(No Model.)

J. J. FAULKNER.

MIDDLINGS PURIFIER, &c.

No. 246,669. Patented Sept. 6, 1881.

Fig. 1.

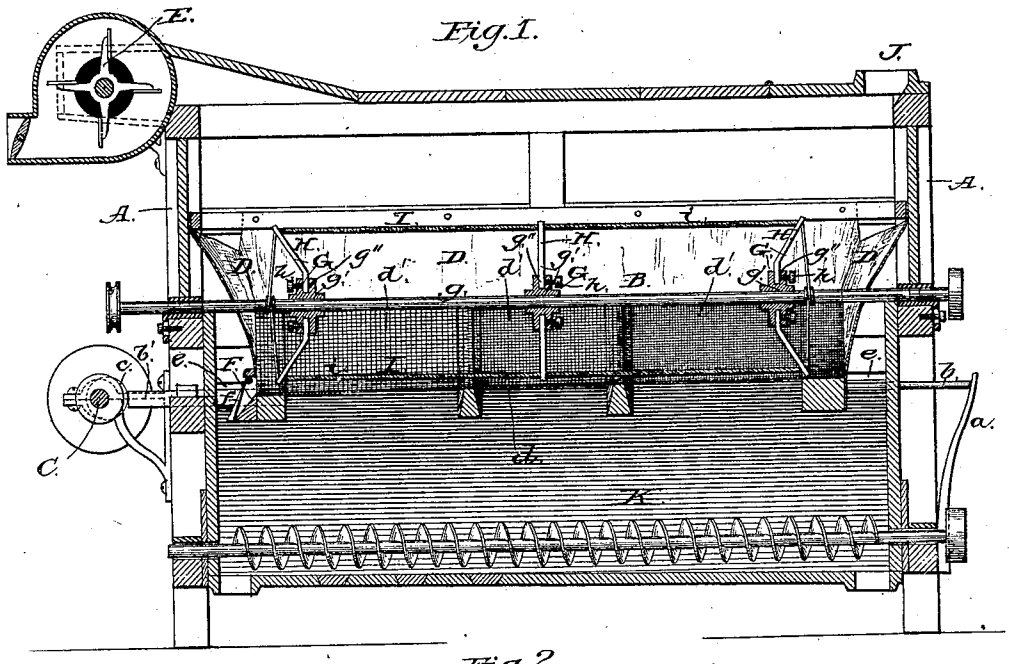
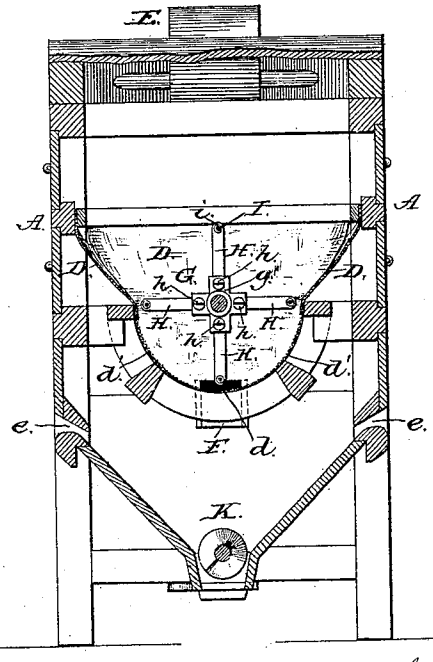


Fig. 2.



WITNESSES

John A. Ellis.

Robert Everett

INVENTOR

James J. Faulkner.

by E. W. Anderson

his ATTORNEY

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES J. FAULKNER, OF McMINNVILLE, TENNESSEE.

MIDDLINGS-PURIFIER, &c.

SPECIFICATION forming part of Letters Patent No. 246,669, dated September 6, 1881.

Application filed October 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. FAULKNER, of McMinnville, in the county of Warren and State of Tennessee, have invented a new and valuable Improvement in Middlings-Purifiers and Flour-Bolts; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a longitudinal section. Fig. 2 is a vertical cross-section.

My invention relates to certain new and useful improvements in middlings-purifiers and flour-dressing machines, and more particularly to improvements in that class of machines employing a fan for producing ascending air-currents through the sieve or screen for assisting the bolting process and removing the light impurities contained in the middlings or flour; and to this end the invention consists in novel constructions and combinations of parts to be hereinafter fully described, and specifically pointed out in the claims.

To enable others skilled in the art with which my invention is most nearly connected to make and use the same, I will now proceed to describe its construction and operation.

In the drawings, A represents the usual frame and inclosing-case of a middlings-purifier or flour-dressing machine.

