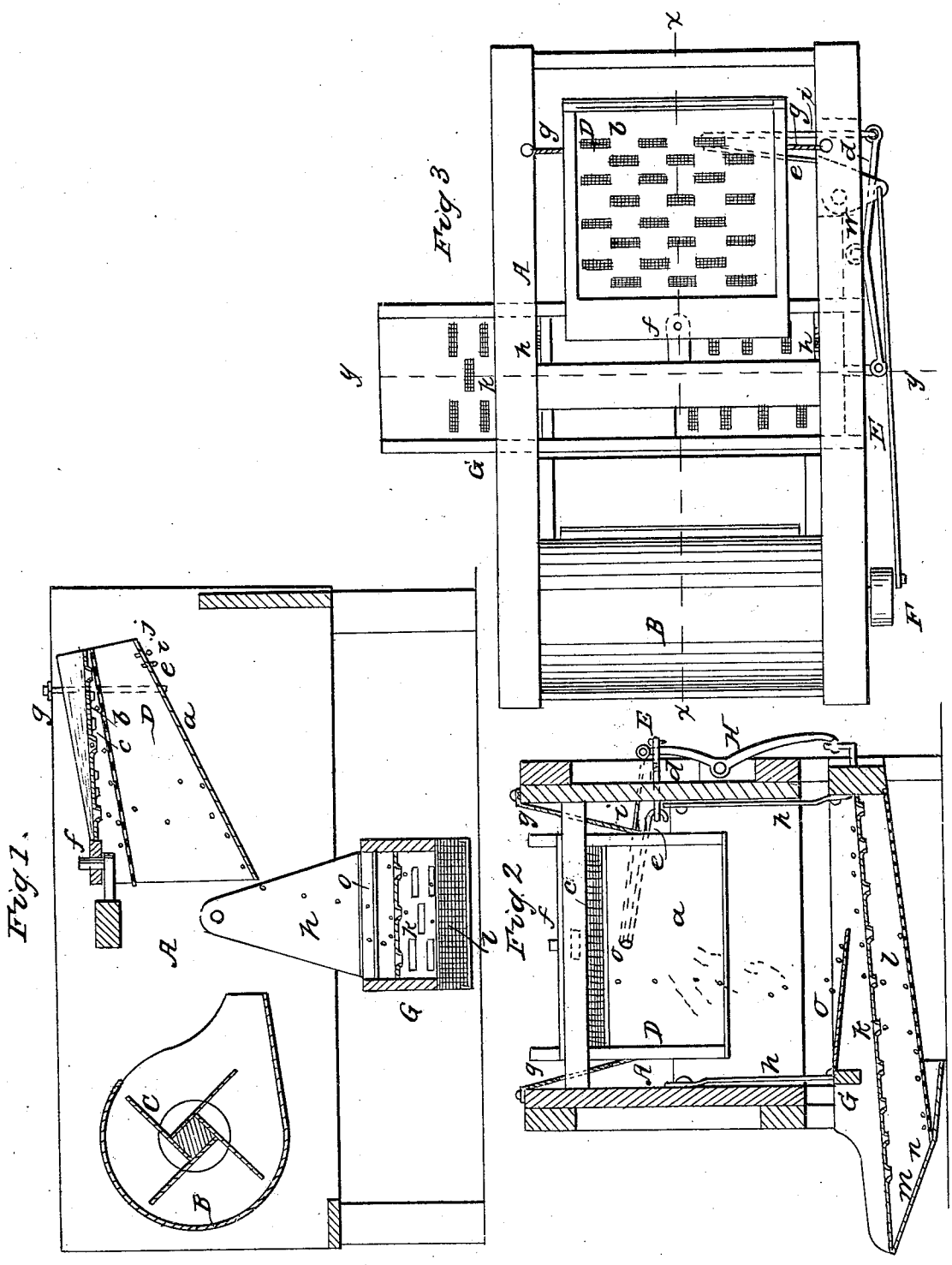
A. HALL.

Grain Winnower.

No. 19,140. Patented Jan. 19, 1858.



N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ASHMAN HALL, OF DANSVILLE, NEW YORK.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 19,140, dated January 19, 1858.

