CHARLES S. HALL.

Improvement in Grain Separators.

No. 120,582. Patented Nov. 7, 1871.

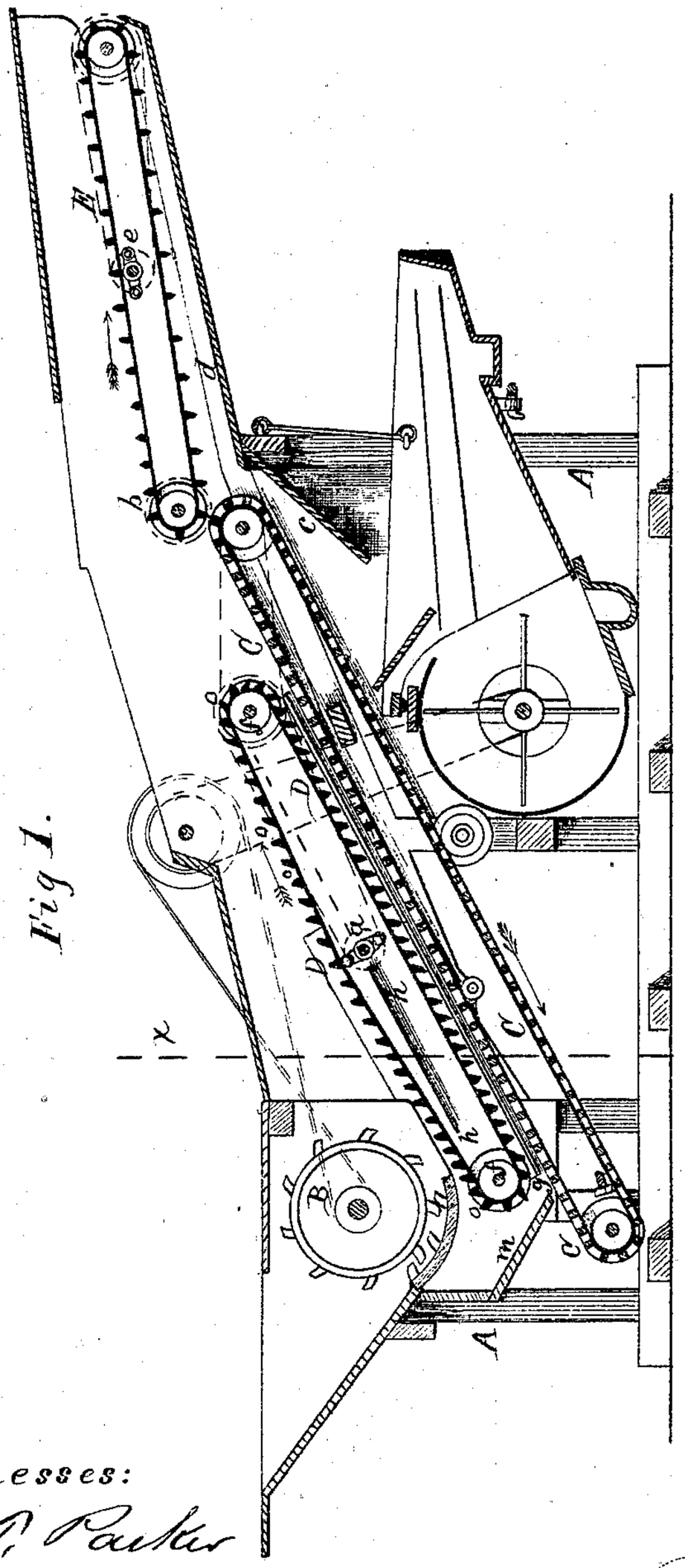

Fig 1.

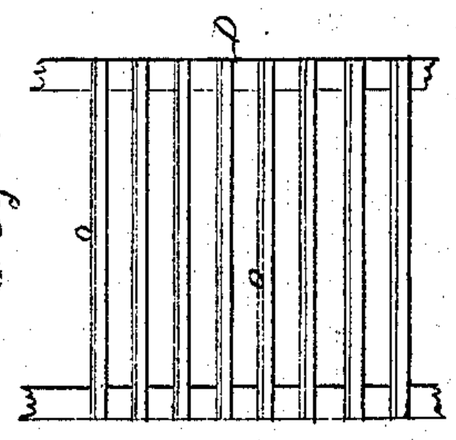

Fig 3.

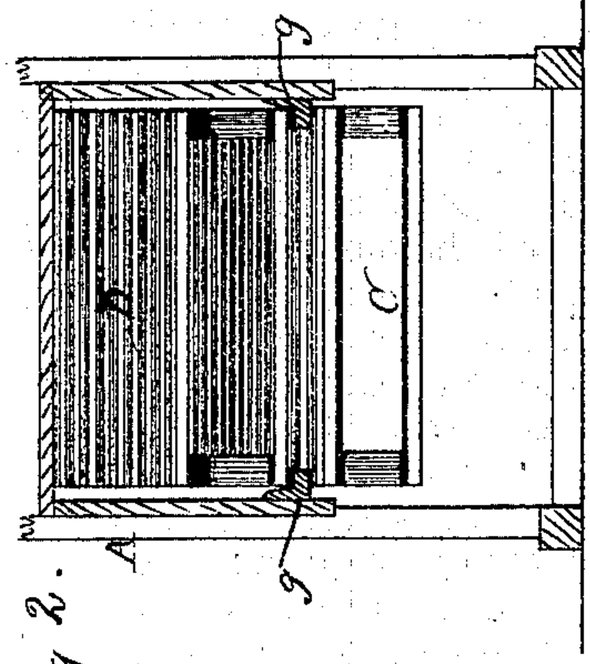

Fig 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES S. HALL, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 120,582, dated November 7, 1871.

