2 Sheets--Sheet 1.

G. T. SMITH.

Flour-Dressing Machine.

No. 164,050. Patented June 1, 1875.

Fig. 1.

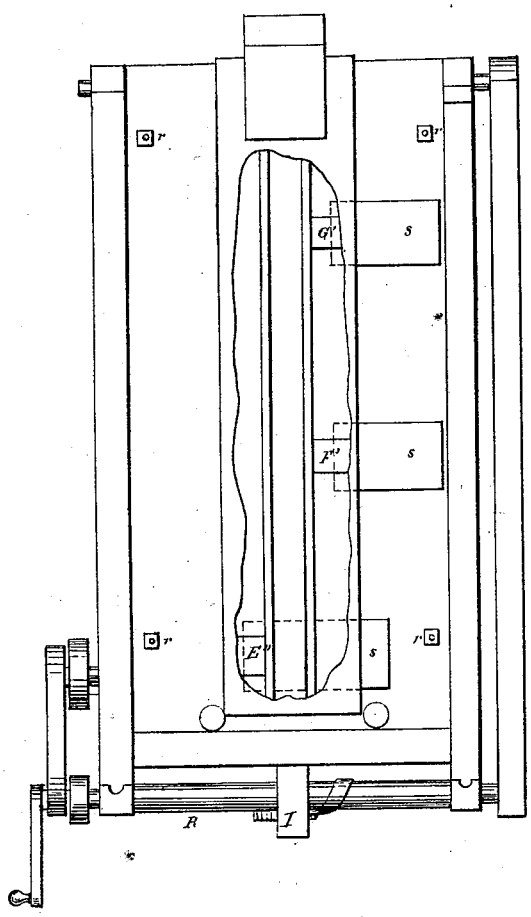
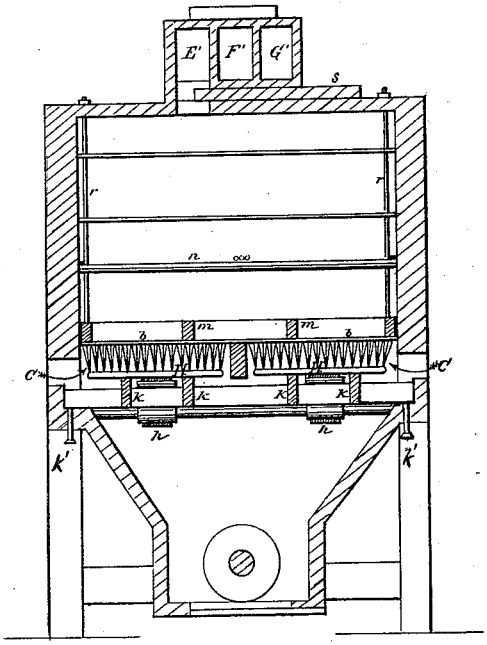


Fig. 2.



WITNESSES:

Alex Mahon
H. H. Doubleday

INVENTOR:

George Thomas Smith

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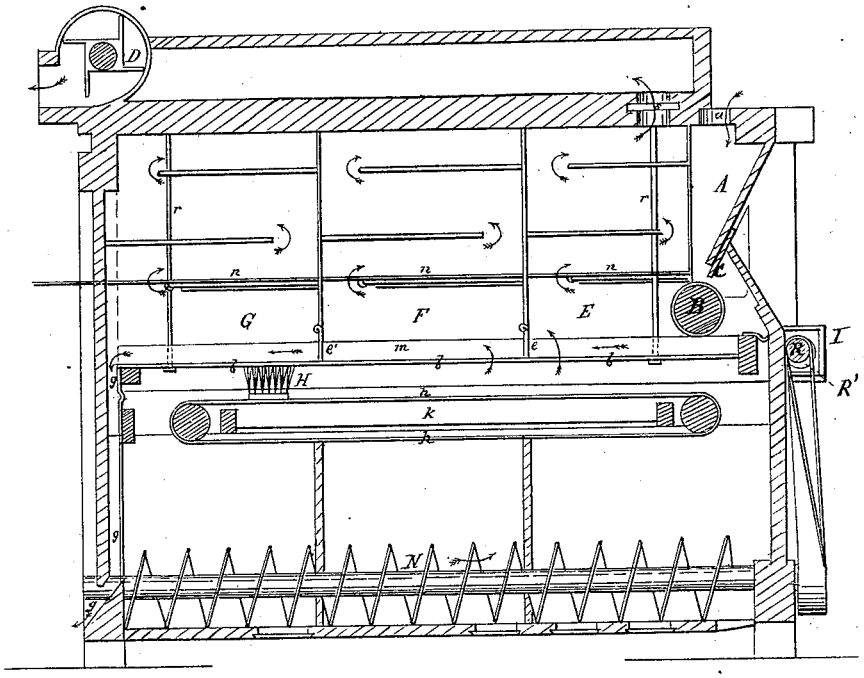
2 Sheets--Sheet 2.

