

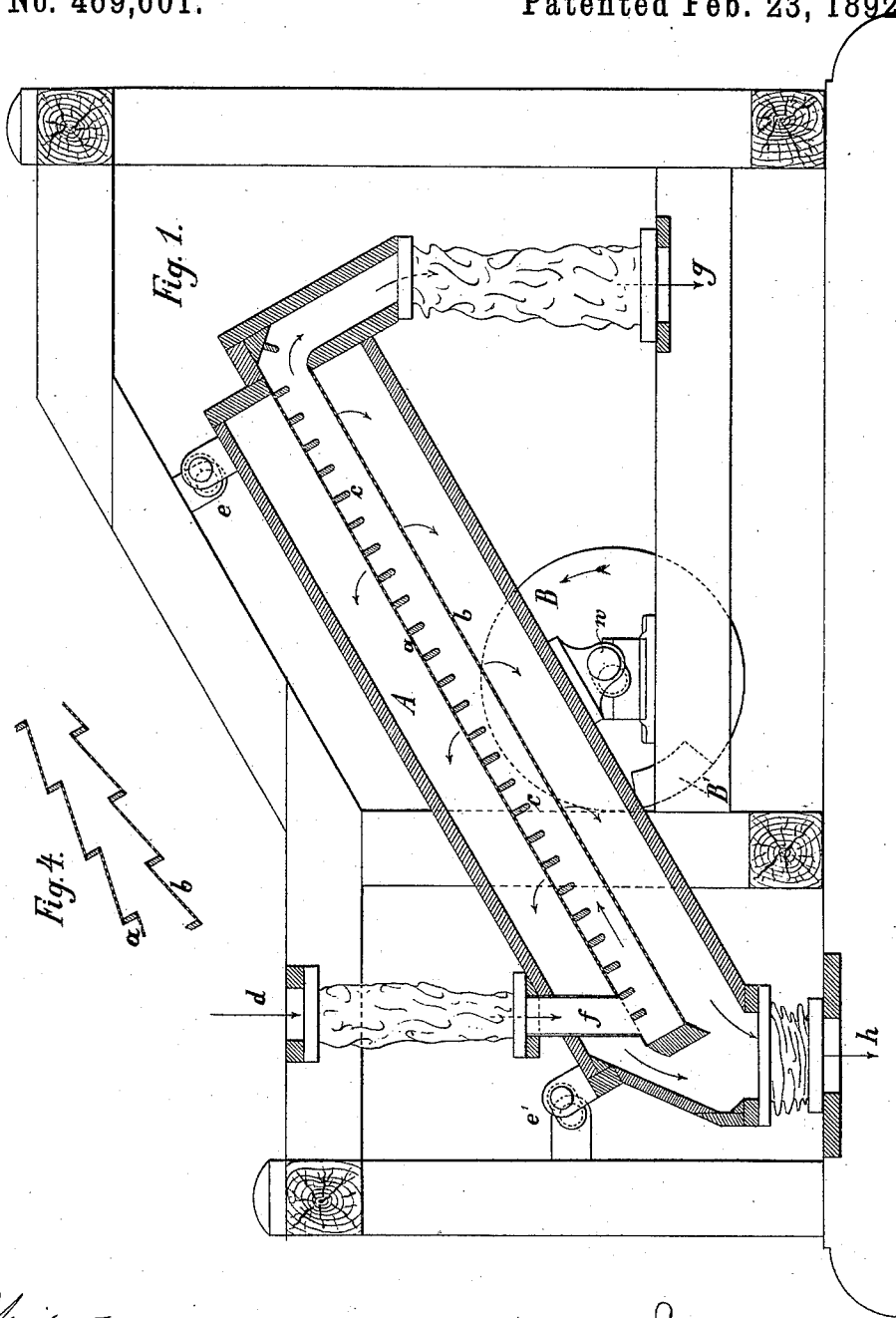
(No Model.)

3 Sheets—Sheet 1.

H. SECK.
SIFTING APPARATUS.

No. 469,601.

Patented Feb. 23, 1892.



