

(No Model.)

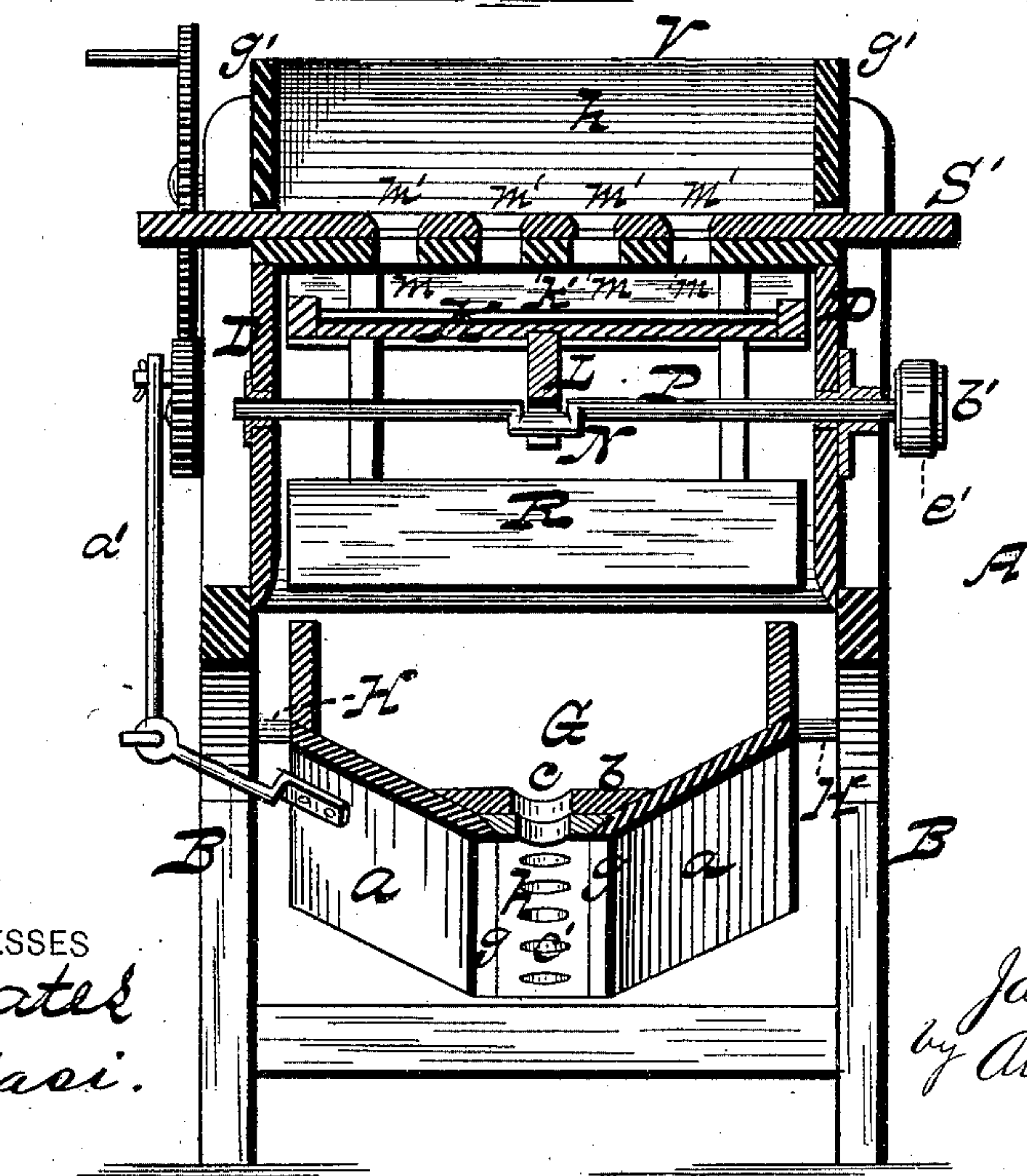
