G. LULL.

Screen for Grain Winnowers.

No. 32,071.

Patented April 16, 1861.

Fig. 2

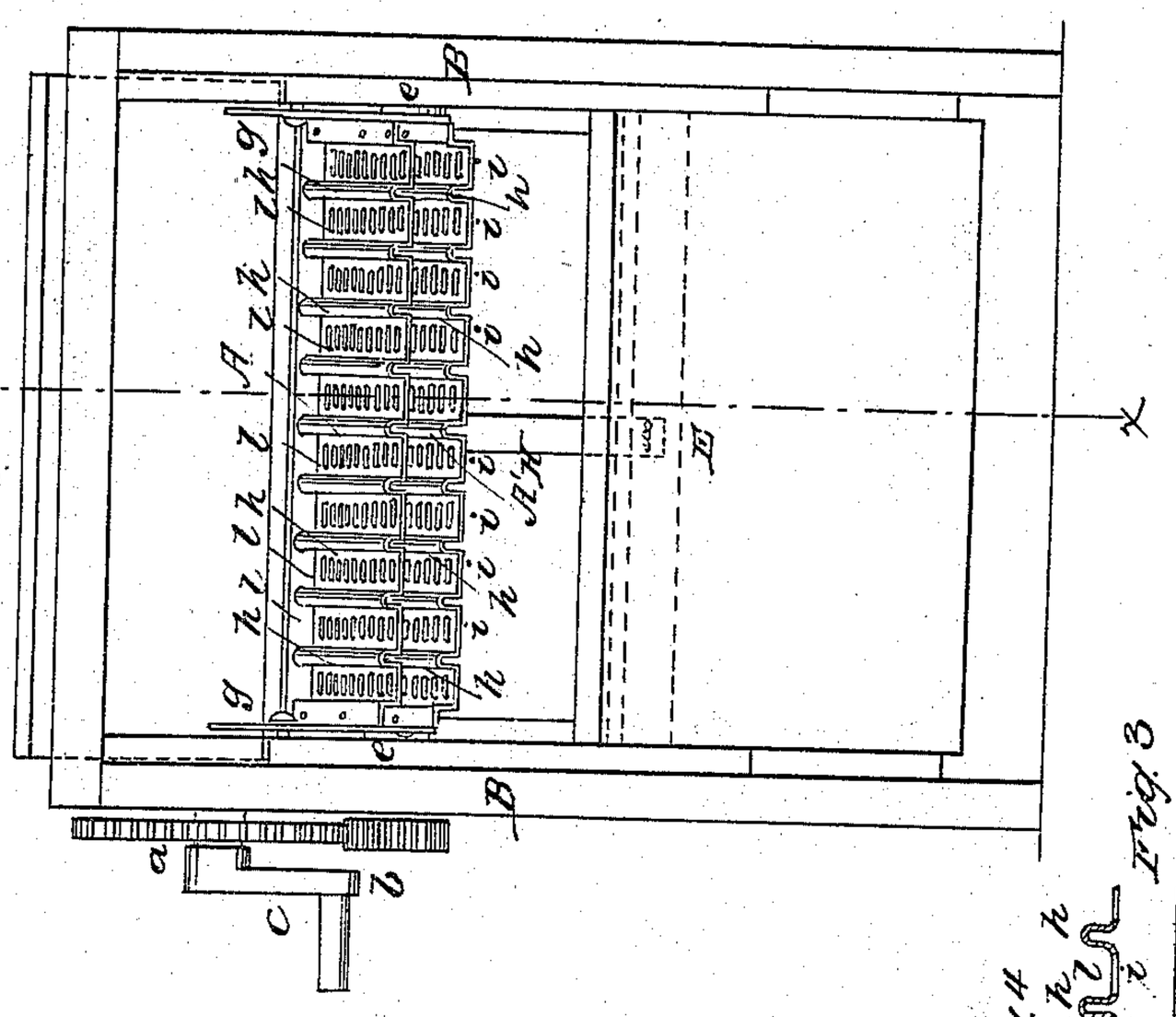
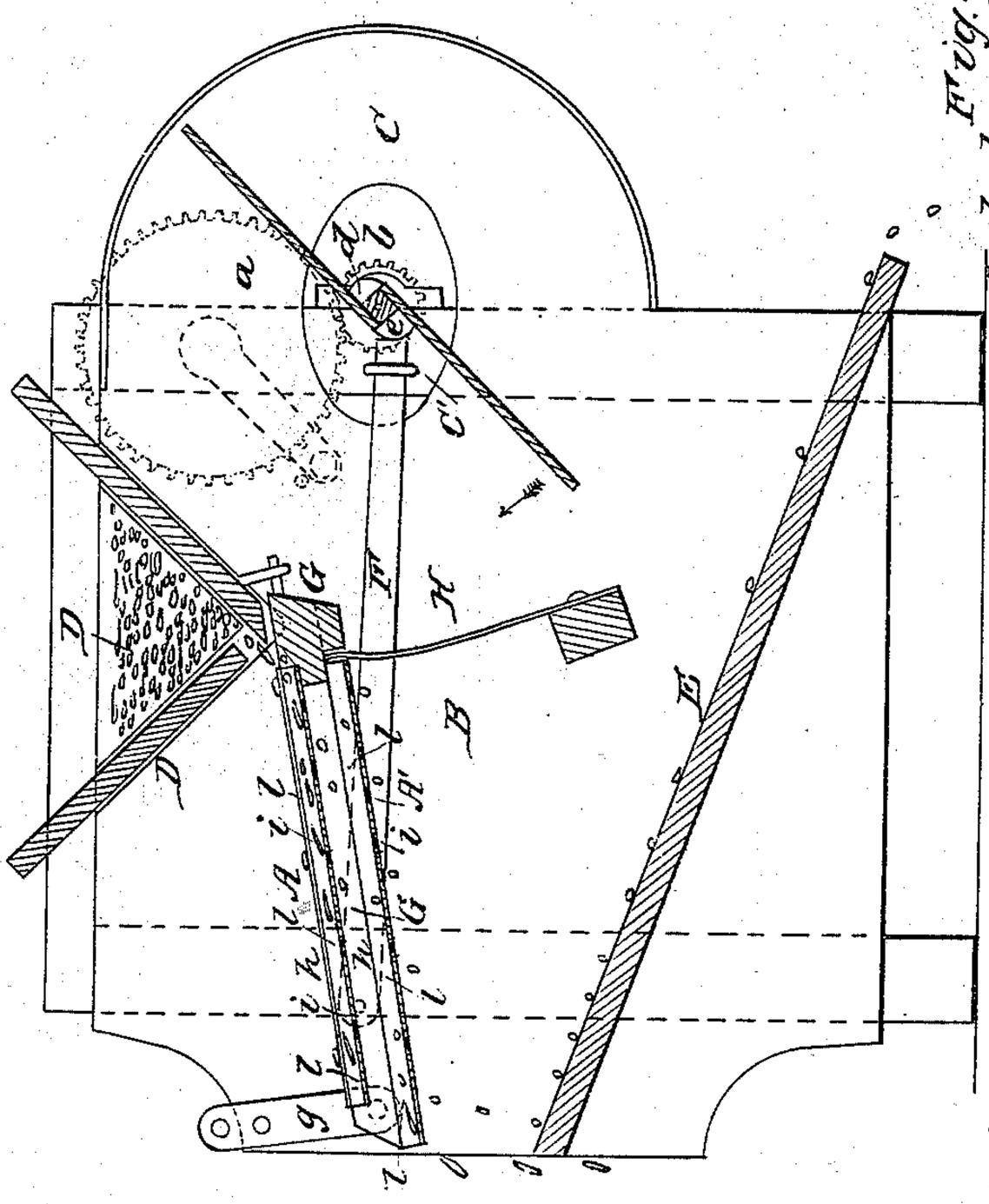


