

H. R. CANINE.
Thrashing Machine.

No. 111,042.

Patented Jan. 17, 1871.

FIG. 1.

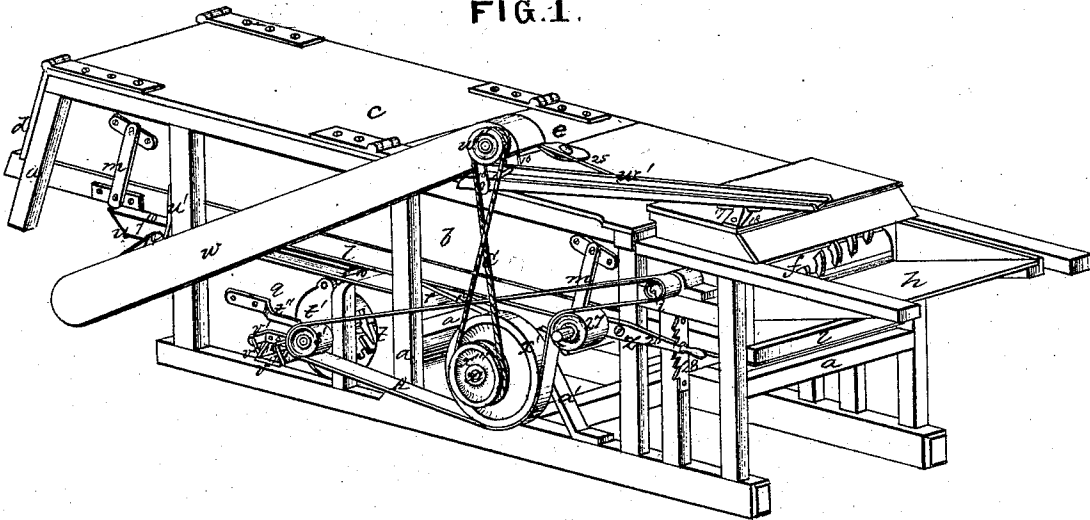
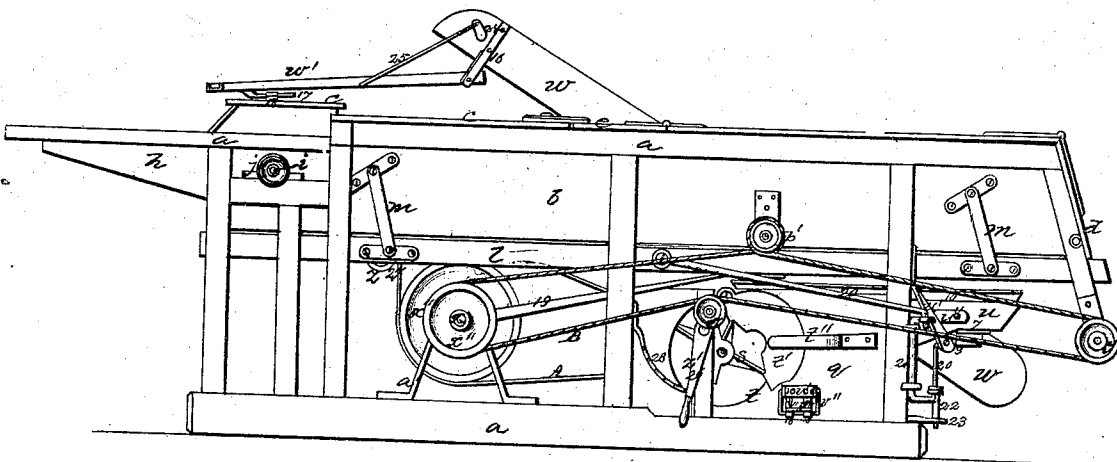


FIG. 2.



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FIG. 3. Patented Jan. 17, 1871.

