

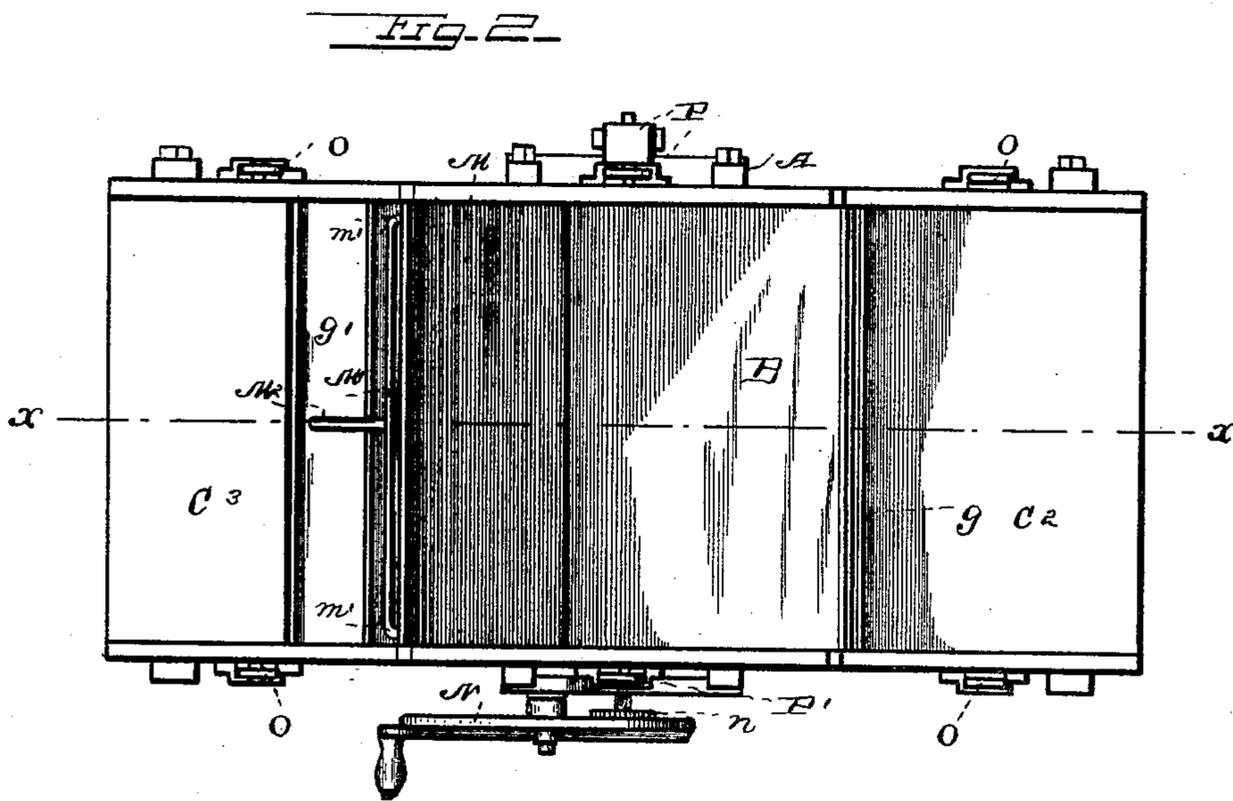
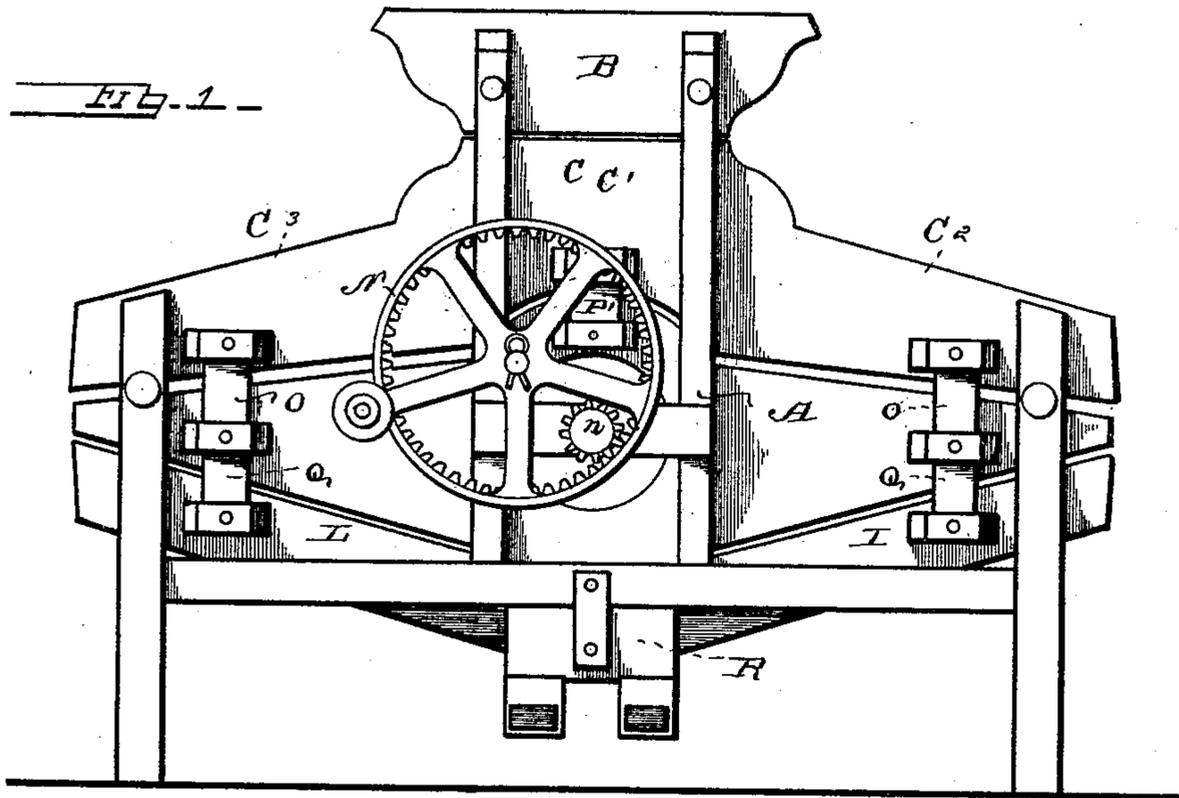
(No Model.)

