

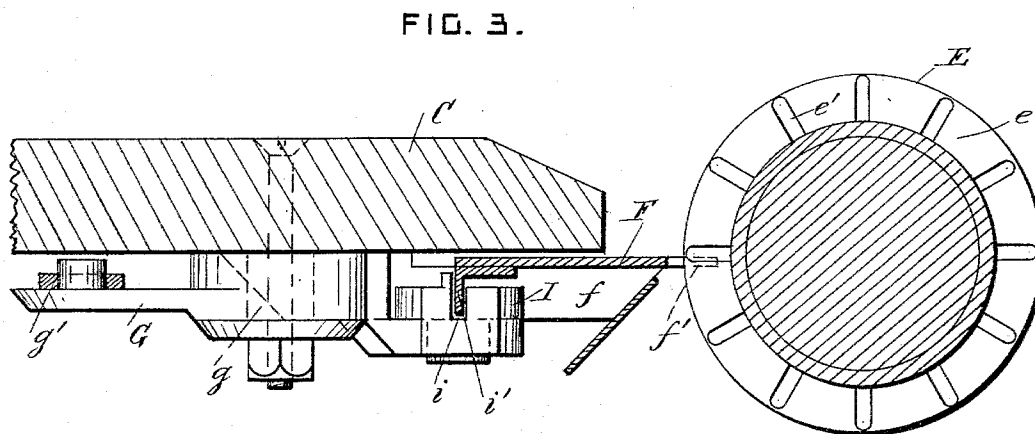
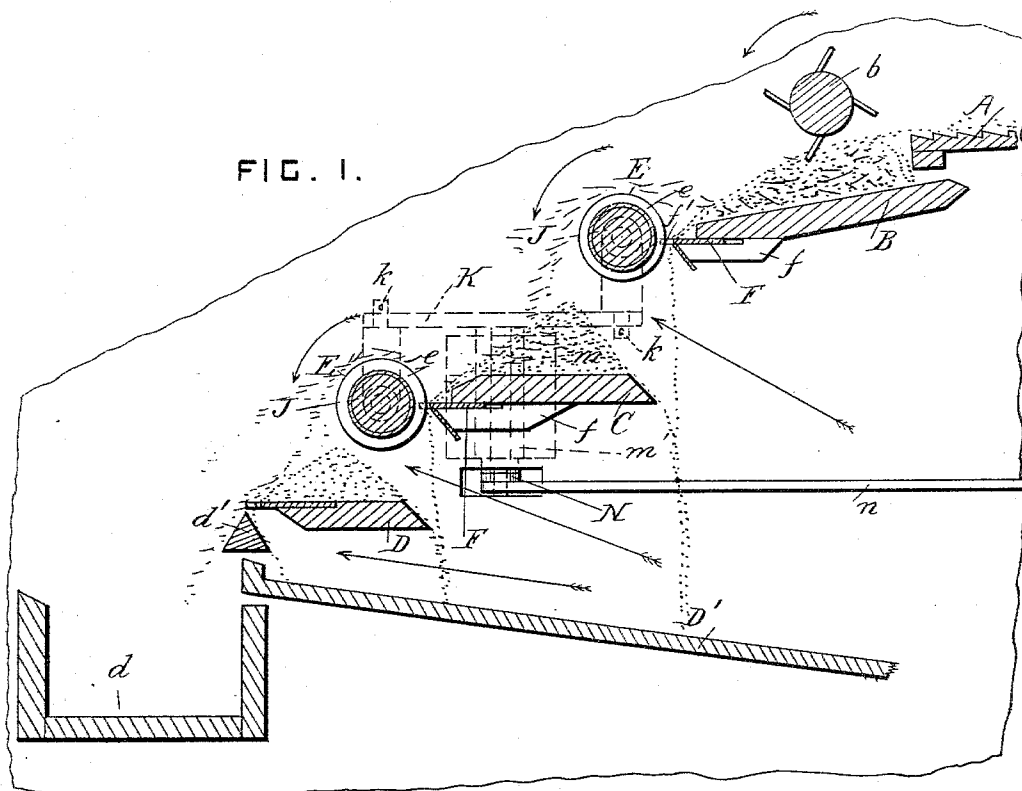
(No Model.)

3 Sheets—Sheet 1.

F. F. LANDIS.
GRAIN CLEANING DEVICE.

No. 562,625.

Patented June 23, 1896.



Witnesses

J. Spring Pool
Frank C. Egan

Inventor

Frank F. Landis
By Attorney Robert W. Jenner

(No Model.)

