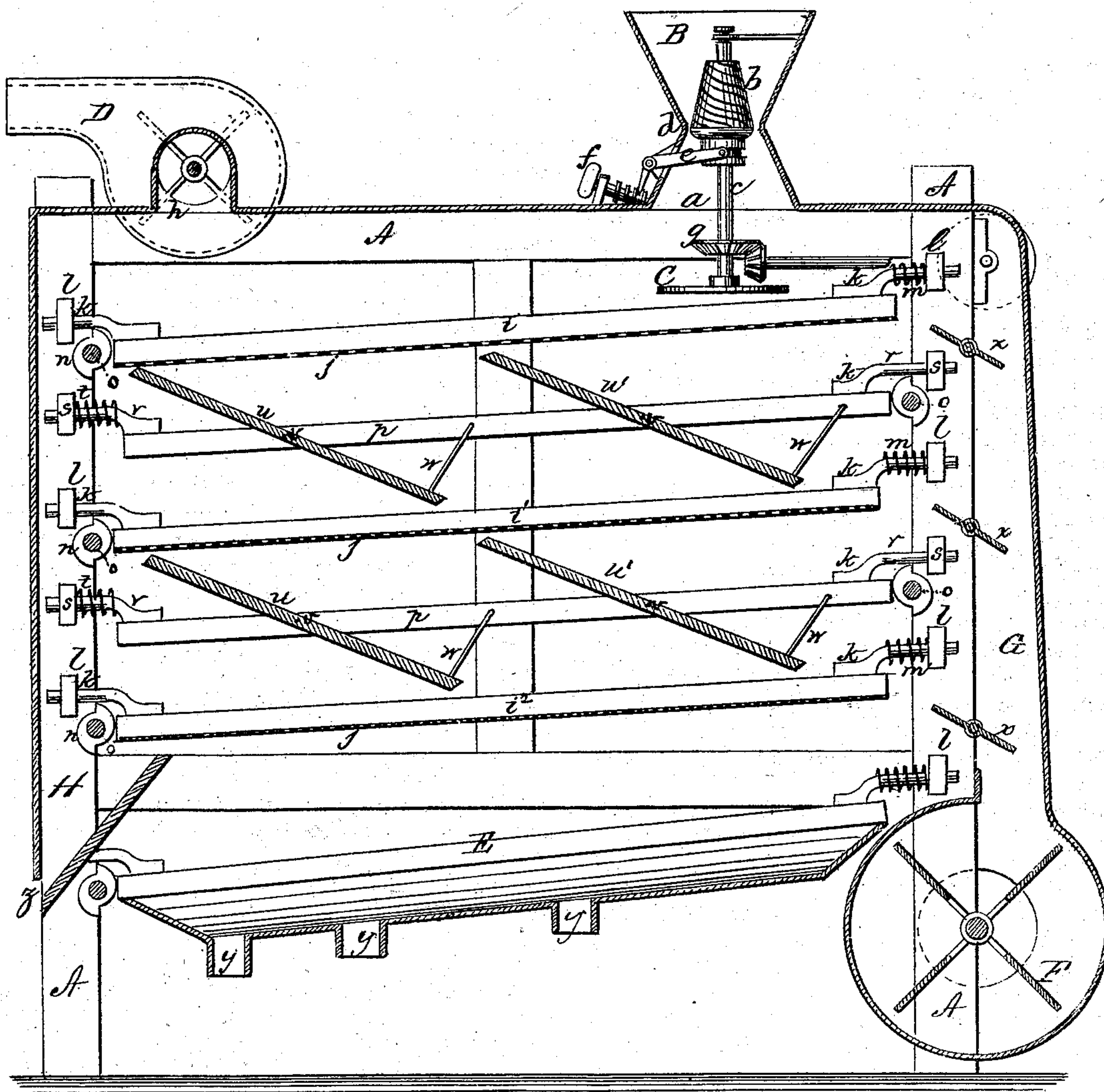


G. PARKER.  
Middlings-Purifiers.

No. 152,677.

Patented June 30, 1874.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MIDLINGS-PURIFIERS.

Specification forming part of Letters Patent No. **152,677**, dated June 30, 1874; application filed February 10, 1874.

*To all whom it may concern:*

Be it known that I, GEORGE PARKER, of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Middlings-Purifiers; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention is in the nature of an improvement in middlings-purifiers; and the invention consists in a middlings-purifier constructed with a series of screens or bolts, to which a slightly reciprocating and vibrating motion is imparted by means of cams, springs, lugs, and bearings; also a series of chutes, to which a vibrating motion may be imparted at the ends of the same by means of a vibrating frame, cams, springs, and sway-rods.

The accompanying drawing represents a longitudinal section of my middlings-purifier.

