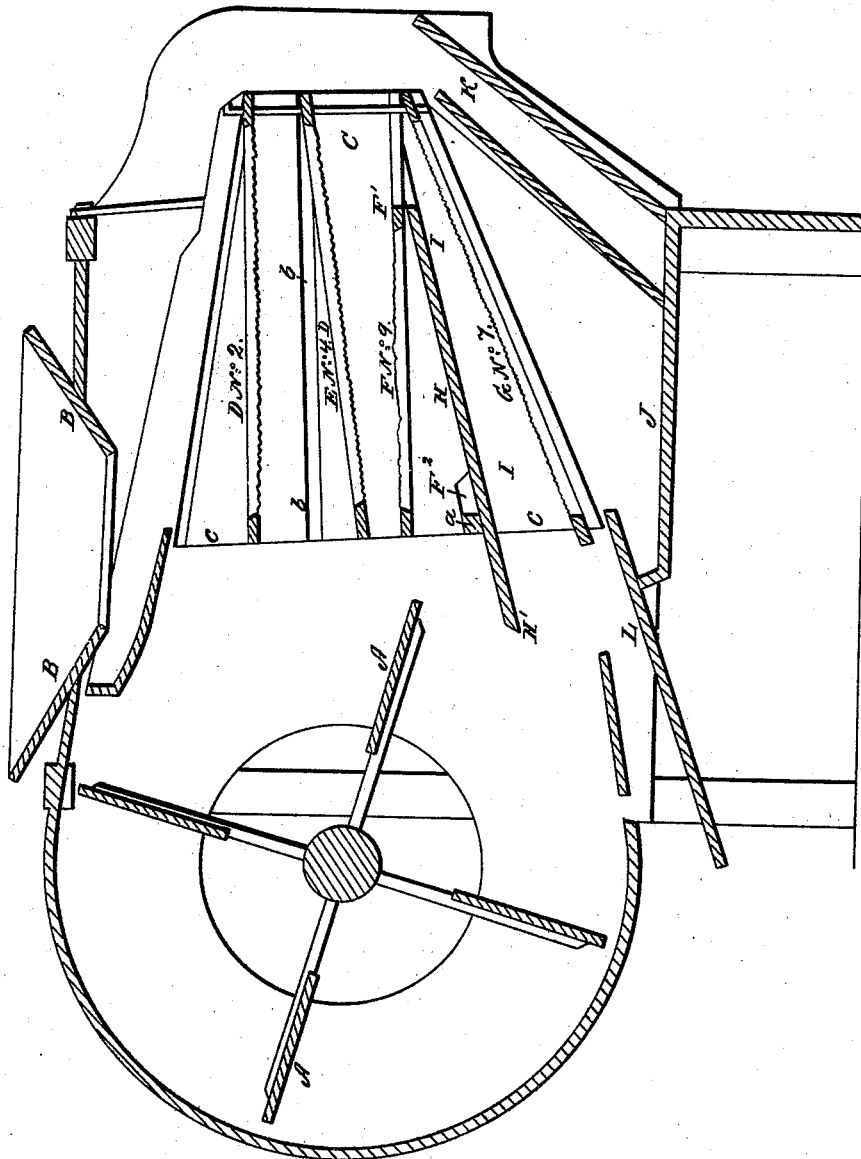


I. T. GRANT.
Grain Winnower.

No. 4,105.

Patented July 10, 1845.



UNITED STATES PATENT OFFICE.

ISAAC T. GRANT, OF SCHAGHTICOKE, NEW YORK.

FAN-MILL.

Specification of Letters Patent No. 4,105, dated July 10, 1845.

To all whom it may concern:

Be it known that I, ISAAC T. GRANT, of Schaghticoke, in the county of Rensselaer and State of New York, have invented a new and useful Improvement in Fan-Mills or Machines for Cleaning Wheat or other Grain; and I do hereby declare that the following is a full and exact description thereof.

In the fan mill, as ordinarily constructed, the current of wind created by the revolving fan acts with equal, or nearly equal, force upon the grain in every part of its descent from the hopper to the lower part of the machine, and it becomes necessary, therefore, to pass the grain twice through it in order to effect its cleaning; in the first operation, the chaff and other light substances are blown out, which is called chaffing; but a greater force of wind, and a second action, are required to separate the other foreign matter which is heavier than the chaff, but lighter than the wheat, or other grain; which second operation is called screening.

My improvement consists in adding to the screens, and other parts in general use in fan mills, an additional screen and what I denominate a chess board, which are arranged in such manner as to cause a much stronger blast of wind to act upon the grain at the lower part of the shaking sieves, or screens, than at the upper, and thereby to aid the action of said sieves in effecting the screening; by which means the two operations are performed simultaneously, and that in less than half the time required for cleaning the grain in the old way, and performing the work more effectually.

In the accompanying drawing, I have given a vertical section through the middle of my improved machine, from front to back, such a section serving to show the arrangement of all that is novel therein, the wind-wheel, the shaking apparatus, and the shoe that sustains the sieves, being substantially the same with those previously used.

A, A, is the fan wheel; B, B, the hopper, and C, C, one side of the shoe. The numbers on the respective screens serve to designate the number of meshes to the inch which may be most advantageously employed. The screens D, No. 2, and E, No. 4, are the same with those in other machines. The screen F, No. 9, has an inclination forward, and terminates at F', and the grain which falls upon it from No. 4, is carried forward by the shaking of the shoe, and when it reaches the point F', it falls upon G, No. 7, which hav-

ing an inclination backward carries the grain in that direction, in a cleaned state. Intermediate between the screens No. 9, and No. 7, is a board H, which extends forward to the same distance with screen No. 9, and in the direction represented; at its rear end it extends back to the point H', where the vanes of the fan-wheel just clear it. By this arrangement of the board, H, a funnel-formed passage, I, I, is produced, through which a very strong current of wind passes, which operates with great force at the diminished space where it meets the falling grain, and is thereby enabled to blow out everything that is lighter than the full kernels. What foreign matter passes through the screen No. 7 falls into the space J, and thence under the machine, while the greater part of that which is blown forward by the strong current, falls through the space K, and is, in like manner, conducted below the machine; the cleaned grain, leaving the screen No. 7, passes along the inclined board, L, and out at the rear end of the mill.

Along the chess board, H, I place a ledge of wood, *a*, extending from one side of the shoe to the other, and through each of these sides, and close to the ledge, I make a hole F²; the ledge *a*, arrests the chess, and other foul matter, which fall on said board through the screen No. 9, and by the shaking of the shoe they escape through the said holes, and descend among the refuse stuff. The groove in the sides of the shoe marked *b*, *b*, is intended to receive a fine screen, say from No. 8 to No. 12, when the machine is used for the cleaning of clover, flax, or other small seeds, but is unoccupied at other times.

Having thus fully described the arrangement of the respective parts of my improved fan mill, and explained the operation thereof, what I claim therein as new, and desire to secure by Letters Patent, is—

The manner in which I have arranged the screen F, and the chess board, H, and combined them with the screens ordinarily used, so as to obtain two distinct currents of wind, and to subject the falling grain to the stronger current below the screen and chess board, thereby blowing off the heavier portions of foreign matter, while the chaff is blown off by the ordinary currents in the upper compartments of the shoe.

ISAAC T. GRANT.

Witnesses:

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