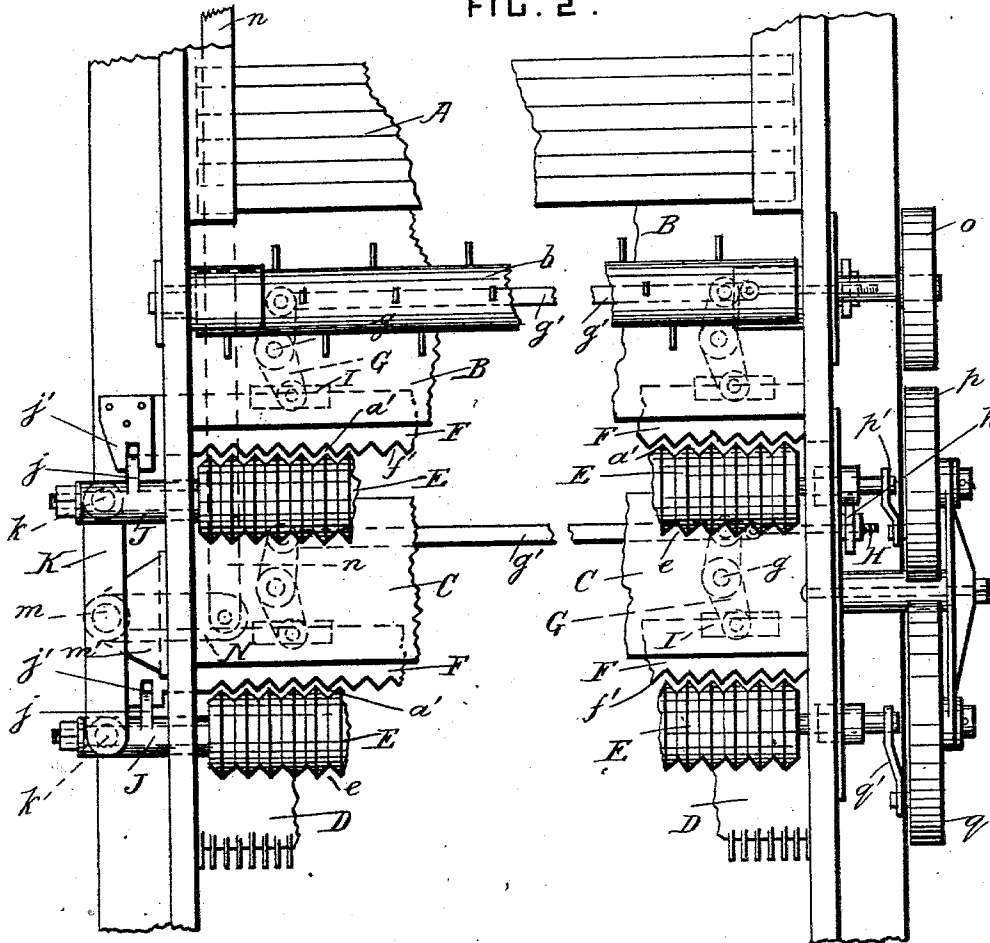
3 Sheets—Sheet 2.

F. F. LANDIS.
GRAIN CLEANING DEVICE.

No. 562,625.

Patented June 23, 1896

FIG. 2.



Witnesses
J. M. P. Pool
Frank A. Gregory

Inventor
Frank F. Landis,
By Attorneys Herbert W. Jenner.

(No Model.)

3 Sheets—Sheet 3.

F. F. LANDIS.
GRAIN CLEANING DEVICE.

No. 562,625.

Patented June 23, 1896.

