2 Sheets—Sheet 1.

J. BENNETT.

Fanning-Mill.

No. 214,805. Patented April 29, 1879.

Fig. 1.

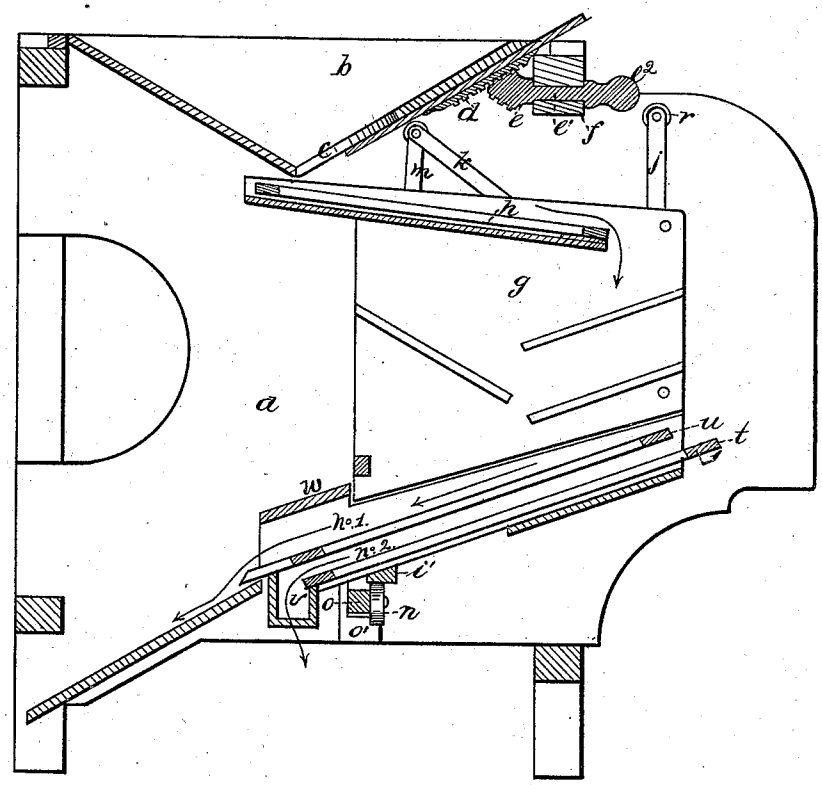
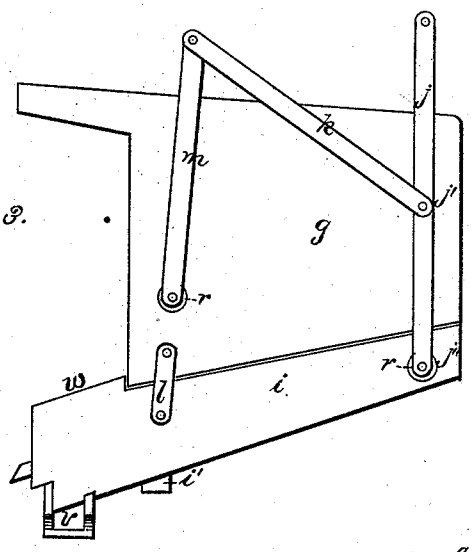


Fig. 3.



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2 Sheets—Sheet 2.

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Fanning-Mill.

No. 214,805. Patented April 29, 1879.

Fig. 2.

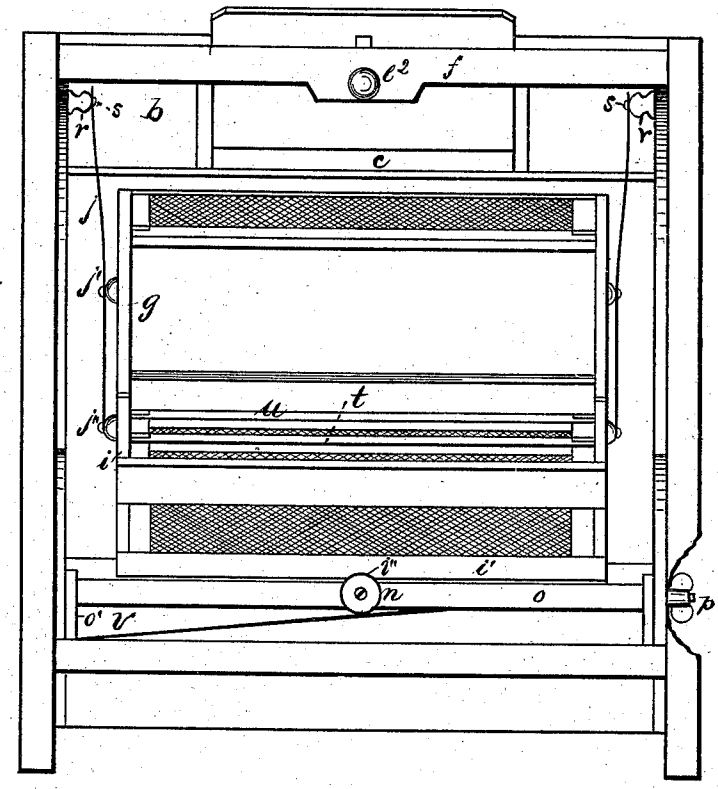
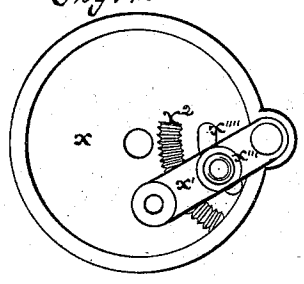


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN BENNETT, OF BELLEVILLE, ONTARIO, CANADA.

IMPROVEMENT IN FANNING-MILLS.

