

(No Model.)

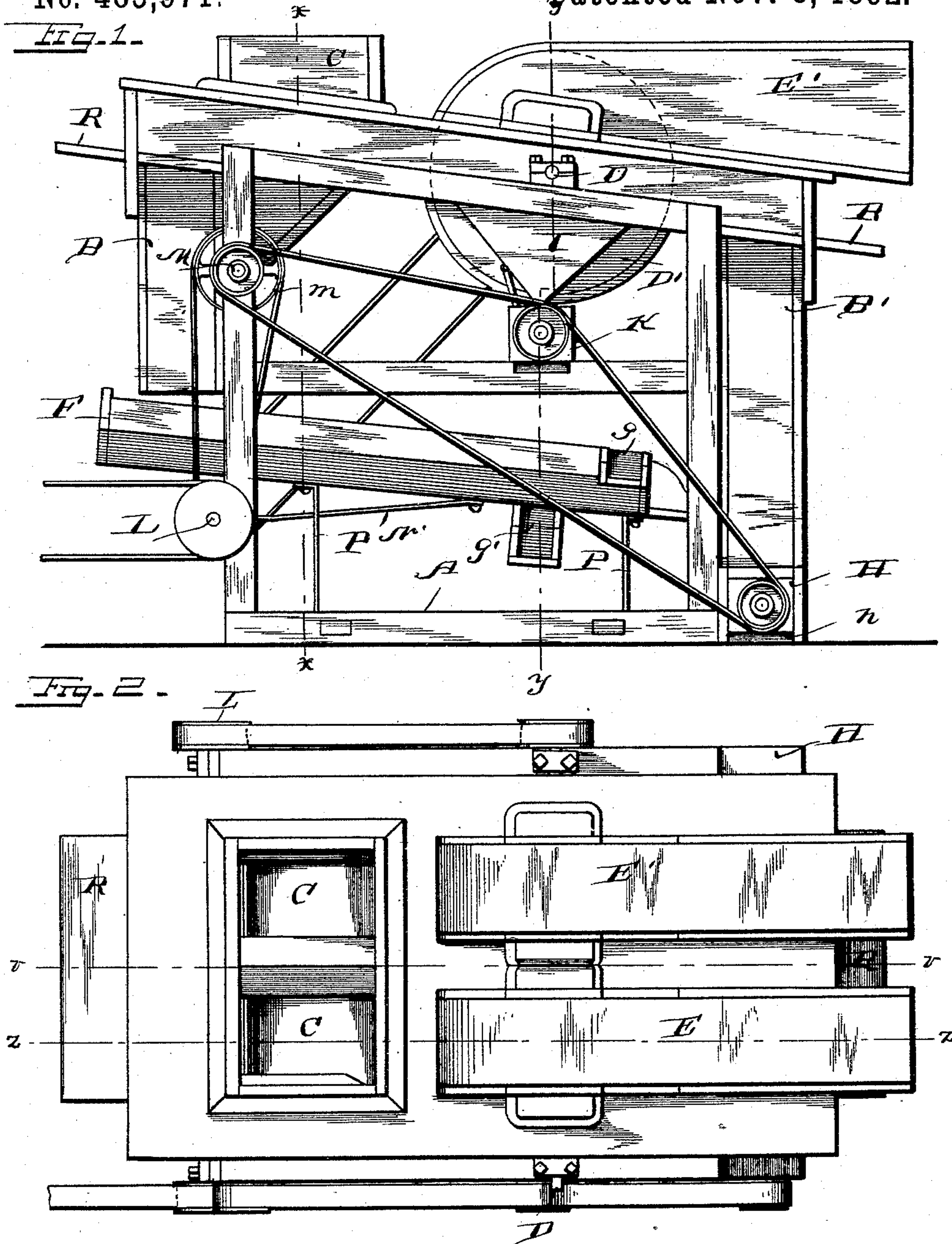
3 Sheets—Sheet 1.

R. McLAIN.

GRAIN CLEANING ATTACHMENT FOR CLOVER HULLERS AND
SEPARATORS.

No. 485,971.

Patented Nov. 8, 1892.



Witnesses
Jesse Heller
Philip L. Mason.

Inventor
Ralph McLain
by E. W. Anderson
his Attorney

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Fig. 3.