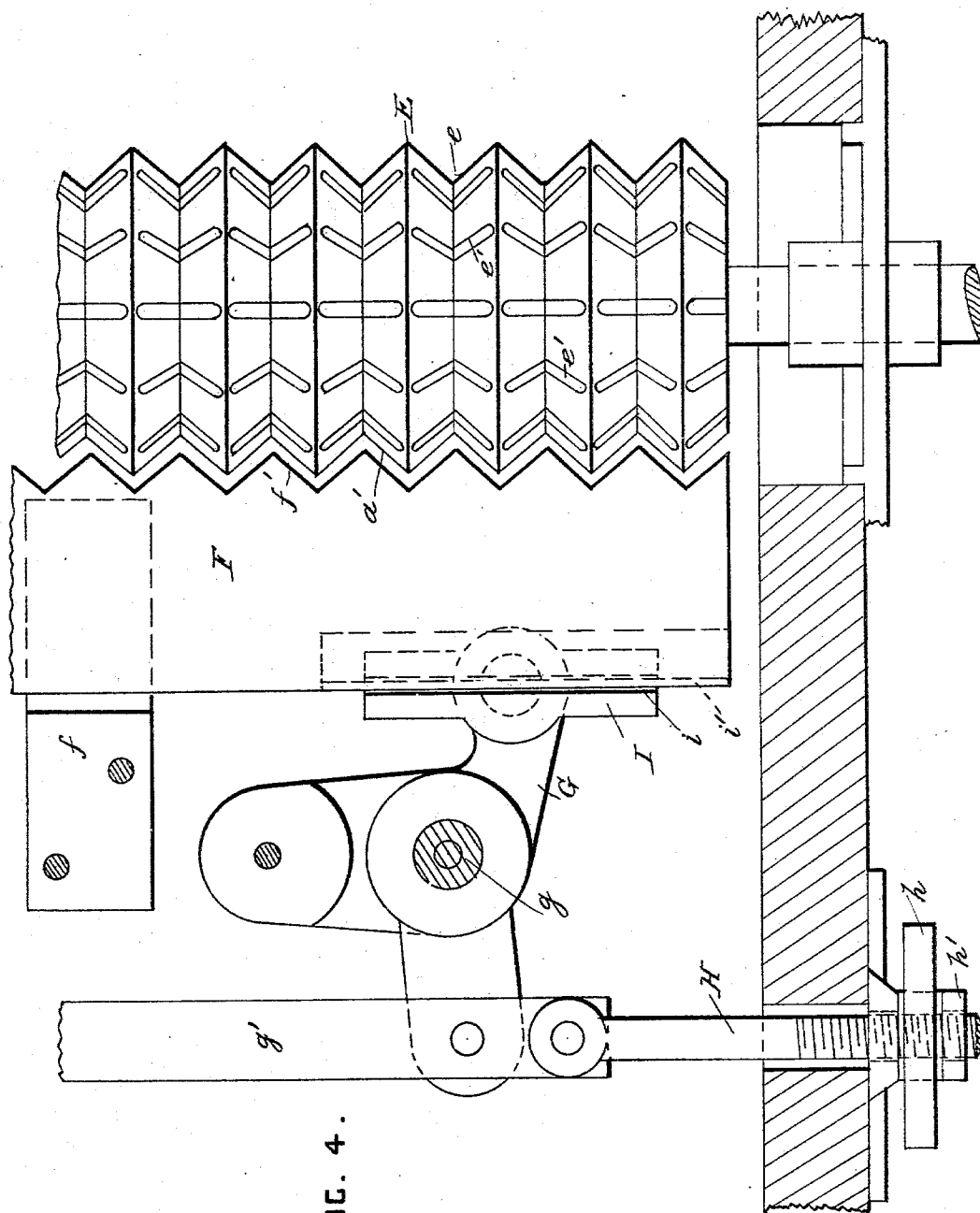


FIG. 4.

Witnesses

J. Shing Bole
Frank C. Gugg

Inventor

Frank F. Landis.
By Attorney *Robert W. Jenner.*

UNITED STATES PATENT OFFICE.

FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

GRAIN-CLEANING DEVICE.

SPECIFICATION forming part of Letters Patent No. 562,625, dated June 23, 1896.

Application filed March 18, 1893. Serial No. 583,754. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Grain-Cleaning Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to grain-cleaning devices for threshing-machines; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a cross-section through the cleaning devices. Fig. 2 is a plan view of portions of the same. Fig. 3 is a cross-section through one of the grain-plates and cleaning-rolls, drawn to a larger scale and showing the adjusting devices. Fig. 4 is a plan view of the parts shown in Fig. 3.

The mixed grain, chaff, and tailings pass from the shoe A onto the first grain-plate B, where they are operated on by the toothed roller b.

C is the second grain-plate, and D is the third grain-plate. A cleaning-roll E is journaled at the rear of the first grain-plate B, and a similar cleaning-roll E is journaled at the rear of the second grain-plate C. The grain-plates are arranged in the form of steps, and a blast of air is driven between them in the direction of the straight arrows by any approved fan. (Not shown in the drawings.)

The grain slides down the front sides of the piles of grain on the grain-plates and falls onto the gather-board D'. The light rubbish is driven out at the rear of the machine, and the tailings fall into the tailings-spout d'. The third grain-plate is provided with teeth on its rear edge, which project over the apex of a divider-bar d'.

In order to increase the cleaning capacity of the machine, each cleaning-roll E is provided with circumferential grooves e and cross-grooves e' on the inclined surfaces of the said grooves e.

Each grain-plate B and C is provided with brackets f on its under side, and F are plates provided with serrated front edges f'. These

plates are supported by the brackets f, and their serrations engage with the grooves e, so that narrow zigzag passages a' are formed between the plates and rolls. These passages are much longer than if they were straight.