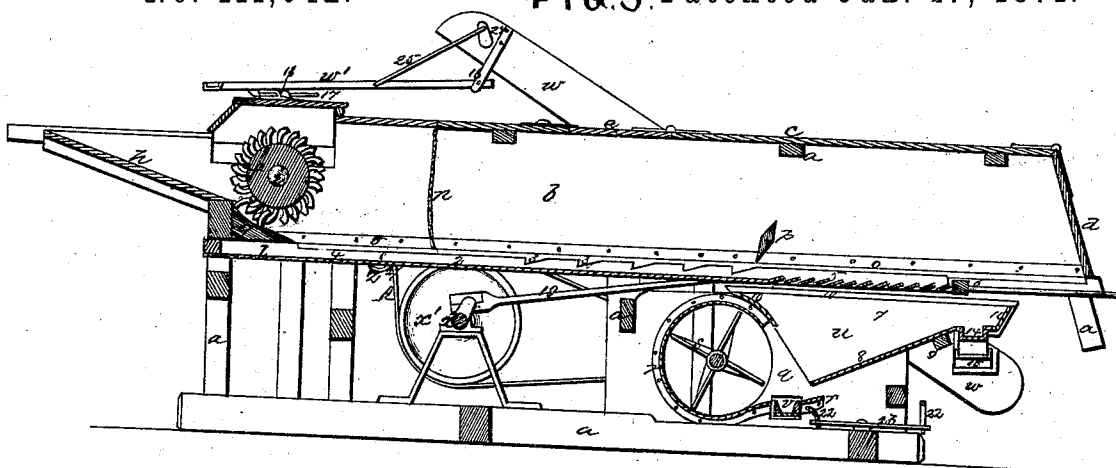


FIG. 4.

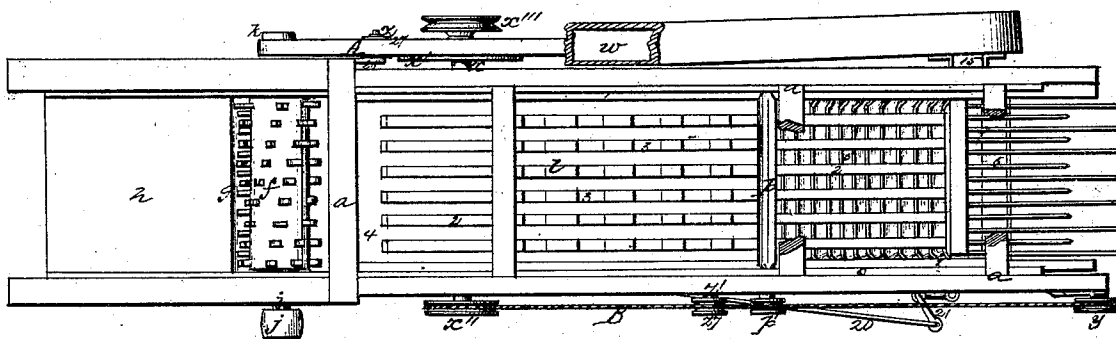
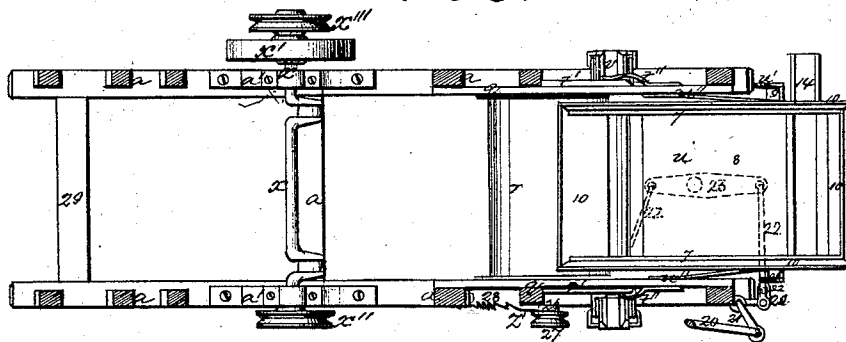


FIG. 5.



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UNITED STATES PATENT OFFICE

HENRY RUSSELL CANINE, OF WAVELAND, INDIANA.

IMPROVEMENT IN THRASHING-MACHINES.

Specification forming part of Letters Patent No. **111,042**, dated January 17, 1871.

I, HENRY RUSSELL CANINE, of Waveland, in the county of Montgomery and State of Indiana, have invented an Improved Thrashing-Machine, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to a thrashing-machine capable of performing as much work equally as good or better, with much less machinery and costly fixtures, than any other machine in use, and which will require less power to drive it.

