(No Model.) 2 Sheets—Sheet 1.

B. WRIGHT.

GRAIN CLEANER.

No. 307,828. Patented Nov. 11, 1884.

Fig. 1.

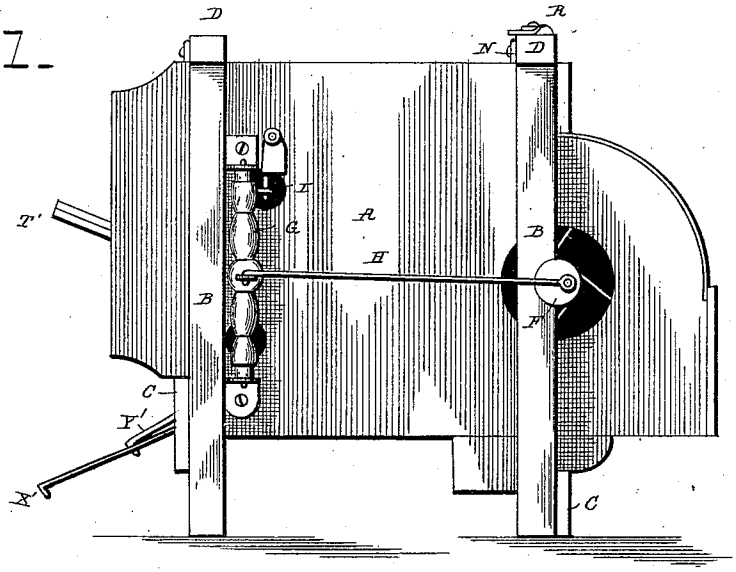
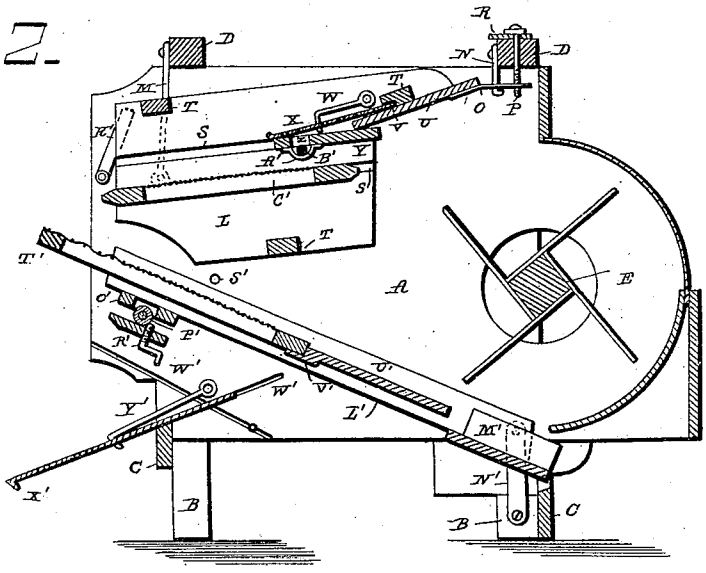


Fig. 2.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

B. WRIGHT.

GRAIN CLEANER.

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Fig. 3.

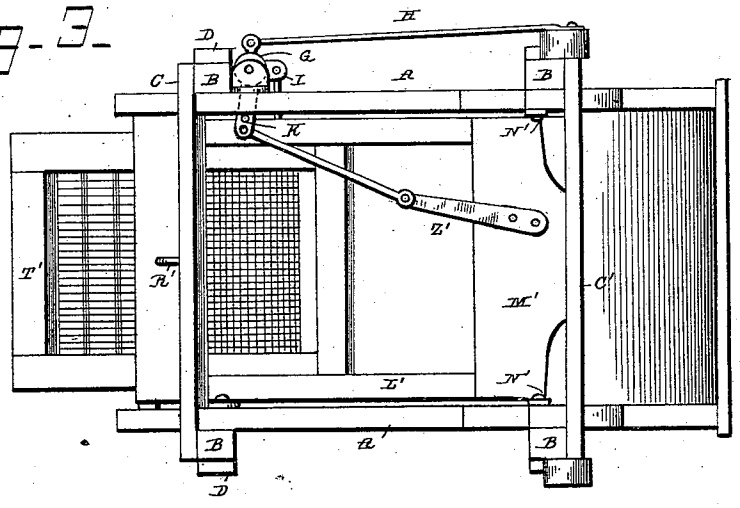


Fig. 4.

