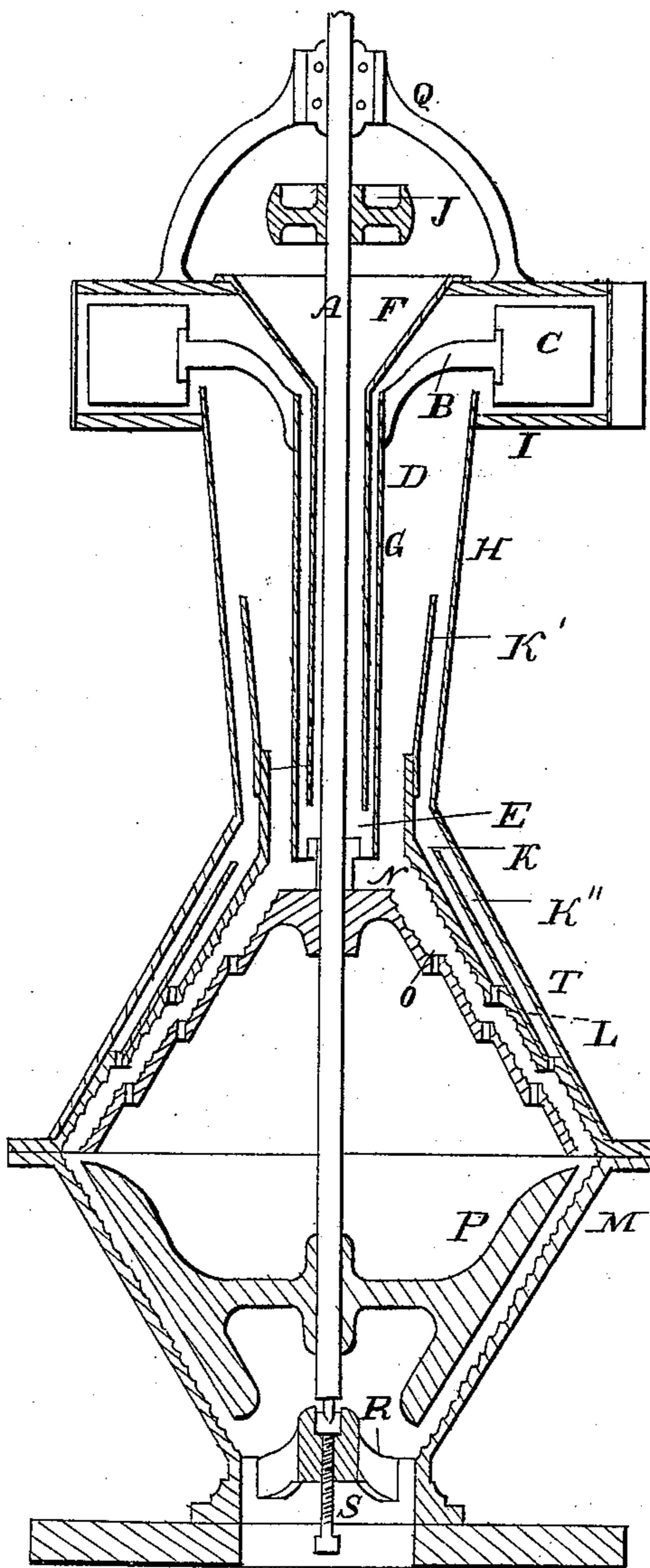


L. FAGIN.  
Grain Cleaner

No. 10,650.

Patented March 14, 1854.



Witnesses  
B. Oerly  
Thos & Clinton

Inventor.  
Lewis Fagin

# UNITED STATES PATENT OFFICE.

LEWIS FAGIN, OF CINCINNATI, OHIO.

## SMUT-MACHINE.

Specification of Letters Patent No. 10,650, dated March 14, 1854.

*To all whom it may concern:*

Be it known that I, LEWIS FAGIN, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Cleaning Grain, Separating Smut, Chaff, &c., from Wheat Previous to Scouring the Same for Flouring Purposes; and I do hereby declare the following to be a full, clear, and exact description of the machine, reference being had to the annexed drawings, made part of this specification, in which drawings the machine is represented in a central and vertical section.

The nature of my invention consists in a vertical machine, combining on one shaft a smut and scouring apparatus capable of ejecting the smut, chaff, &c., from wheat before scouring it for flouring purposes, and also of retaining the scattered grains and returning the same into the scouring department again and thoroughly scouring the whole with the least liability to break the wheat, so that it becomes pearled to a considerable extent before it finally passes out at the place of delivery.

The operation of this machine is that of pearling rather than breaking and therefore it causes the grain to be kept constantly rolling in a vertical position with such great rapidity that each grain effectually scours the fuzz from the ends of the adjoining grains and also at different intervals during the scouring process, causing the dust, &c., to escape through openings for that purpose, as soon as scoured loose therefrom; and finally deliver the article unbroken and free from the tenacious adherence of smut; a result absolutely indispensable to successful milling and which is fully attained by my machine; and furthermore the whole work is performed on one shaft; to wit, 1st, it separates the smut, chaff, &c., from the wheat prior to the commencement of the scouring process and afterward thoroughly scours the same with the least liability to break the wheat.