The principal improvement consists in a peculiar construction of single vibrator.

The invention consists, further, in a superior construction of the fan-shoe and grain-chute, and in several novel combinations and arrangements of parts.

Description of the Accompanying Drawing.

Figure 1 is a perspective view of my improved machine. Fig. 2 is a side elevation, showing the side concealed in Fig. 1. Fig. 3 is a longitudinal section. Fig. 4 is a plan view of the machine, with the top or cover removed, parts above the plane being broken off or removed. Fig. 5 is a horizontal section below the separator.

In the several figures like letters of reference indicate corresponding parts.

General Description.

a a represent wooden timbers, constituting a strong horizontal frame, adapted to contain and resist vibration of the thrashing mechanism. *b b* is siding, and *c* a cover of wooden plank, closing a portion of the frame. *d e* are hinged portions of the cover *c* or doors.

f represents a thrashing-cylinder, and *g* the concave of the same, both of which may be of any usual construction. *h* represents the feeding-chute. *i* represents the shaft of the thrashing-cylinder *f* and driving-shaft of the machine. *j k* represent pulleys on the shaft *i*, the former for receiving motion, the latter for imparting the same.

l represents a vibrator, extending the entire length of the machine, and composed of a wooden frame, 1; longitudinal wooden ribs 2, for supporting and conveying the straw, notched or serrated (3) for a portion or the whole of their length; a sheet-metal bottom, 4, slotted

or perforated (5) over the shoe; and a pivoted straw-rake, 6, having a wooden head and metallic teeth of two different lengths alternated.

m m represent links suspending the vibrator *l*. *n* represents a curtain of canvas or other flexible material, for arresting the straw, &c., as it is thrown from the thrashing-cylinder *f*; and *o*, similar curtains, to cover the cracks between the vibrator *l* and the sides *b*. *p* represents a rotary straw-board or beater. By employing this form of beater, I am enabled to elevate the rear end of the vibrator *l* as desired.

q q represent wooden siding, and *r r a* sheet-metal case, forming the walls of the fan-house. *s* represents a rotary blower, which may be of some usual construction. *t t* represent draft-apertures in the walls *q* of the fan-house; *t'*, pivoted slides for regulating the area of the same; and *t''*, guides for supporting the free ends of the said slides. The slides *t'* may be of wood, their guides *t''* of metal.

u represents a fan-shoe, composed of wooden sides 7, an inclined sheet-metal bottom, 8, a transverse wooden suspension-bar, 9, and sheet-metal edge-guards 10. *u' u''* represent straps for supporting the fan-shoe *u* and guiding it in its movements.

v represents a grain-discharge chute, composed of beveled wooden sides 11 and a sheet-metal bottom, 12. *v' v'* represent metallic brackets, and *v'' v''* yokes or swings supporting the chute *v*.

13 13 are eyes formed on the metallic bottom 12 of the chute *v*, to attach the swings *v''*. 14 represents a trough, formed in the rear end of the bottom 8 of the fan-shoe *u*, to collect the tailings; and *w* an elevator, *w'* a chute, for delivering the same into the front end of the machine for retreatment. The elevator proper may be of any approved form.

15 represents a short metallic chute at the lower end of the elevator *w*, to receive the discharging end of the tailing-trough 14. 16 16 are metallic brackets, supporting the rear end of the tailings-discharge chute *w'*; and 17 a metallic slide, and 18 a bracket, with a socket for the same, for supporting its front end.

x represents a crank-shaft, journaled in bearings in metallic brackets *x'* under the vibrator, behind the fan-house. *x' x'' x'''* are fast pulleys on the crank-shaft *x*.

19 19 are wooden pitmen, connecting the crank-shaft *x* to the vibrator *l*.

p' represents a pulley on the shaft of the straw-beater *p*.

s' is a pulley on the shaft of the fan *s*.

20 20 represent rods or links; and 21, an interposed vertical rock-shaft, connecting the vibrator *l* to the bar 9 of the fan-shoe *u*.

22 22 represent rods or links; and 23, an interposed horizontal rock-lever, connecting the rock-shaft 21 to the grain-discharge chute *v*.

w'' represents a pulley, with crank-shaft 24, operating the elevator *w*.