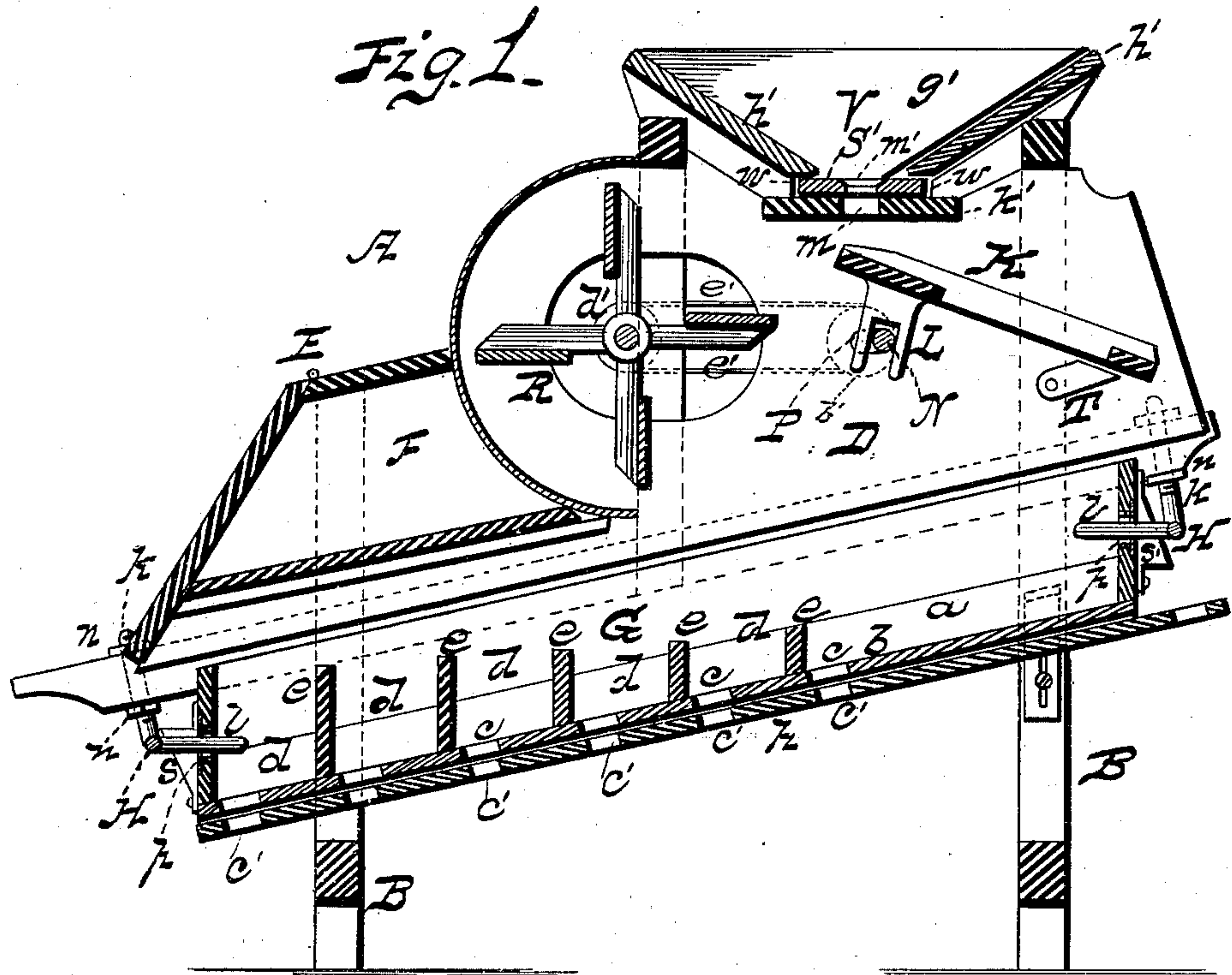
2 Sheets—Sheet 1.

