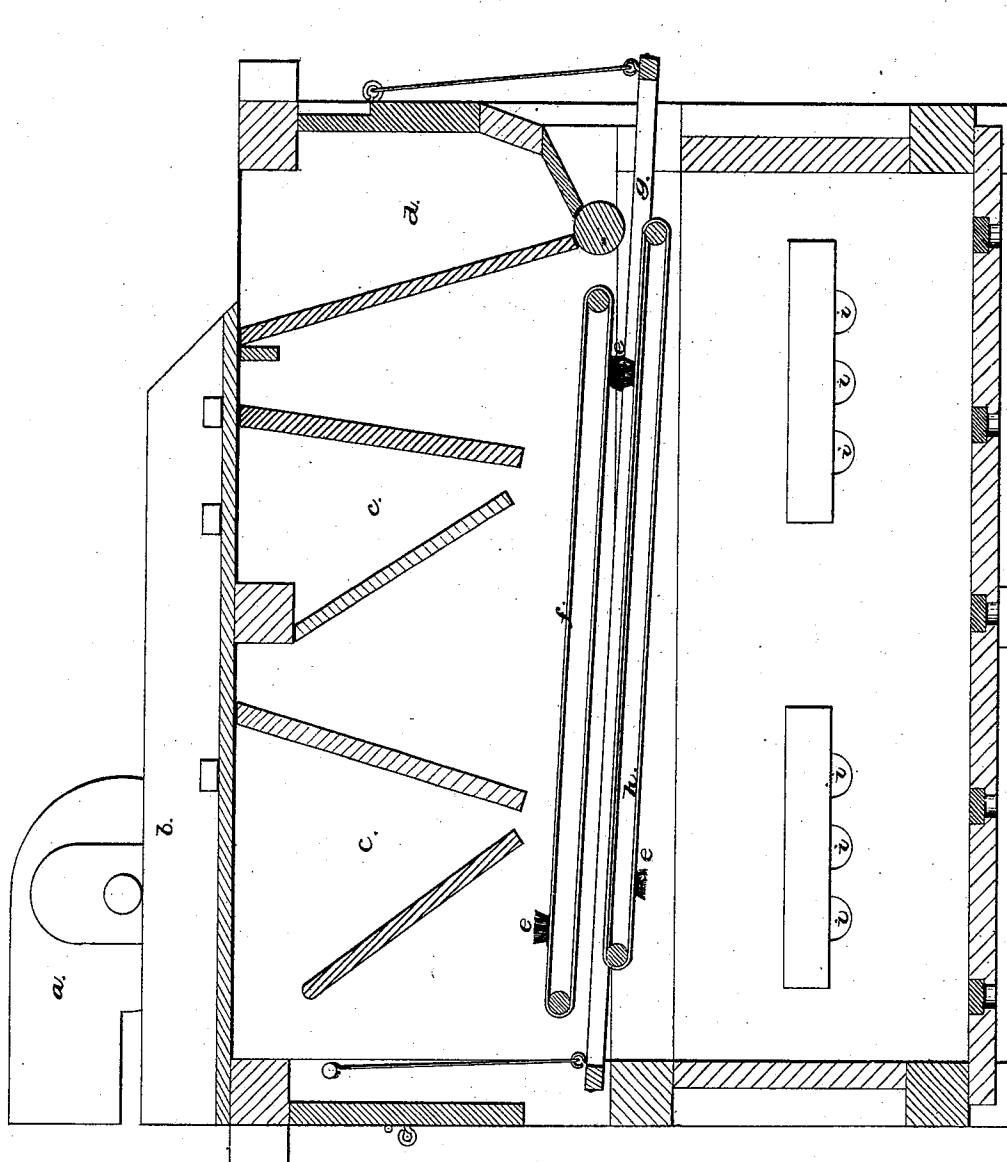


S. L. BEAN.  
MIDDLINGS SEPARATOR.

No. 188,333.

Patented March 13, 1877.



Witnesses:

*H. C. Colket*  
*W. P. Farrar*

Inventor:

*Samuel L. Bean*

# UNITED STATES PATENT OFFICE.

SAMUEL L. BEAN, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN MIDLINGS-SEPARATORS.

Specification forming part of Letters Patent No. **188,333**, dated March 13, 1877; application filed July 31, 1876.

*To all whom it may concern:*

Be it known that I, SAMUEL L. BEAN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for the Purifying of Middlings Flour; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The drawing is a longitudinal sectional elevation of a middlings-purifying machine with my improvements.

Letters when duplicated indicate like parts.

*a* is a fan. *b* is an open-air trunk. *d* is the feed-hopper. *h* is a belt. *k* is a feed-roller for distributing the material upon the bolt *g*.

My improvements are as follows: I use a brush, *e*, (or several bushes,) traveling upon the upper surface, in combination with a brush (or several brushes) traveling upon the under side of the cloth on the shaker *g*, whereby the amount of work and the quality thereof are increased and improved.

The effect of these brushes so arranged and operated upon a shaker is to remove the adhering particles of every kind from both sides of the cloth, permitting a free escape of the middlings to be cleaned through the cloth, as well as a freer current of air, by which the impurities are carried away from the middlings and a better and more delicate separation effected.

It enables finer numbers of cloth to be used than with an equal number of brushes on one side alone, and obtain better results from less surface of cloth than by any other known method, as by this arrangement every mesh of the cloth acted on by the brushes is sure to be kept open. There is also the effect to assist the machine in cleaning the material when, as is frequently the case, the motion of the shaker may vary so as to clog the cloth by acting upon the middlings and carrying them along upon the surface of the cloth, while the lower side is kept open and free for

their escape. They also assist greatly when the middlings, from variations in the surface of the cloth, or from the effect of strong currents of air drawn by the fan, (which frequently occurs, causing sort of eddies,) lie thicker upon some spaces than others, by spreading them out to the required depth on the cloth, for the application of the current of air and a proper separation.

I cause my brush *e*, (or brushes,) on the upper surface of the cloth of the shaker *g*, to travel by the means shown, or their equivalent, at a rate of speed that permits the material to pass between the head and tail of the bolt without being swept on faster than the proper flow or travel thereof, and yet sufficiently fast for the purpose of purification in the best manner, as set forth.

With these, I prefer to use a return-chamber, *c*, in the air-chamber above the shaker *g*, arranged in the manner set forth, so that of the material passing through this and any other channel to the waste-chamber will be collected only the heavier particles and good middlings. These return-chambers *c* are constructed so as to leave the lower edges of the partitions a short distance apart at the bottom thereof, from which bottom point they diverge toward the top of the air-chamber. The air, passing upward and over the tops of said chambers, spreads, by reason of the divergence of said partitions, and the heavier particles falling are lodged on the sides of said partitions, and by such means collected and utilized, being afterward recleaned as they fall of their own weight in small quantities to the shaker, and so saved and manufactured into good middlings flour.

The machine is moreover provided, in combination with the gather-boards, as shown, with opening *i*, regulated by slides, as set forth, for the purpose of enabling such distribution and regulation of the currents of air as may be desirable upon all parts of the cloth and material to be cleaned, and thereby accomplishing the most perfect separation. The number of these openings I make according to the circumstances of the case in accomplishing such distribution, and do not mean to always use six, or to be limited therein.

Having described my invention, what I claim as new, and desire Letters Patent for, is—

A brush or brushes traveling upon the upper surface of the cloth on a shaker in a midlings-purifier, in combination with a brush or brushes traveling upon the under side of the cloth on the same shaker.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

SAMUEL L. BEAN.

Witnesses:

THOMAS C. CONNOLLY,  
HENRY H. BURTON.