

Grain Winnower.

No. 10,111.

Patented Oct. 11, 1853.

Fig. 1.

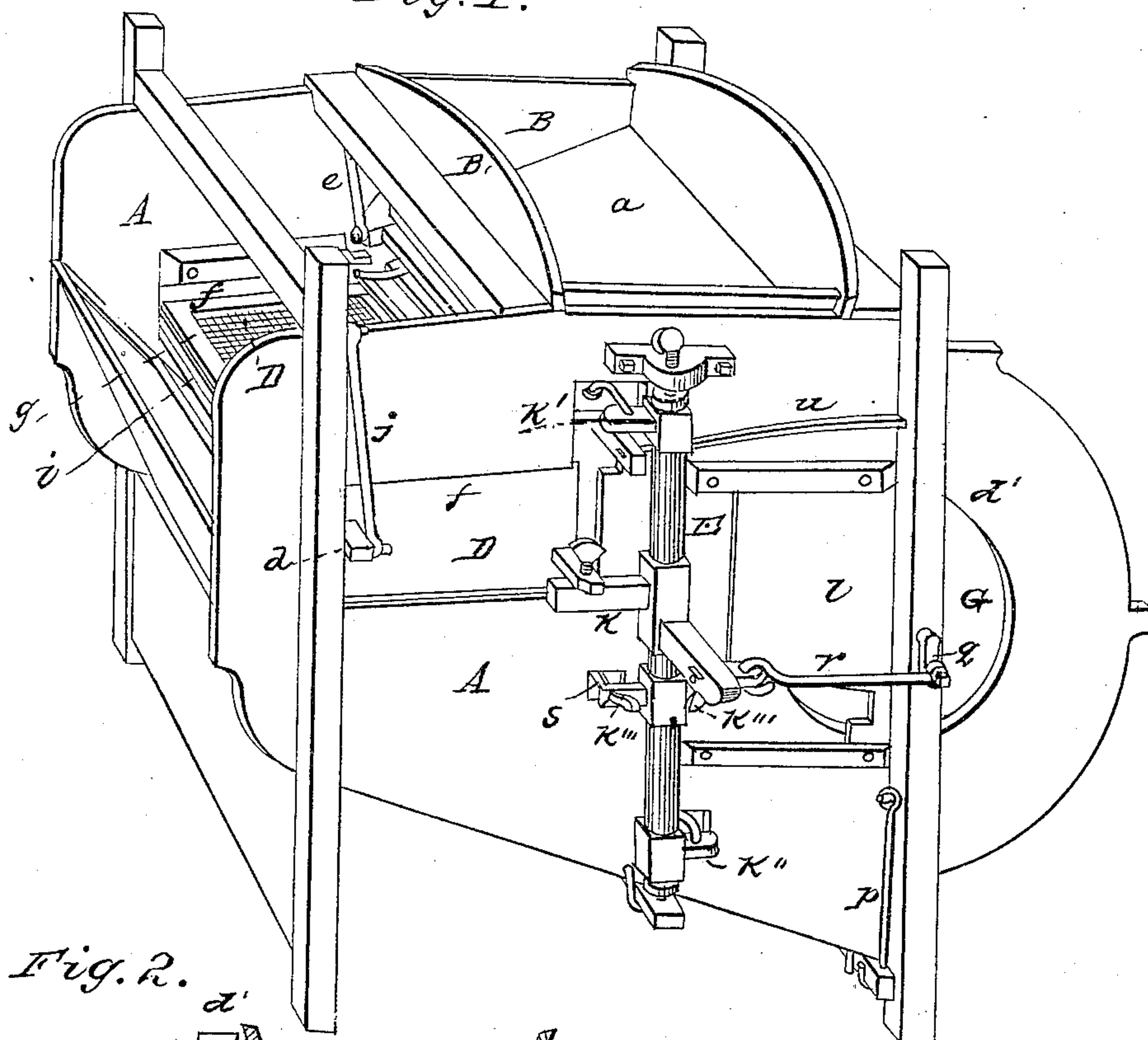
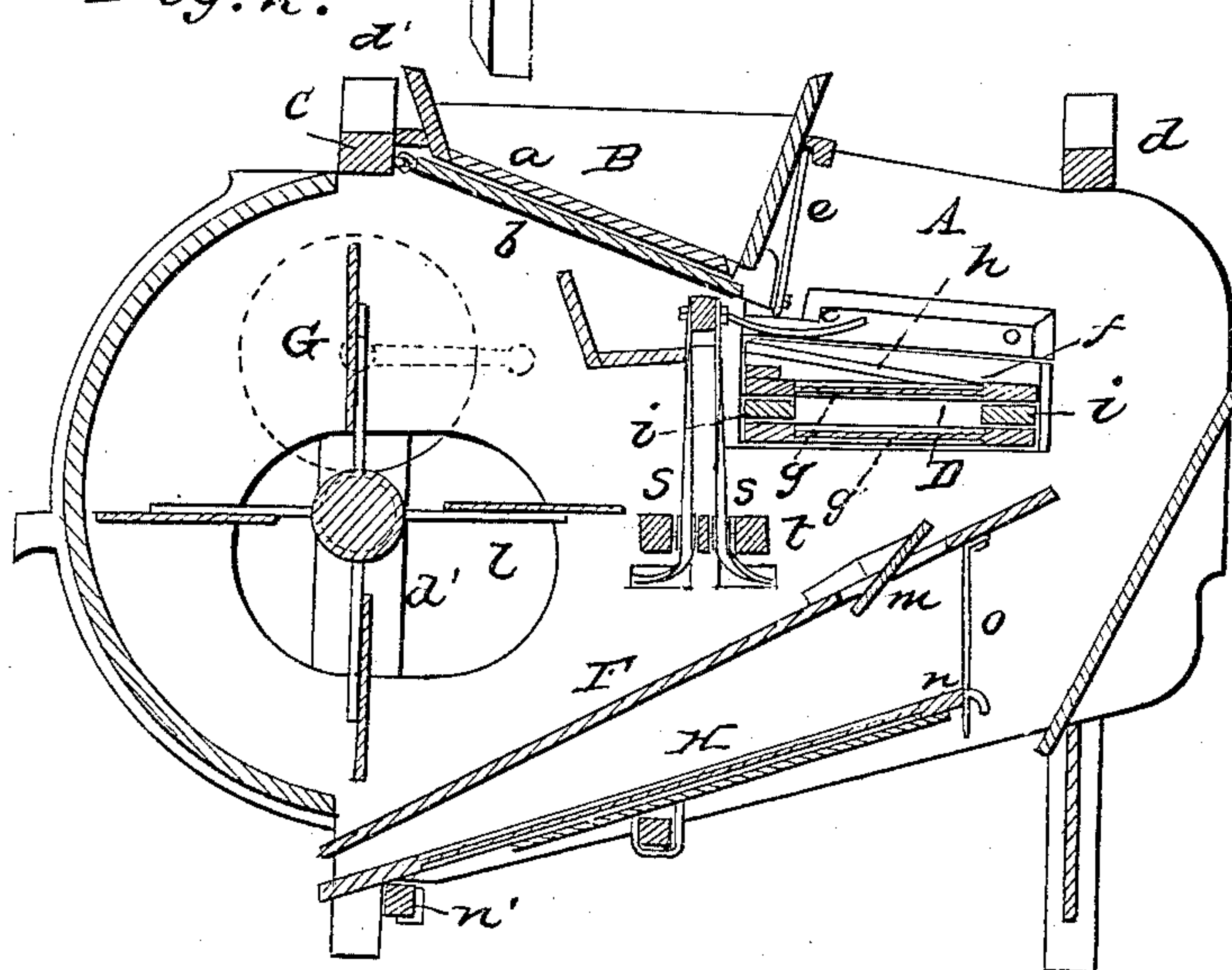


