, A denotes the case, in which the bolting-cloth screen B is suspended by four elastic straps, W, secured at their upper ends to adjusting-rolls *a a* for varying the position of the screen, which should have a slight inclination, so as to facilitate the passage of the stuff being cleansed. The front end of the screen-frame is connected, by a pitman, to the crank-shaft *b*, by which reciprocating motion is imparted to it. On the upper edges of the screen-frame two angular knockers, *c*, are secured, which are brought in contact with two yielding tappets, *i*, under which the knockers *c* pass at each forward and backward movement of the screen, thus causing the elastic suspension-straps to yield and a sudden vertical action to be given to the screen to clear its meshes from any adhering matter. The distributing-feeder D is supported by an inclined board secured to the case A, and has imparted to it oscillating motion by means of the bell-crank and connecting-rods *y y*, one of which is connected with the crank-pin on the end of shaft *b*. Feeder D is provided with several chutes, *e e*, which spread the middlings upon a perforated inclined bottom, through which it is evenly sifted upon the front end of screen B. The side pieces of the screen-frame are made with wedge-shaped slots *o*, extending from end to end, and are provided with flanges *n m* to give proper direction to the entering currents of air drawn by the fan through slots *s s* in the sides of the case A. The slides *p* are arranged to regulate the admission of air, and these may be so modified as to cause the air to enter either above or below the deflecting-flange *n*. One purpose of the wedge-shaped slots *o* and the outwardly-projecting flange *n* at the bottom of the screen-frame is to cause a strong current of air to be drawn in above the screen to carry off the light dust which constantly arises from the agitation of the stuff passing over the screen. Besides this effect, such a current will carry with it the impurities that may be suspended in the air of the apartment in which the machine is being used, and thus prevent it from passing under and lodging against the under side of the screen and choking it. The fan will necessarily draw a less powerful current of air through the screen B than through slots *o;* but sufficient draft to buoy up the lighter matter passing along the screen B will be drawn through it. These two currents of air, deflected by the flanges *n m*, may be relatively varied in volume and intensity by adjusting the slides *p p*, as the nature of the work and the condition of the atmosphere will indicate. In humid weather a stronger current, and of greater volume, will be required to pass up through the screen B to effect the best results.

In our improved machine the air carrying the impurities is drawn directly out at the center of the case above the screen by the action of the fan, excepting the heavier bran, which is discharged over the rear end of the screen into a separate apartment, H. The flour and granular particles of the wheat fall down through

the meshes of the bolting-cloth screen by their own gravity and by the agitation of the screen. The draft of air up through the screen should be so regulated as to permit all the valuable material to fall, and the draft above the screen be allowed to assist in buoying up that which is passing along the screen. Suitable pulleys and gearing are employed to drive the fan N and conveyer M, and to shake the feeder D and screen B.

The material to be purified is fed through the opening *r* upon the distributing-feeder, at D′, and is directed and spread by chutes *e e* upon the perforated bottom or sieve K, which discharges it upon the screen B evenly; and as there is an adjustable slide over a slot in the front of case A, directly below the feeder D, a slight draft of air may be admitted to pass through the falling material before it reaches the screen B, and thus remove a portion of the fine dust at the beginning of the operation.

It is apparent that the knocker *c* and tappet *i* may be transposed so as to get substantially the same effect.

We do not in this application claim, broadly, the air-passages in the sides of the case, as they are to be incorporated in a separate and distinct application of ours.

Having described our improved machine for purifying middlings, we claim, and desire to secure by Letters Patent, as our invention—

The combination of the elastic suspension-straps W, knockers *c*, and tappets *i* with the screen, substantially as described.

Witness our hands this 30th day of April, A. D. 1873.

JOHN BANDON.
JOHN WIGGIM, JR.

Witnesses:
H. P. K. PECK,
WM. GUNCKEL.