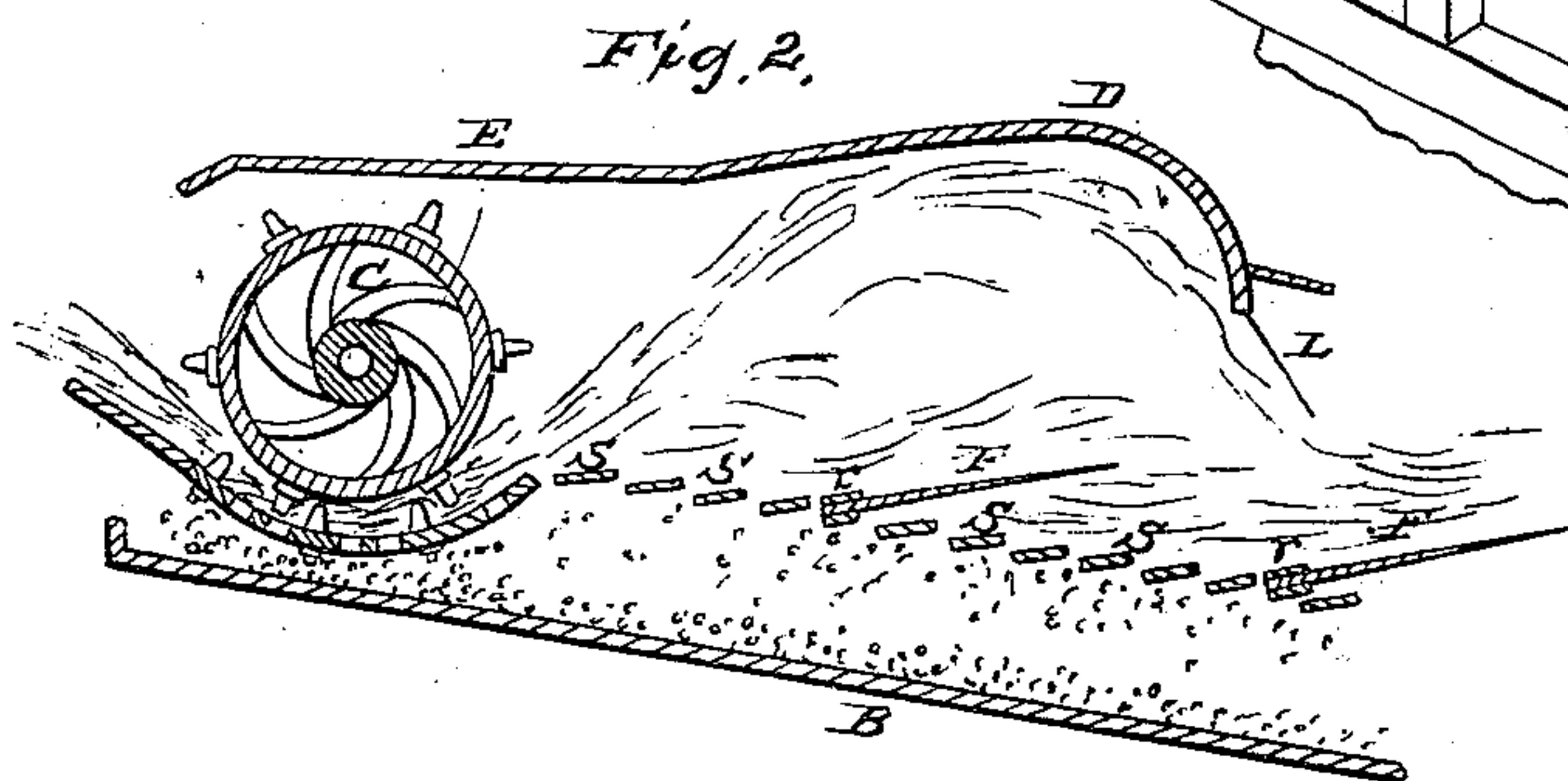
