(No Model.)

A. HEINE.

BRAN DUSTER.

No. 485,867. Patented Nov. 8, 1892.

Fig. 1.

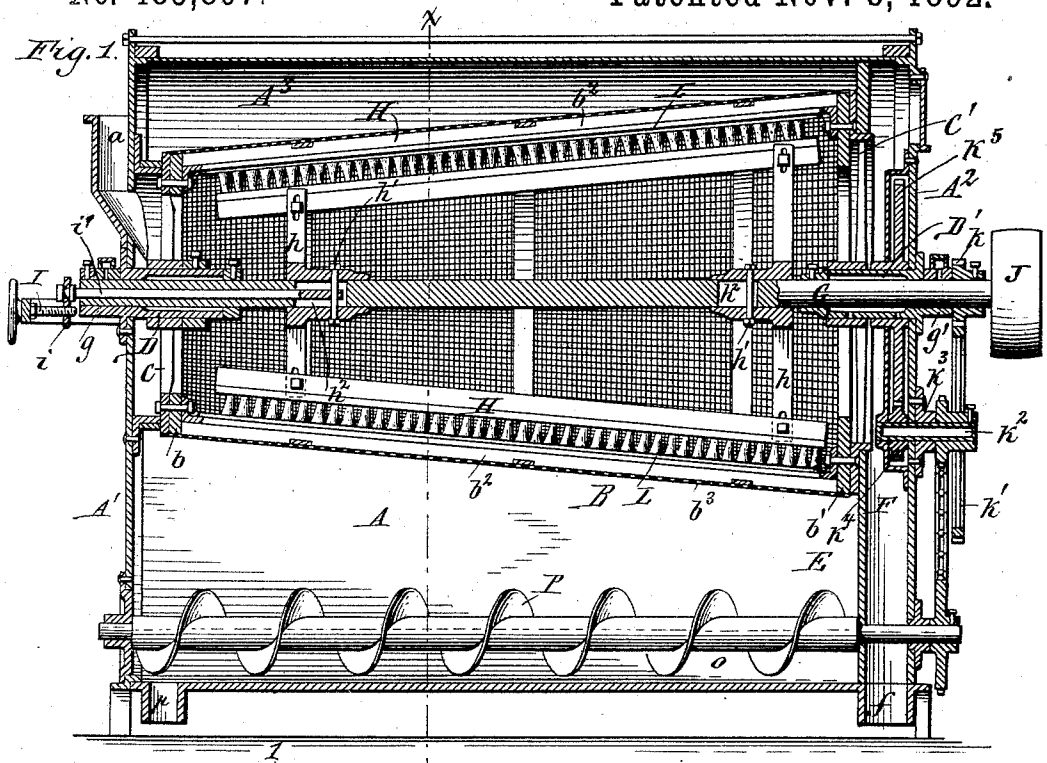


Fig. 2.

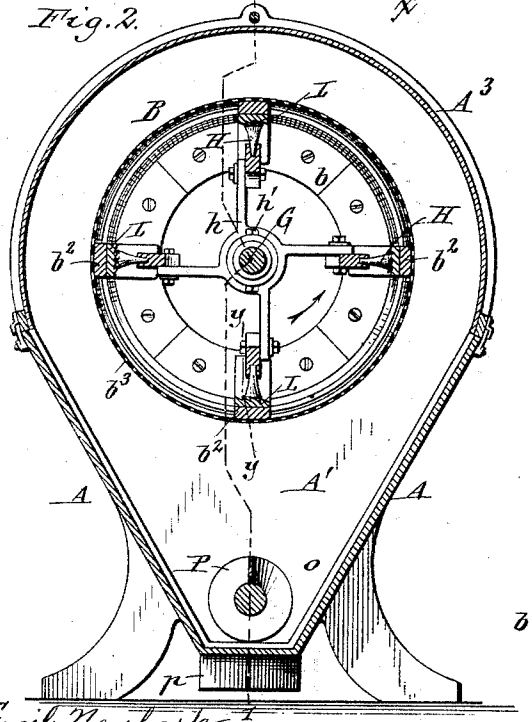


Fig. 3.

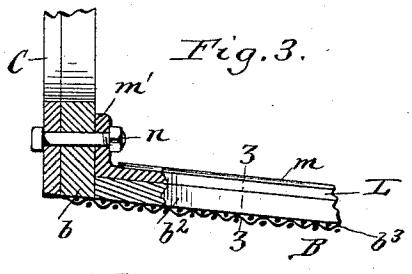
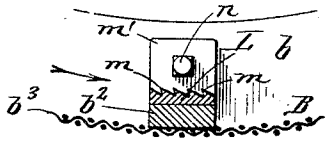


Fig. 4.



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UNITED STATES PATENT OFFICE.

AUGUST HEINE, OF SILVER CREEK, NEW YORK.

BRAN-DUSTER.

SPECIFICATION forming part of Letters Patent No. 485,867, dated November 8, 1892.

Application filed June 10, 1892. Serial No. 436,251. (No model.)

To all whom it may concern:

Be it known that I, AUGUST HEINE, a citizen of the United States, residing at Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Bran-Dusters, of which the following is a specification.

This invention relates to a bran-duster which consists, essentially, of a rotating bolting-screen and rotating brushes arranged within the screen.

The object of my invention is to increase the efficiency of this class of bran-dusters and to enable them to more effectually remove the particles of flour from the bran in moist weather.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a bran-duster embodying my improvements, the plane of section being in line 1 1, Fig. 2. Fig. 2 is a vertical transverse section in line x x, Fig. 1. Fig. 3 is a fragmentary longitudinal section of the front end of the screen, on an enlarged scale, in line y y, Fig. 2. Fig. 4 is a transverse section in line z z, Fig. 3.

