W. DANIELS.

Middlings-Purifiers.

No. 149,378. Patented April 7, 1874.

Fig. 1.

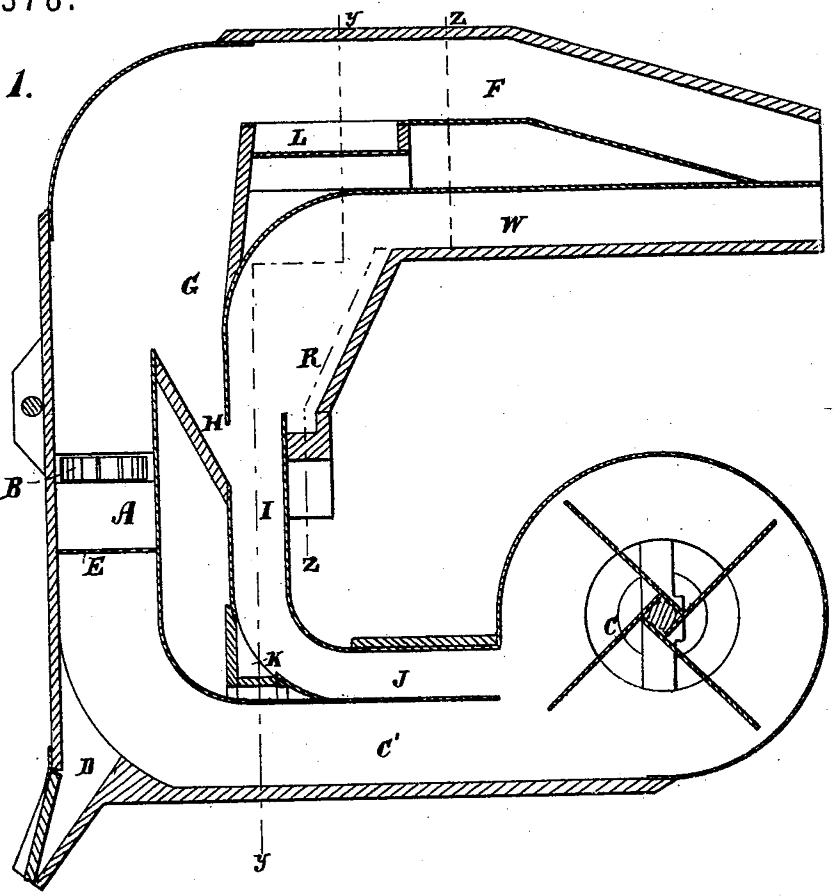
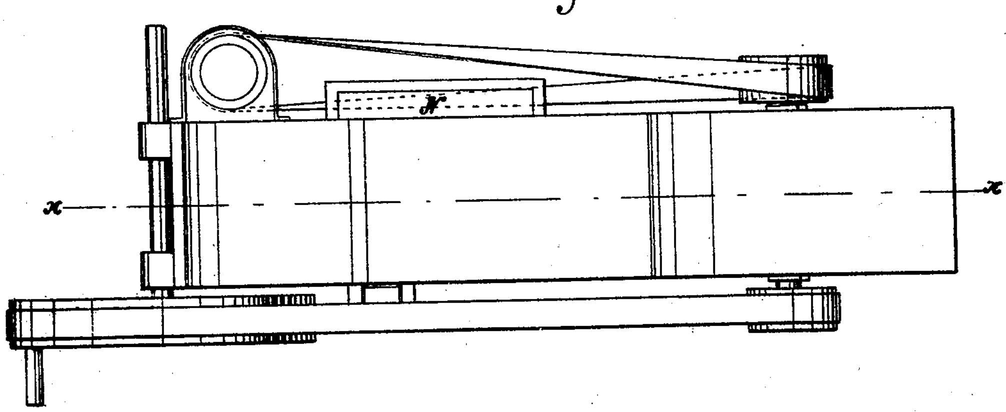


Fig. 2.



WITNESSES:

A. Bennenendorf
C. Sedgwick

INVENTOR:

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Fig. 5.

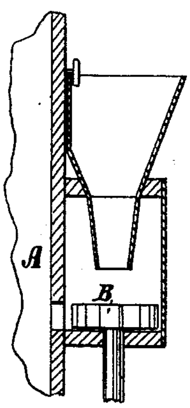


Fig. 3.

