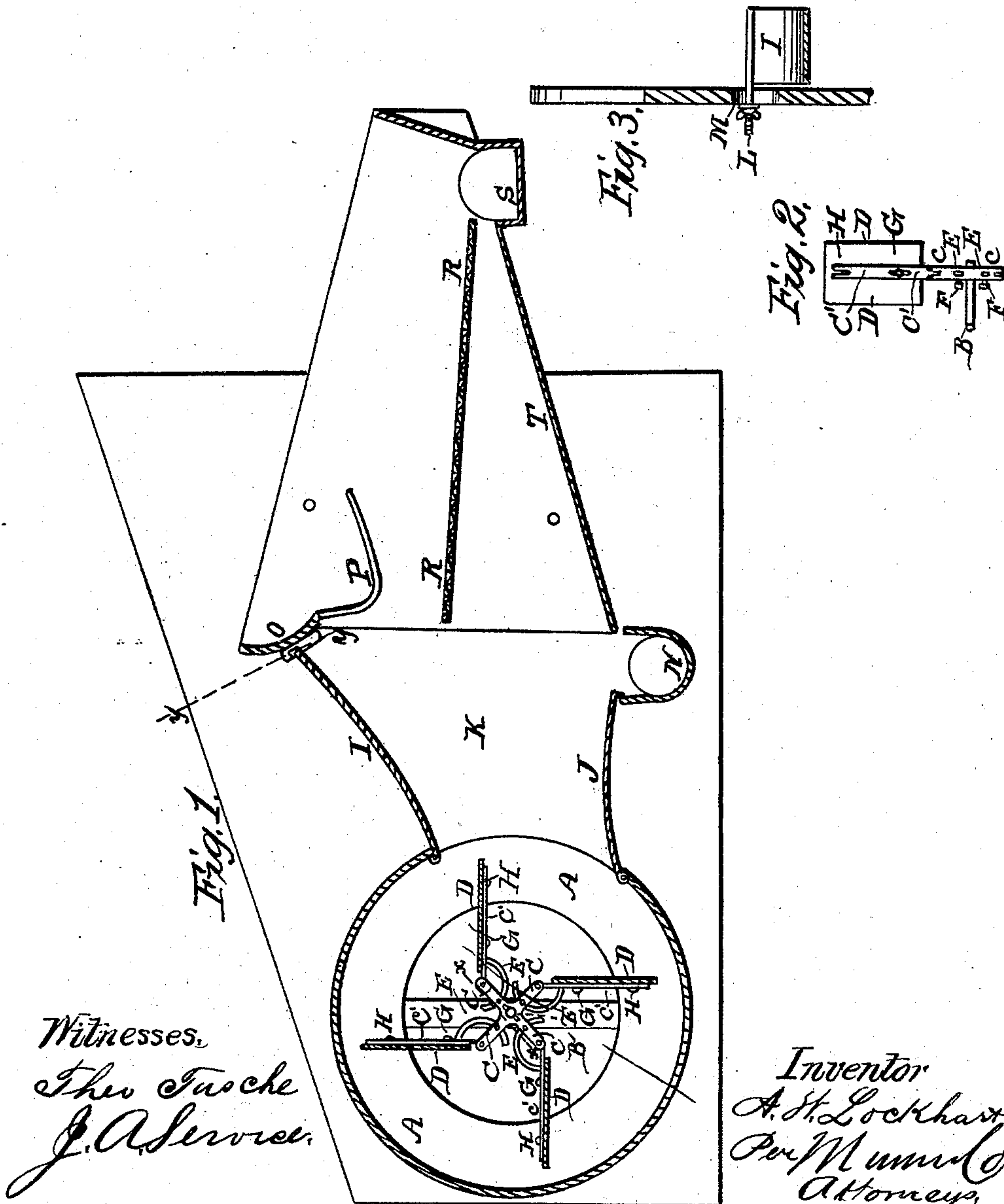


A. W. LOCKHART.

Grain Winnower.

No. 66,859.

Patented July 16, 1867.



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# United States Patent Office.

A. W. LOCKHART, OF SACRAMENTO, CALIFORNIA.

*Letters Patent No. 66,859, dated July 16, 1867.*

## IMPROVEMENT IN GRAIN-SEPARATOR.

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

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, A. W. LOCKHART, of Sacramento, in the county of Sacramento, and State of California, have invented a new and useful Improvement in Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a detail sectional view of my improved grain-separator, illustrating my invention.

