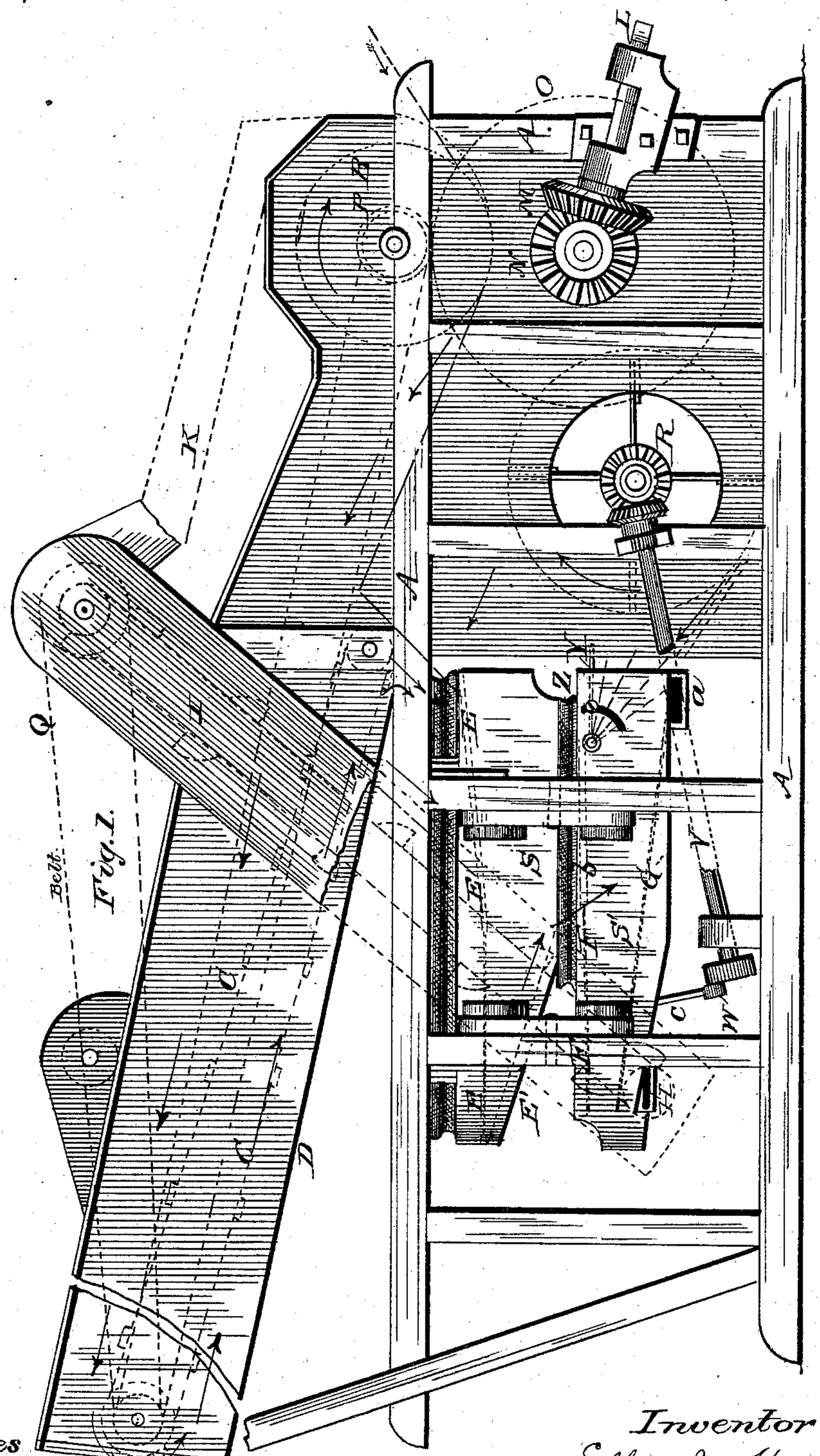
(No Model.) 2 Sheets—Sheet 1.

