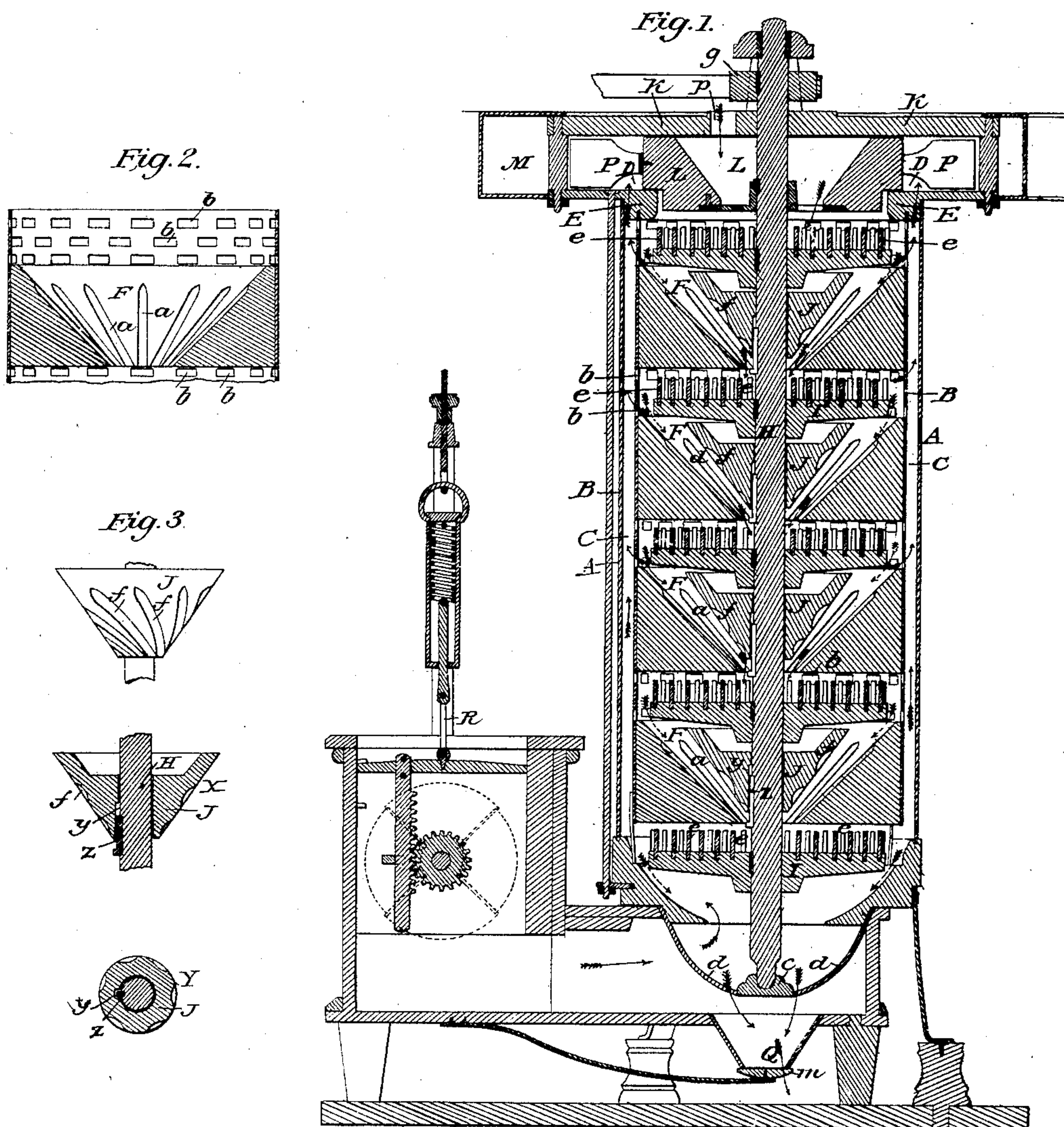


S. CANBY.
GRAIN CLEANING MACHINERY.

No. 17,363.

Patented May 26, 1857.



UNITED STATES PATENT OFFICE.

SAMUEL CANBY, OF ELLICOTTS MILLS, MARYLAND.

GRAIN SCOURER AND SEPARATOR.

Specification of Letters Patent No. 17,363, dated May 26, 1857.

To all whom it may concern:

Be it known that I, SAMUEL CANBY, of Ellicotts Mills, in the State of Maryland, have invented a new and useful Improvement in Grain-Cleaning Machinery; 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 annexed drawing, forming part of this specification, in which—

Figure 1 is a vertical section taken through axis of the main shaft. Fig. 2 is a view showing perforations of interior cylinder, and grooves of scouring hoppers. Fig. 3 is an exterior view of one of the self adjusting scourers.

Similar characters of reference in the several figures denote the same part.