A represents the framing of my middlings-purifier. This framing may be of any size desired. Into an opening, *a*, of the casing is fitted a hopper, B. This hopper may be in the shape of two truncated cones, with their frustums joined together. Within the hopper B is secured a conical valve, *b*. This valve is fitted to a shaft, *c*, and is supported within suitable bearings, in such manner as will admit of its being moved vertically, bringing more or less of its diameter within the throat *d* of the hopper B, this vertical motion being regulated by a clutch, *e*, and hand-screw *f*. Onto the shaft *c* is affixed a bevel-wheel, *g*, and onto the lower end of this shaft is firmly secured a scattering-plate, C. Suitably fitted over an opening, *h*, in the casing of the purifier is a suction-blower, D. Extending from one side to the other of the frame-work A, in a slightly-inclined position, is a series of frames, *i* *i*<sup>1</sup> *i*<sup>2</sup>, to which are secured screens or bolting-cloths *j*. The frame-work of these screens or bolts is affixed to the frame-work A of the machine by lugs or projections *k*, which pass into bearings *l*, in such manner as to freely play within the same. To the lugs or projections on one side of each of the bolting-frames are fitted spiral springs *m*. To the side frame A are affixed cams *n*, revolving on shafts *o*. Be-

tween the bolting-frames are secured frames *p*. These frames are held in position by lugs *r* and bearings *s*, in precisely the same manner as are attached the bolting-frames, before described, and these lugs *r* have fitted to them springs *t*, also in similar manner. Secured to the frames *p* are two return-chutes, *u* *u*<sup>1</sup>. These chutes are constructed of frame-work, covered with linen or other cloth, saturated with a solution of gum-shellac. The frames of the chutes *u* *u*<sup>1</sup> are affixed to the frames *p* by central pins or axes *v*, so that they may freely turn on these axes. These chutes, as will be seen by reference to the drawing, are inclined slightly from the horizontal, and to their lower ends are fixed sway-rods *w*, these sway-rods extending from the frame of the chutes to the frames *p*. Secured to the frame A and to the lower part of the machine is a garner, E. This garner is affixed to the frame A in precisely the same manner as are the bolting-frames and the frames *p*—that is, by similar lugs and bearings, fitted with springs and actuated by cams. The under side of the garner is provided with one or more spouts, *y*. On one side of the machine, and near the bottom thereof, is secured a fan-blower, F. This blower revolves within a wind-trunk, G. Within the trunk G are placed a series of gates or valves, *x*, to regulate the force of the fan-blast, and on the opposite side of the machine is a chaff-trunk, H.

My middlings-purifier being constructed substantially as above described, its operation is as follows: The middlings to be purified are placed into the hopper B, whence they fall, through the neck *d* and opening *a*, onto the scattering-plate C. This plate, revolving horizontally by the aid of any suitable power, by centrifugal force scatters or throws the middlings from it, so that they will fall more or less uniformly on the surface of the bolt *i*. The cam *n*, being revolved, imparts a vibratory motion to the bolt *i* by slightly raising the frame-work of the bolt and at the same time drawing it horizontally. The spring *m*, counteracting the action of the cam, imparts to the bolt a peculiar vibrating motion. This vibration of the bolt *i* causes the finer particles of the middlings to pass through the meshes of the bolt. The coarser part, follow-



ing the inclination of the bolt, passes into the trunk H, and so out from the machine through the opening z. That part of the middlings which passes through the bolt *i* falls, by gravity, on the surface of the chutes *u u'*. The frames *p*, to which these chutes are secured, vibrating in precisely the same manner as do the bolts *i*, impart to said chutes, by reason of the sway-rods *w*, a vibratory motion somewhat similar, so that as the sifted grain falls on said chutes it follows their inclination, and it is conveyed to the bolt *i*<sup>1</sup> immediately below them, through which the middlings are again sifted, the coarser parts passing, as before, to the trunk H and outward, and the finer parts falling upon the chutes *u u'*, which have the same motion, imparted in the same way, as the chutes *u u'*, before described, and from the chutes *u u'* delivered to the surface of the bolt *i*<sup>2</sup>. After passing through the bolt *i*<sup>2</sup> the purified middlings or fine flour passes into the garner E, whence it is conveyed away through the spouts *y*, or in any manner desired. This garner has a vibratory motion identical with that of the bolts and chute-frames, before described, which facilitates the delivery of the flour. The chutes, being constructed of shellaced linen, as before recited, not only present a smooth surface, that the siftings will readily leave, but when the chute-frames are agitated the shellaced linen will belly and fall, causing the siftings on their surfaces to rise, so that the current of air forced in by the blower F, and drawn through the machine by the suction-blower D, can have free access to the

fibrous particles and refuse particles, driving them out of the machine through the suction-blower D.

The angles at which the screens and chutes are placed may be adjusted to suit any kind of material it is designed to purify, whether middlings or grain.

It is obvious that the machine hereinbefore described for purifying middlings is equally well adapted for cleaning and purifying grain and seeds of all kinds.

It is also equally obvious that the number of bolts and chutes may be increased or diminished to any extent, as desired.

I am aware that middlings-purifiers are constructed with a series of sieves and chutes and a suction and blast fan, and such I do not claim as my invention.

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

1. In a middlings-purifier, the combination, with a series of screens or bolts, of lugs *k*, springs *m*, bearings *l*, and cams *n*, when constructed and operating substantially in the manner described.

2. In a middlings-purifier, the combination, with the vibrating frames, of a series of chutes, with central axes and sway-bars, for the purpose of imparting to them a vibrating or oscillating motion, substantially as described.

GEORGE PARKER.

Witnesses:

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R. NORTH.