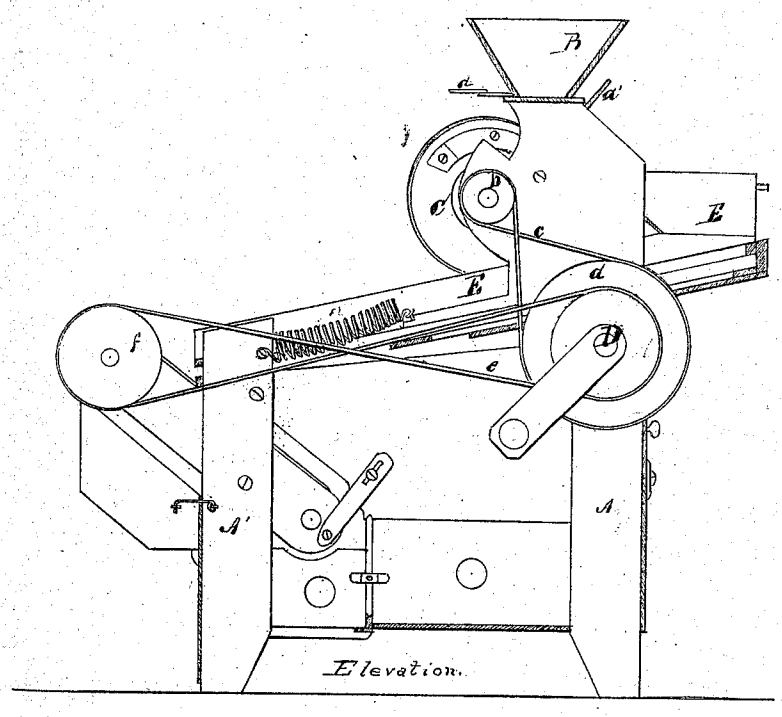
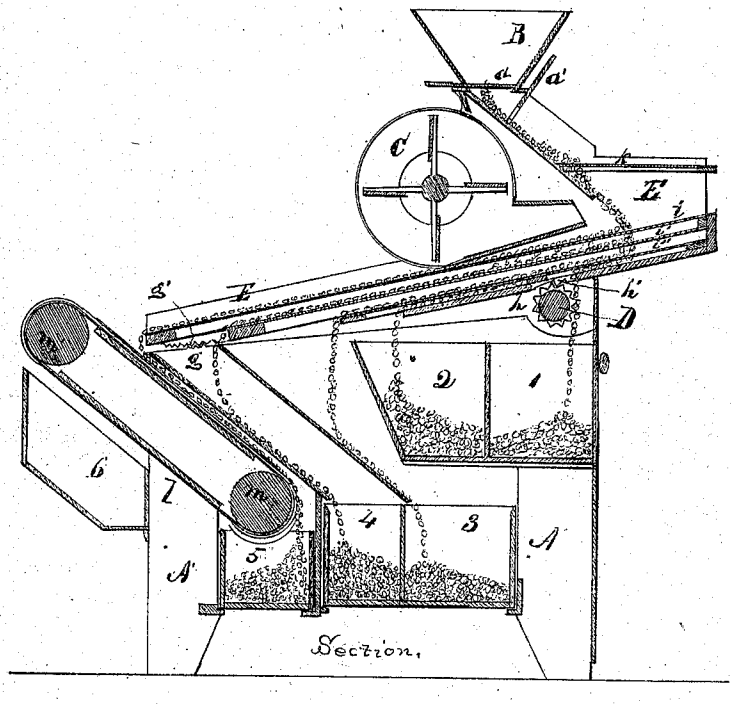
N. M. BOWEN.

Grain Separator.

No. 107,860. Patented Oct. 4, 1870.



Elevation.



Section.

Witnesses:
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NEWTON M. BOWEN, OF KNIGHTSTOWN, INDIANA.

Letters Patent No. 107,860, dated October 4, 1870.

IMPROVEMENT IN GRAIN AND SEED-CLEANERS.

