S. F. LEFLER.

Grain Separator.

No. 42,205. Patented April 5, 1864.

Fig. 2,

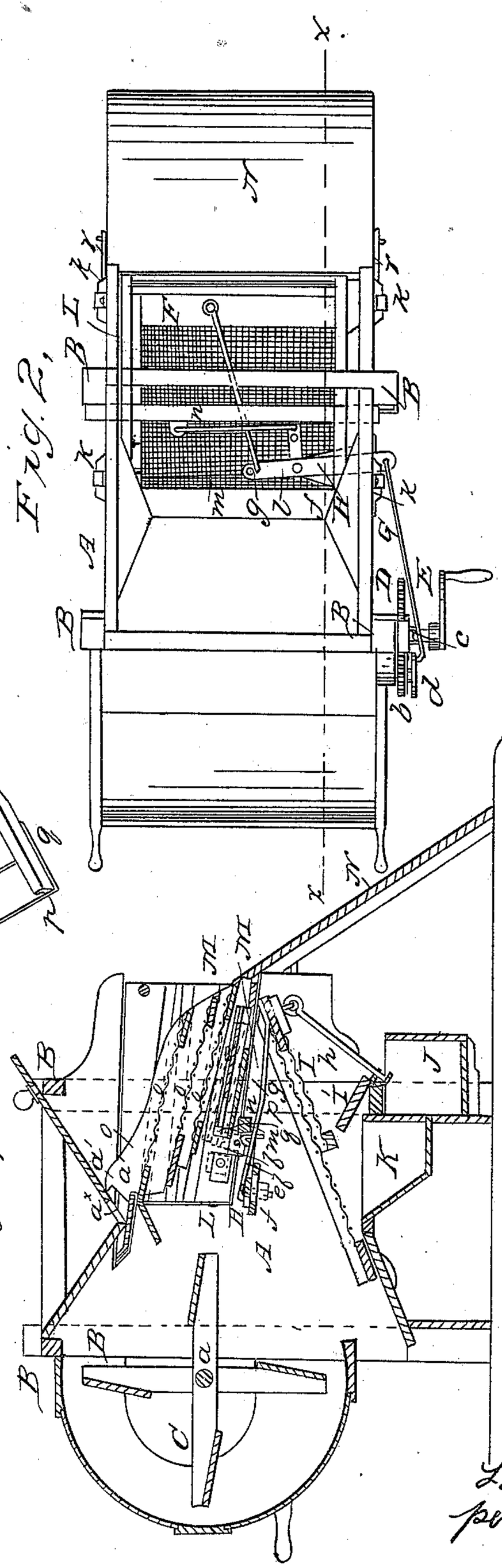

Fig. 3,

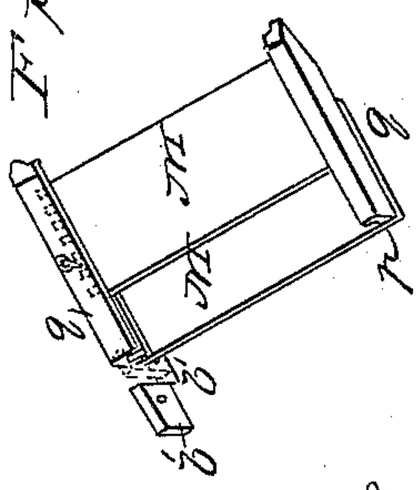

Fig. 4,

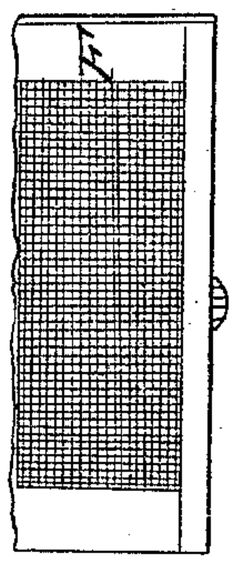

Fig. 1,

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UNITED STATES PATENT OFFICE.

SILAS F. LEFLER, OF RACINE, WISCONSIN.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **42,205**, dated April 5, 1864.

To all whom it may concern:

Be it known that I, S. F. LEFLER, of Racine, in the county of Racine and State of Wisconsin, have invented a new and Improved Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan or top view of the same with the screens in the shoe removed; Fig. 3, a detached plan view of a portion of a screen pertaining to the same.

Similar letters of reference indicate corresponding parts in the three figures.

This invention relates to a new and improved grain-separator, designed for the use of farmers, and to separate oats and grass-seed from wheat, and also to separate the first from the second quality of wheat, all being effected at one and the same operation and by an extremely simple arrangement of means.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the case of the machine, which is fitted within a suitable framing, B, arranged in the usual or in any proper way, one end of the case A being of semi-cylindrical form, to constitute a fan-case, in which a fan, C, is placed, the shaft *a* of which has a pinion, *b*, at one end, into which a spur-wheel, D, gears, to the shaft *c* of which the crank E is attached. (See Fig. 2.)