To all whom it may concern:

Be it known that I, ASHMAN HALL, of Dansville, in the county of Livingston and State of New York, have invented a new and Improved Grain-Separating Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a longitudinal vertical section of my improvement, taken in the line *x*, *x*, of Fig. 1. Fig. 2, is a transverse vertical section of ditto taken in the line *y*, *y*, of Fig. 2. Fig. 3, is a plan or top view of ditto.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of two shoes provided with screens and arranged relatively with each other and a fan as hereinafter shown, whereby the grain is conducted from the machine directly into the receptacle prepared to receive it and the grain separated in a thorough manner from all foreign substances.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a rectangular case or box in which the working parts are placed. B, represents a fan box containing a rotating fan C, of usual construction. D, is a shoe which is placed in one end of the case or box A, at its upper part. This shoe has an inclined bottom *a*, and is provided with two screens *b*, *c*, the upper one *b*, being formed of perforated metal plate and having its apertures of taper form in consequence of making the perforations by punching, see Fig. 1. The screen *b*, has its outer end slightly depressed. The screen *c*, is formed of wire in the usual way, is placed directly below the screen *b*, and has its inner end depressed, as shown clearly in Fig. 1. Both screens *b*, *c*, are sufficiently coarse to allow the grain to pass through them, the upper screen *b*, however, having its perforations very much larger than the mesh of the screen *c*. The shoe D, has the usual shake-motion given it by means of a rod E, one end of which is attached to a crank-wheel F, at one end of the shaft of the fan and the opposite end is attached to one end of a bell crank *d*, the opposite end of which is connected by a rod *e*, with the shoe, said rod being attached to the underside of said shoe near its front end. The shoe D, works on a pivot *f*, at its back end,—the front end being sustained by rods *g*, *g*, one being attached to each side of the shoe.

G, represents a shoe which is placed transversely below the case or box, A, and is suspended therefrom by straps *h*, *h*, or their equivalents. The shoe G, has a shake-motion imparted to it from the shoe D, by means of a lever H, which is attached to one side of the case or box A, the lower end of said lever being connected to one end of the shoe and the upper end being attached to a rod *i*, which is connected with the shoe D, near its front end, as shown at *j*. The shoe G, is placed underneath the inner end of the shoe D, and has a screen *k*, placed longitudinally in it, said screen extending the whole length of the shoe. This screen *k*, is constructed precisely similar to the screen *b*, in the shoe D, and is slightly inclined, see Fig. 2, its outer end being a trifle lower than its inner end. The bottom of the shoe G, is formed of a screen *l*, sufficiently fine to prevent the grain passing through it. This screen extends from the inner end of the shoe G, to within a short distance of its front end, the space between the front end and the screen *l*, being inclined and having a solid bottom *m*, which is provided with an aperture *n*, just at the end of the screen *l*, the bottom *m*, projecting beyond the front end of the screen a certain distance. In the upper part of the shoe G, an inclined plate *o*, is placed, said plate having its inner end depressed. The perforations of the screen *k*, are about equal in dimensions to those of the plate *b*.

The operation is as follows: The implement is connected with a thrashing machine and the screen *b*, of the shoe D, receives the grain; the straw passes off the outer end of the screen *b*, while the grain passes through its perforations and falls upon the screen *c*, and also passes through the screen *c*, and passes down the inclined bottom, *a*. The shoe D, having the shake-motion given it by the means previously described, power being applied to the shaft of the fan C. The screen *c*, serves as a check to small straws that might casually pass through the screen *b*, and the fan C, blows such straws and chaff through and out of the front end of

the shoe, the grain by its superior gravity resisting the blast and falling into the shoe G, the grain being conducted to the inner end of the screen *k*, by the inclined plate *o*. The grain passes through the screen *k*, and falls upon the screen *l*, to the aperture *n*. The inclined plate *o*, it will be seen, causes the grain to pass along the whole length of the screen *k*, because said plate conducts the grain to the inner end of said screen. Any large foreign substances capable of resisting the blast generated by the fan C, and which will consequently reach the screen *k*, passes off its outer or depressed end, while foreign substances smaller than the grain pass through the screen *l*. The receptacle to receive the cleaned grain is placed under the aperture *n*, through which the grain passes, the bottom *m*, serving as a shield or cover to the grain receptacle.

By the above improvement a very compact and efficient separator is obtained. The grain while passing through the shoe D, and falling into the shoe G, is fully exposed to the blast generated by the fan C, and the grain in passing through the shoe G, has the smaller as well as the larger heavy foreign substances separated from it.

I am aware that perforated plates have been previously used for screens; and I am also aware that shoes similar to D, G, have been previously used; but I am not aware that two shoes have been placed relatively with each other and with a fan as herein shown. I do not claim, therefore, any of the parts when separately considered; nor do I claim, broadly, the employment of two shoes in separating machines, but

I claim as new, and desire to secure by Letters-Patent:

The relative arrangement of the two shoes D, G, in respect to each other and to the fan C, the upper shoe D, swinging laterally and communicating a horizontal motion to the lower shoe G, by means of the lever H, and all the parts being arranged as set forth for the purposes specified.

ASHMAN HALL.

Witnesses:
O. TONSEY,
GEO. A. SANDERS.