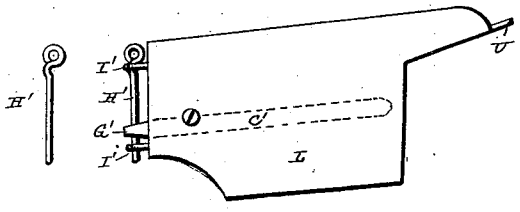


Fig. 5.

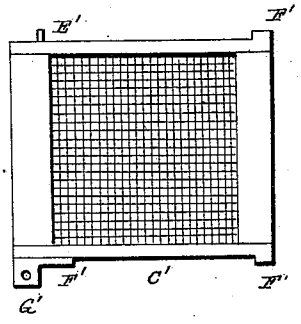


Fig. 6.

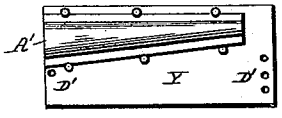


Fig. 7.

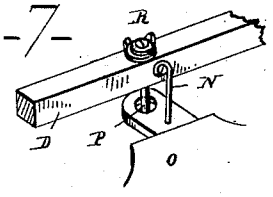
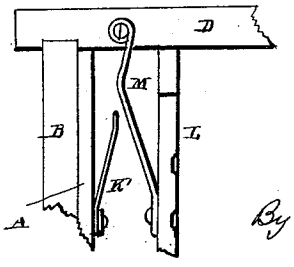


Fig. 8.



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UNITED STATES PATENT OFFICE.

BENJAMIN WRIGHT, OF HUDSON, MICHIGAN.

GRAIN-CLEANER.

SPECIFICATION forming part of Letters Patent No. 307,828, dated November 11, 1884.

Application filed June 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN WRIGHT, a citizen of the United States, residing at Hudson, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Grain-Cleaners, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to grain-cleaners, and is designed to produce a device obviating heretofore existing defects in machines for the purpose, to add some important improvements, and to produce a complete device for thoroughly cleaning the grain, all of which will be hereinafter set forth and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of the device; Fig. 2, a longitudinal section through the machine; Fig. 3, a bottom view of the machine; Fig. 4, a side elevation of the upper shoe; Fig. 5, a plan view of one of the sieves; Fig. 6, a bottom view of sieve-board and movable spout; Fig. 7, a detail perspective of the rear hanger of the upper shoe and the attendant mechanism, and Fig. 8 an elevation of a spring that operates to cause a play in the device shown in Fig. 7.

A represents the casing of the machine, which is supported on legs B, secured to the sides A. These legs are properly braced at C, and are connected on top by cross-pieces D.

Within the machine, and at one end, is a rotary fan, E, on each end of the shaft of which is a pulley, F, outside the casing A. The fan-shaft is preferably journaled to the supporting-legs. Near the other end of the said machine is journaled an upright rock-shaft, G, there being a rod, H, connected to it and also to a crank-pin on the pulley F. Near the top of this shaft is a projecting arm, I, and near the bottom a projecting arm, K, having in it holes for adjustment, as shown in Fig. 3.

Within the casing is the upper shoe L, supported at one end by the pivotal hangers M, and at the other by a centrally-located pivotal hanger, N, which is secured to the shoe by a tongue, O, projecting therefrom. Beyond its connection with the hanger the tongue is slotted for the reception of a pin, P, which allows the end of the shoe a restricted play. The hanger is hooked over a pin, and is normally kept from being removed therefrom by the button R. The sides of the shoe are each provided with two grooves, S, adapted to receive the sieves, and the said sides are connected securely by cross-pieces T, arranged, preferably, near the upper ends and at the bottom, though the said arrangement may be varied, if desired. The upper part of the shoe toward the single-hanger projects, and has secured to it a slanting apron, U, under one of the cross-pieces T, which is grooved, as shown at V. To the side of the shoe is secured a hook, W, which is designed to either retain the sieve X in place—the end of the latter fitting in the groove in T—or to retain the sieve-board Y in place, or both, as in Fig. 2. The sieve-board Y is provided with a lateral slot, Z, under which is secured a sliding adjustable spout, A′, which, when used, coincides with the hole B′ in the side of the shoe; but when not in use and the sieve X is also dispensed with, it is turned around or reversed and adjusted under the apron and over the upper sieve C′ by means of the hook W and holes D′ in the said sieve-board. The spout is made adjustable longitudinally, so that it may be made to snugly fit around the hole B′, yet not thereby interfere with the removal of the board Y. The spout and sieve X are used together to clean any grass-seed or other like material from the grain and chaff as it is thrown on the upper shoe. This is necessary where grass has grown with the grain; but these parts are dispensed with when the grain is free from such growth.

