(No Model.)

N. M. NEWKIRK.

FANNING MILL.

No. 467,380. Patented Jan. 19, 1892.

Fig. 2.

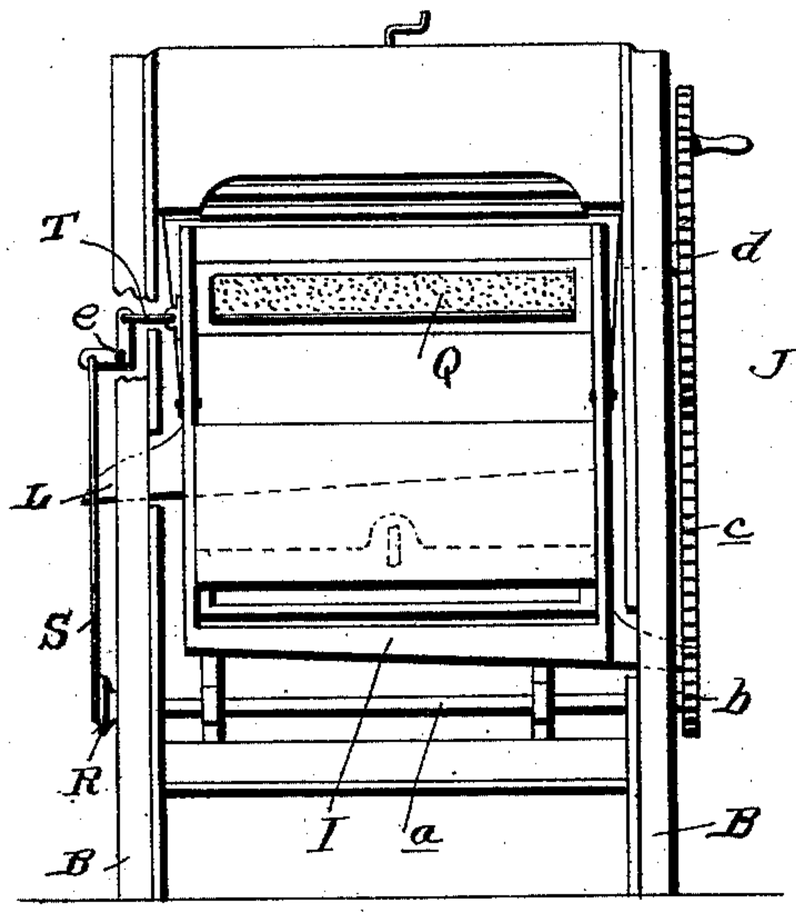


Fig. 1.