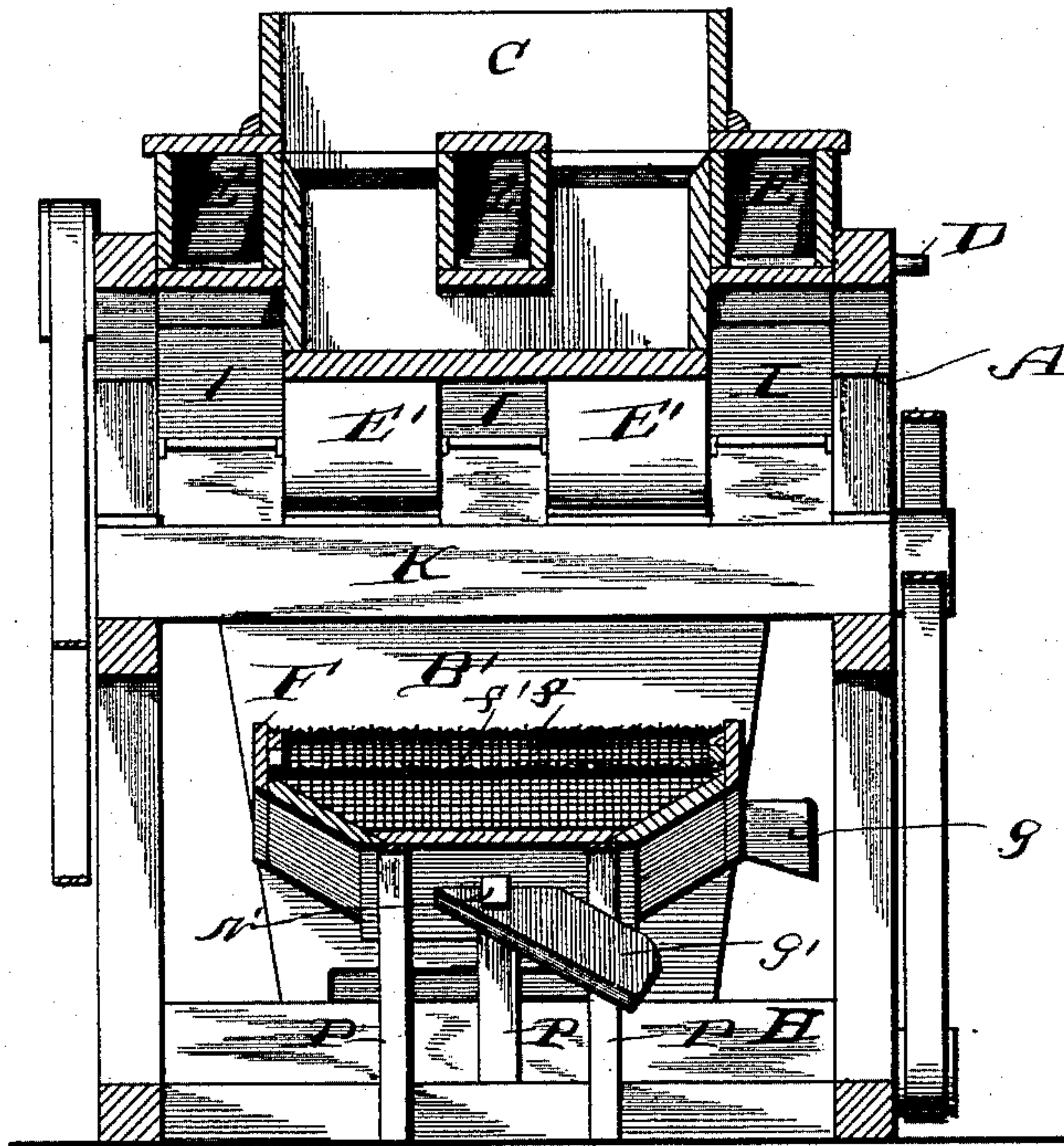
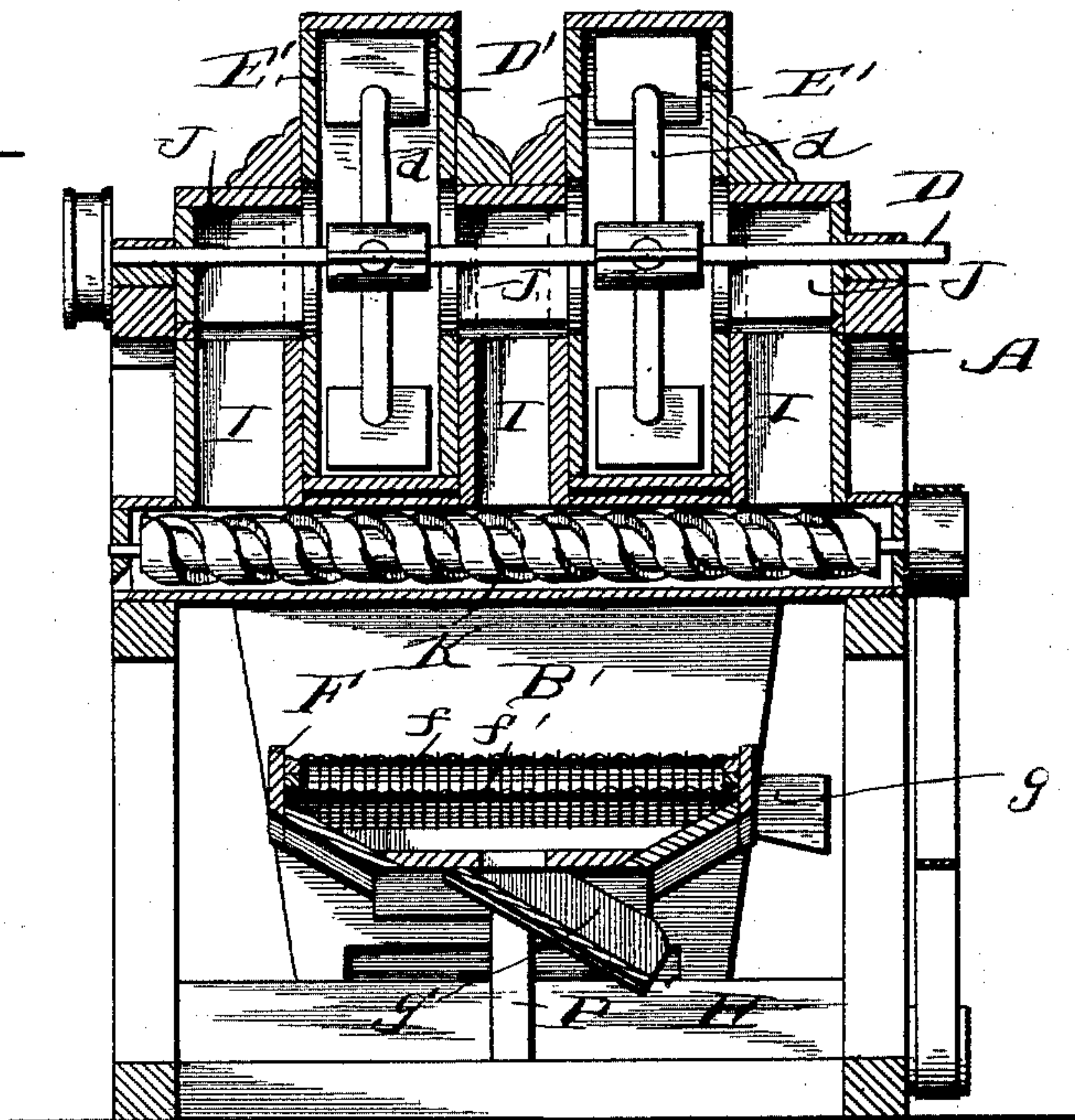