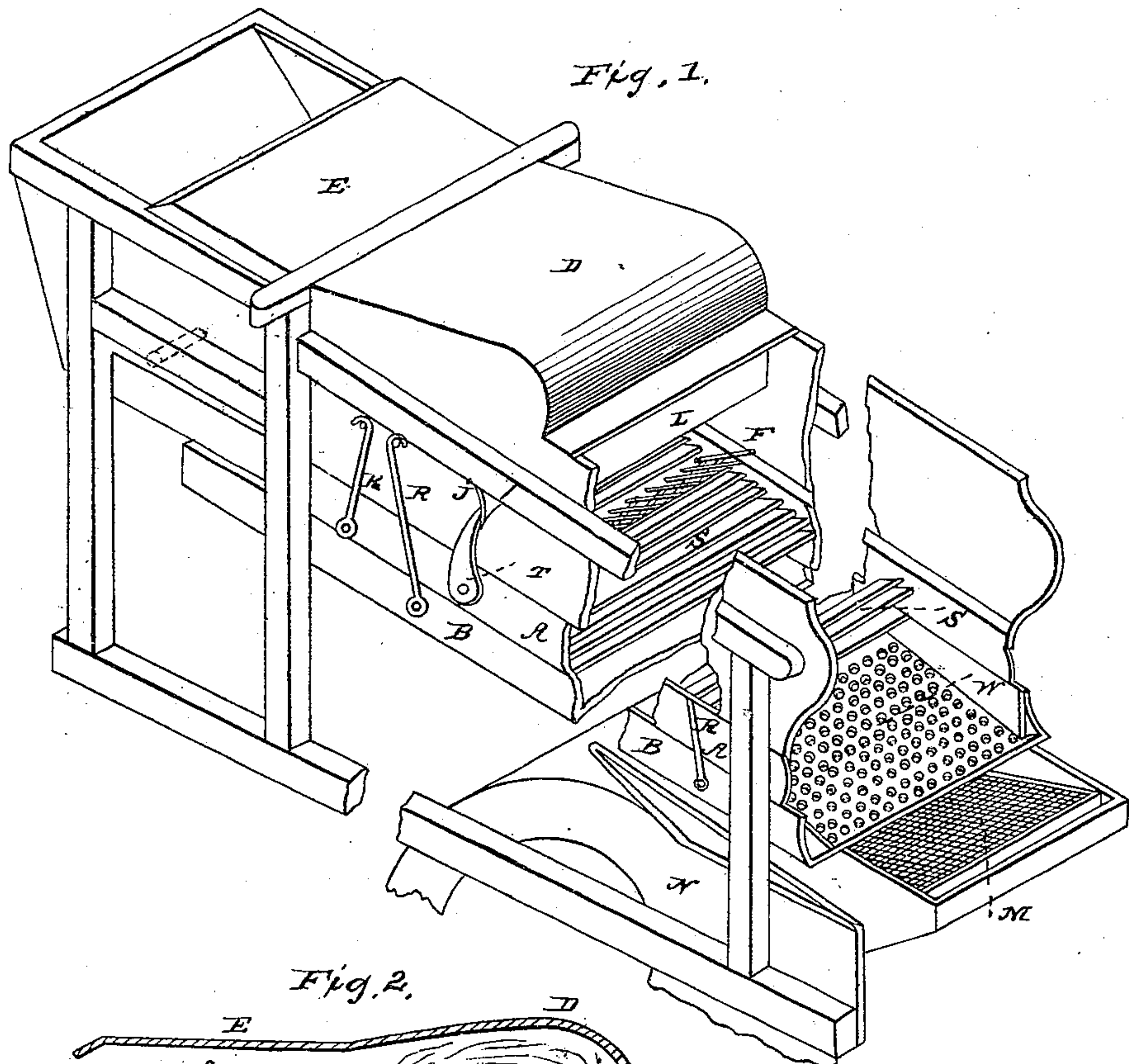