2 Sheets—Sheet 1.

T. J. HATFIELD.
FANNING MILL.

No. 500,496.

Patented June 27, 1893.



WITNESSES

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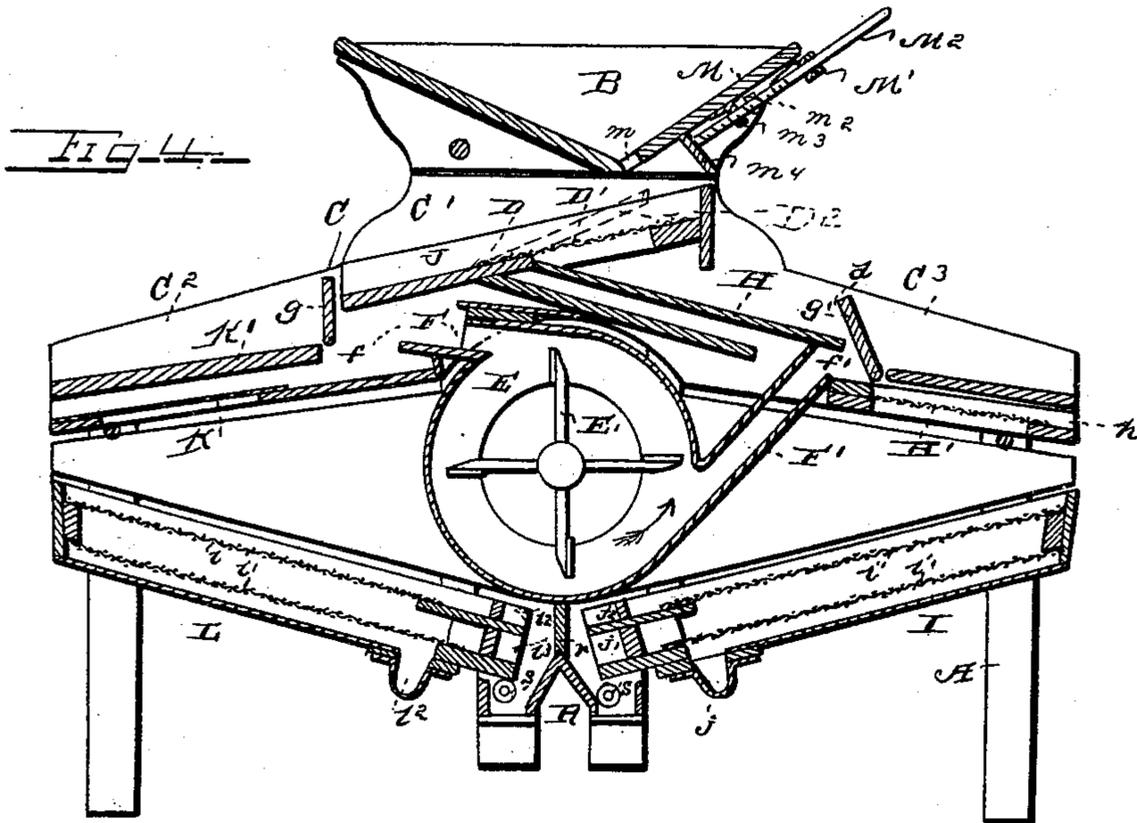
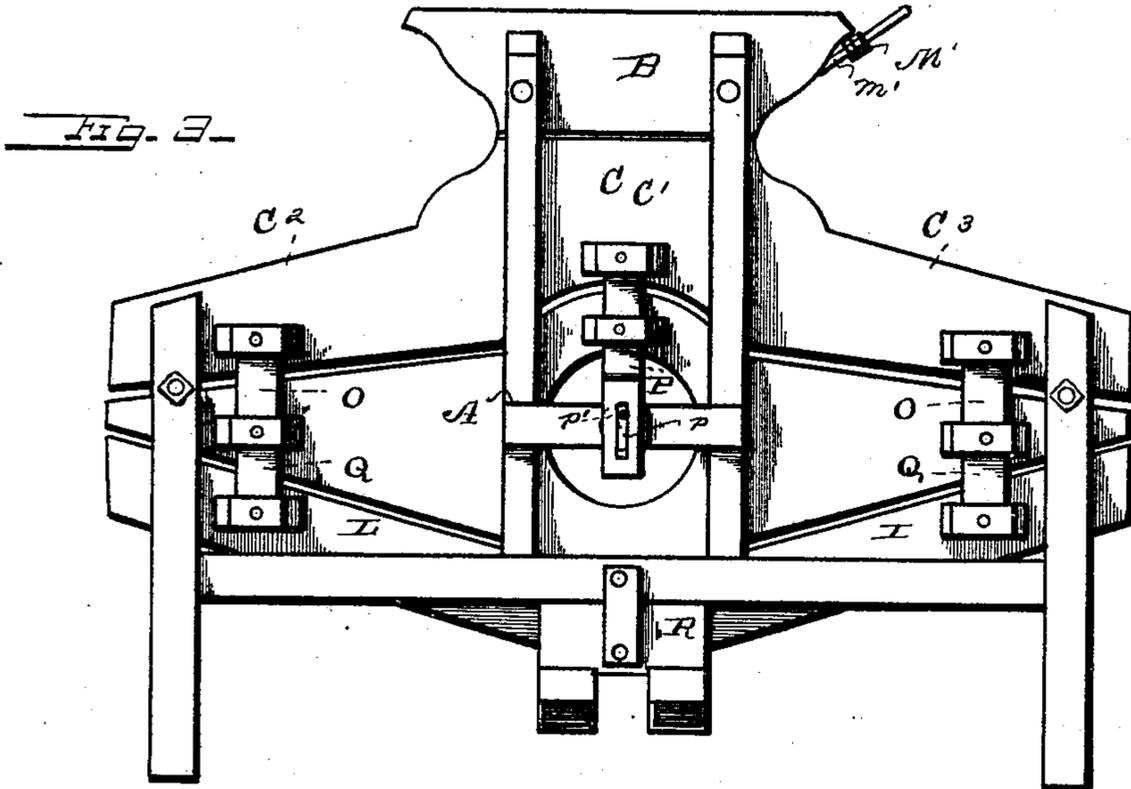
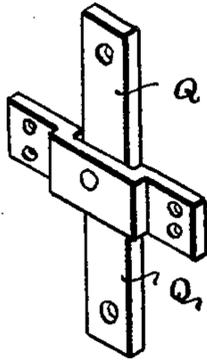