25 is a pitman, connecting the crank-shaft 24 to the tailings-discharge chute *w'*.

y represents a pulley on the shaft of the straw carrier or stacker.

z z' represent belt-tighteners, consisting of hand-levers 26, bearing-pulleys 27, and holding-racks 28.

A represents a broad belt, running from the driving-pulley *k* over the pulleys *s'* and *x'*, and the bearing-pulley 27 of the tightener *z*, to drive the two former.

B represents a round band from pulley *x''* to pulleys *p'* and *y*, running over the bearing-pulley 27 of the tightener *z'*, the same being carried around the pulley *p'* one or more times to reverse the motion of the beater *p*.

C represents a crossed round band, connecting pulleys *x'''* and *w''*.

Screens and a straw-carrier of any approved construction will be employed.

Operation.

Motion being imparted to the driving-shaft *i*, and the grain fed in through the feed-chute *h*, the several parts of the machine operate as follows: The grain and straw, being partially separated by the beating action of the thrashing-cylinder *f*, pass under the apron *n* onto the vibrator *l*, which is receiving motion meanwhile through the pulley *k*, belt *A*, pulley *x'*, crank-shaft *x*, and pitman 19.

On the vibrator *l* the straw is supported by the ribs 2, the heads and separated grain and chaff settling on the solid portion of the bottom 4.

The straw is conveyed by the teeth 3 to the beater *p*, which is being rapidly rotated through the pulley *x''*, belt *B*, and pulley *p'*. It thence passes over the rake 6 onto the stacker, which is being operated through pulley *x''*, belt *B*, and pulley *y*.

The grain, chaff, and heads are fed by the vibration of the bed *l* over the slotted portion 5 of the bottom 4. The free grain and chaff pass through the said slots over the inclined bottom 8 of the fan-shoe *u*, which is being vibrated through the connecting-rods 20 and rock-shaft 21, through the blast of the fan *s*, (operated through the pulley *k*, belt *A*, and pulley *s'*), by which the chaff is discharged,

the clean grain falling vertically into the grain-discharge chute *v*.

The grain-discharge chute *v*, being rocked through the crank-shaft 21, rods 22, and lever 23, discharges the grain at either end, as desired, duplicate perforations in the connecting-rod 22 attached to the crank-shaft 21 (see Fig. 5) enabling such adjustment of said connection, as by variation of the stroke imparted accomplishes this.

The tailings fall through the rake 6 into the trough 14 in the bottom of the fan-shoe *u*. Being discharged thereout, they pass through the stationary chute 15, and the elevator *w*, and discharging-chute *w'* (operated through the pulley *x''*, band *C*, pulley *w''*, crank-shaft 24, and pitman 25) into the feeding-chute *h* for retreatment.

Claims.

I claim as my invention—

1. The vibrator *l*, constructed as described, composed of wooden frame 1, serrated longitudinal ribs 2, sheet-metal bottom 4, riddle 5, placed over the fan-shoe, and pivoted straw-rake 6, arranged and operated substantially as shown and described, for the purpose specified.

2. The fan-shoe *u*, as described, consisting of wooden sides 7, inclined sheet-metal bottom 8, transverse wooden suspension-bar 9, and sheet-metal edge-guards 10, and suspended and guided in its movements by straps *w' w''*, all constructed and arranged for operation as described, for the purposes set forth.

3. The swinging double-discharge grain-chute *v*, reversible without being detached, and constructed and operated substantially as shown and described.

4. The combination, with the vibrator *l* and swinging fan-shoe *u*, of connecting-rods 20 20 and interposed vertical rock-shaft 21, as and for the purpose set forth.

5. In combination with the grain-chute *v*, rock-shaft 21, and rock-lever 23, the connecting-rods 22, when provided with adjusting-perforations, as shown, by the use of one or other of which said grain-chute may be reversed, as set forth.

6. The combination, with the tailings-delivering chute *w'*, of the brackets 16 16, slide 17, guide 18, crank-shaft 34, and pitman 25, as and for the purpose stated.

7. The combination, in belt-tighteners *z z'* for thrashing-machines, of spring hand-levers 26, bearing-pulleys 27, and holding-racks 28, constructed and arranged as herein represented and described.

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Witnesses:

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