J. F. HATFIELD.

GRAIN SEPARATOR.

No. 257,324.

Patented May 2, 1882.



WITNESSES
E. H. Bates
P. H. Masi.

INVENTOR
Jas. F. Hatfield,
by Anderson & Smith
his ATTORNEYS

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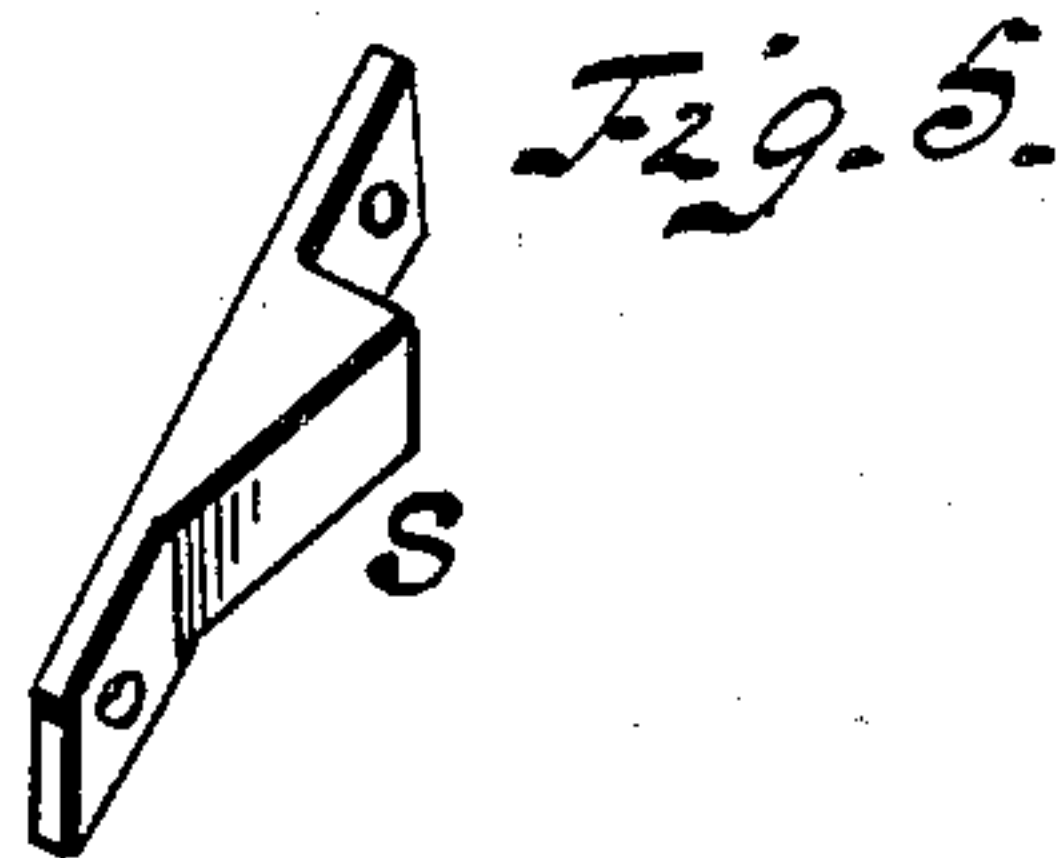
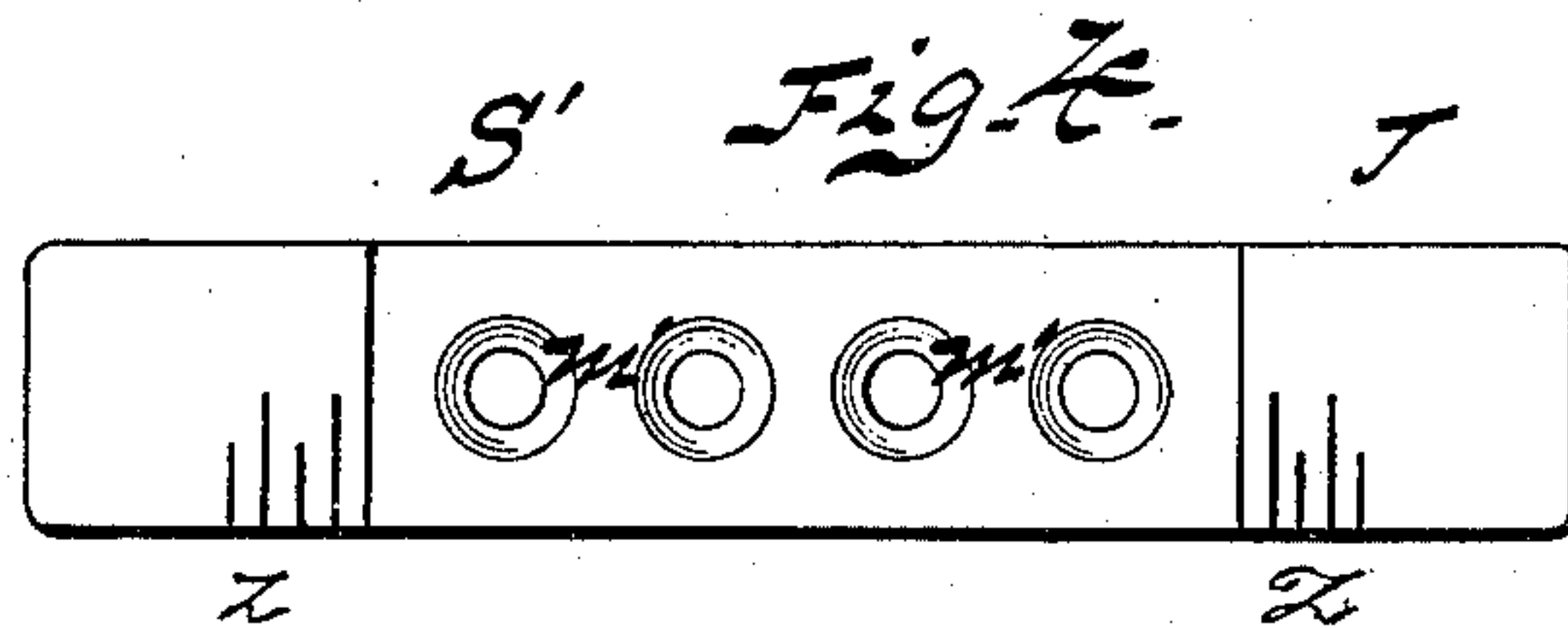
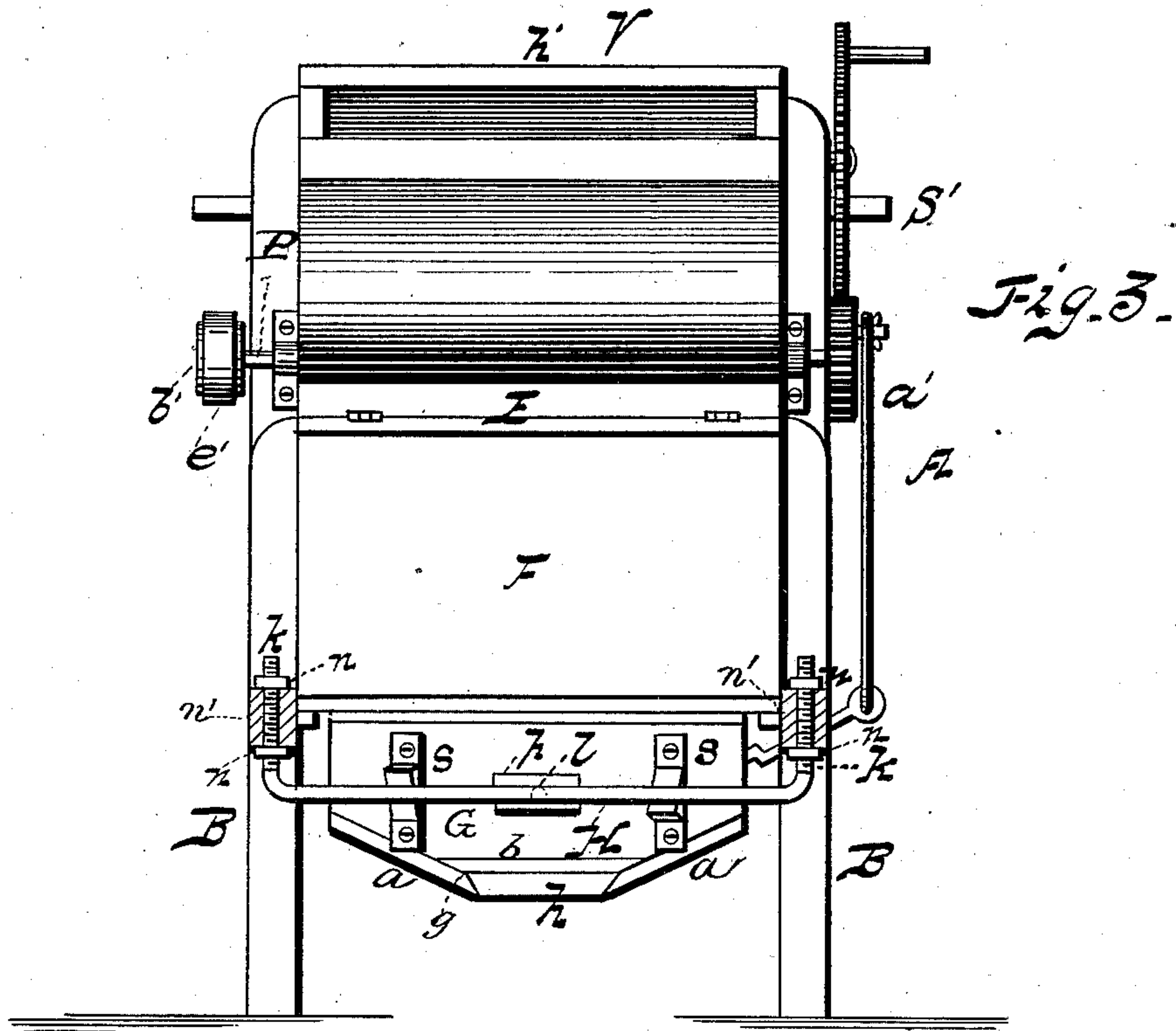
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UNITED STATES PATENT OFFICE.