Specification forming part of Letters Patent No. **214,805**, dated April 29, 1879; application filed January 26, 1878.

To all whom it may concern:

Be it known that I, JOHN BENNETT, of Belleville, in the county of Hastings and Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements pertaining to Fanning-Mills, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a view of a fanning-mill embodying my improvements in central vertical section. The fan and adjacent parts, being of the common construction, are omitted. Fig. 2 is a view of the mill from the rear end, with a portion of one of the stanchions represented as broken away, in order to show the thumb-nut which secures one end of the lifting-bar. Fig. 3 is a side view of the shoes and their suspension-straps. Fig. 4 shows a face view of an improved crank-disk for giving vibratory motion to the shoes.

The letter *a* denotes the frame or case of the machine as a whole. *b* denotes the hopper, and *c* the hopper-gate. The hopper-gate bears on the back side the catch *d*, into which meshes the conical worm-wheel *e*, borne on a short shaft, e^1, which finds a bearing in the cross-girt *f*, provided with the operating head or handle e^2. By rotating this head or handle the hopper-gate may be adjusted to any desired degree of opening.

The letter *g* denotes the upper shoe, containing the sieve or screen *h*, and *i* the lower shoe. These shoes have a side-shake motion, which may be communicated from the fan-shaft in the usual manner. The manner of suspending these shoes from the frame, so as to make the same suspension-points answer for both shoes and yet leave each shoe free to take independent movements, is as follows: The letter *j* denotes one of the suspension-straps, starting from the frame and running down. It is attached at *j'* and *j''* to the upper and lower shoes respectively. There are two of these suspension-straps *j*, one on each side of the shoes. The material thereof is, preferably, spring-steel. The letters *k k* denote suspension-straps, preferably of spring-steel, running from the insides of the frame to the outsides of the upper shoe. At this front end the upper and lower shoes are connected by the flexible connection-straps *l l*. The material thereof is leather or the like. This allows the front end of the lower shoe to have a vertical movement independent of the upper shoe. There may well be the suspension-straps *m m*, preferably of spring-steel, located as shown.

The vertical movement of the front end of the lower shoe is given by means as follows: On the under side of the shoe *i* is a cross-bar, *i'*, having the depression or concavity *i''*. This concavity rests on the roll *n*, which is hung on the lifting-bar *o*. As the shoe shakes from side to side, the concavity *i''*, riding on and off the roll *n*, gives the shoe a jarring vertical movement. A boss or stud would answer in place of the roll, but the use of the roll avoids friction to a great degree.

The lifting-bar *o* rests in a socket, *o'*, at one end. The other end bears a threaded pin or stud running through the frame and bearing on the outside the thumb-nut *p*, by means of which this end of the lifting-bar can be secured at different elevations, the threaded pin passing through a mortise in the frame to allow of this adjusting movement.

The letters *r* denote washers with convexed or rounded sides interposed between the suspension-straps and the side of the frame or shoe. This convexity retards the swinging or vibratory motion of the suspension-straps less than a flat surface. The screws *s* attach the suspension-straps and the washers to the frame and shoes, or they may simply attach the suspension-straps to the washers, and the washers themselves may be furnished with screws or pins for attachment to the frame and shoes.

The lower shoe has the screen *t*, and, for purposes of separating grains of different sizes, the screen *u*. In separating grains of different sizes the larger grain takes the course denoted by arrow No. 1, and passes down the screen *u*, being delivered at the front of the machine. The smaller grain takes the course denoted by arrow No. 2, and passes down the screen *t*, whence it falls into the trough *v*, which is attached to screen *t*, and is delivered at the side of the machine. The letter *w* denotes a wind-guard which prevents the blast from the fan from forcing the grain back on the screen or screens behind it.

I show in Fig. 4 an improved crank-disk, de-

signed to be fast on or rotated from the fan-shaft, for giving a reciprocating movement of greater or less extent to the shoes. The connecting-rod starts from a crank-pin borne in or on the end of the arm x^1. The letter x denotes the rotary disk; x^1, an arm pivoted at or near the periphery, and bearing at its extremity the crank-pin. The letter x^2 denotes a ratchet on the disk, located between the center of the disk and the pivot of the arm x^1. The arm x^1 is correspondingly ratcheted on the under side, and the arm is held at any desired adjustment on the ratchet by the bolt x''' running through the arm x^1 and the mortise x''''.

I claim as my invention—

1. As an improvement in grain-separators, a frame provided with projecting convex washers on its inner sides, in combination with suspension-straps supporting the shoe or shoes within said frame, when said straps are secured to or upon said washers at the rise or swell of their convex surface, substantially as and for the purpose set forth.

2. In a fanning-mill or grain-separator of the described class, the combination and arrangement of the upper shoe, g, suspension-straps i, having pivots j' j'', lower shoe, i, connecting-straps l, suspension-straps m, and brace or connecting-straps k, as set forth.

3. The improved device for operating the lower hinged part of the divided shoe $g\,i$, consisting in the combination, with the frame a and section i, provided with the cross-bar i', having recess i'', of the vertically-adjustable transverse bar o, provided with the friction-roller n, as set forth.

4. In combination, the frame a, suspension-straps m j, brace or connecting-straps k, divided shoe g i, provided on its under side with the recessed bar i', auxiliary connecting-straps l, and vertically-adjustable transverse bar o, having roller n, all constructed and arranged to operate substantially as set forth.

5. In combination, the disk x, provided with rack x^2 and slot x'''', both located between the periphery and center of the disk, the arm x^1, pivoted at the periphery, and the bolt x''', as set forth.

In witness whereof I hereto set my hand.

JOHN BENNETT.

Witnesses:

WM. WEBSTER,

WILLIAM THOMPSON.