E. J. HOYLE.

GRAIN SEPARATOR.

No. 254,820. Patented Mar. 14, 1882.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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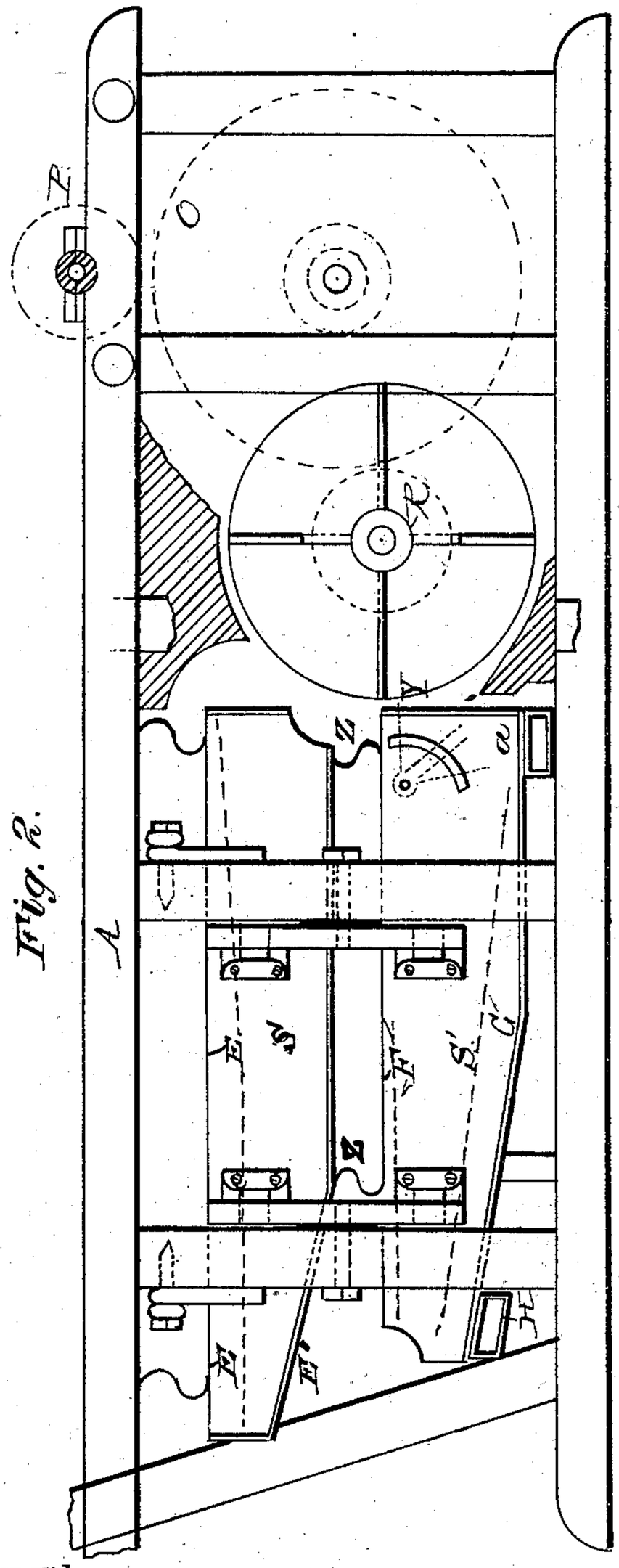

Fig. 2.

