E. HERRIOTT & G. S. SMITH.

Corn-Sheller Separator.

No. 210,033. Patented Nov. 19, 1878.

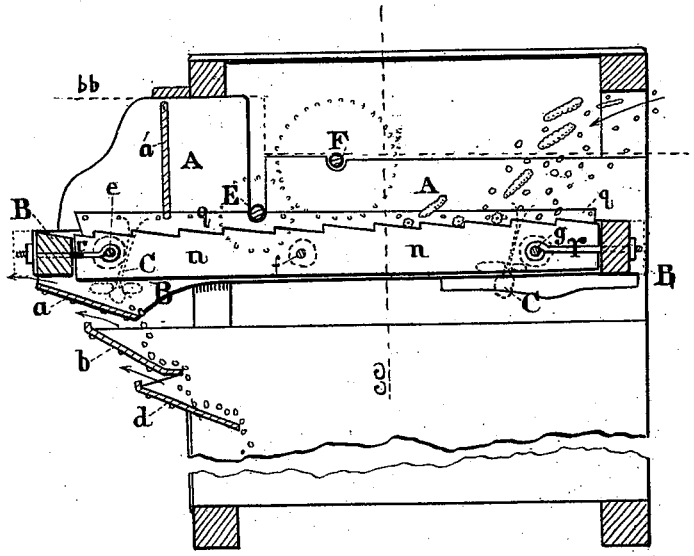
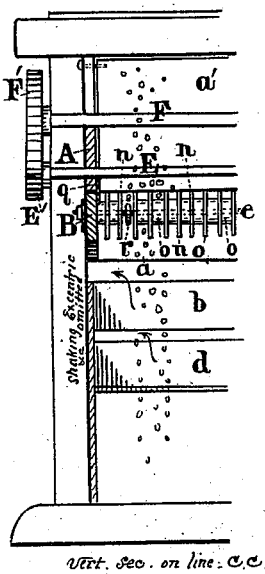


Fig. 1.
Vert. sec. on line aa fig. 4.



Vert. sec. on line c,c. fig. 1.
Fig. 2.

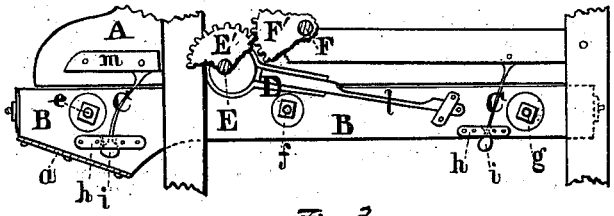


Fig. 3.

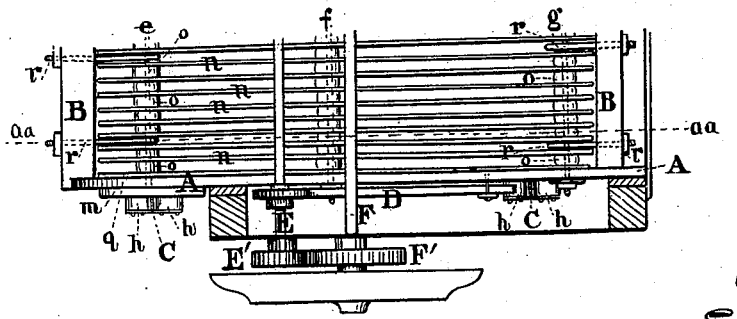


Fig. 4. Horizon. sec. line Bb. fig 1.

Witnesses.
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UNITED STATES PATENT OFFICE.

EPHRAIM HERRIOTT, OF BRIMFIELD, AND GEORGE S. SMITH, OF ELMWOOD, ILLINOIS.

IMPROVEMENT IN CORN-SHELLER SEPARATORS.

Specification forming part of Letters Patent No. **210,033**, dated November 19, 1878; application filed July 27, 1878.

To all whom it may concern:

Be it known that we, EPHRAIM HERRIOTT, of Brimfield, in Peoria county, Illinois, and GEORGE S. SMITH, of Elmwood, in the same county and State, have invented an Improvement in Corn Shellers or Separators, being a combined shoe or riddle and cob-rake; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a vertical longitudinal section of the separator exclusive of sheller on line *a a*, Fig. 4; Fig. 2, a vertical cross-section of one-half of the same, to show a cross-section of the shoe or riddle; Fig. 3, a longitudinal elevation of same, showing the eccentric shaker and suspending-springs; Fig. 4, plan or horizontal section on line *b b*, Fig. 1, showing shoe, riddle, shafts, gearing, and eccentric motion.