G. T. SMITH.

Flour-Dressing Machine.

No. 164,050. Patented June 1, 1875.

Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE T. SMITH, OF MINNEAPOLIS, MINNESOTA.

IMPROVEMENT IN FLOUR-DRESSING MACHINES.

Specification forming part of Letters Patent No. **164,050**, dated June 1, 1875; application filed July 12, 1871.

To all whom it may concern:

Be it known that I, GEORGE T. SMITH, of Minneapolis, county of Hennepin and State of Minnesota, have invented a Machine for Dressing Flour and Middlings, of which the following is a specification:

In the drawings, Figure 1 is a top-plan view of a machine embodying my invention, with a portion of the top of the air-flue removed. Fig. 2 is a vertical transverse section, and Fig. 3 is a vertical longitudinal section.

Similar letters of reference indicate like parts in all of the figures.

When wheat or other grain is ground for flour, especially when it is ground close or "low," more or less of the outer husk or skin of the kernel is made so fine that it is difficult to separate it from the flour by the ordinary methods of bolting. This is particularly the case with spring-wheat, in which the bran is very dark-colored and specks the flour badly. These small particles of bran are light and can be removed from the middlings during the bolting process by means of a current of air, although they are so small that under ordinary circumstances they will pass through the meshes of the bolt-cloth.

With the common method of bolting there is a large loss of flour arising from the difficulty above referred to, as with the utmost care a certain proportion is left with the fine bran commonly called "canel."

With a view to effecting a more thorough separation of the bran and fine specks from the flour, I have made this invention, which consists in combining in a machine for dressing flour or middlings a bolting-surface or shaker, through which an air current or currents pass in one direction, while the flour or other material passes through in an opposite direction, with a brush or a series of brushes arranged to traverse the under side of the bolting-surface, to free the cloth of the adhering fine particles of material.

Having thus set forth the nature of my invention, I will now proceed to describe a machine which I have invented for carrying it into operation.

In the accompanying drawings, A represents a hopper, into which the material to be bolted is delivered from an elevator or by any other means. The material is fed by the roller B to the bolt *b*, the amount of feed being regulated by the slide *c*. The bolt is arranged in a chamber, through which a current of air is made to pass by means of a fan, D, the air entering through suitable openings C in the side of the bolt-chest, the construction and arrangement of parts being such that the air is compelled to pass upward through the bolt-cloth. The bolt or shaker is suspended from the frame-work by means of pivoted links *r r*, and has a reciprocating motion imparted to it by the eccentric R′ on shaft R and the inclosing-box I. As the material is agitated by the motion of the bolt, the flour falls through, while the smaller particles of bran are taken up by the current of air and carried off.

As there is a continual current of air in an upward direction through the bolt, it will cause the very fine particles of flour and middlings to adhere to the thread of which the cloth is composed, and close up the meshes to such an extent as to interfere materially with the operation of the device.

In order to obviate this objection and maintain a free passage of the air and middlings, I employ brushes to traverse the under side of the cloth and keep it clean. H H are the brushes attached to and carried by endless belts *h*, the brushes being supported upon ways *k k* during their contact with the bolt.

By preference, I make the frame-work and ways which support the brushes adjustable by means of set-screws *b′*, (see Fig. 2,) so that I can keep the brushes always in contact with the bolt.

It is evident that the brushes would act upon the bolt equally well if they had a reciprocating motion, instead of being driven continuously in one direction by the endless belts or chains, although I regard the method shown for operating them as being the cheapest and most convenient, and also better adapted for doing the work.

I am aware that a combination of brushes and air-currents has been used in connection with flour-bolts for many years; but in such machines the air-current passed through the bolting-surface with the flour; hence it could

not, by any possibility, be made to perform the same functions as it does in my machine, one of which is to float a portion of the bran and refuse upon or above the bolting-surface, and thus cause such particles to pass off at the tail of the bolt, instead of going through the cloth with the flour or clean middlings.

I do not in this application claim the chains, belts, or bands which carry the brushes, nor the rollers which drive the same; nor the arrangement of the sectional air-chamber above the shaker, nor any of the other features shown or described, except the invention which is distinctly claimed herein, it being my intention to limit this application to the combination of elements recited in the claim, reserving to myself the right to claim all other novel features in other divisions of this application which I have filed.

I claim—

The combination, in a machine for dressing flour or middlings, of a bolting-surface through which an air-current passes in one direction, while the flour or middlings pass in the other, with a brush or a series of brushes, which traverse the under side of the bolting-cloth to remove the adhering particles of flour, substantially as set forth.

GEORGE T. SMITH.

Witnesses:

R. P. RUSSELL,

E. M. WILSON.