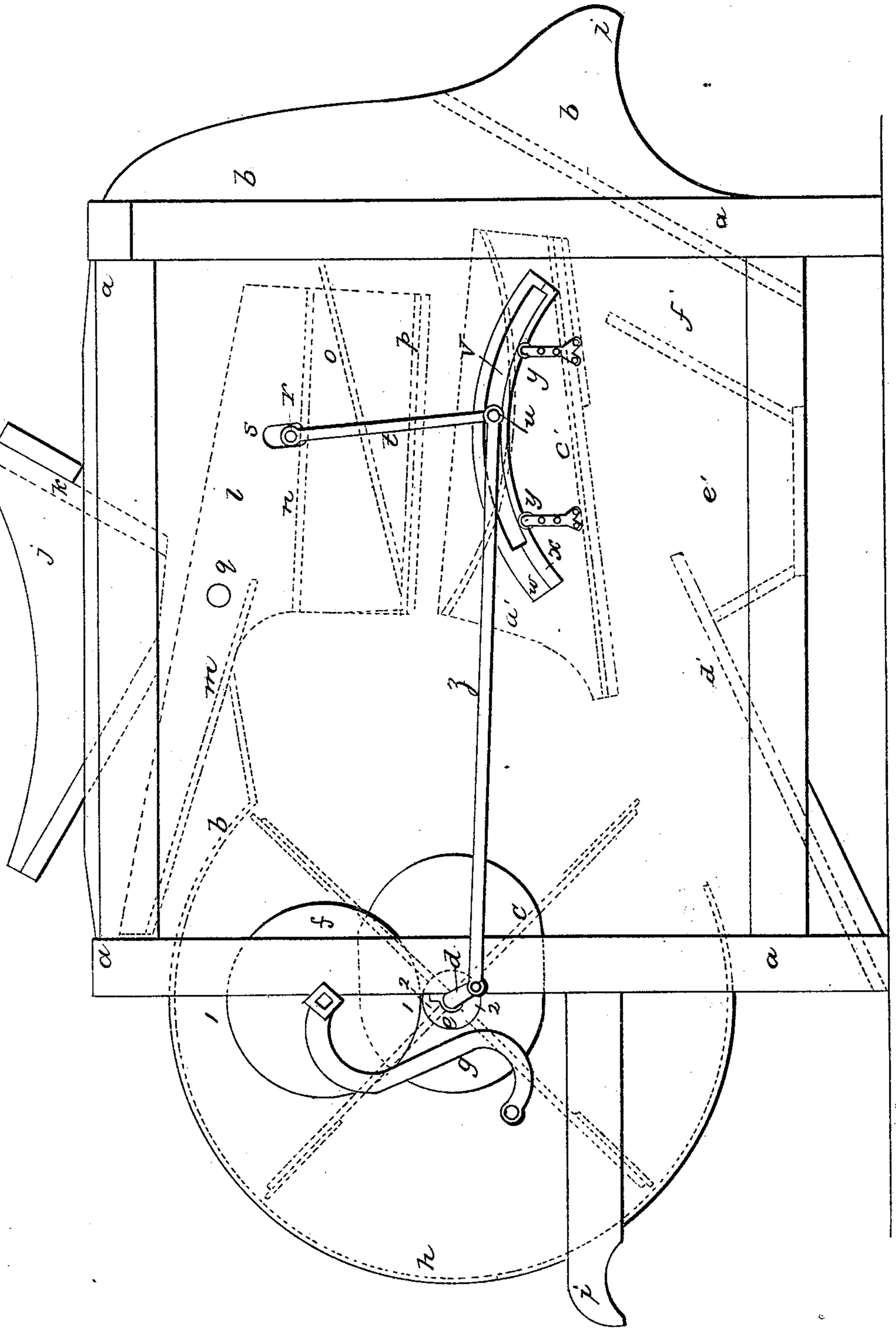
J. W. FISH.

Grain Winnower.

No. 6,569.

Patented July 3, 1849.



UNITED STATES PATENT OFFICE.

JOHN W. FISK, OF RILEYTOWN, OHIO.

IMPROVEMENT IN WINNOWING-MACHINES.

Specification forming part of Letters Patent No. **6,569**, dated July 3, 1849.

To all whom it may concern:

Be it known that I, JOHN W. FISK, of Riley-town, Butler county, Ohio, have invented new and useful Improvements in Winnowing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification, in which a side elevation of the machine is shown with more or less of the internal arrangements in dotted lines.

The nature of my improvements consists in giving to the second separating-riddle and screen rocking, vertical, and longitudinal motions (the screen having in addition thereto a shoveling motion,) the riddle being curved and presenting its concavity upward and the screen being on an incline sufficient when moved to have a tendency to deliver the heavy grain on the apron leading to the back part of the machine, while the heavy cheat falls through into the division in front of the apron, and the remnant of light cheat is blown over its front edge and falls into a division in front of the last-mentioned receptacle.

Another part of my invention consists in curving the riddle aforementioned and turning its concavity upward, so as to give the blast of air produced by the fan a full sweep through the load from its bottom to its top as it lies on the riddle, the heavy grain remaining, while the lighter matter is carried forward, the lightest runs forward of all, and any remaining chaff, caps, &c., are blown out in front of the machine. As the rear end of the riddle descends, the blast of air has a full sweep over the top of the load and completely carries off the lightest matters just mentioned.

