

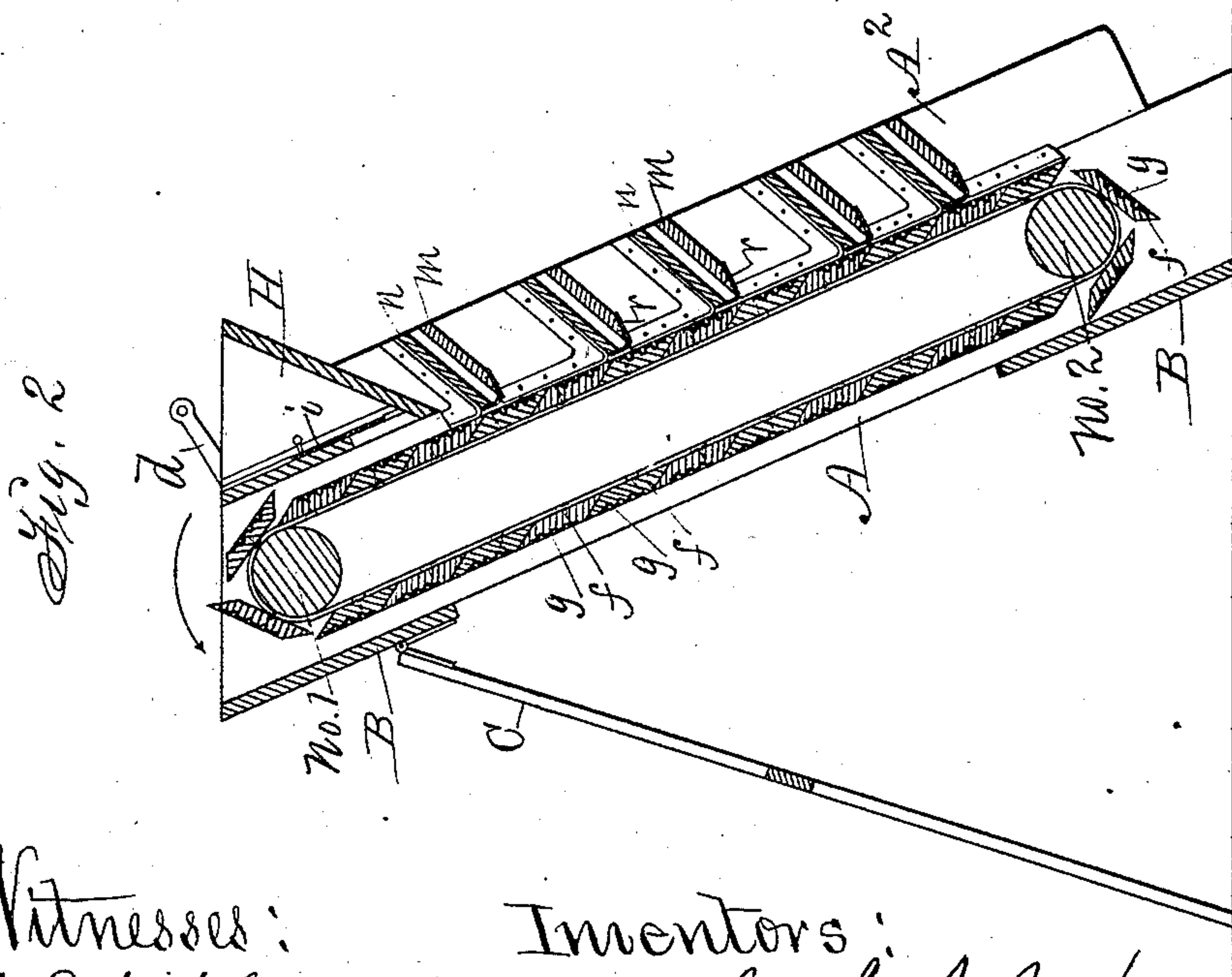
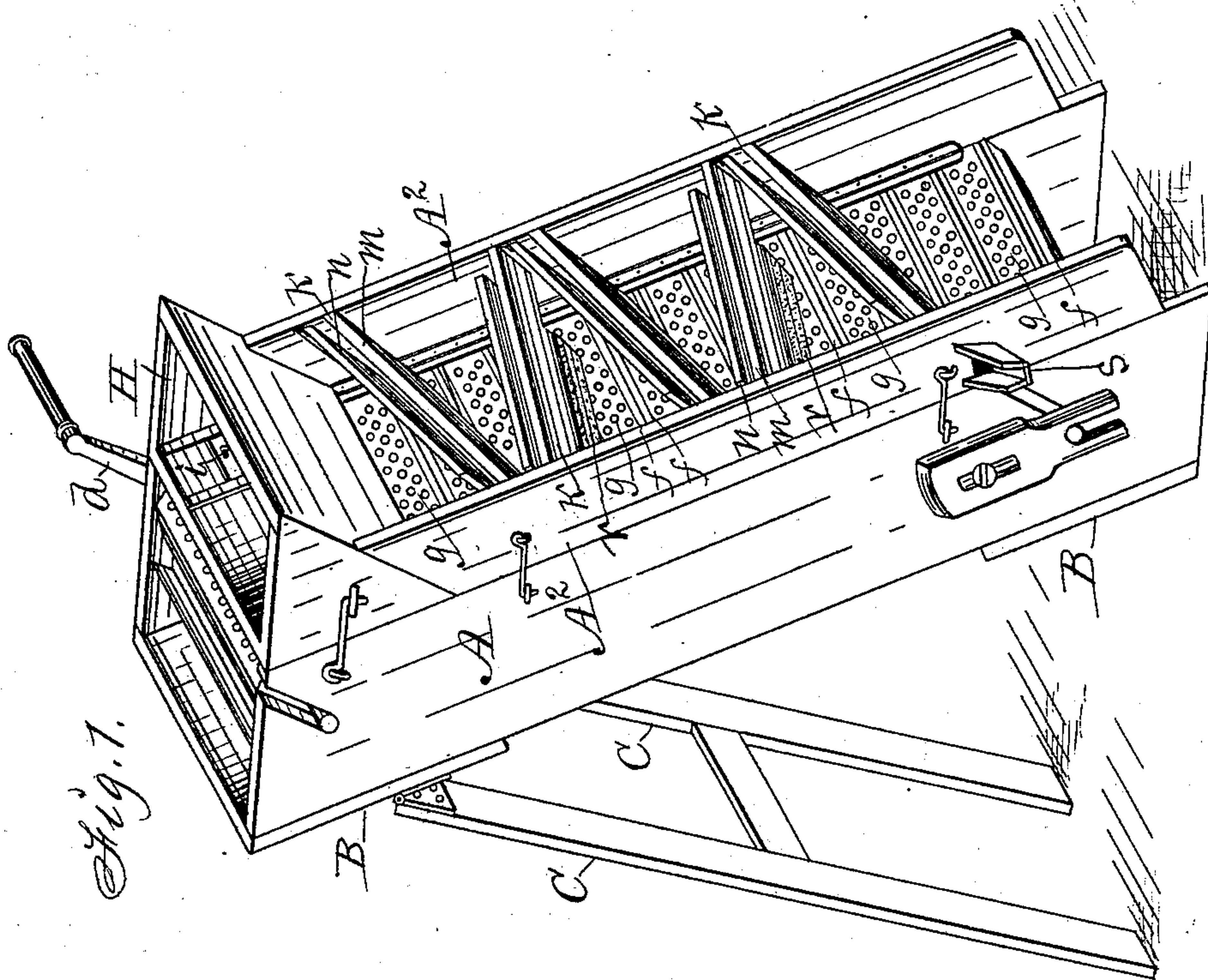
(No Model.)