Witnesses:
J. A. Rutherford.
J. H. Daly

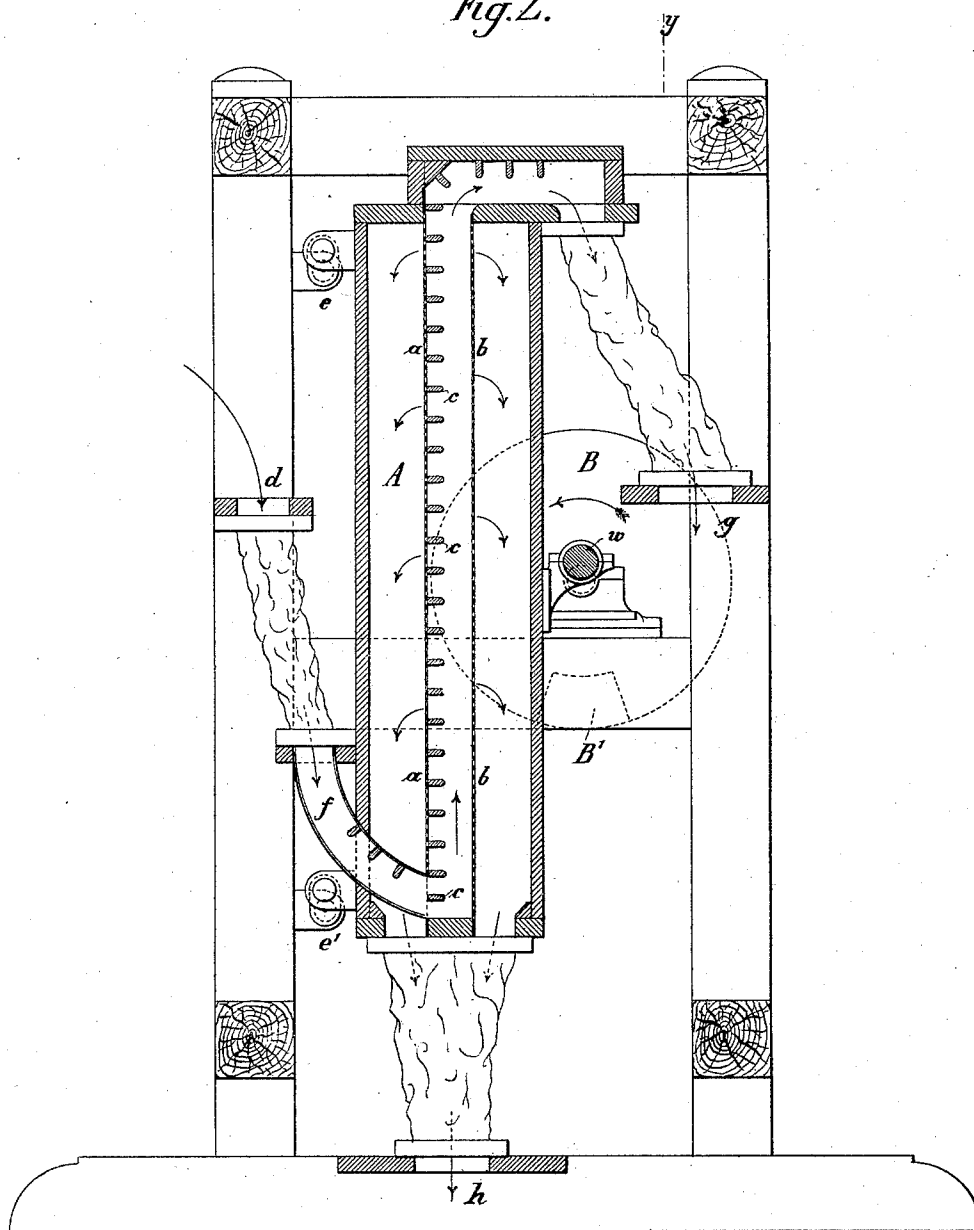
Inventor:
Heinrich Seck.
By James L. Norris.
Attorney

H. SECK.
SIFTING APPARATUS.

No. 469,601.

Patented Feb. 23, 1892.

Fig. 2.



Witnesses:-
J. A. Rutherford.
J. H. Daly.

Inventor:
Heinrich Seck
By James L. Norrie.
Attorney

(No Model.)

