

## Grain Separator.

No. 30,017.

Patented Sept. 11, 1860.

*Fig 1.*

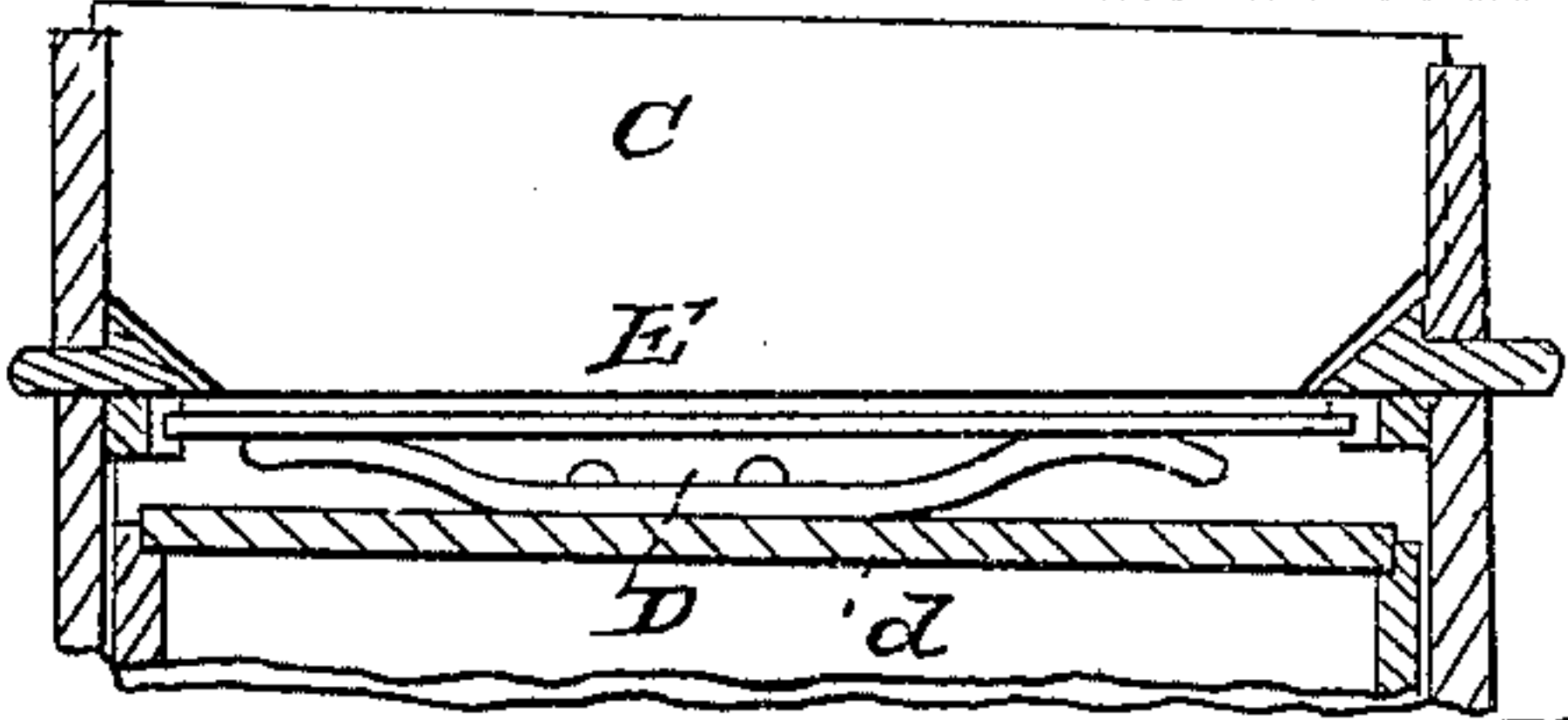