The Schedule referred to in these Letters Patent and making part of the same.

I, NEWTON M. BOWEN, of Knightstown, in the county of Henry and State of Indiana, have invented certain Improvements in Grain and Seed-Cleaners, of which the following is a specification.

Nature and Objects of the Invention.

My invention relates to the construction and mode of operating the screen-frame, by which grain is separated.

Also to the same, in combination with a fan for cleaning the grain from chaff and dust.

Also to the same, in combination with an endless canvas apron for separating certain kinds of grain from others.

Description of the Accompanying Drawing.

Figure 1 is a side elevation of a machine in which my improvements are embodied.

Figure 2 is a longitudinal sectional elevation.

General Description.

The machine is supported upon four posts—two front posts, A, and two rear posts, A'.

B is the grain-hopper, having, at its discharge-opening, an adjustable slide, *a*.

Another adjustable slide, *a'*, below the mouth of the hopper, is also provided.

C is the fan, its shaft prolonged through the side of the machine, and furnished with a pulley, *b*, which receives a belt, *c*, from pulley *d*, on crank-shaft D.

d' is another pulley on crank-shaft, having belt *e*, extending to pulley *f*, which will be presently referred to.

E is a screen-frame, supported between the four posts, A A', in a position inclined slightly downward toward the rear.

At the rear end this screen-frame rests upon a notched or serrated support, *g*, and has a surface of contact, *g'*, also notched in a similar manner.

The opposite or front end of screen-frame E rests upon a notched wheel, *h*, and it has a notch, *h'*, appropriately formed, for a purpese which will be explained.

The frame E carries three screens or separators, *i i' i''*, having separate functions, which will be explained.

k is an open or large-mesh screen, placed at the front of the machine.

1 2 3 4 5 6 are drawers or receptacles for grain and seeds, as they are separated.

l is a canvas apron, carried by drums *m m'*, the latter having its shaft prolonged to receive pulley *f*, by which motion is communicated through belt *e*, before mentioned.

n is a spiral spring, one end of which is attached to screen-frame E, and the other to post A'.

When motion is communicated to crank-shaft D the fan C and canvas apron *l* are set in motion. At the same time the notches in wheel *h*, encountering the notch *h'* in the screen-frame E, impel the frame violently for a short distance in one direction, and, as the notches escape, the springs *n* cause it to return suddenly and violently, imparting thereby a quick and violent tremulous motion to the screen-frame, reciprocating both in the inclined plane and vertically thereto. As the screen-frame rests at its rear end upon the notched support *g*, this end of the screen also partakes of the same violent motion by which the screens are made effective as separators through their entire length.

I will now describe the practical operation of the machine:

Grain supplied to hopper B descends, through the regulated opening at the bottom, to open screen *k*, where straw and other coarse matters are arrested; thence, descending, the grain is exposed to the blast from fan C, and falls upon upper screen *i*, the meshes of which are so open that all grass-seeds and small grains pass through. The large grains descend along on the screen, and discharge upon canvas apron *l*. Here any grains of oats or other grains having hulls surrounding them adhere to the canvas, and are carried up and discharged over into receptacle 6, while the smooth grains descend and fall into receptacle 5. The meshes of screen *i'* are so large that all seeds of grass and weeds pass through, and only small and broken grains pass over and fall into receptacle 4. Screen *i''* is composed of three sections of different mesh, and the arrangement is such that cheat and cockle pass over into receptacle 4; pure timothy-seed, being somewhat finer, passes through the middle section, and falls into receptacle 2; while wire-grass seed passes through the fine meshes of the first section, and falls into section 1.

Claims.

1. The screen-frame E, carrying screens *i i' i''*, in combination with the notched support *g g'*, wheel *h*, and notch *h'*, and spring *n*, substantially as and for the purpose specified.

2. The screen-frame E and screens, when supported and operated in the manner specified, in combination with fan C, as and for the purpose described.

3. The screen-frame E and screens, when supported and operated in the manner described, in combination with the canvas apron *l*, for the purpose specified.

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Witnesses:

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