T. M. BALES & J. A. JACKSON.

COCKLE MACHINE AND GRAIN SEPARATOR.

No. 282,036.

Patented July 31, 1883.



Witnesses:
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UNITED STATES PATENT OFFICE.

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COCKLE-MACHINE AND GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 282,036, dated July 31, 1883.

Application filed April 23, 1883. (No model.)

To all whom it may concern:

Be it known that we, THOMAS M. BALES and JACOB A. JACKSON, of Des Moines, county of Polk, State of Iowa, have invented an Improved Cockle-Machine and Grain-Separator, of which the following is a specification.

Our improvement relates to that class of machines in which cockle, broken and imperfect grain, seeds, grass-seeds, and granulated foreign matter are cleaned from wheat, oats, and other small grains by passing the mixed and uncleaned seeds over an indented surface to allow the cockle and other smaller seeds and foreign substances to enter the indentations, and to be thereby separated from the good grain.

Figure 1 of our accompanying drawings is a perspective view of our machine set up as required for practical use. Fig. 2 is a longitudinal section. Together they clearly illustrate the construction, operation, and utility of our complete invention.

A A are the wooden sides of an oblong portable case. They are preferably wooden boards about five (5) feet long and fourteen (14) inches wide. B B are cross-pieces fixed to their lower edges, and at their end portions to rigidly connect the sides A, and to partly close the under side of the case.