Fig. 4.



Witnesses
Jesse Heller.
Philip L. Mason.

Inventor
Ralph M. Laine
by E. W. Anderson
his Attorney

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his Attorney

UNITED STATES PATENT OFFICE.

RALPH McLAIN, OF LA GRANGE, INDIANA.

GRAIN-CLEANING ATTACHMENT FOR CLOVER HULLERS AND SEPARATORS.

SPECIFICATION forming part of Letters Patent No. 485,971, dated November 8, 1892.

Application filed March 31, 1892. Serial No. 427,234. (No model.)

To all whom it may concern:

Be it known that I, RALPH McLAIN, a citizen of the United States, and a resident of La Grange, in the county of La Grange and State of Indiana, have invented certain new and useful Improvements in Grain-Cleaning Attachments for Clover Hullers and Separators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a side elevation. Fig. 2 is a plan of the whole machine. Fig. 3 is a section on line x , Fig. 1. Fig. 4 is a section on line yy , Fig. 1. Fig. 5 is a section on line zz , Fig. 2. Fig. 6 is a section on line vv , Fig. 2. Fig. 7 is a section on line ww , Fig. 6.

This invention has relation to certain new and useful improvements in grain-cleaners; and it consists in the novel construction and combination of parts, as hereinafter specified.

In the accompanying drawings, the letter A designates the frame of the machine, having supported therein at each end a wide vertical flue, that at one end being designated by the letter B and that at the opposite end by the letter B'.

C designates the grain-hopper, located near one end of the frame and arranged to discharge into the vertical flue B at a point some distance below the upper end of the latter.

D designates the fan-shaft, journaled transversely and horizontally of the frame and carrying a series of fans d , working in the blast-chambers D'. These blast-chambers and the fans are located at the central portion of the frame, and extending therefrom in each direction are a series of horizontal flues E, which lead to the vertical chutes B B' and communicate therewith at the upper portions. The fans d take their blast through the large flues E' on the upper portion of the frame and leading to the blast-chambers.