F is a screen, which is placed in an inclined position in the case A, and is operated from the fan shaft *a* as follows: On the shaft *a* there is placed a crank-pulley, *d*, to which a connecting-rod, G, is attached, said rod being connected to a lever, H, the fulcrum-pin *e* of which passes through a horizontal arm, *f*, at the inner side of the case, as shown in Fig. 2. The inner end of the lever H is connected by a rod, *g*, with the rear end of the screen F, a little at one side of its center, and the screen is retained in proper position by an inclined rod, *h*, the upper end of which is also attached to the rear end of the screen B, directly underneath the rod *g*, the lower end of the rod, *h*, being fitted loosely in a socket, *i*, attached to the framing B. (See Fig. 1.)

To each side of the screen F, at about its center, there is attached a horizontal segment projection, *j*, which bears against the inner surfaces of the sides of the case A. One of these projections is shown clearly in Fig. 3. By this arrangement of means for operating the screen F the latter has a longitudinal reciprocating movement given it, and also a lateral vibrating movement from the projections *j j* as centers, said projections operating as rockers for the screen, and the latter also has a slight up-and-down movement given it. These movements effectually prevent the screen from becoming choked or clogged, and render its operation far more efficient than it otherwise would be.

Directly under the front part of the screen F—that is to say, its elevated end—there is a grass-seed screen, I, which is attached to the screen F, and below the screen I there is a box, J, which is attached to the framing B.

K is a box, which is secured in the case A underneath the lower or back part of the screen F. (See Fig. 1.)

L is a shoe, which is suspended within the case A by bars *k*, as usual. This shoe has a shake motion given it from an arm, *l*, attached to lever H, and a connecting-rod, *m*, which is attached to the arm, *l*, and a cross-bar, *n*, at the bottom of the shoe, as shown clearly in Fig. 2. Within the shoe L there are placed a series of riddles, *o o o*, all of which are shown in Fig. 1, and in the lower part of the shoe, underneath the riddles *o*, there are placed two boards or slides, M M′. These boards or slides are placed one above the other, the upper slide, M, having its ends fitted in grooves *p*, made in cleats *q*, which are secured to the ends of the board M′, as will be understood by referring to Fig. 3. The upper board, M, by this arrangement is rendered capable of being adjusted farther forward or backward above the board M′, and a space is allowed between the two boards to admit of grain passing between them upon the lower board, M′, from whence it falls upon the screen F.

N is an inclined board, which is attached by hooks *r* or other suitable fastening to the case A. This board has its upper end just at the outer edge of the lower riddle *o*, in the shoe L. This board N receives the oats and foul seed, which are discharged from the lower screen *o*, and conveys them from the

machine at such a distance from it as to prevent them from becoming mixed with the wheat and other substances discharged from the machine.

The boards M, M′, and N are important features of the invention, as they admit of the prime or first quality of wheat being separated from the second quality, and also admit of the best of the second quality being separated from the poorest. This is effected in consequence of the board M′ catching all the good wheat that passes through the screen *o* and carrying it to the extreme upper part of the screen F, so that the benefit of the whole surface of said screen is obtained. The board M catches the second quality of wheat and discharges it down behind the board N. The prime wheat, it will be understood, falls through the inner or more elevated part of the lower screen *o*, while the poorer quality will pass through its lower part and fall on board M, and by adjusting this board M a considerable distance back the very finest wheat will be separated from the other qualities. The grass-seed falls through the screen I upon an inclined board, I′, which conducts it into the box J, the prime wheat being discharged from the lower end of screen B, the cockle and other offal passing into box K. The inner end of the frame O, in which the riddles *o* are placed, has two notches, *a′*, made in it at each side, in order to give said screens a greater or less inclination, as may be desired, by placing either the upper or lower notches on the rest-board $a^{\times}$, (see Fig. 1,) and the inner end of the board M rests on buttons *b′*—one or two at each side of the shoe L—said buttons being allowed to turn so that they may be placed in horizontal or vertical positions, and said buttons are of oblong rectangular form, so that by thus adjusting them the inclination of the boards M M′ may be raised as circumstances may require.

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

1. The segment projections or rockers *j j*, attached to the sides of the screen F, in combination with the rods *g h* and lever H, the latter being operated by the connecting-rod G and crank-pulley *d* from the fan-shaft *a*, all arranged substantially as and for the purpose forth.

2. The inclined board N, applied to the case A, as and for the purpose herein specified.

3. The combination of the cleats *q q*, connecting board M and sliding board M′, constituting a movable frame, applied beneath the riddle *o*, in the manner and for the purposes described.

4. The adjustable buttons *b′*, secured within the shoe L, for the inner end of the board M′ to rest upon, for the purpose specified.

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