C C are legs pivoted to the top ends of the sides A in such a manner that they can be folded upon the case to facilitate packing and shipping the machine, or distended to support the case at any angle, as may be desired in setting up the machine for practical use.

No. 1 is a friction-roller mounted in bearings formed in or attached to the top ends of the sides A. No. 2 is a corresponding roller mounted in adjustable bearings at their lower ends.

d is a crank-handle extending from the end of the roller No. 1.

f f represent a series of wooden slats fixed to an endless flexible belt, or two or more endless flexible straps, by nailing, or in any suitable way, to produce an endless carrier adapted to be placed upon the rollers Nos. 1 and 2, and operated thereby. These slats *f* have their parallel edges inclined in the same direction, so that they will overlap each other and pro-

duce an even surface between the two rollers Nos. 1 and 2, to prevent grain-seeds from getting between the slats, and also for the purpose of facilitating the downward flow of the grain and the speed of the cleaning operations.

Sections of indented sheet metal *g*, corresponding in size and shape with the slats *f*, are fixed upon the outside faces of the slats *f*.

H is a hopper detachably fixed to the top ends of the sides A. It has an inclined bottom or worm-conveyer to conduct the grain that enters it toward an outlet at the side of the case, from whence it will flow upon the indented and inclined top surfaces of the slats *f g* of the endless carrier as they successively move upward under the hopper.

i is a slide fitted to the hopper to regulate the flow of the grain.

k k are grain-conductors fixed to the sides A² of a detachable frame in zigzag, and inclined or overlapping positions relative to each other for the purpose of directing the grain that descends over the inclined surface of the endless carrier from one side toward the other in a zigzag onward course through the machine. To make these conductors flexible and self-adjusting relative to the indented surface of the endless carrier, as required to prevent the grain from clogging, and to facilitate the separation of the cockle and foreign substances therefrom, we connect two wooden slats, *m* and *n*, by means of a flexible strap of leather, *r*, in such a manner that when the ends of the slat *m* are rigidly fixed to the side-pieces, A², of the detachable frame on top of the sides A the slat *n* will be free to rise and descend relative to the slat *m* and the surface of the endless carrier, and by making the slats *n* shorter than the slats *m* at their lower ends the grain will be allowed to drop from one conductor to another in its zigzag downward course over the indented surface of the carrier moving in the opposite direction to pick up and carry in its indentations the cockle-seed and foreign substances that drop from the zigzag current of perfect grains. Each slat *n* is hinged to the lower edge of a slat, *m*, by means of a continuous strap or strip of leather that is nailed to the slats, and will allow the slat *n* vertical play relative to the slat *m* and the indented

metal surface *g* of the endless carrier that moves underneath the combined slats *n* and *m*. The space between the lower edge of each fixed slat *m* and the indented surface *g* of the carrier is large enough to allow any grain to pass that may get under the hinged strap *n*. The function of the hinged strap is to convey the grain across the moving carrier, while the cockle-seeds enter the indentations in the surface of the carrier. Each slat *m* is cut away at its lower end and lower edge to allow the grain that drops from the end of the slat *n* to pass down upon the next hinged slat *n* that is inclined in the opposite direction, and will conduct the grain to the opposite side of the carrier again, as required, to move the grain in a zigzag course in its descent over the moving carrier. The slats *m* are secured to the side pieces, *A*², by means of angle-irons, as shown, or in any suitable way.

s represents a spout fixed to the lower end of the case to convey the perfect and clean grain into a suitable receptacle, or upon a heap on the floor at the side of the machine.

It is obvious that by simply turning the crank attached to the upper roller, No. 1, the continuous carrier will be moved around the two rollers, Nos. 1 and 2, and that cockle-seeds and all other substances that enter the indentations in its top surface as it descends will drop

therefrom as the same portion descends into a receptacle, or upon a heap on the floor under the machine.

To increase the capacity of our machine we simply increase its size and multiply the conductors that direct the grain in a zigzag current, and to adapt it for cleaning and separating different kinds of grain we simply change the size of the indentations in the surface of the endless carrier.

We claim as our invention—

1. A conductor composed of two wooden slats and a flexible strap, in combination with the frame or sides of a cockle-machine, and an endless carrier having an indented surface, substantially as and for the purposes set forth.

2. A portable case adapted to be placed in an inclined position, an endless carrier composed of a series of slats having indented surfaces, and a flexible belt, two rollers, and a series of zigzag grain-conductors arranged and combined substantially as shown and described, to operate in the manner set forth, for the purposes specified.

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Witnesses:

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