In the lower grooves of the upper shoe is adapted to be removably secured the sieve C′, which is provided with guiding and sustaining pins E′, or projections of the frame-work, as shown at F′. One end is also provided with a staple or eye, G′, through which a pin, H′, passes, the said pin also passing through eyes I′ on one side of the shoe. The pin is of such construction that the head is a little to one side of the center of the said pin, thus making it practically impossible for the said pin to "jolt" out of place, as often occurs with straight ones.

On the inside of one of the sides A is pivotally secured a spring, K′, which causes the shoe to vibrate in the rear or on the single

hanger N and restricting-pin P, thus preventing clogging of the grain in the said rear portion of the shoe.

In the lower portion of the machine is the shoe L′, slanting downward under the fan. This or the lower shoe is wider than the upper shoe, as the said upper shoe has considerable lateral vibratory motion, while that of the lower shoe is longitudinal. The shoe L′ has a single longitudinal groove on each side for the insertion and removal of the sieves. The lower end is provided with a spout, M′, also with two pivoted supports, N′. These supports are arranged to have an inward springing tendency, and their pivots are screws, so that the shoe may be adjusted against the "shake" side of the mill, to prevent all lateral motion, as that would be detrimental to its perfect working and cleaning qualities. The upper end of the shoe is preferably connected by a cross-piece, O′, to which is journaled centrally a roller, P′, adapted to engage with and pass over an adjustable stop, R′, so as to give the said shoe a sharp upward throw at each longitudinal vibration, the stops S′ preventing a too great upward motion. The cross-piece O′ is preferably made so as to have a slight "give" to break the shock and prevent racking the shoe, without in the least interfering with the said upward throw, which is designed to prevent clogging of the grain. The adjustable stop may be set entirely out of the way of the roller.

The sieve T′, used in the lower shoe, is provided with two kinds of meshes, the square mesh for the greater part, and the long mesh, as shown, for the upper outer end. The long mesh separates the chaff from any grain that may be carried with it from the upper screen, the small grain, falling through the upper screen, will fall through the square meshes, and the larger grain will be carried to and discharged at the lower end of the shoe.

The piece U′, provided with a lip, V′, is removable from the shoe, and is designed more particularly for use with the seive C′, which can be interchangably used in either shoe, it being longer one way than the other, so as to adapt it for the different widths of the two shoes. In practice the piece U′ is removed when the screen T′ is used in the lower shoe.

Below the upper end of the lower shoe is provided, on each side of the machine, two grooves, W′, one crossing the other. In either of these grooves is adapted to be placed the tail-board, X′, being held, when in place, by the hook Y′. This tail-board is not only adaptable for catching any grain that may be blown over the end of the screen, but by reversing and placing it in the position shown in Fig. 2, it throws the tailings out of the machine and away from the clean small grain under the said machine, thus obviating the necessity of a second cleaning of it.

Reference to Fig. 3 will show attached to the rear or lower end of the lower shoe a piece, Z′, which has some spring tendency, and is placed somewhat to one side of the shoe, and is connected to the arm K by a rod pivotally connected to each. This is the means whereby the motion is given to the lower shoe.

Having described the device, what I claim is—

1. In a grain-cleaner, a reversible tail-board, in combination with a casing having X or cross grooves in each side, and a hook, substantially as and for the purpose set forth.

2. In a grain-cleaner, a lower shoe having pivoted spring-supports at one end, and a roller centrally located at the other, in combination with a transverse piece in the frame of the machine, containing an adjustable stop, a rock-shaft carrying an arm, a pivotally-connected rod, and a spring-piece near one end of the said shoe, the whole operating substantially as and for the purpose specified.

3. In a grain-cleaner, in combination with an upper shoe having grooves, a sieve-board provided with holes and resting in said grooves, and a hook, the said board being provided with a lateral slot and an adjustable spout, and being removable and reversible, substantially as and for the purpose specified.

4. The combination, in a grain-cleaner, of a lower shoe of nearly the width of the frame, an upper shoe of less width for permitting lateral motion, and provided with a sieve longer one way than the other, and adapted to either shoe, and a removable lipped piece used with the said sieve in the lower shoe, substantially as and for the purpose specified.

5. In a grain-cleaner, the combination, with the upper shoe and the hangers at the rear end thereof, which allow lateral motion, of a single hanger at the front end, a slotted plate, a rigid pin, and a spring secured to the frame of the machine and engaging with the shoe at the rear end, substantially as and for the purpose specified.

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

BENJAMIN WRIGHT.

Witnesses:
JAMES B. THORN,
T. W. TOLEHARD.