To all whom it may concern:

Be it known that I, CHARLES S. HALL, of Rochester, in the county of Monroe and State of New York, have invented certain Improvements in Machines for Thrashing and Separating Grain, of which the following is a specification.

The object of this invention is to effect a more perfect separation of the grain from the straw as they pass from the thrashing-cylinder; and it consists more particularly in the use of an open raddle to receive the grain and straw directly from the cylinder, such raddle being located between the cylinder and the usual grain-carrying belt, and having a proper revolution or agitation, or both.

In the drawing, Figure 1 is a longitudinal section of a thrasher and separator having my invention attached. Fig. 2 is a transverse section at the dotted line *x*, Fig. 1.

It is well known that in the use of the ordinary thrasher and separator, where the grain and straw pass from the thrashing-cylinder to the grain-carrying belt, thorough separation does not take place, since the straw is but slightly agitated, and the belt soon becomes choked with chaff and headings. My invention obviates this difficulty.

A represents the frame of an ordinary thrasher, upon which the cylinder B and supporting shafts of grain-belt C have bearings in the usual manner. D is a straw-carrier or raddle, preferably composed of slats attached to endless belts, which are shown as running over pulleys *f*. This raddle is made quite open, as shown in Fig. 3, and it is arranged to run between the cylinder B and the grain-belt C, as indicated, the bearings of the cylinder being located somewhat higher in the frame A than heretofore to allow sufficient room for such construction. An agitator, *a*, Fig. 1, preferably consisting of two or more cams revolving upon a shaft immediately under the upper portion of the endless belts of the raddle, imparts a vertical vibration to such upper portion of the raddle and its load. E is a straw-carrier of the construction usually adopted in this class of machines, the inner supporting-shaft *b* of which is arranged somewhat above the upper extremity of the wheat-belt, as shown. It is desirable also to use an agitator, *e*, acting upon the upper or loaded portion of this carrier similar to *a* upon the raddle D. The grain and straw from the cylinder pass directly upon the raddle D, which by its motion separates them, allowing the former to drop through upon the grain-belt C, and elevating the latter to be caught and removed by the carrier-belt E. By this means the grain-belt is relieved of its usual load, as heretofore used, and prevented from becoming clogged, while the separation caused by the agitation and advancing movements of the raddle is far more perfect than is possible with the old construction. It will be observed also that by the peculiar arrangment of the raddle D, grain-belt C, and carrier E the straw falls from the former upon the grain-belt upon its upper end, from which it is immediately caught and lifted by the slats of the carrier E. This double agitation at this point effectually separates the grain, which, being heavier than the straw, drops into the grain-belt and is conveyed to the cleaner below. It may be found desirable to arrange a chute-board, *h*, within the raddle D, or immediately below its loaded portion, by which the straw or any portion of it is prevented from dropping through and becoming entangled in the slats of the raddle. This board conveys the grain to the lower portion of the belt C, and it may be extended the entire length of the raddle D, if found necessary, as indicated by dotted lines. In order, however, to prevent such passage of the straw through the raddle I construct the slats *o*, Figs. 1 and 3, beveling upon the side nearest the cylinder, as shown, whereby the straw is directed upward or in the direction of motion of the raddle. Between the raddle D and belt C I provide guiding strips *g*, Figs. 1 and 2, secured to the ceiled sides of the frame A. These strips are beveled upon the upper edges, and have lateral projections or ledges upon which the extremities of the slats *o* of the raddle rest, as shown in Fig. 2. The strips *g* not only prevent the clashing of the raddle with the grain-belt, but also conduct any grain falling from the straw upon the belt D to the cells of the grain-belt without waste.

In the general operation of my machine a large share of the shelled grain passes through the gratings of the concave *a;* the straw and chaff is thoroughly agitated upon the raddle D, receives a sudden fall and lift in passing from D

to E, and is again agitated on the latter, the grain still clinging thereto, if any, passing down the chute-boards *d* and *e* into the cleaner. The raddle D and agitators are driven by belts or other convenient means from the main moving parts of the machine.

What I claim as my invention is—

1. The relative arrangement of the raddle D, grain-belt C, and straw-carrier E, herein described and shown, whereby the straw is allowed to drop down off the raddle upon the grain-belt, and is then immediately lifted up therefrom and removed by the carrier, substantially as and for the purposes specified and set forth.

2. In combination with the open raddle D and grain-belt C, the guiding strips *g*, constructed and arranged to operate substantially as set forth.

CHAS. S. HALL.

Witnesses:
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