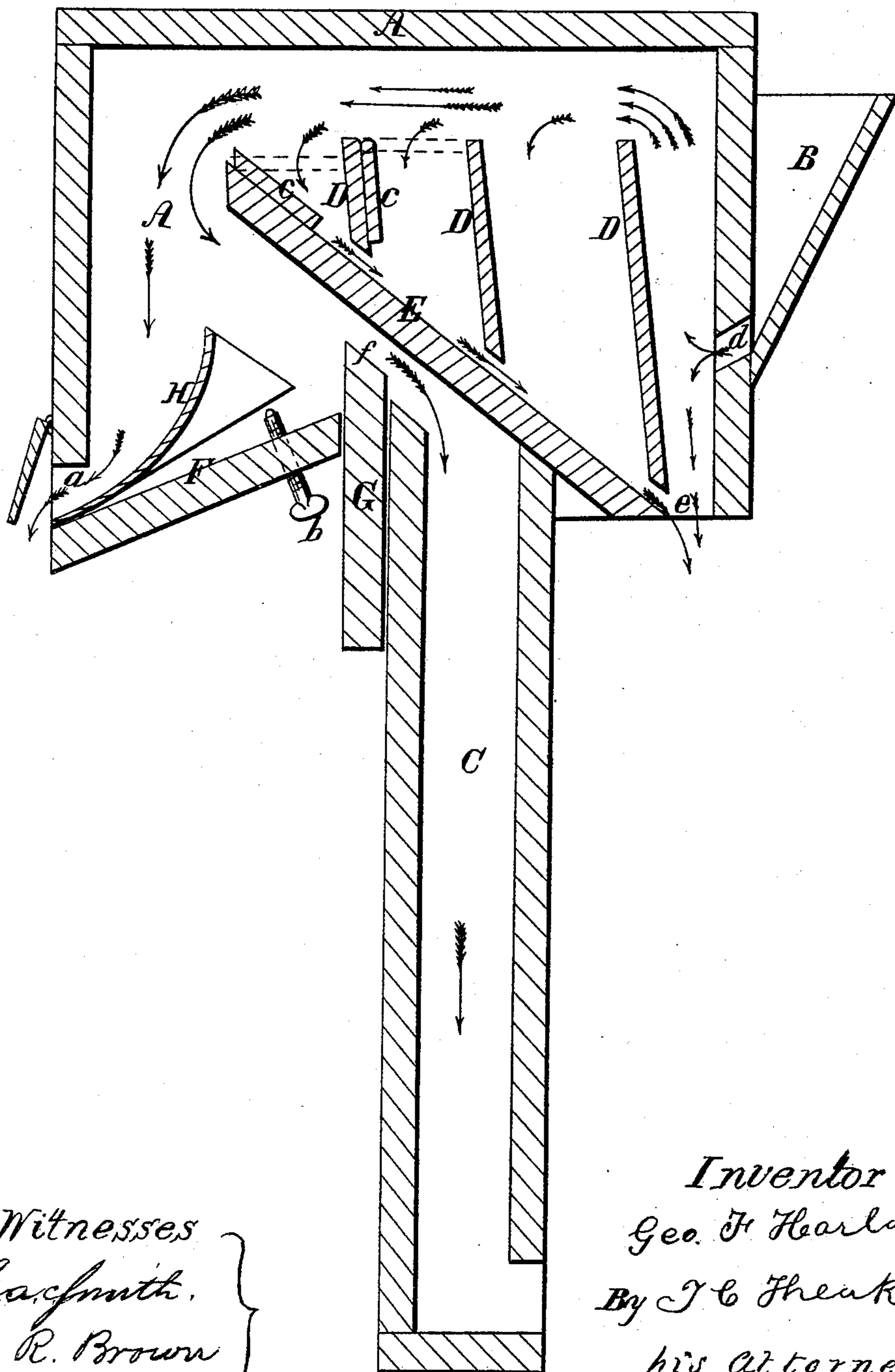


G. F. HARLAN.

Grain Separator.

No. 90,260.