B represents the sieve or screen, made semicircular or concave in cross-section, and which is supported at the front end by the sliding bars or rods *b b*, which project through the frame of the machine, and against the ends of which bear the springs *a a*, for a purpose to be hereinafter referred to. The screen or sieve is also supported at the rear end by similar sliding bars or rods, *b' b'*, arranged in bearings on one of the cross-beams of the frame of the machine with projecting ends, against which strike or engage the cams *c c*, mounted on the main driving-shaft C, and through the medium of which a longitudinal vibrating or reciprocating movement is imparted to the screen or sieve, the cams engaging with the ends of the bars *b' b'* moving the screen or sieve in one direction, while the springs *a a*, bearing against the ends of the bars or rods *b b*, (when the cams are out of engagement with the bars or rods *b' b'*,) produce the recoil or return movement of the screen or sieve. The screen or sieve is composed of transverse sections of bolting-cloth of different degrees of fineness, and each of said sections is provided with a longitudinal central section, *d*, of bolting-cloth of finer mesh than the sections *d'* of bolting-cloth on each side thereof. The central section, *d*, being of finer mesh and immediately in the bottom or lowest point of the screen or sieve, and where the greatest amount of middlings or flour accumulates, prevents the fine specks of foreign substances or bran from passing through the screen or sieve with the middlings or flour.

D represents a curtain attached to the top of the screen or sieve frame and to the inner sides of the casing of the machine, and which extends entirely around about and at the ends of the screen or sieve, for the purpose of excluding the air and preventing any of the unpurified middlings or flour falling down between the sides and ends of the screen or sieve and the casing of the machine into the hopper below containing the purified middlings or flour bolted through the screen or sieve, the air being thus excluded from passing up between the sides and ends of the screen or sieve and the casing of the machine is compelled to be drawn up through the screen or sieve, thereby agitating the middlings and flour, and at the same time carrying off the lighter impurities, while the flour or middlings are bolted through the screen or sieve.

Arranged at the rear and top of the machine is a suction-fan, E, for producing the ascending air-currents through the screen or sieve, the air entering through openings *e* in the sides of the casing of the machine.

The rear or finishing end of the screen or sieve is provided with a pocket, F, for the reception of the offal or bran, and which is provided with a hinged valve, *f*, which is kept closed by the suction-blast, but which will open and discharge the contents in said pocket when the weight thereof is sufficient to overcome the resistance of the suction-blast, when it will be again closed, thus preventing any currents of air passing through said pocket.

G represents a skeleton-reel composed of a

central longitudinal shaft, *g*, having mounted thereon a series of spiders, *g'*, with openings g^2 for the reception of the radial arms H, adjustably secured therein by set-screws *h*. Mounted in the outer ends of said arms are a series of longitudinal wire ribs, I, having their ends secured to or around the shaft *g*. These wire ribs are wrapped with cords *i*, and as the reel revolves they come in close proximity to the screen or sieve and force the middlings or flour through the same, and at the same time raise or agitate them, so that the ascending air-currents produced by the suction-fan will separate and carry off the dust and other light impurities. The adjustment of the arms H is for the purpose of regulating the tension of the wire ribs.

The machine is provided with the usual feed-hopper, J, and conveyer in receiving-hopper K, under the screen or sieve, and said conveyer, fan, and reel are operated through the medium of belts and pulleys connecting said operating parts with the main driving-shaft C.

The operation of my improved machine is as follows: The middlings or flour being fed from hopper J fall onto the head of the screen or sieve, and are bolted through the same through the medium of the vibrating movement imparted thereto, assisted by the ascending air-currents, which tend to keep the meshes open and the revolving skeleton reel or agitator G, while the light impurities and dust are carried off by the ascending air-currents, and the heavier impurities, in connection with the bran or offal, carried to the rear end of screen or sieve and discharged through pocket F, in the manner before described.

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

1. In a middlings-purifier or flour-dressing machine, the semicircular or concave screen or sieve B, supported on sliding bars or rods *b b b' b'*, in combination with mechanism for imparting a longitudinal vibrating or reciprocating motion to said screen or sieve, substantially in the manner herein shown and described.

2. In a middlings-purifier or flour-dressing machine, a semicircular or concave screen or sieve having central longitudinal section or sections of bolting-cloth of finer mesh than the sections of bolting-cloth at the sides of said central section or sections, substantially as and for the purpose herein shown and described.

3. In a middlings-purifier or flour-dressing machine, the combination of a longitudinally vibrating or reciprocating semicircular or concave screen or sieve and a revolving skeleton reel or agitator, substantially as and for the purpose herein shown and described.

4. In a middlings-purifier or flour-dressing machine, the combination of a longitudinally vibrating or reciprocating semicircular screen or sieve, a fan for producing ascending air-currents through said screen or sieve, and a revolving reel or agitator, substantially as and for the purpose herein shown and described.

5. In a middlings-purifier or flour-dressing machine, the combination, with a longitudinally vibrating or reciprocating semicircular or concave screen or sieve, of a revolving reel or agitator having adjustable arms H and wire ribs wrapped with cords, substantially as and for the purpose herein shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES JONES FAULKNER.

Witnesses:
E. T. FAULKNER,
J. B. RITCHEY.