The object of my machine is the removal of adhering impurities from the grain, and the separation of the same together with foreign substances mixed with the grain.

The nature of the invention consists in submitting the grain in succession to the action of a series of spiked scouring disks, and self adjustable conical rubbers, so situated relative to a system of perforations in a surrounding cylinder, that the impurities separated by the action of each disk will be carried off through an annular space between the perforated and exterior cylinders by a suction blast through said space; and a complete separation take place after the grain receives the action of the lower scouring disk; the details of construction and operation being as follows:

In the drawing A and B are two concentric upright cylinders having a space C between them which communicates with the fan chamber D, by openings through the frame piece E (not shown in drawings). The inner cylinder B contains a series of funnel shaped hoppers F, grooved in direction of their inclination as shown at *a*. The portions of the cylinder between these hoppers is perforated as shown at *b*. Through the machine runs a shaft H, stepped at *c*; said step being supported by a curved bar *d*. To this shaft is secured a series of scouring disks I, armed with spikes *e*; the number of disks being one greater than that of the hoppers F, and their situation being as set forth in Fig. 1.

Upon the shaft H there is a system of rubbers J, each within one of the hoppers F,

as shown in Fig. 1. They fit loosely upon the shaft and are free to move in direction of its length, but rotate with the shaft by reason of the key and groove connection *z y*; shown more fully in the detached views X and Y. This loose connection of the rubbers renders them self adjustable; pressure against their inclined surfaces causing them to rise upon the shaft, while their weight causes them to descend on removal of pressure from beneath. Any suitable connection of rubber and shaft, which will allow the above mentioned action of the rubber, may be employed in place of that figured in the drawing.

The main shaft is driven by a pulley *g*, and has secured to it, within the casing K, a block L so formed as to constitute the feed hopper; this block fits closely to casing K, and frame piece E, and has wings P, fixed to its outer surface; so that said outer surface forms the inner face of the fan chamber, and the center portion of the fan. The outer boundary of the fan chamber is eccentric, forming a discharge mouth at M shown in Fig. 1.

The air is supplied through my patented automatic blast regulator shown at R.

The discharge of the clean grain is through opening at Q, the weight of the grain causing the spring bottom *m* to yield and permit its passage without allowing the passage of air.

The operation of the machine is as follows: The grain is fed at *p*, and passes by feed hopper L, to the center of the upper scouring disk, whence it passes through the spikes to the perimeter of said disk, having received the usual effect of such operation. As the grain passes over the edge of the disk it falls into the upper scouring hopper F, the dust already separated passing through the perforations *b*, whence it is carried off by the fan blast. On entering the scouring hopper F, the grain passes downward between the surfaces of this hopper and of the conical scourer J, and receives a smart rubbing during its transit to the center of the next disk of the series. The self adjustability of the scouring cone, prevents undue packing of the grain, while the rubbing received serves to remove a portion of the impurities already loosened by the action of the upper disk. In this manner the grain passes in succession over the entire series of disks, and through all of the scourers; the

action being as above described for all. On passing off the lower disk the grain falls into the blast and a final separation of all light impurities there takes place; the cleaned grain passing from the machine by the spring trap hereinbefore described; the impurities being carried upward and discharged from mouth M of the fan chamber.

In the drawing the course of the grain is indicated by red arrows, and the direction of the blast and impurities by black arrows.

By the construction of this machine the grain is acted upon advantageously during its entire transit through the machine; the alternate action of the disks and rubbers rendering the progressive cleaning far more effectual than obtains with the successive action of a single character of operation. Moreover the situation of the lower disk scourer below the inner perforated casing C renders the machine at this point a separator of light impurities, as the grain then for the first time passes into the blast.

The action of the machine may thus be stated. Grain without any preparation enters the machine; the upper disk scourer removes certain impurities, which pass off through the perforations of casing C. As the grain passes to the next scourer, it is submitted to an attrition of a different character from that previously undergone, by which additional impurities are removed,

and the surface of the grain prepared for the action of the succeeding disk. Each disk is in a separate chamber, from which the dirt is drawn by the blast as the grain passes from it. Thus a progressive cleaning obtains, until on the passage of the grain from off the lower disk it falls directly into the blast and all light impurities are carried off, the grain falling from the machine thoroughly cleaned, and ready for the mill.

I do not claim of themselves scouring disks or rubbers, as such are elements well known in all smut machines. But

I claim as new—

The series of scouring disks I and self adjusting conical rubbers J on the same shaft and alternating with the disks, in combination with the hoppers F, performing the double function of rubbing and concentrating the grain, the perforated casing G surrounding all of the disks except the lower, and the tight outer casing A, arranged and operating substantially as described to effect a progressive cleaning and final separation of the grain.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

SAML. CANBY.

Witnesses:

GEO. PATTEN,

JNO. S. HOLLINGSHEAD.