2 Sheets--Sheet 1.

L. GATHMANN.

Middlings Purifier.

No. 161,875. Patented April 13, 1875.

Fig: 1.

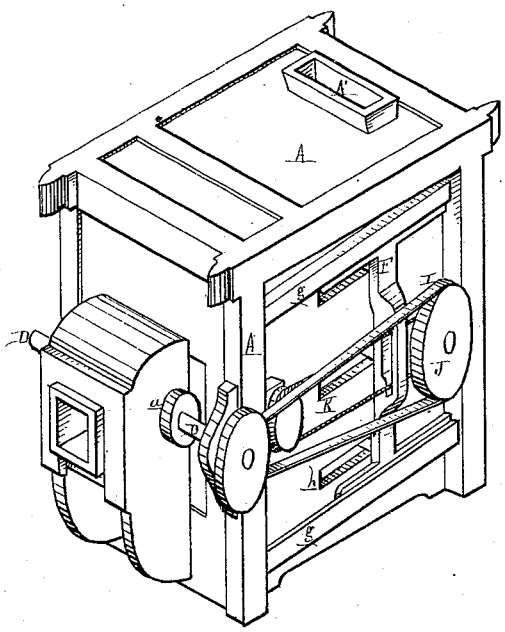
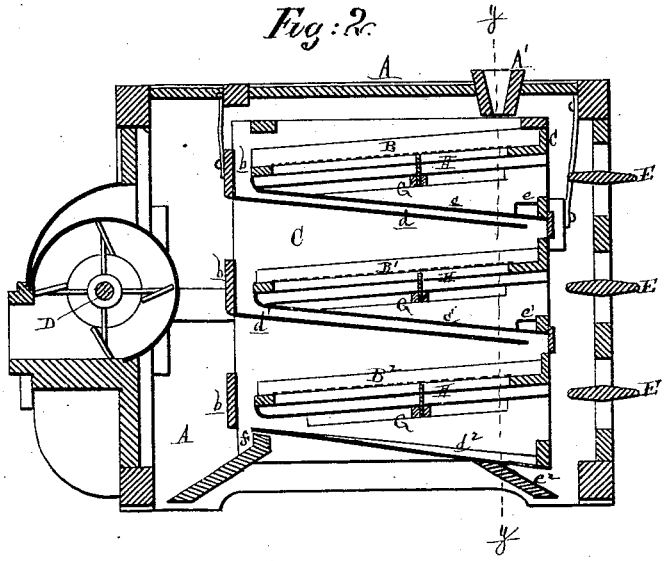


Fig: 2.



Attest.
James O'Brien
Edward Barthel

Inventor.
L. Gathmann
per Atty
Thos S. Sprague

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

L. GATHMANN.

Middlings Purifier.

No. 161,875. Patented April 13, 1875.

Fig: 3.

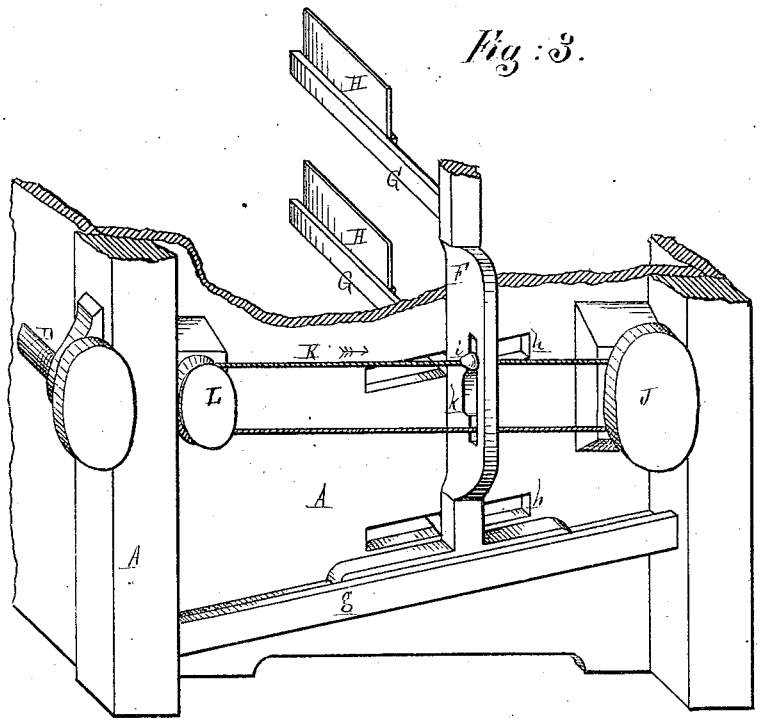
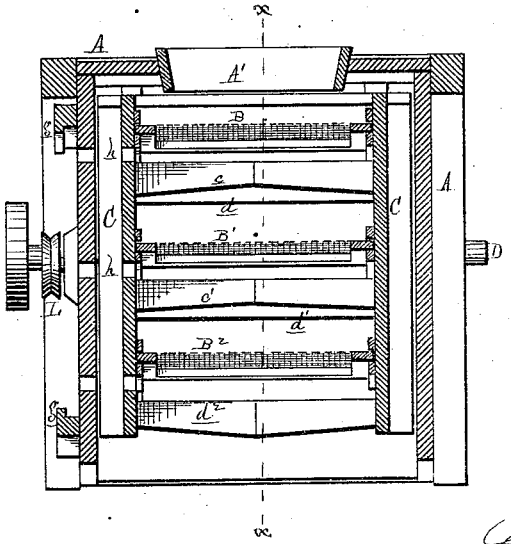


Fig: 4.