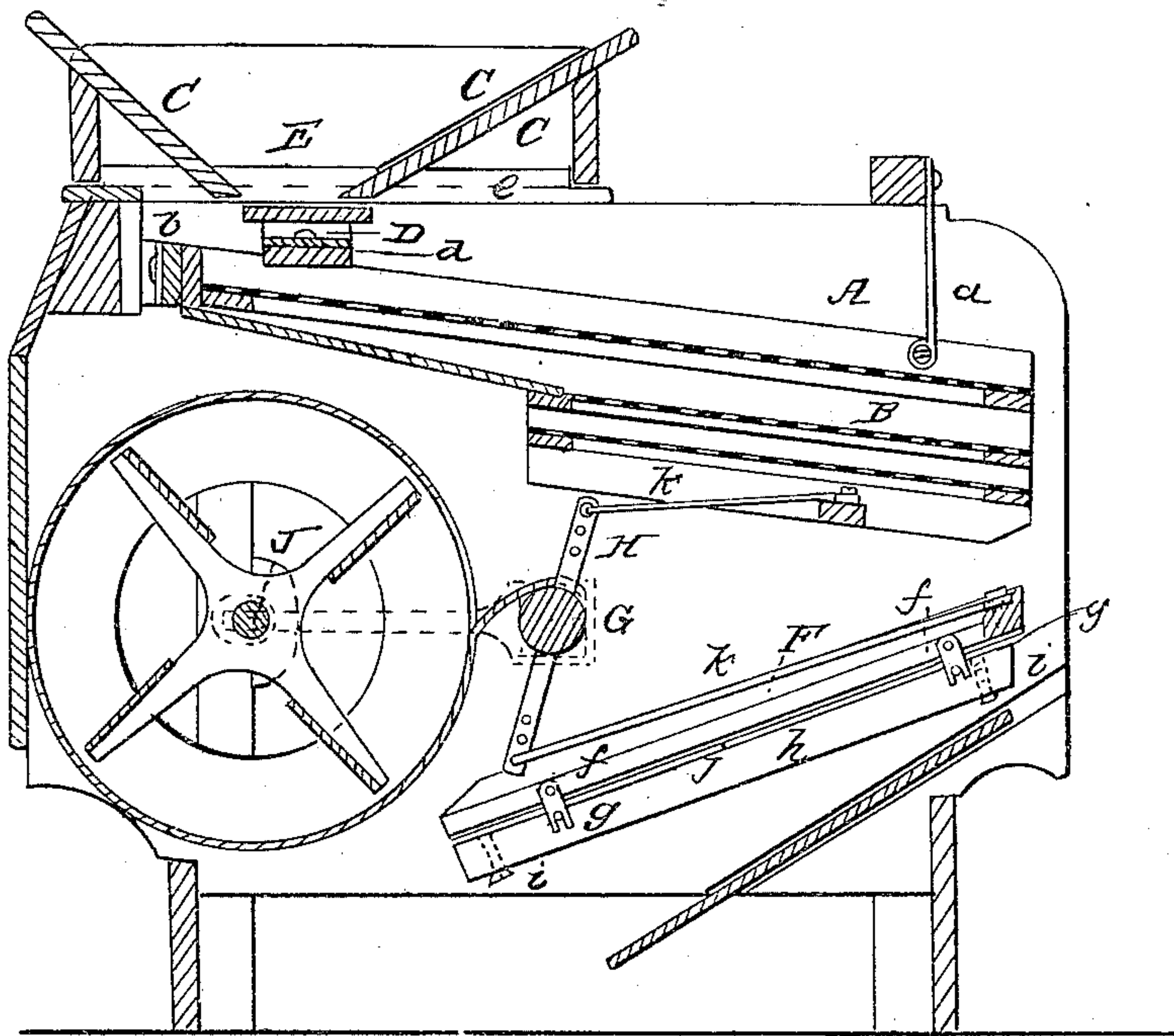
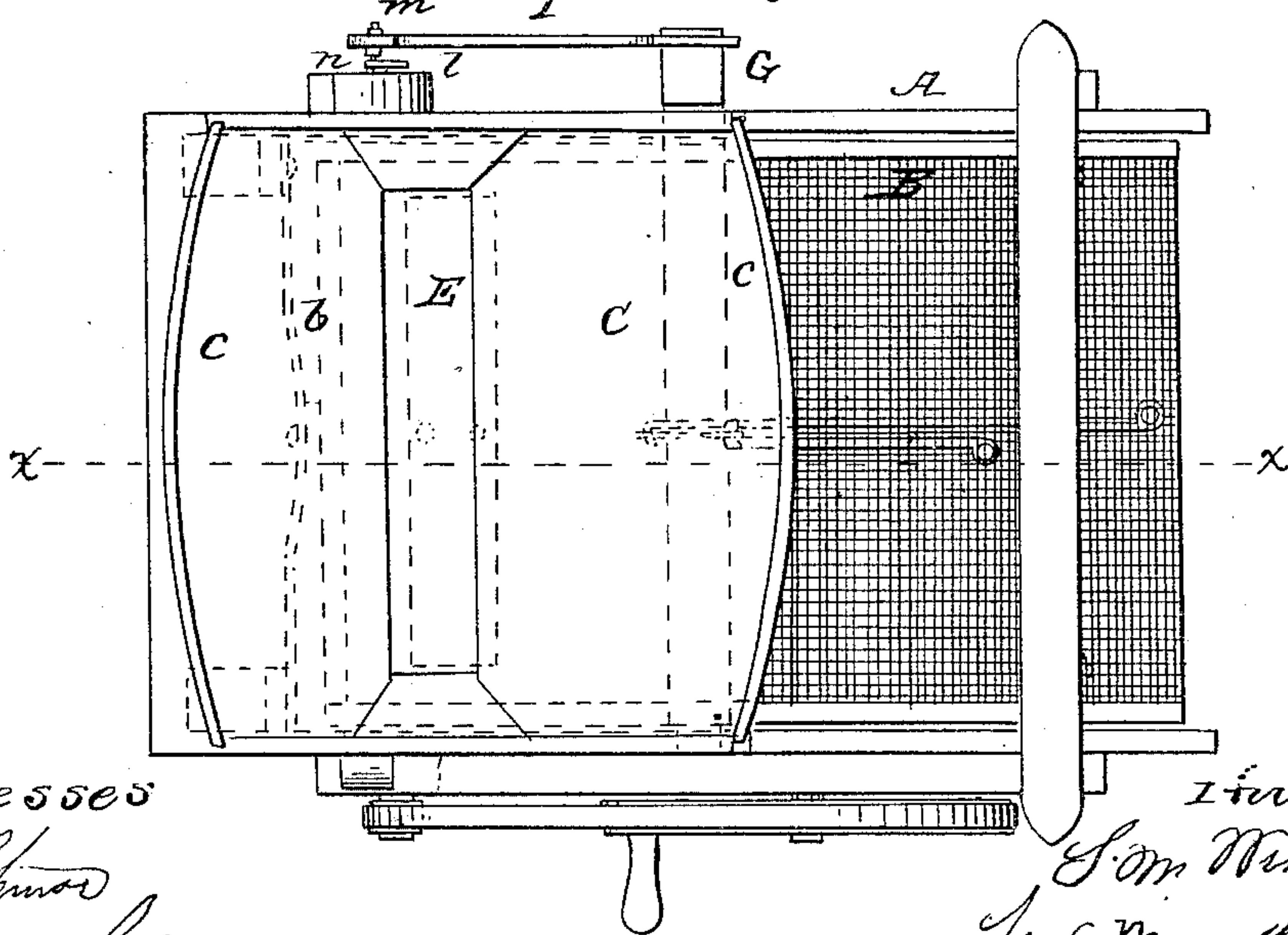