JAMES F. HATFIELD, OF DUBLIN, INDIANA.

GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 257,324, dated May 2, 1882.

Application filed February 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. HATFIELD, a citizen of the United States, resident at Dublin, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Grain-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 represents a vertical sectional view of my grain-separator, the screens being removed. Fig. 2 represents a cross-sectional view of the same. Fig. 3 represents an end view, and Figs. 4 and 5 are detail views.

This invention has relation to grain-separators; and it consists in the novel construction and arrangement of parts hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, the letter A designates the frame of the machine, having the upright supports B and side walls D. These side walls D are made with extensions E beyond the fan-case, forming the side walls of a sieve-box, F, designed for storing extra sieves not in use. This box is so arranged that it does not in any manner interfere with the running of the machine.

G indicates the rocking and endwise-shaking screen-box, constructed with a bottom having lateral inclined boards *a*, extending to the central bottom board, *b*, which is provided with perforations *c*. Each perforation *c* is made in the bottom of a separate receiving-compartment, *d*, formed between the screen-supporting partitions *e*, transversely arranged in the screen-box. A screen (not shown) feeds each compartment, and the several screens should be of different mesh.

To the bottom of the screen-box, on the center board *b*, are slide moldings or ways *g*, which receive the edges of the slide *h*, having perforations *c'*, which are placed at the proper distance apart to register with the perforations *c* of the center board. The slide is designed to have endwise motion, and can be adjusted to close the perforations *c*, holding the grain in

the compartments, or to open said perforations wholly or partially. After the separation each kind of grain falls into its special compartment, and can be kept there until a proper receiver is placed under the screen-box. The compartments save the small grass-seed and garden-seed, so that they are not discharged on the ground to become mixed with each other or with extraneous matter, requiring to be run through the mill a second time.