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UNITED STATES PATENT OFFICE.

LOUIS GATHMANN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MIDDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **161,875**, dated April 13, 1875; application filed October 19, 1874.

To all whom it may concern:

Be it known that I, LOUIS GATHMANN, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Middlings-Purifiers, of which the following is a specification:

My invention relates to the peculiar construction and arrangement of the screens and carriers in a middlings-purifier with relation to the casing, valves, and a suction-fan.

Figure 1, Sheet 1, is a perspective view of the machine. Fig. 2 is a longitudinal vertical section at *x x* in Fig. 4. Fig. 3, Sheet 2, is a detached perspective view of the cleaners and the mechanism which reciprocates them. Fig. 4 is a cross-section at *y y* in Fig. 2.

In the drawing, A represents the frame and external casing of the machine, with a hopper, A′, on top, at one end, through which the unpurified middlings are fed in, falling in a thin stream upon the upper end of an inclined screen, B, clothed with fine bolting-cloth, and secured in a vibrating frame, C, suspended from the top of the casing. This frame has a short quick vibration imparted to it by an eccentric, *a*, on the shaft D of a suction-fan at the tail end of the machine. At the other end of the machine a blind-slat valve, E, is hung, opposite and below each screen, to regulate the volume of air admitted thereto. The screen B separates the fine from the coarse middlings, while the light dust and other floating impurities are carried over a tail-board, *b*, at the foot of the screen, and thence drawn through the fan and discharged from the machine. The fine middlings, passing through the screen B, fall onto a carrier-board, *c*, inclined toward the head of the machine, and pass off the same through a lateral spout, *e*, Fig. 2, at each lower corner. Below the board *c* there is a return-board, *d*, upon whose upper end the coarse middlings and heavy impurities drop, which conveys them to the head of an inclined screen, B^1, below. This screen is coarser than the upper one, and the finer middlings pass through it onto a carrier-board, *c′*, from which it is discharged through a lateral spout, e^1, at each lower corner, while the coarser middlings and heavy impurities fall onto the upper end of a returning-board, d^1, which conducts them to the head of a coarser screen, B^2, below, which eliminates the coarse middlings, which fall onto an inclined board, d^2, arched transversely to throw the stuff to the corners, where it passes out through spouts e^2, and mingles with the flour eliminated by the first screen, and the fine middlings eliminated by the second one. The heavy and coarse impurities pass through a spout, *f*, into the tail end of the casing, from which they may be removed by a spout or duct.

The influent currents of air passing through each screen may be regulated in volume and force by the valves, as circumstances may require.

The screens are cleansed of impurities and matters which clog their meshes in the following manner: At one side of the external casing a pair of parallel guides, *g*, are secured thereto, having the same inclination as the screens. A vertical bar, F, has a T-head at each end, which slides in a rabbet in the guide *g*. A slot, *h*, having the same inclination as the guides, is cut through the casing under each screen, and through it an arm, G, projects horizontally from the bar F, reaching across the screen, and is armed with a vertical scraper, H, of leather or vulcanized rubber, whose upper edge wipes the cloth of the screen at each reciprocation. A belt, I, from a pulley on the fan-shaft, drives a pulley, J, near the head end of the casing. A grooved pulley (not seen) on the same shaft carries an endless cord, K, which also passes around a grooved pulley, L, passing through a slot, *k*, in the bar F. At one place in its length there is a large knot, *i*, in the cord, or a bulb may be secured on it. The slot *k* is wide enough in its middle portion to allow the knot to slip through it; but above and below the slot is narrowed to prevent the knot from passing through, so that as said knot moves in the direction of the arrow in Fig. 3, traveling in a horizontal plane, the bar, moving up the incline in the meantime, will present the wider part of its slot to the knot, which will then slip through. The bar is then stationary at the upper end of its guides, until the knot has reversed its direction of motion, when it will

itch the bar at the lowest point in its slot, id carry it along until the wide part of the ot is lowered to allow it to slip through.

This leather scraper is preferable to a brush, r the reason that at each time the motion of ie brush is reversed the bristles will be forced ito the meshes of the cloth, and thereby enirge them.

I do not claim, broadly, the invention of an ndless band provided with a projection for mparting an intermittent reciprocating moion to the scrapers; but

What I claim as my invention, and desire o secure by Letters Patent, is—

1. The series of scrapers H H H, secured o arms G G G, which are attached to and operated by a reciprocating bar, F, outside of the machine, in combination with the screens B B^1 B^2, substantially as described and shown.

2. The combination of a series of scrapers, H H H, secured to arms G G G, which are attached to and operated by a reciprocating bar, F, outside of the machine, with the screens B B^1 B^2, carrier-boards c c' d^2, inclined boards d d^1, spouts e e^1, contained in the vibrating frame C, and the casing A, valves E, and a suction-fan, substantially as and for the purpose set forth.

LOUIS GATHMANN.

Witnesses:

WM. H. LOTZ,

HERMAN A. KROESCHELL.