Another part of my invention consists in hanging the screen to the second separating or concave riddle firmly and in such wise that their front parts shall end in the same vertical plane, while the screen shall project rearward one-fifth (more or less) of its entire length beyond the rear of the riddle, so that, on account of the depth of its pendency, the inclination of its rectilinear plane, and its rearward projection, it derives a shoveling motion admirably calculated to promote and facilitate the proper discharge of its duties.

Another part of my invention consists in deriving the vertical and vibrating motions of the feeder, chaff-riddle, apron, and first separating-riddle from the mechanism which gives the vertical, longitudinal, and rocking motions to the second separating or concave riddle and screen.

The first part of my invention I effect by making a curved slot with its convexity upward (having its lower part only recessed, as will be presently described) in the frame of the machine and immediately opposite the usual location of the lower set of separating-riddles and screen. In this slot and recess I place a curved piece of wood or metal, (shaped just like the felly of a wheel with a flange on it,) with its convexity upward and its concavity running on friction-rollers suitably arranged beneath it and near each of its ends. Midway the length of this curved mover or guide I attach the horizontal connecting-rod which gives it motion. This connecting-rod being attached in the usual way to a crank on the fan-shaft, which is also operated in the usual way, the wrist of the attachment of the connecting-rod passes through the covered mover and guide, and, in addition to the fastenings, firmly attaches the curved riddle and screen thereto by means of a screw-thread on it and a nut (square) mortised into the cheek. The lower part of the slot is recessed only to such a depth as leaves the rest of the thickness of the plank of the framing for a way over which the horizontal and curved top or flange of the guide and mover plays, the vertical side or flange playing alongside of this way, the curved mover or guide representing in its vertical section a rectangle. By this arrangement it will be seen that while I avoid racking the winnowing-machine to pieces I attain all the desired motions in the lower set of riddles and screen in such machines requisite for cleaning and separating grain from cheat—that is to say, I get a vertical, a longitudinal, and a rocking motion. By using in connection with this a curved riddle with its concavity upward I attain the following points: The blast, having nothing to oppose its direction that way, has a tendency to pass through the load on this separating-riddle and then over the load as it is rocked by the motion of the guide and mover. The screen, being also fixed to the same cheeks with the riddle, participates in these said motions, modified as to its front and increased as to its rear by its pendent position, the depth be-

neath the riddle at which it is hung, the incline at which it slopes down, its rectilinear surface, and its rearward projection beyond the riddle above it, thereby attaining, in addition to the rest of the motions noted, a sort of shoveling motion—that is, such as is given to the shovel when in use in the hands of a man.

The last part of my invention I effect by deriving the vertical and vibratory motions (desired for separating wheat and cheat from the chaff, ears, caps, straw, &c., by gravity) from the curved mover and guide of the second separating or curved riddle and screen by means of a vertical connecting-rod playing at its lower end on the same wrist with the horizontal connecting-rod, where they are connected to the curved mover and guide, and playing on its upper end on a wrist attached through a vertical slot in the side planking of the frame to the cheeks of the feeder, chaff-riddle, apron, and first separating-riddle, the wrist being half-way the length of the chaff-riddle and the feeder being almost entirely back of the journals on which the cheeks last-mentioned vibrate.

a is the frame; *b*, the planking thereof; *c*, the fan; *d*, the crank on the fan-shaft; *e* and *f*, pinion and driving-wheel, (shown by circular lines 1 and 2;) *g*, hand-crank; *h*, fan-drum; *i*, handles for use in lifting and transporting the machine; *j*, stationary hopper, and *k* gate to same.

l is the cheek of the feeder *m*, chaff-riddle *n*, apron *o*, and first separating-riddle *p*; *q*, its journal; *r*, the wrist playing through the vertical slot *s*; *t*, the vertical connecting-rod; *u*, the lower wrist on which it plays; *v*, the curved mover and guide; *w*, the slot in which *v* plays; *x*, the recess; *y*, the friction-rollers; *z*, the horizontal connecting-rod; *a'*, the cheeks of the second separating and curved riddle *b'* and screen *c'*; *d'*, the division into which the grain falls; *e'*, the division into which the heavy cheat drops, and *f'* the division into which the light cheat is blown.

Similar mechanism is applied to both sides of the machine, so as to equalize and, assimilate the motions throughout.

Having thus fully described the nature, construction, and operation of my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. Giving rocking, vertical, and longitudinal motions to the lowest or second separating and curved riddle *b'* and screen *c'*, pendent thereto, by means of a mover and guide curved, attached, and supported, as described, or any equivalent device operated in an equivalent manner.

2. Curving the second separating or lowest riddle *b'*, having its concavity upward, in the manner and for the purpose described.

3. Deriving the vertical and vibratory motions given to the feeder *m*, chaff-riddle, apron, and first separating-riddle from the mover and guide *v* of the second separating and curved riddle *b'* and screen *c'*, as described, or in any equivalent way.

J. W. FISK.

Attest:
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