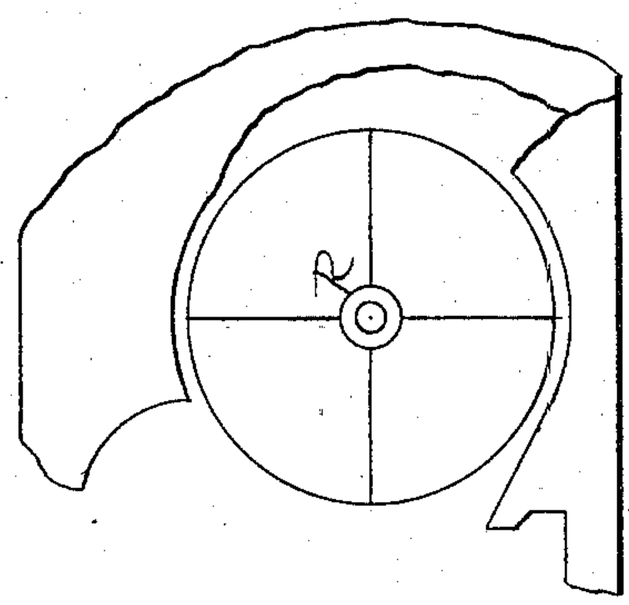

Fig. 4.

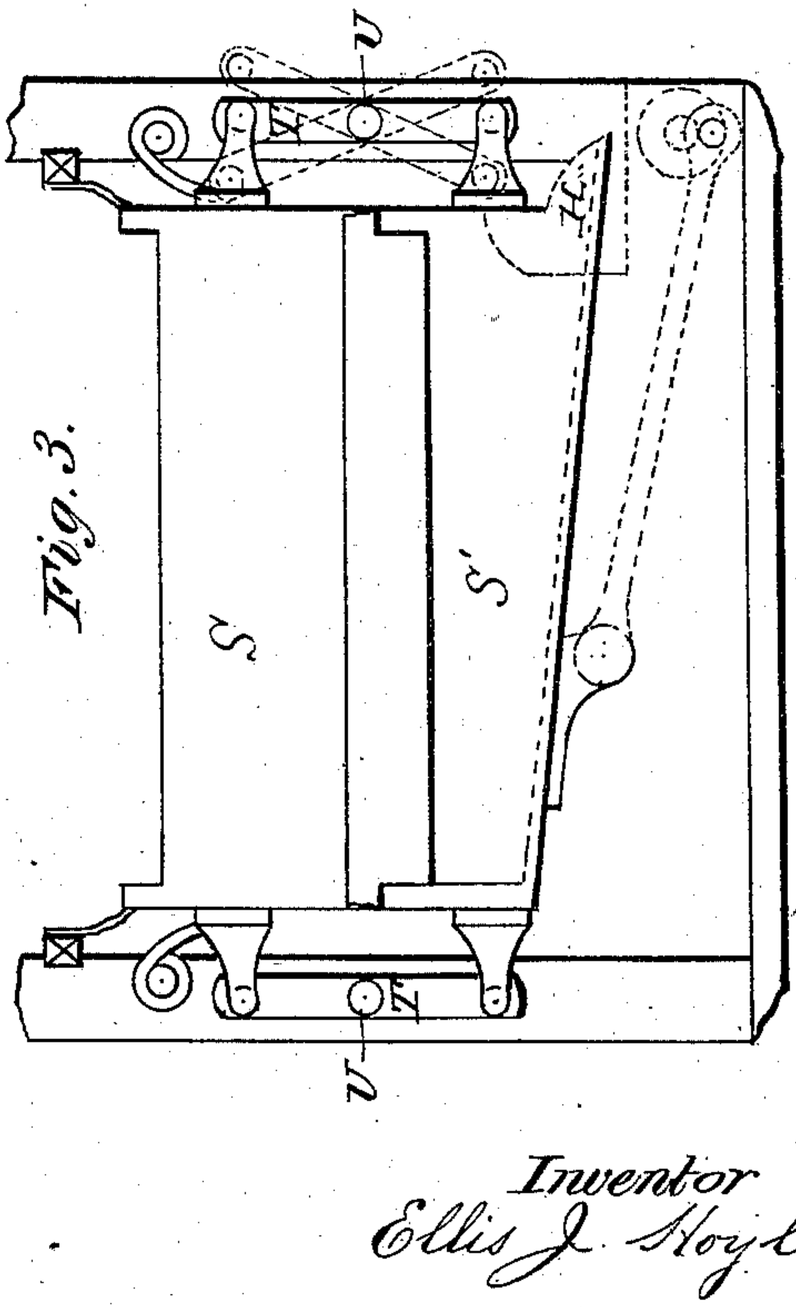

Fig. 3.