(A) is the shaft; (B) the arms of the suction fan (C). The arms (B) are attached to the upper end of an open cylinder (D), the lower end of which is attached, by arms and collar (E), to the shaft (A).

(F) is the circular hopper, having a small cylinder or feed pipe (G) attached thereto, which projects down two feet (more or less) inside of the cylinder (D), so that by their lapping each other they admit of

any degree of elevation (for the purpose of suction) which it may be found necessary to give to the throat (H), which is a section of an inverted sheet iron cone of great altitude. This throat (H) connects the casing (I) of the suction fan (above) to the casing (T) of the upper or stationary cast iron scouring cone (K). This cone (K) consists of a series (say three) of cones joined by perforated terraces (L). The cone (K) has a flange at its base and is bolted to the flange of an inverted cast iron cone (M). The cone (K) is also surmounted with an inverted conical sheet iron collar, shaped like the throat (H), and is marked (K'). There is also a conical sheet iron guide, marked (K'') shaped like the casing (T), which sits on the lower perforated terrace of the cone (K) so that currents of air are allowed to pass up along it, both inside and out. The object of the guide (K'') is to conduct, or rather guide back, into the scouring department any grain that may perchance be drawn up the throat (H), by the suction, and over the top of the collar (K'). The runner cone (N) is attached to the shaft (A) at a point suitable to bring its outer face in a position to work or act with the inner face of the cone (K) and has the same characteristics as to perforated terraces, marked (O). The inside face of the cone (K) except its terraces (L) are indented with small grooves horizontally to the base and in like manner the entire face of the cone (N) and its terraces (O) are grooved. So also is the inner surface of the inverted cone (M) made rough in a similar manner. There is a forcing fan (P) attached to the shaft (A) within the inverted cone (M) which acts as a fan and beater combined. The shaft (A) is suitably headed in the arch (Q) and is properly stepped below as at (R) with an adjusting screw (S) for the purpose of elevating or lowering the same. An inverted wire cone or funnel may be fitted into the lower end of the inverted cone (M) for the twofold purpose of admitting air and of gathering the cleaned grain.

This machine may be run from 400 to 800 revolutions per minute. The latter motion will clean from 75 to 100 bushels per hour. The grain is fed at the center through the hopper (F) and passes down through the feed-pipe (G) and as it passes out of the cylinder (D) is distributed in a circle (of about 15 inches diameter) by the motion

of the machine, which puts it at once and suddenly within the range or action of the suction fan (above). The instant therefore this is done, the smut, chaff, &c., are elevated from the wheat and carried up and out by the suction, (between the cylinder (D) and collar (K')), the specific gravity of the grain causing it to pass down between the runner and stationary cones (N) and (K), the surfaces of which are made rough with horizontal grooves and perforated terraces as before stated, the action of which on the grain, aided by the blast or suction of air operates to keep the grain rolling in a vertical position with such great rapidity that each grain effectually scours the fuzz from the ends of its neighbors, and otherwise throws the grain upward obliquely in such a manner as to retain it in this part of the machine (certainly) three or four times as long as ordinary smutters do and when the grain has arrived at the full width of the machine it is then compelled to pass over the surface of an inverted cone made rough as before stated, the forcing fan (P) acting as beaters and fan combined and driving it (the grain) around in and over the grooves (obliquely) with great velocity, the specific gravity of the grain being all that causes it to pass down over the grooves (obliquely) toward the center (the point of delivery) and therefore is retained for a length of time in the lower part of the machine also, and is thoroughly cleansed before it finally passes out. This machine is propelled by a belt over the pulley (J).

Having thus fully described and represented my improvement in winnowing, smutting and scouring grain what I claim therein as new and desire to secure by Letters Patent is—

1. My method (or its substantial equivalent) of arranging a blowing apparatus, where the upper or suction fan takes the air at the center and discharges on the periphery, to precede (on the same shaft) a scouring mill, for the purpose of taking from grain, the smut, chaff, &c., before the scouring process is commenced and afterward thoroughly scour the same; thus constituting the cleansing and scouring processes the duty of a single machine, substantially in the manner and for the purpose described.

2. I also claim the cylinder (D), hopper (F), and feed pipe (G) as arranged, or their equivalents, and for the purpose described.

3. I also claim the collar (K) as arranged and for the purpose described.

4. I also claim the guide (K'') as arranged and for the purpose described.

5. I also claim the scouring cones severally and collectively with their circular and horizontal grooves and perforated terraces, or their equivalent, and in combination with the conical fan and beaters (P) substantially as described and for the purposes enumerated.

LEWIS FAGIN.

Witnesses:

L. A. HARRIS,  
S. L. MARCHANT.