Our invention consists in such construction and arrangement of the shoe and rake or screen, in connection with shafts, gearing, eccentrics, and minimum number of elastic suspension-points for the shoe or riddle, as will produce an effective separating attachment for cobs and stalks to a corn-sheller.

The following is a description of one of the forms in which we construct this machine:

In the drawings, A are the sides of the separator above the shoe B, or part of the usual inclosure, no part of the same differing from a common form of the machine excepting the shoe, riddle, chutes, springs, and eccentrics. B is the shoe, consisting of an oblong horizontal frame, across which lengthwise are extended the vertical parallel strips *n n*, &c., each having a saw-edge uppermost, and each separated from its neighbor by means of a block, *o o*, and perforated in three places by transverse rods *e f g* passing through both the blocks *o* and the strips *n*, and secured on the exterior of the shoe with nuts or proper fastenings. The strips *n* are firmly stretched lengthwise by means of short eyebolts, *r r*, &c., embracing the rods *e g* at the outer ends of the shoe, which rods also terminate in nuts or set-screws for tightening said strips. A guard or metal strip, *q*, defends the joints between the shoe and the lower edges of wall A above.

C C represent vertical elastic springs or vibrating bars, attached at their respective upper ends, one at or near each corner of the machine, above the shoe, to walls A, and ending, each spring downward, in a button or head, *i*, below a staple, *h h*, or slot on the side of the shoe. D represents an eccentric, one on either side of the machine or shoe, each placed upon a transverse shaft, E, geared by means of spur-wheel E′ to similar wheel F′ on the motor-shaft of the separator or sheller. Each eccentric is connected by means of a rod, *l*, with the shoe B.

Returning now to the shoe B, it will be seen that there is no floor or screen beneath the riddle of shoe excepting a mere short chute, *a*, to direct the corn inward toward the fan-draft within the machine, leaving a passage between said chute and the riddle for the escape of the blast and rubbish. Below this chute, at operative intervals, are arranged several other chutes, the number of which we elect to diminish or increase, according to necessity, all similarly inclined, one below the other, each, *b d*, projecting a little farther inward, as shown, and having blast-spaces between each for outgoing draft and to eliminate dust and rubbish, as is usual.

Above the riddle *n n n* we hang a pendent door or gate, *a′*, to check the escape of corn violently ejected from the sheller at the other end of the separator. (Not shown in drawing.)

The advantages of this riddle are that no shelled corn escapes from the machine with the cob, for the nature of the riddle and shoe prevents the corn from reaching the outer end of the same. Higher degrees of speed can be operatively maintained on this machine by reason of minimum employment of shoe-bearings and of eccentrics for motors, thus obviating the jerking motion so highly destructive in other separating-machines. A smaller amount of friction in the mounting of said shoe is the result of reducing the ordinary number of its bearings from sixteen or less to as few

as four bearings only. The cost of a separator is thus reduced fifteen or twenty per cent.

The operation of this machine is as follows: Shelled corn and cobs from the sheller enter upon the shoe or riddle *n n n* in the direction shown in the drawing, the corn falling at once through the riddle or strips *n*, while the longitudinal motion of the shoe causes the serrated edges of the strips *n*, or floor of riddle, to continually knock the cobs a little farther each time until they are expelled at the rear end of the shoe. Any corn which reaches the rear of the shoe falls on the successive chutes *a b d*, which direct it into the machine, the blast eliminating the remaining dust or rubbish.

What we claim as our invention is—

1. The shoe provided with the longitudinal serrated bars *n n*, and suspended by spring-bars C C, set at an incline, substantially as and for the purposes described.

2. The serrated bars *n n*, supported on the cross-rods *e f g*, and separated by the blocks *o o*, and held in place on the frame B by means of tension-rods *r*, substantially as and for the purposes described.

3. In a corn-sheller separator, a shoe, B, arranged with raking-bars *n n*, tensions *r r*, blocks *o*, springs C, geared shafts E F, eccentric D, one on either side, hanging valve *a'*, and chutes *a b d*, arranged and operating as described.

4. In a corn-sheller, the combination and arrangement, with the shoe B, having rakes *n n* and eccentrics D D, connected with shafts E F, of four inclined springs or suspenders, C, gate *a'*, and chutes *a b d*, as described.

In testimony that we claim the foregoing improvement in corn separators or shellers we have hereunto set our hands this 17th day of July, A. D. 1878.

EPHRAIM HERRIOTT.
GEORGE S. SMITH.

Witnesses:
STEPHEN ADAMS,
C. H. KIGHTLING.