Patented May 18, 1869.



Witnesses
G. A. Smith.
E. R. Brown

Inventor
Geo. F. Harlan
By J. C. Theaker
his attorney.

United States Patent Office.

GEORGE F. HARLAN, OF ELKTON, MARYLAND.

Letters Patent No. 90,260, dated May 18, 1869.

IMPROVEMENT IN GRAIN-SEPARATOR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE F. HARLAN, of Elkton, in the county of Cecil, and State of Maryland, have invented a new and useful Improvement in Grain-Separators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which represent a vertical section of my improved grain-separator.

The nature of my invention consists in the peculiar construction of a grain-separator, by means of which a greater amount of the impurities passing into the separator are removed from the grain, and at the same time less grain is allowed to pass out with the screenings, thereby saving a larger proportion of grain, and leaving it much cleaner than in the ordinary manner.

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

In the accompanying drawing—

A represents the case of the separator; B, the hopper in which the grain to be cleaned is placed; C, an extension of the case A, on its under side, and to this is attached a fan or blower of the ordinary construction. D designate partitions in the case A, which are vertical, or nearly so.

These partitions do not extend quite up to the under side of the top of the case A, thus leaving a space between their upper ends and the top of the said case.

Above the case C is an inclined partition, E, its lower end being toward the end of the case A, next to the hopper B. Its upper end extends up to about the height of the upper ends of the partitions D.

There is, also, an opening between the lower ends of the partitions D and the inclined partition E.

On the under side of a portion of the case A is an inclined piece or bottom, F, between the inner end of which and the case C is a slide, G, which is used to regulate the width of the aperture between the top of the case C and inclined partition E, by means of which the draught is regulated.

On the upper side of the piece F is an adjustable screen-board, H, which may be either curved or straight.

At the lower edge of this is an aperture, *a*, (through which the screenings pass out,) in the end of the case A.

In this piece, or bottom F, are one or more set-screws, *b*, by means of which the screen-board H is adjusted as desired.

c c are gates, placed near the top of the space between one or more of the vertical partitions, which may be opened or closed at pleasure from the outside of the case A, in any desired manner.

At or near the bottom of the hopper B is an aperture, *d*, in the end of the case A, through which the

grain to be cleaned passes into the said case from the hopper.

In the drawing the red arrows indicate the course of the grain, the blue arrows the course of the screenings, and the black arrows the course of the dust and chaff.

Its operation is as follows:

The grain to be cleaned is placed in the hopper B. By revolving the fan the air is drawn into the case A, through the aperture *e*, in the bottom of the said case.

The current of air thus drawn into the case passes up and over the top of the partitions D, down under the inclined partition E, through the aperture *f* into the case C, and out of the fan-case.

As the grain enters the case A, the current of air carries the dirt in the grain up over the partitions D, but most of the grain falls down and passes out through the aperture *e*.

As the current of air is very strong, some of the grain will be carried up over the vertical partitions, with the dirt, &c., and as it is carried along, the grain, by its own gravity, will fall down between the partitions, the heaviest falling into the space between the first and second partitions, the next heaviest into the next space, and so on.

After it falls into these spaces, it continues down to the inclined partition E, and then slides down that under the vertical partitions, and escapes through the aperture *e*.

The screenings, chaff, and dust continue on, the screenings falling on to the screen-board H, and thence out through the aperture *a*, and the chaff and dust are drawn into the case C, through the aperture *f*, and escape through the fan-case.

If it is desired to keep the different qualities of grain separate, the vertical partition can be continued down to the inclined partition E, and openings made in the sides of the case A for its removal.

Having thus fully described my invention,

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

1. The inclined partition E, when arranged and operating substantially as shown and described.
2. The vertical partitions D, when arranged and operating substantially as shown and described.
3. The combination of the inclined partition E, vertical partitions D, and gates *cc*, substantially as shown and described.
4. The combination of the slide G and case C, substantially as and for the purpose shown and described.

GEORGE F. HARLAN.

Witnesses:

G. A. C. SMITH,
E. R. BROWN.