3 Sheets—Sheet 1

L. V. SOUTHWORTH.

Clover Thrasher and Huller.

No. 208,210. **Patented Sept. 17, 1878.**

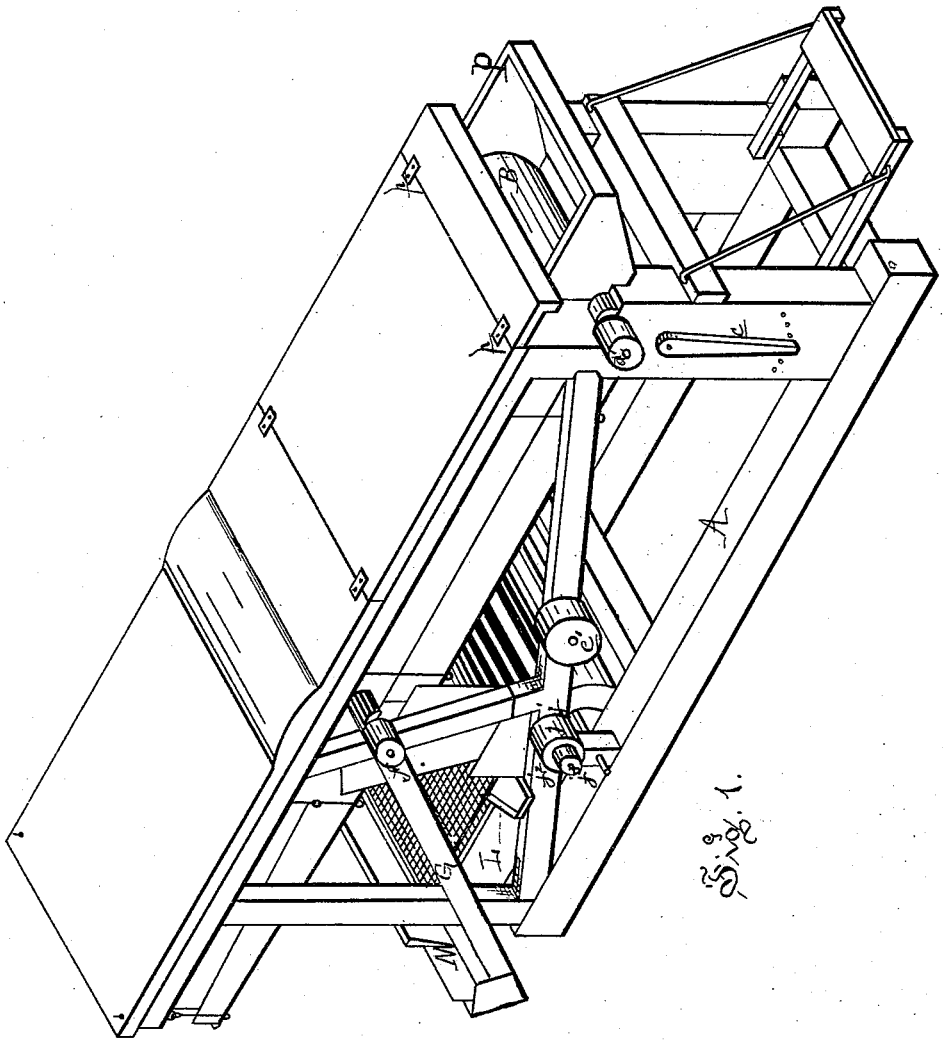

Fig. 1.