Like letters of reference refer to like parts in the several figures.

A represents the lower inclined walls, A′ A² the head and tail boards, and A³ the semicylindrical top section forming the inclosing case.

a is the feed-spout, which is attached to the head-board of the machine.

B represents the revolving bolting-screen, having the form of a truncated cone and arranged horizontally in the case, with its small end at the receiving end of the machine. The bolting-screen is composed, essentially, of two circular end frames b b', longitudinal bars b^2, connecting these frames, and a wire-cloth covering b^3, secured to the outer sides of the end frames and longitudinal bars. The end frames b b' are secured to open heads C C′, which are journaled on hollow arbors D D′, mounted on the head and tail boards of the case.

E represents the vertical partition, arranged transversely in the casing adjacent to the rear end of the screen and forming a receiving-chamber F between said screen and the tail-board of the case. The material falling into the receiving-chamber is discharged through a spout f at the bottom of the chamber.

G represents the revolving brush-shaft, extending axially through the bolting-screen and journaled in bearings g g', secured to the head and tail boards of the case and formed in one piece with the arbors D D′.

H represents the brushes, which are arranged lengthwise in the machine and parallel with the bolting-screen in the usual manner, so that by adjusting the brushes lengthwise of the machine they are caused to approach the cloth or recede therefrom. The brushes are secured near their front and rear ends to spiders h, attached to the shaft G by bolts h', passing through the hubs of the spiders and transverse slots h^2, formed in the shaft G, thereby permitting a limited longitudinal movement of the spiders on said shaft, but compelling the spiders and brushes to rotate with said shaft. The arms of the spiders are provided with radial slots, as usual, through which the bolts pass, by which the brushes are attached to the arms and which permit each end of each brush to be adjusted separately with reference to the bolting-screen in giving each brush the initial adjustment and in compensating for uneven wear.

I represents an adjusting-screw, whereby the brush-spiders are adjusted lengthwise of the machine. The movement of this screw is transmitted to the brush-spiders by a coupling-plate i and a connecting-rod i', arranged in the hollow front portion of the shaft G.

J represents the main driving-pulley, which is secured to the rear end of the brush-shaft and whereby the brushes are directly rotated. The bolting-screen is rotated in the same direction as the brushes, but at a slower speed, by means of gear-wheels, which are preferably arranged as follows:

k represents a pinion secured to the brush-shaft adjacent to the rear bearing g' and meshing with a larger gear-wheel k', secured to the rear end of the counter-shaft k^2, journaled in a bearing k^3, secured to the tail-board of the casing. The front end of the counter-shaft is provided with a pinion k^4, which meshes with a large gear-wheel k^5, journaled upon the rear arbor D′ and connected with the rear screen-head C′.

In bran-dusters of ordinary construction the bran delivered into the revolving screen is brushed against the screen, whereby the

particles of flour adhering to the bran are detached and caused to pass through the screen, while the bran is discharged over the tail of the screen. In dry weather the particles of flour are easily removed by the rotating brushes; but in moist weather these particles adhere more tenaciously to the bran, which render their removal from the bran more difficult.

In order to detach the flour more completely from the bran, the inner side of the screen is in my improved machine provided with scouring-plates L, having longitudinal corrugations or ribs *m* on their inner faces. The faces of these scouring-plates are arranged nearer the axis of the screen than the bolting-surface thereof, so that the brushes run in contact with the scouring-plates, but clear the bolting-surface. The brushes are adjusted so as to pass closely to the corrugations, which have their advancing or front sides made inclined, while their trailing or rear sides are abrupt. The brushes, which revolve at a higher speed than the screen, brush the bran against the corrugations, more particularly the abrupt sides thereof, and carry the bran over the same, which causes the corrugations to rub or scrape the flour from the bran. After the brushes have passed the corrugated plates they dust the flour, which has been liberated from the bran, through the screen. This action is more gentle than it is in machines in which the brushes bear directly against the wire-cloth, and the wear of the brushes and wire-cloth is therefore correspondingly reduced in my machine. The corrugated plates are arranged at intervals around the inner side of the screen, so that the brushes alternately perform the function of rubbing or scouring the bran against the corrugations to detach the flour and then dusting the flour from the bran through the screen. The corrugated plates are preferably arranged upon the inner sides of the longitudinal connecting-bars b^2 and extend from end to end thereof and are provided at their ends with perforated lugs m', by which they are secured to the end frames of the screen by bolts *n;* but, if desired, the scouring-plates may extend only over a part of the length of the screen. The case is provided in its bottom with the usual conveyer-trough *o*, conveyer P, and spout *p* for the discharge of the flour.

I claim as my invention—

1. The combination, with a circular bolting-screen, of a scouring-plate arranged within the screen and nearer the axis thereof than the bolting-surface and a rotating brush running in contact with the scouring-surface, but clearing the bolting-surface, substantially as set forth.

2. The combination, with the bolting-screen, of a brush rotating in the screen and scouring-plates arranged at intervals on the inner side of the screen and provided with longitudinal corrugations having inclined and abrupt sides, substantially as set forth.

3. The combination, with the heads of the bolting-screen, of longitudinal bars connecting said heads, a screen-cloth arranged on the outer sides of said bars, scouring-plates secured to the inner sides of said bars, and a rotating brush arranged within the screen and operating to rub the bran against the scouring-plates and dust the flour through the screen-cloth, substantially as set forth.

Witness my hand this 7th day of June, 1892.

AUGUST HEINE.

Witnesses:
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