FIG. 5.



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UNITED STATES PATENT OFFICE.

THOMAS J. HATFIELD, OF DUBLIN, INDIANA.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 500,496, dated June 27, 1893.

Application filed December 31, 1892. Serial No. 456,856. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. HATFIELD, a citizen of the United States, and a resident of Dublin, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Fanning-Mills; 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 front view of the fanning mill. Fig. 2 is a plan view of same. Fig. 3 is a rear view of the mill. Fig. 4 is a vertical longitudinal section on line xx Fig. 2, and Fig. 5 is a detail view of one of the connections between the upper and lower shoes.

This invention has relation to certain new and useful improvements in grain cleaners, and it consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the accompanying claims.

The object of my invention is to provide in a single structure two separate cleaners fed from a common hopper, together with a separator, whereby coarse and fine grains will be separated from each other, the fine grains or seeds going to one cleaner, and the coarser grains or seeds to the other cleaner.

A further object is to provide means whereby a single and centrally located fan will supply both the cleaners with a blast, and to provide means for regulating and controlling the blast.

A further object is to construct and arrange the parts in such a manner that when desired, both cleaners may be employed to clean the same kind of grain, and thus double the capacity of the machine.

Other minor objects of the invention will hereinafter appear.

Referring to the accompanying drawings, the letter A designates the frame of the machine, upon the upper central portion of which is supported a hopper B.

C designates the upper shoe, which is of double form, having a central portion C' supported underneath the hopper, and the down-

wardly inclined end portions C², C³. Situated in the central portion C' of said shoe and underneath the discharge of the hopper is a separator D, which consists of a frame inclined from its upper end toward the end C² of the shoe, said frame having in its upper portion a screen D', which is made removable.

E is the fan chamber, which is situated in the central portion of the frame, below the hopper and the central portion of the shoe C. Said fan chamber is approximately cylindrical in form, and leading therefrom, one at one upper side portion, and one at the opposite lower side portion, are two broad air flues F and F', the flue F opening at its upper end into the portion C² of the shoe C, and the flue F' opening at its upper end into C³. By this arrangement it will be apparent that the operation of the single fan E' will supply each side of the shoe with an outward, oppositely directed blast. Controlling the discharge f, f' of the said flues are valves or dampers g, g' which can be turned so as to regulate the blast to the desired strength and direction.

The finer seeds or grains from the hopper fall through the screen D' onto the inclined grain board H, thence onto a screen H', where the coarser parts thereof are separated and discharged at h . The finer parts fall through said screen onto a lower shoe I, which is inclined toward the center, and is provided with grading screens i, i' , which discharge respectively at j, j', j'' , at the lower central portion of the machine. Dust, dirt, and light matter passing through the screen D' are blown out at d . The coarser seed or grain from the hopper, being unable to pass through the screen D', are carried along the board J, which forms a continuation of said screen, and are discharged onto the screen K in the opposite end of the shoe C. The chaff is blown out over the chaff board K'.

The screen K effects the separation of the coarser parts of the grain in the same manner as the screen H' in the opposite side of the shoe, the finer parts falling through onto a lower shoe L, similar to the shoe I. In said screen L are grading screens l, l' , discharging at l^2, l^3, l^4 .