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Phil. S. Sprague

3 Sheets—Sheet 2

L. V. SOUTHWORTH.

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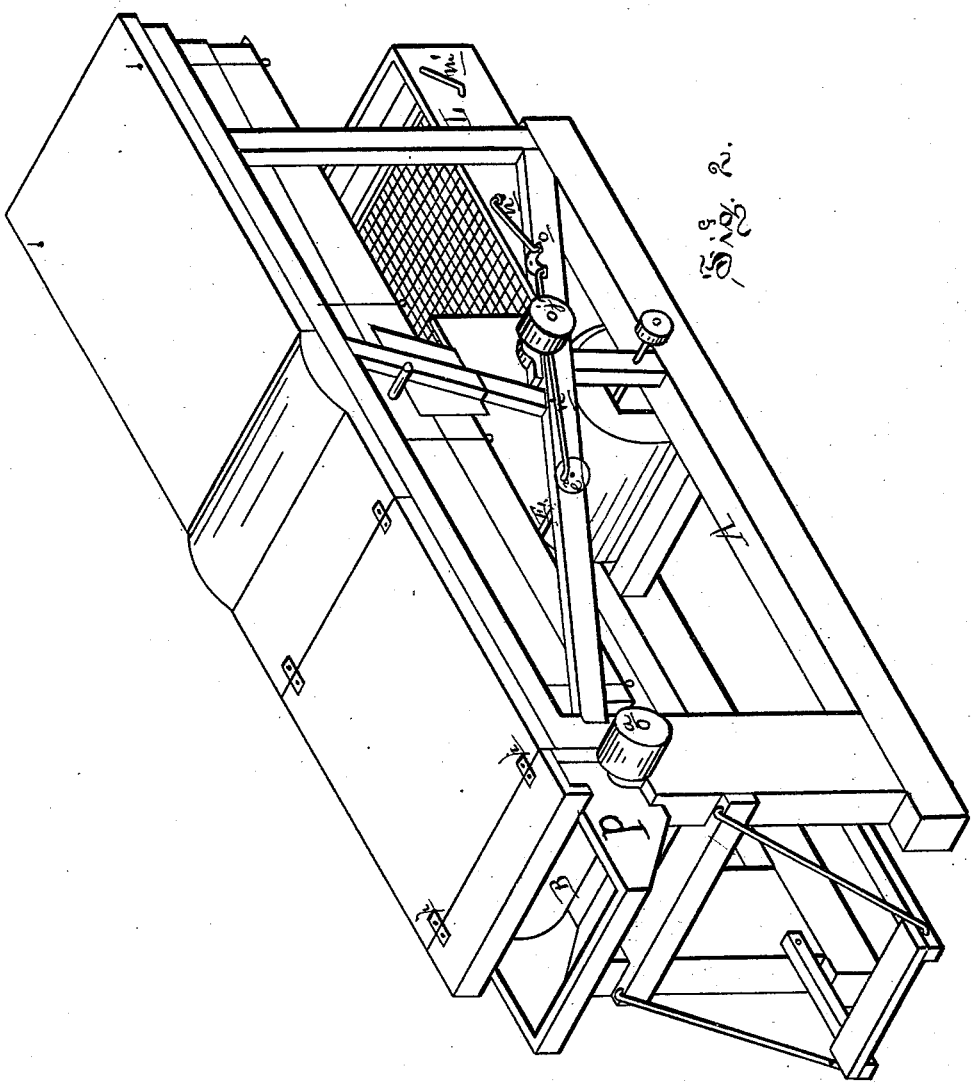

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3 Sheets—Sheet 3

L. V. SOUTHWORTH.

Clover Thrasher and Huller.

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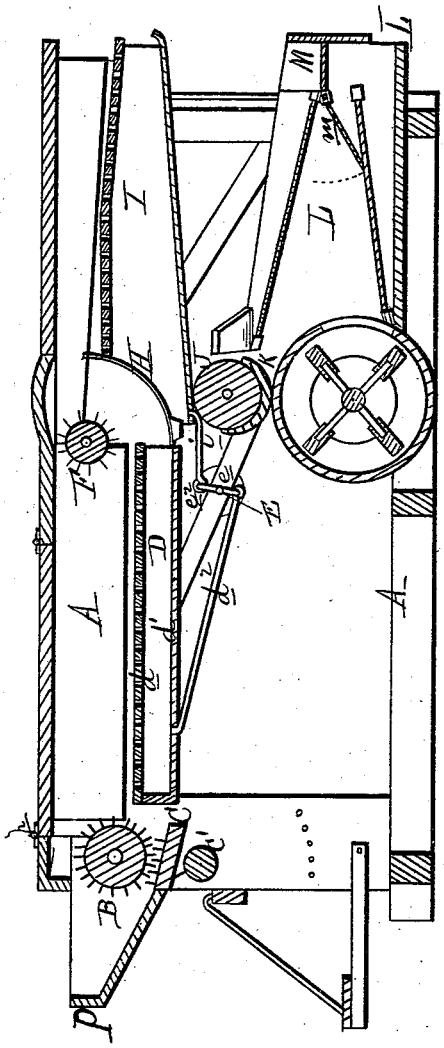

Fig. 3.

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UNITED STATES PATENT OFFICE.

LYMAN V. SOUTHWORTH, OF NEWPORT, MICHIGAN.

IMPROVEMENT IN CLOVER THRASHER AND HULLER.

Specification forming part of Letters Patent No. **208,210**, dated September 17, 1878; application filed December 8, 1877.

To all whom it may concern:

Be it known that I, LYMAN V. SOUTHWORTH, of Newport, in the county of Monroe and State of Michigan, have invented a new and useful Improvement in Clover-Hullers; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, and being a part of this specification.