Fig. 2



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# UNITED STATES PATENT OFFICE.

S. M. WIRTS, OF HUDSON, MICHIGAN.

## GRAIN-SEPARATOR.

Specification of Letters Patent No. 30,017, dated September 11, 1860.

*To all whom it may concern:*

Be it known that I, S. M. WIRTS, of Hudson, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Grain-Separators; 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, forming a part of this specification, in which—

Figure 1, is a side sectional view of my invention, taken in the line *x, x*, Fig. 2. Fig. 2, a plan or top view of the same. Fig. 3 a detached sectional view taken in the line *x, x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the figures.

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

A, represents a case or box in the upper part of which a shoe B, is placed, the front part of said shoe being attached to elastic pendants or springs *a, a*, and the back connected to a spring *b*. The shoe B, is slightly inclined and is provided with the usual or any proper number of screens.

C, is a hopper placed on the upper part of the case or box and provided with slides *c, c*.

On the shoe B, and near its upper end, a transverse bar *d*, is placed and to this bar a semi-elliptic or other proper spring or springs D, are attached, on which the bottom E, of the hopper is placed. This bottom extends the whole width of the hopper and moves with the shoe and consequently it has a shake motion which causes the grain to be evenly distributed on the screens of the shoe, the spring or springs D, causing the bottom E in its vibrations to adjust itself, thereby compensating for the varying pitch which may be given the shoe B. This arrangement of the bottom E will be fully understood by referring to Fig. 1, and in its operation but little friction is produced as its ends are pressed lightly against side strips at the sides of the case or box, and the difficulties attending the employment or use of the rod or bar ordinarily used avoided to wit, friction and the wear of the bearings of the rod or bar in the sides of the hopper, the bearings being frequently so much worn as to allow grain to escape through them.

Below the shoe B, within the case or box A, an inclined supplemental screen F, is

placed. This screen may be of the usual form and construction and to its under side, there are pivoted four rock-bars *f*, two at each side. The lower ends of these bars are notched and they are fitted on pins *g* which project laterally from inclined strips *h* at the inner sides of the case or box A, through the inclined strips *h*, screws *i* pass, and on these screws the screen F strikes at the termination of its vibrations. The screen F, has metal plates *j* attached to its under surface, one at each side, directly over the screws so as to prevent any abrasion of the screen frame.

G, is a rock-shaft which is fitted transversely in the case or box A and has a bar H, passing through it at right angles said bar being connected at its ends to the shoe B, and screen F by rods *k, k*. One end of the shaft G projects through the side of the case or box and has an arm I, attached to it at right angles, said arm having an oblong slot made through it to receive a friction roller *l* which is fitted on the wrist pin *m* of a crank *n* at one end of the fan-shaft J.

The operation is as follows: The fan shaft J, is rotated by any convenient power and a longitudinal shake motion is communicated therefrom to the shoe B, and supplemental screen F, the crank *n*, and friction roller *l*, vibrating the arm I, the latter rocking shaft G, and the bar H, and rods *k, k*, transmitting the motion to the shoe and screen. The latter in consequence of being fitted on the rock-bars *f*, has a reciprocating curvilinear movement given it and a concussion and jar at the termination of each movement as the screen drops on the ends of the screws *i*. By this arrangement the screen F, is effectually prevented from choking or clogging, and rendered very efficient being capable of operating perfectly when the machine is rapidly driven.

The arrangement of the slotted arm on the rock shaft, and crank, and friction roller on the fan shaft, forms a very simple and direct means for communicating motion to the shoe and supplemental screen, and the shoe B, has an easy smooth movement favorable to the separating of oats from other grain, the oats gliding over the screen of the shoe, while the kernels of the heavier grain passes through them.

I do not claim operating the shoe and supplemental screen from a rock shaft for that has been previously done neither do I

claim any of the parts herein shown and described beside the spring arrangement connected with the bottom of the hopper, but;

5 I do claim as new and desire to secure by Letters Patent:

The arrangement of the spring D, and

bottom E, with the hopper C, and shoe B, as and for the purpose herein shown and described.

S. M. WIRTS.

Witnesses:

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