Fig. 2.



UNITED STATES PATENT OFFICE.

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WINNOWER OF GRAIN.

Specification of Letters Patent No. 10,111, dated October 11, 1853.

To all whom it may concern:

Be it known that I, HENRY M. KELLER, of Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Fanning-Mills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a perspective view of my fanning mill and Fig. 2 a vertical longitudinal section of the same.

In the drawing A, A, are the two sides of the case; they are secured to two frames which connect them with each other. A hopper B, is supported on the upper part of the case, into which the threshings or the foul grain are thrown. The hopper is furnished with a movable front end B' and inclined bottom *a*, between which is a long narrow opening through which the grain drops. Immediately below the movable bottom and parallel with it is a vibrating shoe *b*, the back of which is hinged to the upper cross bar *c*, of the hinder frame *d'*, while its front end is suspended by two link bars *e*, from a cross bar in front of the hopper. The rake C crosses the case below the front of the hopper shoe, its teeth projecting forward and having a slight upward inclination, the ends of the rake stock project through openings in the sides of the case and are each attached to the front extremities of a horizontal spring *u* which is set to raise the bar as high as the openings in the sides of the case will permit. The riddle-shoe D is below and extends some distance in front of the rake. It consists of two end pieces *f*, *f*, united by cross bars *i*, *i*, *i'*. The end pieces are grooved longitudinally on their inner sides to receive the two riddles *g*, *g'*; above these additional grooves *h*, are made to receive a chess board which can be withdrawn when not wanted. Openings are made in the sides of the case, through which the ends of the shoe vibrate, the cross bars *i*, *i*, are extended beyond the end pieces and suspended from the case; in the machine represented in the accompanying drawing but three corners of the shoe are suspended by link bars *j*, (the upper ends of which are hung to the cross bars of the case,) the fourth corner is supported by an arm *k* projecting horizontally from an upright shaft E, at the side of the machine. An inclined slide-board F, extends below the