The nature of this invention relates to an improvement in the construction of clover-hulling machines; and the invention consists in the combination and arrangement of the picker, shaking screens with solid bottoms, and the concave, as fully hereinafter explained.

Figure 1, Sheet 1, is a perspective from one side of my machine, showing arrangement of carrier and means of operating the adjustable picker-board. Fig. 2, Sheet 2, is a perspective from the opposite side of the machine. Fig. 3, Sheet 3, is a longitudinal section through the center.

In the drawings, A represents the frame of my improved clover-hulling machine, at one end of which is journaled a spiked cylinder, B, which is driven by a pulley, *a*, on one end of its shaft. On the other end of the shaft is another pulley, *a'*. Beneath the cylinder B is located an adjustable spiked concave, C, pivoted at its lower inner corners to the frame-standards. The concave C is raised or lowered by means of the eccentric-shaft C', which is journaled just below it, and operated from the outside by a crank, *c*, which is held in position by any convenient means.

Immediately in the rear of the cylinder B is suspended the perforated shaker D, consisting of a screen, *d*, and the solid floor d^1, inclosed by proper sides.

To the bottom of the shaker D is attached the rod d^2, which is connected with the double-crank shaft E, journaled at *e*, in the frame A. This shaft E has upon one end a pulley, e^1, and on the other a crank, e^2.

At the rear end, and above the shaker D, is journaled the cylindrical picker F, one end of the shaft of which passes through the upper end of a conveyer, G, and has upon its outer end, beyond the conveyer, a pulley, *f*. In the rear of this picker F is located the concave screen H, which extends under the picker, from below the screws on the shaker D, nearly to the top of the frame. In the rear of this concave screen is suspended the shaker I, constructed in the same manner as the shaker D, but having its bottom inclined forward toward the hulling-cylinder J, and actuated by the shaker-rod *i*, one end of which is connected to the crank-shaft E and the other to the floor of the shaker I.

The hulling-cylinder J is journaled in the frame A at *j*, and has upon one end of its shaft the driving-pulley j^1, and at the other end has a large pulley, j^2, and outside of that a smaller pulley, j^3.

Beneath the hulling-cylinder, and almost in contact with it, is placed the rasp concave K. In the rear of the hulling-cylinder is suspended the shoe L of the fanning-mill, provided with suitable screen and an inclined bottom. At the end of the shoe is the spout M, which empties into the lower end of the conveyer G, which is provided with a proper belt and cups for raising such particles as may fall into it. The shoe L is provided with a regulator, *m*, which is pivoted through the sides of said shoe at its rear end, beneath the upper screen, and in front of the trough, and is controlled by the crank *m'*.

To the side of the screen M is attached, by means of a staple, the rod *n*, which engages with a bell-crank, *o*, pivoted to the frame A. To the other end of the bell-crank is attached the rod *n'*, which engages with the crank on the end of the double-crank shaft E. In front of the shoe M is located a fan, which is driven by a pulley on the outer end of its shaft.

In front of the cylinder B is the hopper P, which is hinged to the frame A at *p*, so that it can be folded back, exposing the cylinder and concave board.

In operation, the clover to be thrashed is fed in between the cylinder B and concave C, by the teeth of which it is thrashed; thence it all passes onto the shaker D, and the clover-seed falls down through the screen and is conveyed to the hulling-cylinder. The straw then passes under the picker, which picks it and passes it over the concave screen H upon the shaker I, where the balance of the seed falls through the screen into the shaker-floor, and

is conveyed to the hulling-cylinder, while the straw passes on out of the machine.

The seed from the two shakers passing through the hulling-cylinder, the hulls are rubbed off of the seed, and the seed and chaff are thrown upon the screen of the fanning-mill, from whence the chaff is blown out, while clean seed falls through the screens onto the bottom of the shoe of the fanning mill, and from thence passes down into any proper receptacle.

The seed which passes the hulling-cylinder without being hulled passes over the screens and falls into the trough M, from whence it passes into the elevator G, which carries up and delivers it through a spout to the hulling-cylinder.

What I claim as my invention is—

In a clover-hulling machine, the combination of the picker F, situated near the center of the same, the independently-shaking frames D and I arranged one on each side of and below the picker, and provided with solid bottoms, and the concave H, all constructed and arranged substantially as described and shown.

In testimony that I claim the above as my invention I hereunto subscribe my name in presence of two witnesses.

LYMAN V. SOUTHWORTH.

Witnesses:
H. S. SPRAGUE,
CHAS. THURMAN.