In the accompanying drawings I have shown three of the horizontal flues E communicating with the vertical chutes; but it will be understood that any number may be em-

ployed, according to the size and capacity of the cleaner. The chute B at its lower end is arranged to discharge onto the upper end of an inclined shoe or shake F, having therein graded removable screens $f f'$. The upper screen f is arranged to discharge at its lower end into a spout g and serves to remove the coarser foreign substances from the grain, which falls therethrough onto the screen f' , arranged to discharge into the lower portion of the vertical chute B', the fine foreign seeds passing through the latter screen and discharging into the spout g' .

G is a corrugated feed-roll in the lower part of the hopper C, by means of which the grain is fed into the flue B as fast as it is received by the cleaner.

H designates a chamber or spout into which the lower end of the flue B' opens. In this chamber H is a conveyer H', which carries the grain to one side of the machine to the discharge h .

The cleaner is designed to be attached on top of the separator just back of the cylinder or to the side of a clover-huller. The grain or seed is conveyed by elevators to the hopper C as fast as the huller or separator thrashes it and is delivered to the vertical flue B in a wide thin stream. The fans d create a vertical or lifting suction-blast in said flues, which removes the fine particles of dust and dirt, which is raised from the grain and carried through the horizontal flues to the fan-chambers. A hopper I is attached to the bottom of each horizontal flue against the fan-chambers, and at each side of the fan-chambers is a check-board J, by means of which the dirt is checked and drawn under into the hoppers. From these hoppers the dirt drops through a trap-door in the bottom of each into a conveyer K, where it is conveyed to one side of the machine and discharged.

The grain is discharged onto the shoe F, where it undergoes the action of the separator-screens $f f'$, and is thence fed into the vertical chute B', where it is again subjected to the action of the suction or lifting blast and all remaining particles of foreign matter are removed, the cleaned grain discharging from the conveyer H' into sacks or other suitable receptacles. The cleaner is designed

to be built upon a sufficient slant, so that when attached to a separator the dust and dirt will be thrown into the straw-carrier of said separator.

5 The various conveyers and the fan-shaft may be driven by any suitable gearing, such as that shown, wherein the main pulley is mounted on a transverse shaft L, on which is a pulley *l*, carrying a belt to a pulley on the
10 fan-shaft. Said shaft L also carries a belt to a pulley *m* on the shaft M of the feed-roll G, said shaft being also belted to pulleys on the shafts on the conveyers K and H', by means of which said conveyers are driven.

15 The shaft L carries an eccentric-disk N, on which is loosely fitted a collar to which is connected a spring-pitman N', connected to the shoe F. Said shoe is also supported by spring-arms P P of the frame. When the
20 machine is in operation, the revolution of the shaft L will impart an oscillating vibrating movement to the shoe.

The cleaner when intended for use with grain-separators is designed to be made in
25 different sizes and capacities, according to the size and capacity of the particular separator, the vertical chutes being usually of the same width as the separator-cylinder.

R R designate slides, one in each end of the
30 cleaner in the chutes B B' at the lower edges of the horizontal flues. These slides are for the purpose of regulating the suction or upward draft in the said chutes.

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

1. In a grain-cleaner, the wide vertical flues at each end thereof, the hopper C, arranged to discharge into one of said flues some distance below the upper end thereof, the fan
40 journaled transversely of the frame midway between said flues, the parallel horizontal flues in the upper portion of the frame, said horizontal flues running in each direction from
45 the blast-chamber and communicating at their respective ends with the vertical flues, and the inclined shoe receiving the discharge from

one of said vertical flues and itself discharging into the other, substantially as specified.

2. In a grain-cleaner, the wide vertical flues B B', one at each end of the frame, the hopper C, discharging into the flue B, the fan-shaft D, journaled transversely of the frame midway between said vertical flues and carrying a series of fans *d*, the blast-chambers D', in which said fans work, the large flues E' in the upper portion of the frame and communicating with said blast-chambers, the parallel horizontal flues E, running each way from said blast-chambers and leading to the
60 flues B B', the dirt-hoppers I, attached to the bottom of each flue E against the fan-chambers, the check-boards J, and conveyer K, and the grading-screens arranged to carry the grain from the flue B to the flue B', substantially as specified. 65

3. In a grain-cleaner, the combination, with the frame, the wide flues B B', one at each end of said frame, the hopper C, discharging into the flue B through an opening in the
70 wall thereof some distance below its upper end, the corrugated feed-roll in the lower portion of said hopper, and the oscillating vibrating shoe receiving the grain from the flue B and discharging it into the flue B' near
75 the lower end of the latter, of the blast-chambers located in the central upper portion of the frame, the fans working therein, the horizontal parallel flues E, leading in each direction from said blast and communicating, respectively, with the upper portions of the
80 flues B B', the regulating-slides R R in the flues B B', the hoppers I, attached one to the bottom of each of said flues E, the check-boards J, and the conveyer K underneath the
85 discharges of said hoppers, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

RALPH McLAIN.

Witnesses:

H. W. LAMSON,
WM. J. SLACK.