The width of the passages a' is regulated by sliding the plates F toward or away from the rolls. This may be accomplished by any approved adjusting mechanism, but by preference the devices hereinafter described are used.

G are levers pivoted on the pins g, projecting downward from the bottoms of the grain-plates B and C. The front ends of each pair of levers G are pivotally connected to a rod g'.

H is an adjusting-screw projecting through the side of the machine-casing, and h is a small hand-wheel engaging with the said screw and revolving in the bracket h'.

The front ends of the levers G have blocks I pivoted to them, and each block has a groove i, which engages with a vertical plate i', secured to the under side of the plate F. The blocks I slide upon the plates i' and move the plates F back and forth with respect to the cleaning-rolls, so that the size of the passages a' may be adjusted to any kind of grain or seed being operated on by the machine.

The plates F, when moved back and forth, are not moved longitudinally of the rolls, because one end of each roll is journaled in a bearing J, which is provided with a tongue j, and the corresponding plate F is provided with a forked portion j', which engages with the said tongue. It is obvious that any other approved guiding devices besides the tongue and fork may be used to couple the plates F to the roll-bearings.

In order to increase the efficiency of the cleaning devices and permit the narrow zigzag passages a' to be effective at every part of their length, a rapid longitudinal reciprocating motion is given to both plates F and the cleaning-rolls pertaining to them. This motion also prevents the grain and rubbish from banking up against the rolls, and prevents the grain from being blown off with the light rubbish.

The cross-grooves e' of the rolls engage with the material as the rolls are revolved and reciprocated, so that the rolls do not slip upon the material.

Any approved driving mechanism may be used for reciprocating the cleaning-rolls and plates. A convenient arrangement consists of a lever K, having its ends pivoted to the roll-bearings J by pins *k*. The ends of the rolls are provided with nuts or collars to prevent them from moving endwise in the bearings. The lever K is secured on the upper end of a short shaft *m*, which is journaled in a bracket *m'*, secured to the side of the machine.

N is a lever secured to the lower end of the shaft *m* at right angles to the lever K, and *n* is a connecting-rod pivoted to the end of the lever N and operated from any convenient driving device, (not shown,) such as an eccentric or crank.

Rotary motion is communicated to the cleaning-rolls by pulleys *o*, *p*, and *q*, or by any other approved driving devices. The pulley *o* is secured to the shaft of the roller *b*, but the pulleys *p* and *q* are preferably connected to the rolls B and C by links *p'* and *q'*, so that the reciprocatory motion of the said rolls may not interfere with the working of the belt over the pulleys.

What I claim is—

1. In grain-cleaning devices, the combination, with a revoluble grooved cleaning-roll, of a serrated plate engaging with the grooves of the roll, and driving mechanism operating to reciprocate the said plate and roll longitudinally, substantially as set forth.

2. In a grain-cleaning device, the combination, with a revoluble grooved roll having cross-grooves in its inclined surfaces, of a serrated plate engaging with the peripheral grooves of the roll, and driving mechanism operating to reciprocate the said plate and roll longitudinally, substantially as set forth.

3. In grain-cleaning devices, the combina-

tion, with a grooved cleaning-roll, a serrated plate engaging with the grooves of the roll, and guiding devices constraining the said roll and plate to move together in a longitudinal direction; of adjusting mechanism for regulating the distance between the said plate and roll, substantially as set forth.

4. In a grain-cleaning device, the combination, with a cleaning-roll, a grain-plate, and an adjustable plate carried by the said grain-plate; of a lever pivoted to the grain-plate, a vertical plate secured to the adjustable plate, and a block pivoted to the said lever and provided with a slot engaging with the said vertical plate, substantially as set forth.

5. In a grain-cleaning device, the combination, with a cleaning-roll, a grain-plate, and an adjustable plate carried by the said grain-plate; of levers pivoted to the said grain-plate and having their rear ends operatively connected with the adjustable plate, a rod pivoted to the front ends of the said levers, and means for moving the said rod longitudinally, whereby the adjustable plate is moved toward and away from the roll, substantially as set forth.

6. In a grain-cleaning device, the combination, with two similar cleaning-rolls, slidable bearings supporting said rolls at one end, and serrated plates connected to the said bearings and engaging with the grooves of the said rolls; of lever mechanism pivotally connected to the said bearings and operating to reciprocate the said rolls and plates longitudinally, substantially as set forth.

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

FRANK F. LANDIS.

Witnesses:

T. S. CUNNINGHAM,
A. E. LANDIS.