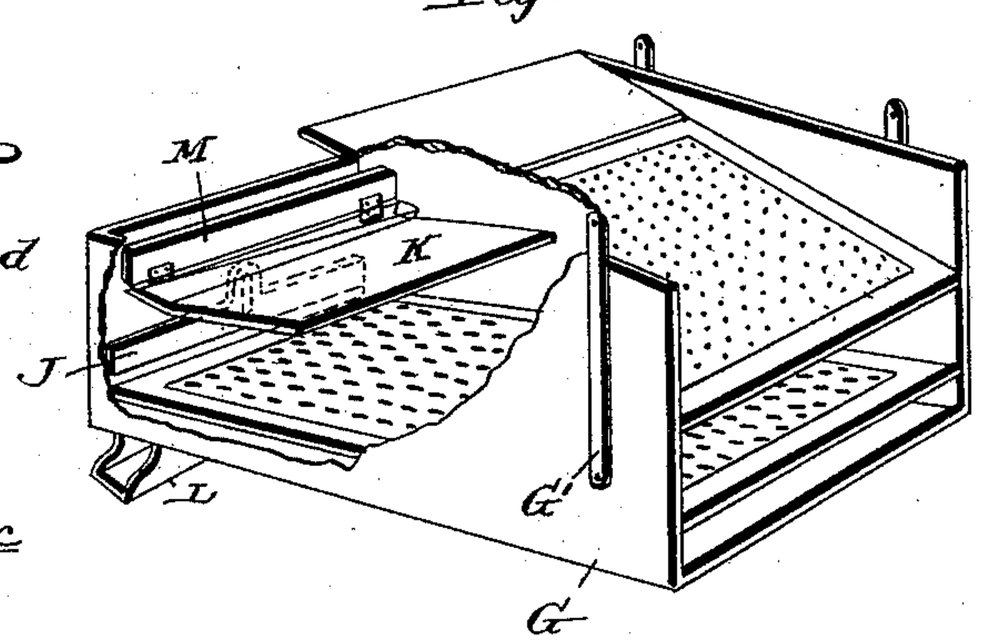
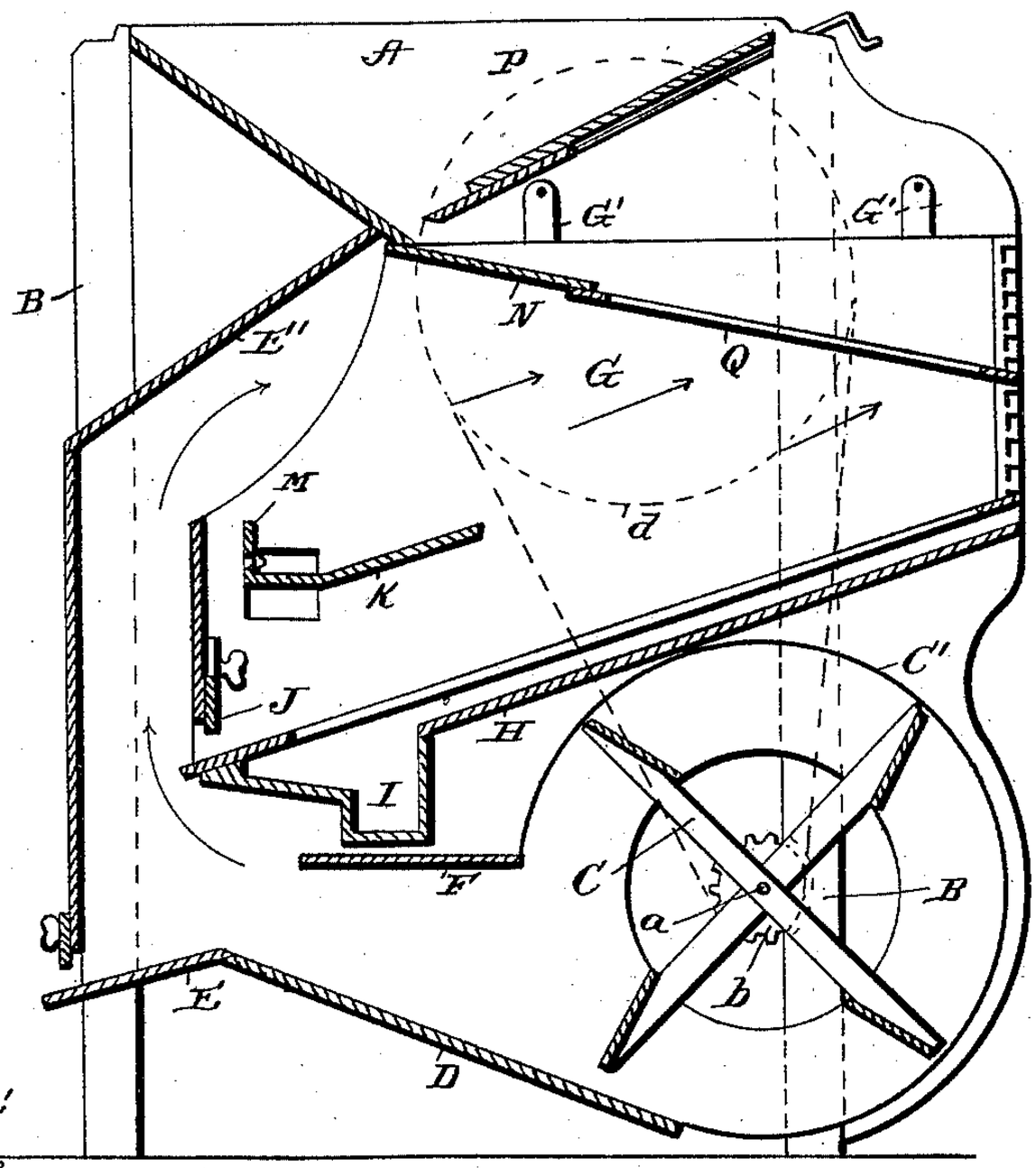


Fig. 3.



Witnesses!
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UNITED STATES PATENT OFFICE.

NINIAN M. NEWKIRK, OF CHATHAM, CANADA.

FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 467,380, dated January 19, 1892.

Application filed March 17, 1890. Serial No. 344,258. (No model.)

To all whom it may concern:

Be it known that I, NINIAN M. NEWKIRK, a citizen of Canada, residing at Chatham, in the county of Kent and Province of Ontario, Canada, 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.

My invention has relation to improvements in fanning-mills for separating chaff, dirt, husks, &c., from grain; and it has for its primary object to provide a mill of a construction whereby the grain will be twice subjected to the action of the blast-fan during its passage through the mill.

Other objects and advantages will be understood from the following description and claims, when taken in conjunction with the annexed drawings, in which—

Figure 1 is a perspective view of my improved shaking-shoe with a portion of the side wall broken away to illustrate the interior construction. Fig. 2 is a front elevation with the front wall removed. Fig. 3 is a longitudinal vertical section illustrating the entire interior construction.

