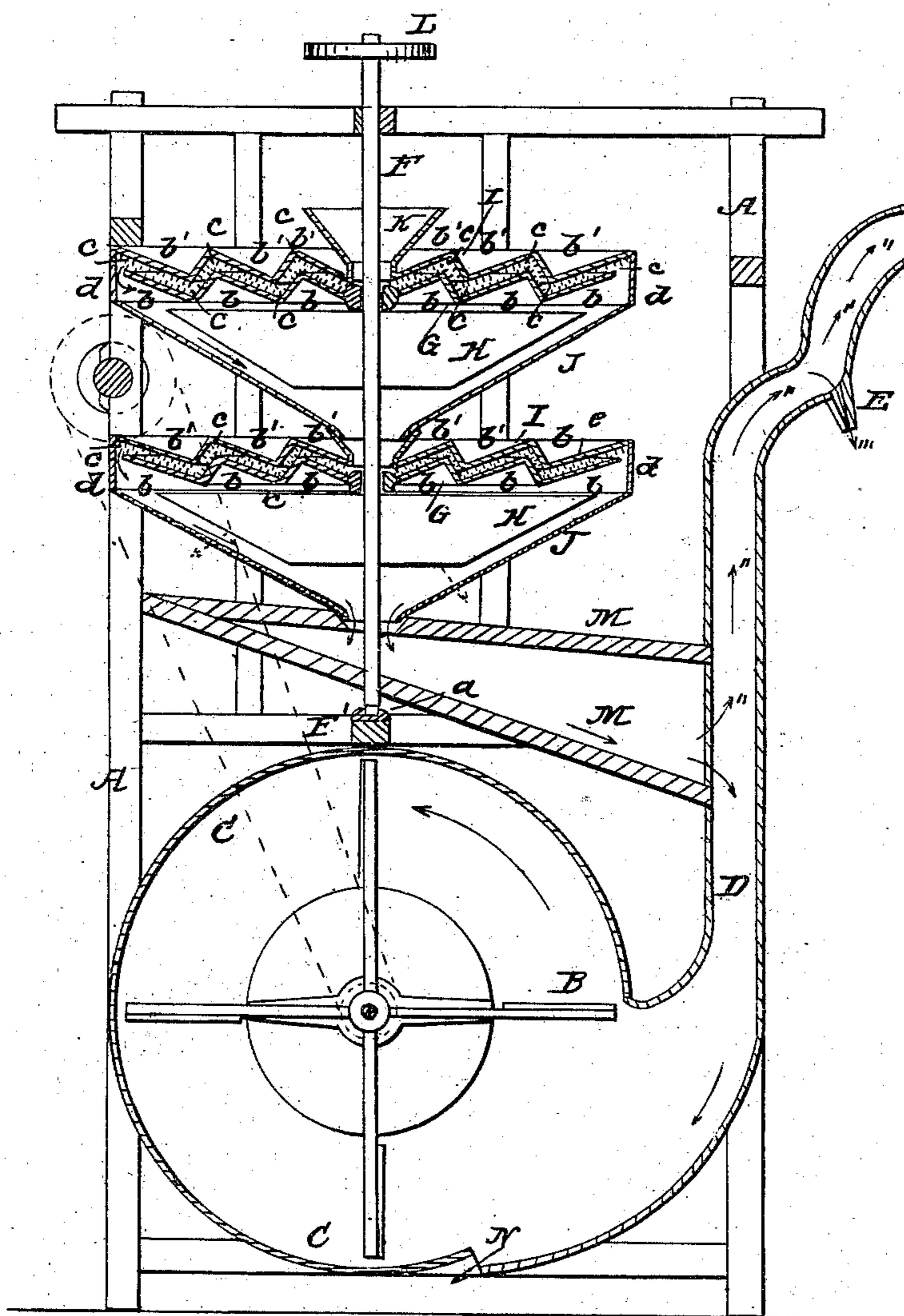


G. B. TURNER.

Smut Mill.

No. 10,949.

Patented May 23, 1854.



UNITED STATES PATENT OFFICE.

GRANT B. TURNER, OF CUYAHOGA FALLS, OHIO.

SMUT-MACHINE.

Specification of Letters Patent No. 10,949, dated May 23, 1854.

To all whom it may concern:

Be it known that I, G. B. TURNER, of Cuyahoga Falls, in the county of Summit and State of Ohio, have invented a new and improved implement for cleansing grain from smut and also for separating the chaff and light or imperfect grain from sound grain, said implement being a combined smut-machine and separator; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawing, making a part of this specification, which said drawing is a vertical section of the machine, the plane of section being through its center.