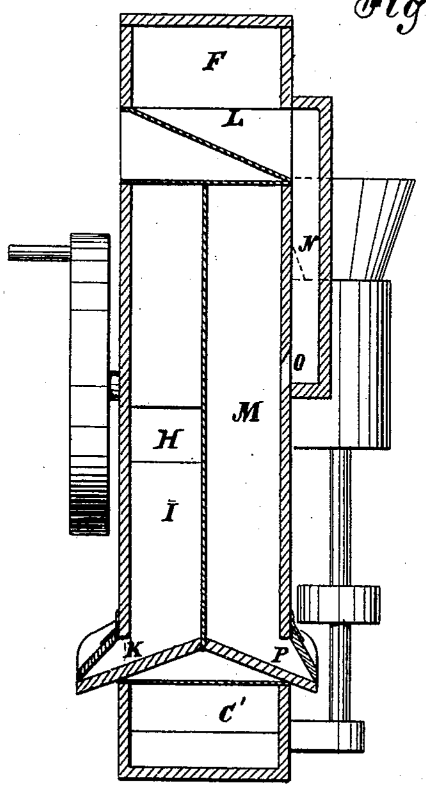
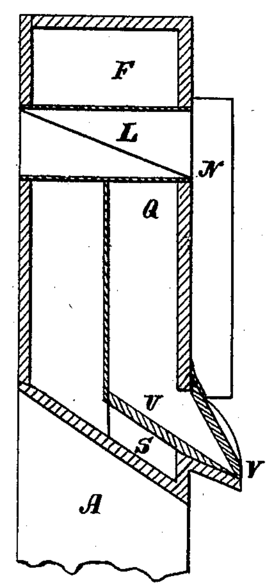


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM DANIELS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN MIDDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. 149,378, dated April 7, 1874; application filed January 24, 1874.

To all whom it may concern:

Be it known that I, WILLIAM DANIELS, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Middlings-Purifier, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

Figure 1 is a longitudinal sectional elevation of my improved machine, taken on the line *x x* of Fig. 2. Fig. 2 is a plan view. Fig. 3 is a transverse section taken on the line *y y* of Fig. 1. Fig. 4 is a section on the line *z z* of Fig. 1. Fig. 5 is a section through the feeding apparatus.

Similar letters of reference indicate corresponding parts.

A is a vertical tube, of large size, into which the middlings are fed by the feed-wheel B, after being dusted in any way, to be subjected to a blast from the fan C, through passage C′, for separating the lighter matters from the heavier by carrying them upward, while allowing the latter to fall to the discharge-spout D, said spout being connected with a closed receptacle of any kind that will prevent the escape of the air by it. E is a wire screen in tube A, a little below the feed-spout, to break up any masses or lumps, and distribute them so as to get a uniform action of the air. F is a discharge-spout for receiving and conducting away such light refuse matters as are to be carried off at once. G is an offset in the upper part of the tube, where it is designed that matters light enough to be carried up by the blast in tube A, but containing seconds worth saving, together with some refuse, shall fall, to be conducted by the spout H into another vertical tube, I, to be subjected to another blast from the fan through the passage J, by which the lighter matters are again to be separated and carried upward, while the heavier are allowed to fall to the spout K, which, like spout D, will enter a closed receptacle. Above G the blast is turned to a horizontal course, so as to further facilitate the falling of whatever matters of value for flour may yet be in the escaping current, and below is a wide laterally-descending portion, L, of the lower wall of the passage, for receiving as much of the droppings as may be of value, and conducting them into a third upright tube, M, through N O, when they are again treated to a vertical blast, and the heavier matters let fall to the spout P, while the refuse is carried off through the horizontal discharge-spout Q. This upright tube receives a separate blast from the fan through a passage similar to J, and alongside of it, and both tubes, M and I, are provided with an offset, R, similar to G in tube A, for the reception of particles too light to fall in the blasts, and too heavy to be carried off in the waste-spouts. The deposits in the offset R of tube I are carried, by spout S, into tube M at U, to be treated again, and those from the same offset of pipe M are delivered at the spout V, to be reground or otherwise disposed of, as may be required by the nature of the case. W is the discharge-spout for the waste from tube I. The spouts D, K, and P may all return into one receptacle or conveyer, for conducting the purified middlings to the stones to be reground together, as the object is not so much to make different grades, as it is to apply blasts in the purifier adapted in force to the gravities of the different grades, for thoroughly purifying both the heavy and light matters of value without waste.

The plan could be extended by the addition of more of the vertical tubes and blasts, if preferred; but two may be sufficient in some cases.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the fan C, of the passages C′ F J I W, offset G, opening H, discharge-passages D K, and feed-tube A, all constructed and arranged to operate in the manner and for the purpose specified.

2. The spout L, passages N O, and vertical spout M, in combination with fan C, passages C′ F J I W, offset G, opening H, feed-tube A, and discharge-passages, all constructed and arranged to operate substantially in the manner described.

WM. DANIELS.

Witnesses:
C. SEDGWICK,
T. B. MOSHER.