By removing the screen D' it will be apparent that both sides of the machine can be

utilized to handle the same grain, and the capacity of the machine be thereby doubled. In this event a grain board D^2 , shown in dotted lines, Fig. 4, may be placed underneath the discharge of the hopper to direct the grain and deliver it to both sides.

M is the slide or door of the hopper, which works in the guides or grooves m . Secured to said door or slide is an angular rod M' the arms m', m' , of which work loosely in guides m^2 on the hopper frame.

M^2 is a screw having bearings at its lower portion in a lug m^3 secured to the door or slide, and at its upper end in the central portion of the rod M' . The lower end of the screw is arranged to bear against the hopper frame at m^4 , so that by turning said screw, said slide may be raised and lowered.

The fan may be driven by a crank wheel N , having internal gear, meshing with a pinion n on the fan wheel shaft, as shown, or by other suitable gear. The upper shoe C at its ends is supported by the transverse rods O which extend transversely thereunder, said shoe being capable of an oscillating endwise vibratory movement, which is imparted to it by an arm P pivoted to the frame and having an elongated slot p in its lower end, which is engaged by a crank pin p' carried on the end of the fan shaft.

On the other side of the machine is an arm P' , which is loosely connected to the shoe at its upper end, and pivoted to the frame at the lower end. The movement of the upper shoe is communicated to the lower shoes by the arms Q, Q , which are pivoted centrally to the frame, and loosely connected at their ends with the respective shoes.

The grain from the discharges j', j^2 , and l^2 , l^3 passes into the grain box R , which is secured centrally and transversely underneath the machine. Said box has a central longitudinal partition r , forming two compartments, which receive respectively the grain from the discharges j', j^2 , and l^2, l^3 . The bottoms of said compartments are inclined from the center toward each end, where the grain is discharged.

$s, s, \&c.$, are small rollers carried in the box R , and upon which rests the inner lower ends of the shoes I and L .

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

1. In a grain cleaner, the combination with the frame having a hopper supported centrally thereon, of an upper shoe C having a central portion underneath said hopper, and

inclined end portions C^2, C^3 , a separating screen in each of said end portions, a separator D at the central portion of said shoe, the lower shoes having screens inclined toward the center, the central fan chamber and fan, and blast passages leading from opposite portions of said fan chamber into the upper shoe at the opposite end portions thereof, substantially as specified.

2. In a grain cleaner, the upper shoe C having the central portion C' , and the downwardly inclined end portions C^2, C^3 , the separator D in the central portion C' , the screen therein, the inclined end board H in the portion C^3 of said shoe, the chaff board K' in the portion C^2 , the screens H', K in said end portions, the lower shoe I inclined from both ends toward the center, the central fan chamber and fan, blast passages F, F' , leading from opposite portions of said fan chamber and opening into the respective end portions of the shoe, and pivoted dampers controlling the discharges of said passages, substantially as specified.

3. In a grain cleaner, the combination with the frame, the upper shoe having the oppositely extended inclined end portions, the lower shoes inclined toward the center, and the central portion of the frame having the fan chamber and fan, of the slotted arm P pivoted to the frame at one side and having an engagement with a crank pin of the fan shaft, an arm P' at the other side of the frame, said arm being pivoted to the upper shoe at one end, and to the frame at the lower end, and the arms Q pivoted centrally to the frame and at their ends to the respective shoes, substantially as specified.

4. In a grain cleaner, the combination with the frame, the hopper supported centrally thereon, the upper shoe extending the length of the machine, a separate screen and discharge at each end portion of said shoe, a removable screen at the central portion of said shoe, on to which said hopper discharges, a blast chamber underneath said screen, blast flues leading from opposite portions of said chamber to each end portion of said shoe, valves in said passages, and lower shoes at each end of said frame in the lower portion thereof, substantially as specified.

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

THOMAS J. HATFIELD.

Witnesses:

WILL E. FLOYD,
ALBERT BURR.