Figure 2 is a detail sectional view of the same, taken through the line *x x*, fig. 1.

Figure 3 is a detail sectional view of the same, taken through the line *y y*, fig. 1.

Similar letters of reference indicate like parts.

In grain-separators as usually constructed, the blast is delivered against the top boards of the blast-chamber, thence the main current follows along the line of the said top boards to the upper part of the shoe, where it strikes the falling grain. This rendered it necessary to have wind-boards to divide the blast and throw a portion of it lower in the shoe. The result is that some portions of the space have little or no wind, while at other points the blast is so strong as to carry the grain away with the chaff.

My invention has for its object to remedy this faulty construction, and to furnish a separator in which the blast shall be delivered more evenly throughout the shoe, and with better effect. And it consists, first, in the adjustable hinged fan-boards or wings, and in the manner of attaching them to the supporting arms; and, second, in the curved blast-boards, in combination with the shoe and air and blast-chambers.

A is the air-chamber, in which the fans are placed. B is the fan-shaft, which revolves in bearings in the frame of the machine, and which may be driven by hand or other power, in the ordinary manner. C C' are the arms, to which the fan-boards D are attached. The arms C C' are jointed at a little distance from the shaft B. The end of the part C is securely attached to the said shaft, and to the other or movable part C' the fan-boards D are adjustably attached in the manner hereinafter described. To the movable part C' is attached one end of the curved arms E, the free ends of which pass through holes or slots in the stationary parts C, and are secured in place by the set-screws F, holding the two parts C and C' at any desired angle to each other. The fan-boards D are secured in place upon the arms C' by the screws G, which pass through slots in the said arms C', as shown in fig. 2, and screw into the said boards D. H are guide-pins, attached to the boards D, and which enter slots in the ends of the arms C', so as to prevent the said boards from getting out of their proper relative positions upon the said arms. This mode of attaching the fan-boards D enables them to be adjusted to give a stronger or weaker blast, as may be required, or so as to deliver the blast at the upper part of the shoe, or to distribute it evenly, throughout the entire space of the shoe, according to the requirements of the work to be done. I and J are the curved blast-boards that form the upper and lower walls of the blast-chamber K. The ends of these boards are pivoted to the sides of the blast-chamber K, at the points where they meet the walls of the air-chamber A, so that their positions may be adjusted to direct and guide the blast as desired. To the free end of the curved board I is attached a screw, L, which projects through a slot in the side wall of the blast-chamber K. M is a thumb-nut, which screws upon the end of the screw L, and holds the board I in any desired position. The free end of the board J may rest upon the edge of the spout N, and it may be made adjustable in the same manner as the board I, or in any other convenient manner. The grain enters the shoe from the curved board O, and falls through the rake-teeth or fingers P to the screens or sieves R. The teeth P retain the straw and carry it back beyond the falling grain so that it may be blown out of the shoe by the blast. The screens R are set inclined towards the rear of the shoe, as shown in fig. 1. And in making said screens the frames are placed beneath the wire cloth or netting to facilitate the passage of whatever is unable to pass through the screen to the discharge-spout S. Whatever passes through the screens passes down the inclined board T, and passes out through the spout N, in the ordinary manner. It will be observed that the vertical space through which the grain falls while being acted upon by the blast, and before reaching the screens, is much greater in this machine than in ordinary grain-separators, enabling the most of the cleaning to be done before the grain reaches the screens, while it is subjected to the blast while passing through the screens, the same as in other separators. This construction of the shoe, in connection with the



peculiar construction of the fans and blast-boards, enables this machine, with the same power and in the same time, to clean a much greater amount of grain than can be cleaned with the ordinary separators.

This separator is designed to be used in connection with a harvester, threshing machine, or separately, as may be desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Adjustably attaching the fans to the fan-shaft, so that they may be set at any desired angle, substantially as herein shown and described.
2. The combination of the fan-boards D, jointed arms C C', and curved arms E, or equivalent, with each other, and with the fan-shaft B, substantially as herein shown and described.
3. The combination of the curved adjustable blast-boards I and J with the air-chamber A, blast-chamber K, and with the shoe of the machine, substantially as herein shown and described and for the purpose set forth.

A. W. LOCKHART.

Witnesses:

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