H H indicate transverse rods, located one at each end of the screen-box, and bolted to the sides of the frame by means of threaded arms *k k*, passed up through the beams *n'* of the same near each end thereof, and nuts *n*, so that the rods can be adjusted to give more or less pitch to the shoe. The rods H are each provided with a bearing-lug, *l*, which extends through a boxing, *p*, in the end of the screen box or shoe G. When the main driving-wheel of the mill is turned the shoe G is caused to vibrate from side to side by means of common connecting gear—a rod and arm, as indicated at *a'*—and in this movement the lugs *l* serve as the center bearings, and have sufficient length to allow some endwise motion to the shoe.

At the sides of the boxing *p* are secured to the lower end of the shoe inclined planes *s s*, one of which has an upward slope, while the other inclines downward, so that as the screen-shoe is vibrated it will be caused to move toward and away from the transverse rods in an endwise movement designed to cause the screens to shed the grain and deposit it in the compartments at the bottom of the shoe. At the upper end of the screen-shoe similar inclined planes, *s' s'*, are located, each being reversed in position with respect to the inclined plane *s* at the opposite end and on the same side of the shoe. The rocking movement of the shoe agitates the grain and keeps it from sticking in the screen-wires. The endwise movement is also a jarring movement, and is especially effective in shedding the grain from the screens.

K represents the chaff-shoe, located above the upper portion of the screen-shoe. The upper end of the chaff-shoe is provided with a fork-bearing, L, which engages a crank, N, of the crank-shaft P, carrying a pulley, *b'*, for an operating-belt, *e'*, which may extend from a pulley, *d'*, on the shaft of the fan R. At its lower

end the chaff-shoe rests on lateral eccentrically-curved bearing-blocks T, which are pivoted to the sides of the frame. These blocks are adjustable on their securing pivots or screws, so that they may be turned either up or down thereon to give more or less pitch to the chaff-shoe. As the crank-shaft revolves in the fork-bearing L it gives a quick circular up-and-down motion to the upper end of the chaff-shoe, when the chaff falls on it, which is very effective in loosening the chaff and causing the screen to shed it freely. The movement is designed to be especially important in removing gravel from chaff.

The chaff-shoe, it will be observed, is detachably attached to its bearings, so that it can be removed in a moment's time by simply lifting its forked bearing clear of the crank-shaft on which it rests.

V represents the hopper, having side walls *g'* fitting the side walls of the main case at each side of the chaff-shoe. The hopper is arranged over the chaff-shoe, and is constructed with transverse inclined walls *h'* and a center bearing or board, *k'*, transversely arranged, and provided with a series of perforations, *m*, extending across the hopper-bottom, as indicated in the drawings.

In suitable ways, *w*, a slide, *S'*, having a series of perforations, *m'*, is arranged over the center board *k'*, so that the perforations of the slide may be caused to register with those of the board or to wholly or partially cover the same. The object of this construction is to provide a regular and uniform feed across the chaff-shoe. The slide *S'* is designed to be adjustable from either side of the mill, and is provided with graduating marks or scales *z* at

each end, to enable the operator to regulate the feed by adjusting the slide according to the number of bushels per hour required up to the full capacity of the mill. The perforations cause an even feed across the chaff-shoe and renders spreading boards or plates for said chaff-shoe unnecessary—an important advantage, as such spreading-boards are obstructions which interfere with the wind from the fan on its way to the chaff-screens. The transverse bearing-rods H H, against which the inclined planes of the screen-shoe work, form strong braces for the ends of the main case, adding materially to its firmness and durability.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The screen-shoe having the sloping sides *a*, the perforated center board, *b*, and the partitions between said perforations *c*, forming compartments *d*, in combination with the perforated slide and cut-off *h*, substantially as specified.

2. The screen-box G, provided with the reversely-arranged inclined planes *s s* and a bearing-box, *p*, at each end, in combination with the adjustable bracing-rods H H, provided with bearing lugs or centers *l* and common gearing and connections, whereby an endwise and a vibratory motion is imparted to the screen-box during its operation, as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. HATFIELD.

Witnesses:

WILLIAM E. COX,
THOMAS P. JESSUP.