The nature of my invention consists in the screen concentrator, by means of which the grain in passing from one set of plates to the other, the dust, smut, &c., scoured from it, passes through this concentrator, while the grain is thrown by it to the center, and is made to pass through another set of plates to the circumference, and again to the center by means of the screen concentrator. The process may be repeated as often as desirable, the dust from each scouring passing through the concentrator, and the grain over it to the center. Also in the stationary and rotating scouring plates, and the combination of those plates so that either of them may be elevated or depressed, and thereby the distance be made to vary between them, in order to scour more effectually, or admit of the passage of a greater or less amount of grain. Also in the combination of the smut and separator.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents a rectangular frame, having at its lower part a fan, B, inclosed by a suitable box, C, which communicates with a blast spout, D.

The blast spout, D, is placed in a vertical position, and is straight the greater part of its length. The upper part is curved outward from the frame, A, and forms a double curve as shown in the drawing; a spout, E, being between the two curves, and projecting downward from the blast spout, D. The blast spout, D, extends upward nearly the height of the frame.

F, is a vertical shaft, the lower end of which runs in a bearing, (a), on a cross-

piece, F', of the frame, A. On this shaft, F, are secured, at a suitable distance apart, two circular scouring plates, G, G. These scouring plates are crimped or formed with a series of concentric steps or ledges, (b), having small studs or spikes, (c), on their upper surfaces. Directly under each scouring plate, and also attached to the shaft, F, there is a fan, H. Over each scouring plate, G, there is placed another scouring plate, I. The plates I, I, are stationary, and are secured to the frame, A, in any proper manner. They are crimped or have ledges, (b'), and studs, (c), and are constructed precisely similar to the plates, G, G.

J, J, are inverted conical screens, which are stationary, and inclose the fans, H, H, plates, G, G, and the lower surfaces of the plates I, I; the screens being attached to rims, (d), (d), which encompass the edges of the stationary plates, I, I. The upper screen leads into, or communicates with the lower screen, a circular aperture being at the center of the lower plate, I, as shown in the drawing. At the center of the upper plate, I, there is a hopper, K; and at the upper end of the vertical shaft, F, there is a pulley, L.

Operation: The grain to be separated and cleaned from smut, is placed in the hopper, K; and motion is given the shaft F, plates, G, G, and fans, H, H, by a belt which passes around the pulley, L. The grain passes between the two upper plates, I, G, and, by centrifugal force, is discharged at their peripheries, and is conducted by the upper inverted conical screen, J, to the lower plates, I, G; the upper fan, H, blowing out, through the screen, the dust and smut scoured from the grain by the upper plates, as shown by the red arrows. The grain is again scoured as it passes between the two lower plates, and the remaining dust and smut is blown out through the lower screen, J, by the lower fan, H. The lower screen J, conducts the grain to an inclined trough, M, and the grain is conveyed by the trough, M, into the blast spout, D. The blast generated by the fan, B, throws out all the chaff, chess, and other light substances, at the upper end of the blast spout, as shown by the arrows, (''); while the unsound grain, which is somewhat heavier, falls through the small spout, E, upon the ground, as shown by arrows, (''). The sound grain passes down

the blast spout, D, and then passes out of an opening, N, at the lower end of the fan box, C, as shown by arrows, ('). The rotating plates, G, G, and fans, H, H, are moved by a separate belt, or by a motion independent of that given to the fan, B; as will be seen by referring to the drawing, the red lines showing the fan-belt and pulleys. The relative speed, therefore, of the fan, B, and scouring plates, G, G, and fans, H, H, may be regulated as desired.

By the above arrangement of parts as shown, the grain may be perfectly cleansed from smut, and separated from the chaff, chess, and other impurities, with one and the same machine.

The smut and dust is separated from the grain in passing down the screens, J, J, and the grain and chaff alone enter the spout, D, the chaff being separated from the grain in the spout. By this arrangement, the different parts are kept separate, viz., the smut and dust from the chess or

chaff, and the sound grain from either of the above.

The machine is simple, not liable to get out of repair, and will perform its work effectively.

I do not claim the crimped circular scouring plates, G, G, I, I, nor any other of the within described parts, separately, for they have all been previously used separately; but

What I do claim as new and desire to secure by Letters Patent, is—

The stationary and rotating scouring plates, G, G, and I, I, inverted conical screens, J, J, and the blast-spout, D, constructed, arranged, and operating, in the manner and for the purpose substantially as shown and described.

G. B. TURNER.

Witnesses:

CHAS. S. PITTS,
THOMAS C. SMITH.