riddle-shoe nearly the whole length of the machine; the grain from the shoe runs down this board, and is exposed both in its passage through the shoe and down the board to a strong blast produced by a fan G at the hinder extremity of the case; the force of the current is regulated by sliding shutters *l*, applied to the entry holes of the fan, by opening or closing which the quantity of air which enters can be adjusted. An opening is made in the slide board near its upper end through which the grain from the shoe may fall upon an inclined screen H, which is suspended beneath the slide board, and the opening is fitted with a turning trap door *m*. The front end *n*, of the screen H is suspended by straps *o*, in such manner that it can be raised or lowered to alter its angle of inclination, and thus cause the grain to pass over it more or less rapidly as it requires more or less screening. The hinder end is supported on a cross bar *n'*, suspended by link bars *p* from the hinder frame of the case. An upright shaft E furnished with several arms is attached to the side of the case which receives an oscillating motion from a crank *q*, on the end of the fan shaft through a link bar *r*, which connects the crank with the outer extremity of one of the arms of the upright shaft, the latter in turn imparts motion to the hopper shoe *b*, the riddle-shoe D, and the screen H by its several arms *k'*, *k*, *k''*, which are connected by link bars with the several members of the machine.

A vertical reciprocating motion is given to the rake by attaching two straps *s*, *s*, to the middle of the rake bar, these proceed downward and are each passed around a separate sheave in a cross bar *t* of the case; from the sheaves the straps pass outward through openings in the sides of the case, and are each attached to one of the outer extremities of the arm *k'''*, projecting from the upright shaft. This arm projects in opposite directions from the shaft and its opposite extremities act alternately through the straps to depress the rake bar which is raised after each depression by the springs *u*; by using a double arm and two straps, the rake receives two vibrations for each oscillation of the upright shaft. A pinion (red lined in Fig. 2) is attached to the extremity of the fan shaft opposite to that on which the crank *q* is secured. This pinion gears into a wheel (also red lined

in Fig. 2) whose shaft is furnished with a crank to which the hand of the operator is applied.

When threshings are to be winnowed, the
5 movable bottom *a* of the hopper is to be removed, the front *B'* of the hopper raised, and the trap door *m*, closed; the clean grain is then after being screened and fanned delivered at the back of the machine by the
10 slide board *F*. When foul grain unmixed with chaff or straw is to be cleaned, the movable bottom is placed in the hopper and the front end *B'* moved down to prevent the grain from feeding too rapidly and to prevent
15 its pressure on the hopper shoe; a chess board is inserted in the grooves *h* of the shoe above the riddles in order that the grain may be delivered sufficiently near to the front end of the riddle-shoe, and may thus
20 clear the slide-board and fall on the screen; the trap door in the slide-board is also opened so that the grain from the shoe falls upon the inclined screen by which the small heavy seeds which fall with the wheat are
25 separated. This arrangement of the screen and the trapdoor in the slide board are a valuable addition to the machine as it enables the operator to perform two separate operations with the same machine without
30 the alteration of any of its parts; its simplicity being such that any laborer can arrange the machine to produce either result.

It will be perceived that the several mem-

bers of the machine act independently of each other, but are all connected and operated by the oscillating shaft *E*, from which
35 any one may be detached without affecting the operation of the others; thus for example when the screen is not wanted it may be disconnected and the power required to
40 shake it may thus be saved. By cutting openings in the sides of the case through which the shoe vibrates, and by suspending it by links on the outside of the case, the shoe can be made much broader than is possible
45 when it has to vibrate between the sides, thus admitting larger riddles, by which a much better effect is produced with the same width of machine. In machines as
50 usually constructed the rake has a horizontal vibrating motion, while in mine the motion is vertical, thus jarring the pieces of straw which lodge upon it and opening them to the action of the blast.

Having thus described the construction
55 and operation of my fanning mill, what I claim therein as new and desire to secure by Letters Patent is:

The trap door (*m*) in combination with the screen (*H*) arranged and operated in
60 the manner and for the purpose herein set forth.

HENRY M. KELLER.

Witnesses:

HENRY LEEVER,

PLYN A. WILLIAMS.