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UNITED STATES PATENT OFFICE.

ELLIS J. HOYLE, OF MARTIN'S FERRY, OHIO.

GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 254,820, dated March 14, 1882.

Application filed December 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, ELLIS J. HOYLE, a citizen of the United States, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Thrashing-Machines and Grain-Separators; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to thrashing-machines and grain-separators; and it consists in the novel construction, combination, and arrangement of parts, all as will be hereinafter fully described, and specifically pointed out in the claim.

In the accompanying drawings, Figure 1 is a side view of a thrashing-machine and separator with my improvements. Fig. 2 is also a side view, partly in section. Fig. 3 is an end view, showing the vibrating levers. Fig. 4 is a detached view.

The general construction of the machine may be like other machines in use, with the frame A supporting both the thrasher and separator.

In the drawings, B is the thrashing-cylinder, from which the straw and grain are delivered upon the straw-carrier C in the usual manner.

The straw passes out at the rear of the machine, while the grain, falling on the bottom board, D, rolls down the inclined surface and falls into the upper shoe, S, or upon the riddle E in the top of the shoe. In the rear part of this upper shoe is an inclined bottom, E′, which directs the grain downward and backward toward the fan to fall upon the short riddle F in the top of the lower shoe, S′. The grain passes through this riddle and falls upon the screen G in the lower part of the lower shoe, to be discharged at spout *a;* but the tailings pass off at the rear end of the short screen F, and fall into the spout H, to be delivered to the elevator I, and thus returned to the thrashing-cylinder through the spout K.

The machine is set in motion by any suitable power applied by means of shaft L, having a bevel-pinion, M, which gears into pinion N, thus giving motion to wheel O, which in turn gears into pinion P, to give motion to the thrashing-cylinder B and the straw-carrier C, above mentioned. By means of pulleys and band, Q, the elevator I is set in motion. The wheel O also gives motion to the fan-shaft R; but as no claim is made to the above, further description is not necessary.

The two shoes S and S′ are supported on the four levers T, which are pivoted at or near their middle, so as to freely vibrate or swing on pivots U. This vibrating motion is given to the levers by means of shaft V, crank-pin W, and pitman *c*, connected with the lower shoe, S′. Thus both shoes are shaken by the vibration of these levers. As the levers swing the shoes rise and fall, but are always kept level, and they give the grain a tossing or riddling motion.

The motion and weight of each shoe (acting on opposite ends of levers T) counteract the momentum of the other shoe when the stroke is reversed in the reciprocating motion.

An adjustable wind-deflector, Y, regulates the amount of blast upon the lower shoe and the short riddle F. The deflector acts in connection with the top board, *b*, of the lower shoe, directing more or less wind, as is desired, above and below said board.

The sides of the two shoes are connected by pieces of canvas, Z, in order to confine and direct the wind; and the lower shoe is partly covered by an inclined board, *b*, upon which the grain falling thereon is carried along by the blast and the shaking to fall through the short riddle F.

Having described the invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The combination, with the shoes S S′, and mechanism for vibrating them in opposite directions, the shoe S having screen E and inclined board or bottom E′, and the shoe S′ having inclined board *b*, short riddle F, and long riddle G, the adjustable deflector Y, and the blast-fan, of the canvas Z, for connecting said shoes together at their sides to close the openings between them, substantially in the manner as and for the purpose herein shown and described.

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

ELLIS J. HOYLE.

Witnesses:
D. E. HOWELL,
JOHN WILLITS HOYLE.