Referring by letter to the said drawings, A indicates the outer casing of my improved mill, which may be of the ordinary or any approved form and is mounted upon corner uprights B, as illustrated.

C indicates the blast-fan, which is fixed upon a transverse rotatable shaft *a*, which is journaled in the side walls of the casing and carries at one end a sprocket-gear *b*, around which passes a chain belt *c*, which also passes around and is driven by an upper sprocket-wheel *d*, journaled on a shaft extending laterally from the side wall of the casing.

Surrounding the fan C, as better illustrated in Fig. 3 of the drawings, is a cylindrical casing C′, which is designed and adapted to deflect the blast or draft created by the fan into a channel or passage presently to be described.

D indicates the inclined bottom of the mill, which leads upwardly from the lower edge of the fan-casing, and E indicates the grain-receiving board, which is slightly pitched in a direction opposite to the bottom and is adapted to convey the clean grain from the mill.

E′ indicates the rear upper inclined deflecting-wall of the casing, which serves as a top for the vertical air-passage.

F indicates a horizontally-disposed board, which leads from the upper edge of the fan and forms the upper wall of the horizontal portion of the blast-passage.

G indicates the laterally-shaking shoe of my improved mill, which is hung from the side walls of the casing by spring-metal hangers G′ and is so arranged therein that its rear wall will form one of the vertical walls of the blast-passage. The bottom H of the shoe, which is pitched rearwardly, as illustrated, is provided with a transversely-inclined trough I, which leads through the side wall of the casing and serves to convey broken grain, dirt, &c., from the mill.

Arranged a slight distance above the bottom H of the shoe and in a parallel plane therewith is the mesh-riddle, over which the grain is caused to travel and through the meshes of which the broken grain and dirt are sifted in operation.

As better illustrated in Fig. 3 of the drawings, an opening is afforded in the rear wall of the shoe to allow a discharge of the grain from the riddle, and in order to regulate this discharge I provide a vertically-adjustable door J, as shown.

At a suitable elevation in the shoe G and in the rear portion thereof I provide a chess-board K, which is slightly inclined rearwardly, as illustrated, and is designed to receive a deposit of chess, dust, and other impurities which are raised from the grain by the blast, as will be presently described. This chess-board K is provided with a transversely-inclined trough L, which takes through the side wall of the casing and serves to convey the chess, dust, &c., from the mill.

Hinged to the rear wall of the chess-board is a vertically-disposed board M, which is adapted to regulate the opening between the chess-board and the rear wall of the shoe for a purpose presently pointed out.

N indicates the cap-board of the shoe, which

is arranged beneath the mouth of the hopper P, from which it receives the grain to be cleaned.

Q indicates the screen, which is arranged on the same plane with and receives the grain from the board N.

Upon one end of the fan-shaft *a*, as better shown in Fig. 1, is fixed a disk R, to which a pitman S is eccentrically connected. At its upper end the pitman S is connected to one branch of a bell-crank lever *e*, the other branch of which is connected to the shoe G by a short rod T, which takes through the side wall of the casing. Thus it will be seen that when the fan is rotated, as has been described, the shoe will be reciprocated laterally and the grain caused to travel over the screen and riddle, through the medium of which it is separated from the impurities, which take through the meshes or are blown off by the blast.

By the construction described it will be seen that as soon as the grain is deposited upon the screen it is subjected to the action of the blast, and it is again subjected to the blast while falling from the riddle to the board E, when the chess and other impurities are carried up and fall upon the chess-board K, from whence they are conveyed as described. It will further be seen that should the blast of air be so strong as to raise any of the grain it will fall, by reason of its weight, through the passage between the chess-board and the rear wall of the shoe back upon the riddle.

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

1. The combination, with the blast-fan and the vertical air-passage having the grain-discharge at the bottom and the inclined deflecting-wall at the top, of the shaking-shoe comprising the feed-board, the inclined screen, the oppositely-inclined riddle, the bottom arranged substantially parallel to the riddle and having a transversely-inclined trough, the rear wall provided with a valved discharge-opening, and the chess-board having the transversely-inclined discharge-trough and a regulating-section, substantially as specified.

2. In a fan-mill, the combination, with the shoe hung in a casing and comprising the feed-board, the inclined screen, the oppositely-inclined riddle, the bottom arranged substantially parallel to the riddle and having a transversely-inclined trough, the rear wall provided with a valve discharge-opening, and the chess-board having the transversely-inclined discharge-trough, of a blast-fan and a suitable means for rotating said fan and shaking the shoe, substantially as specified.

Chatham, March 4, 1890.

N. M. NEWKIRK.

In presence of—
D. S. PATERSON,
N. H. STEVENS.