NICHOLS, NICHOLS & SHEPARD.

Thrashing Machine.

No. 59,440.

Patented Nov. 6, 1866.



Witnesses:
George Johnson
Joseph G. Hoyt

Inventor:
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UNITED STATES PATENT OFFICE.

JOHN NICHOLS, EDWIN C. NICHOLS, AND DAVID SHEPARD, OF BATTLE CREEK, MICHIGAN.

IMPROVEMENT IN THRASHING-MACHINES.

Specification forming part of Letters Patent No. 59,440, dated November 6, 1866.

To all whom it may concern:

Be it known that we, JOHN NICHOLS, EDWIN C. NICHOLS, and DAVID SHEPARD, all of the city of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Thrashing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a partial longitudinal vertical section.

Similar letters of reference indicate like parts in both figures.

The nature and object of our invention is the more effectual separation, preservation, and cleaning of the thrashed grain; and consists, partly, in so constructing a portion of the deck of the cylinder-casing that the thrashed straw and grain, when driven tangentially against said deck, will be deflected downward on the separating device of the machine; also, in the employment of an auxiliary riddle, formed by a perforated extension of the grain-delivery board over the winnowing-sieve; and the better to enable others skilled in the art to construct our invention, we will now proceed to describe it more fully.

Figures 1 and 2 represent our improvements as applied to what is usually termed a "vibrator thrashing-machine." It is shown with a section broken out from the middle, and comprises only such parts (from want of room to exhibit its full proportionate length) as we deemed necessary to clearly explain and illustrate the application of our invention.

In this kind of separator a long open slatted riddling-shoe, A, and a tight-bottomed grain-carrier (marked B) are suspended by rods R in a descending plane from the frame of the machine. A series of rods, r, provided with lifting-fingers F, are hung at proper intervals between the slats marked S in bearings in the separating-riddle; and a tappet-arm (indicated at T) is fastened to the overhang of each rod.

The ordinary mode of constructing the deck of the cylinder-casing in this and other thrashing-machines, previous to the introduction of

our invention, was to make it substantially a level plane, as in the portion marked E, and, by means of an apron-board hinged in front, arresting the threshed bundles as they issued with great velocity from under the thrashing-cylinder C. The thrashed straw and grain then falls on the separating-riddle, the slats of which push forward the straw at each vibration, and at the same time permit the detached grain to fall through on the grain-carrier below, the separation of the grain being much facilitated by the action of the lifting-fingers, actuated by the contact of their aforesaid tappets with the stops J. The vibration of the grain-carrier, aided by its downward inclination, delivered the wheat, mixed with chaff, straws, &c., upon the winnowing-sieves M, where it was winnowed, in the usual way, by a fan, a portion of the casing of which may be seen at N. This mixed mass, falling at each vibration in heaps directly upon the sieves, frequently clogged and caused the winnowing to be very imperfectly performed.

In order to remedy this defect we extend the flooring of the grain-carrier over the sieves, as may be seen at W, and convert such extension into a coarse primary sieve by covering it with perforations sufficiently large and numerous so as to retain the straws and coarser debris, and yet permit the grain to fall comparatively clean through said apertures upon the sieves, where it can then be perfectly winnowed into a fit state for market. These apertures may be made in any desirable form—as, for instance, narrow slotted openings, if made transversely, would serve the same purpose as the holes illustrated.

Our deflecting-deck, as we usually construct it, is exhibited at D in the form somewhat of a parabolic curve, the object of which is to remedy the liability of most machines with flat decks, and especially the vibrators, to waste grain, for whenever a bundle a little damp passes the feeder's hands without having been very carefully spread, it impinges from a flat deck against the hinged apron at nearly a right angle, lifts it up, and shoots over the separating portion of the machine, carrying with it a quantity of grain, which is lost.

Were the ordinary hinged apron to be so

loaded or arranged as to be capable of resisting the passage of those shooting clumps, it would be too rigid for a favorable condition of straw, which could not pass with sufficient freedom.

We do not propose, however, to entirely supersede the use of an apron, as we employ a light sheet-iron one, (in connection with our deflecting-deck,) which is looped up out of the way when thrashing very long straw. This apron is indicated at L.

When by the use of our arrangement the thrashed straw and grain passes from under the cylinder it strikes the deck tangentially at a point which constitutes the commencement of our deflecting-curve, and is deflected downward against the lifting-fingers and slats in a position the most favorable for a speedy and thorough separation of the grain from the straw under all possible conditions; and in case of wet and imperfectly-spread bundles, they impinge against our apron at such an acute angle as to barely lift it up sufficiently to allow a free passage.

We do not desire to confine ourselves to making the cylinder-deck, or a portion of it, in the form strictly of any regular curve, although we find that an approximation to the parabolic has, in practice, produced the best effect; nor is it absolutely necessary to make it in the form of a flowing curve, for it is evident that the thrashed products could be made to follow substantially any given path by the use of deflecting-angles.

The apron for restraining the progress of the thrashed straw and grain, and the combined arrangement of the vibrating riddling-shoe, lifting-fingers, and grain-carrier, are both old and disclaimed by us; nor do we, in a broad sense and irrespective of its relative connection and function, claim the perforated extension-board W, for sieves of perforated boards, but for other uses and under different relations, have before been used; but,

Having described our invention, what we do claim, and desire to secure by Letters Patent, is—

1. So constructing the portion indicated at D of the deck of a thrashing-machine cylinder-casing that the thrashed grain and straw, when it strikes said deck after passing under the cylinder, may be deflected downward upon the separating part of the machine, substantially in the manner and for the purpose herein specified.

2. The combination and connection of the perforated-board sieve W with the vibrating grain-carrier B, when arranged relatively with the separating device and with the winnowing-sieves M, substantially as and for the uses set forth.

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EDWIN C. NICHOLS.
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Witnesses:

GEORGE JOHNSON,
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