Fig. 3

Fig. 4

Fig. 1



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE LULL, OF HARDIN, IOWA.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 32,071, dated April 16, 1861.

To all whom it may concern:

Be it known that I, GEORGE LULL, of Hardin, in the county of Clayton and State of Iowa, have invented a new and Improved Chaff-Screen for Winnowing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section through a winnowing machine, containing the improved screens, taken in the vertical plane indicated by the red line *x*, *x* in Fig. 2. Fig. 2, is an end view of a winnowing machine showing the improved screens. Fig. 3, is a plan view of a portion of an improved screen. Fig. 4, is a section through Fig. 4.

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

This invention has for its object the more perfect separation of oats from wheat by the employment of one or more screens of corrugated metal plates, having oblong or elliptical perforations through them between the corrugations, the longest diameter of said perforations being in lines at right angles to the corrugations; thereby allowing grains of wheat etc. to pass freely through the screens and causing the oats to pass over the screen or screens in lines parallel with the corrugations, or elevated surfaces of the screens, all as will be hereinafter fully explained.

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

In Figs. 1, 2, 3, and 4, A, A′ represent the improved screens. Figs. 1 and 2 show the arrangement of two of these improved screens, A, A′ in their proper positions in a common winnowing machine consisting of the usual frame B, fan box C, fan C′, hopper D, and inclined floor E which latter receives and conducts off the wheat which falls through the screens A, A′. The fan C′ is rotated by means of spur wheels *a*, *b* and hand crank *c*. The shaft *d* of pinion wheel *b*, carries two cams *e*, *e*, near each end and inside of the frame A which cams strike and give an endwise motion to connecting rods F, F; rods F, F, are pivoted at their rear ends to the sides of the screen box G, and as this box is hung by short arms *g*, *g*, the rods F, F, transmit rapid shaking motion to the screens A, A. These screens A, A incline toward the rear end of the machine and as the wheat, mixed with oats, passes over these screens A, A the wheat falls through them and the oats pass off, thus separating the one from the other. The spring H is used to keep the ends of rods F, F in contact with the cams *e*, *e*.

Thus it will be seen that the general construction of the machine and the arrangement of the improved screens are in no essential feature altered from machines which are commonly used for winnowing grain. It is therefore to the construction of the screens that my invention relates. These screens A, A′ are both alike in construction and they consist of plates of sheet metal which are passed between suitable corrugating rollers, or a bending machine adapted to the purpose, that forms the elevated portions *h*, *h*, *h*, *h* and the (nearly) flat portions *i*, *i*, *i*, *i*, *i*, thus forming a corrugated plate with its surface made up alternately of narrow elevations running from end to end of the plate in lines parallel to each other— and wide depressions, all of which latter are in the same plane. The spaces between the ribbed elevations *h*, *h*, *h*, *h* are sufficiently wide to allow grains of wheat to pass through them, but these spaces are not wide enough for oats, unless the oats are turned endwise. These rounded edges of the ribs *h*, *h*, *h*, *h* have the effect of turning the oats as they fall upon the screens and causing them to pass endwise over the screens through the channels or spaces between the ribs *h*, *h*, *h*, *h*.

The depressed portions of the screens are perforated with elliptical holes, *t*, *t*, *t*, *t* which allow the grains of wheat to pass freely through the screens but prevent the oats from passing through.

The operation of the machine is as follows: the grains of wheat mixed with oats are put into hopper D and flow from the bottom of this hopper directly on the upper screen A; the oats, together with the grains of wheat are shaken into the channels *i*, *i*, *i* between ribs *h*, *h*, *h*, *h* above described and the wheat falls through the holes *t*, *t*, *t*, *t* in the bottom of these channels, leaving the oats to pass off from the lower end of the screen. The lower screen A′ which is constructed like the upper one, is used to separate any of the oats which might fall through the first screen in consequence of the grain banking up under the outlet of the

hopper D. The inclined board E of hopper D is fitted in guides, so that it may be adjusted for regulating the flow of grain from the outlet, the banking up of the grain on the upper screens may thus be prevented by retarding the flow from the hopper.

The grains of wheat fall on inclined board E and are delivered at one end of the machine and the oats are delivered at the opposite end.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

The screen or screens constructed with a ribbed and channeled surface, and having elongated perforations through the bottom of the channels substantially as and for the purposes herein described and shown.

GEORGE LULL.

Witnesses:
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