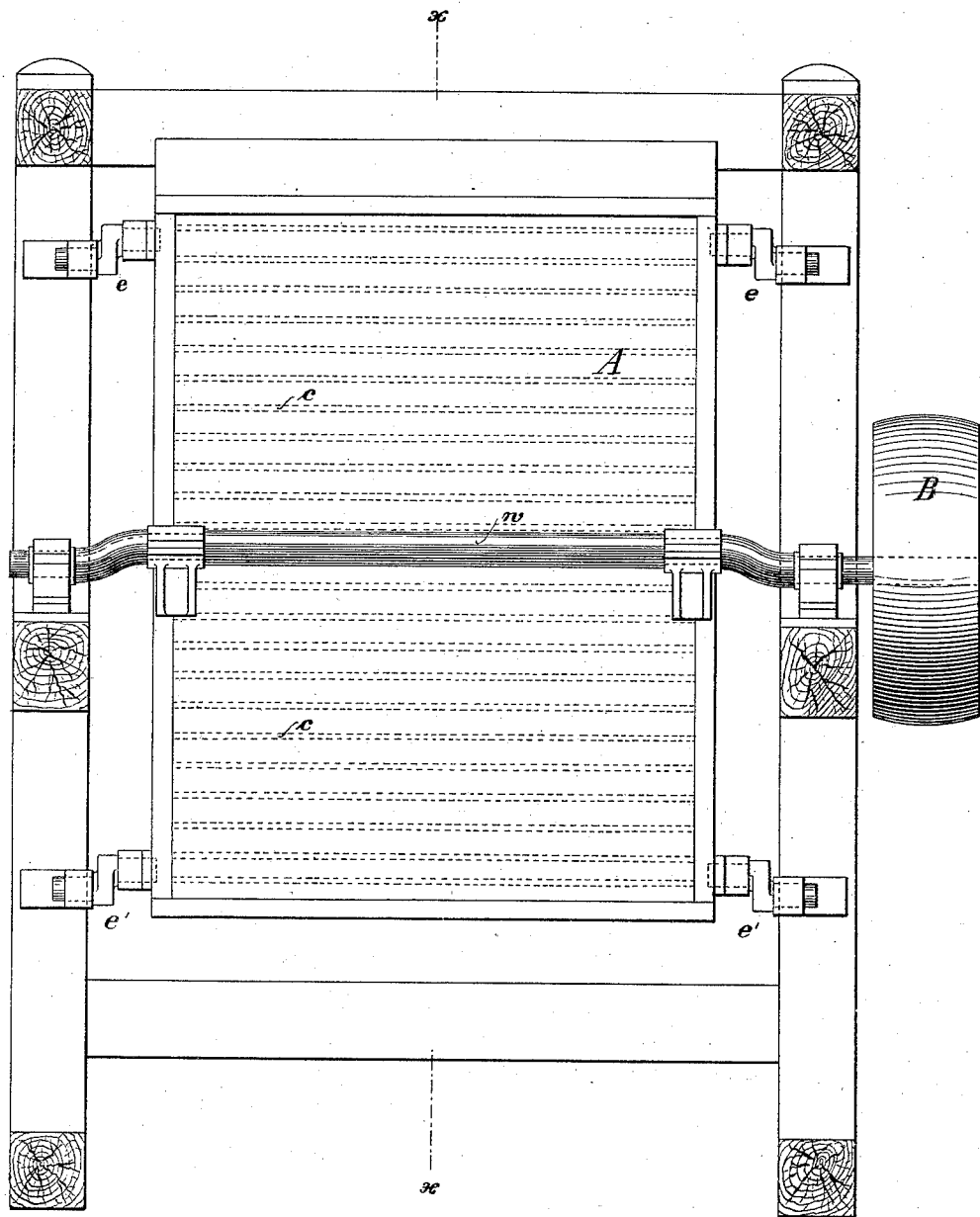
3 Sheets—Sheet 3.

H. SECK.
SIFTING APPARATUS.

No. 469,601.

Patented Feb. 23, 1892.

Fig. 3.



Witnesses:-
J. A. Rutherford.
J. H. Daly.

Inventor:
Heinrich Seck.
By James L. Norris.
Attorney

UNITED STATES PATENT OFFICE.

HEINRICH SECK, OF DRESDEN, GERMANY.

SIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 469,601, dated February 23, 1892.

Application filed March 30, 1891. Serial No. 386,993. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH SECK, of Dresden, in the Kingdom of Saxony and German Empire, have invented a certain new and useful Improvement in Sifting Apparatus, of which the following is a specification.

This invention relates to an improvement in sifting apparatus, more particularly of the kind employed for sifting flour, meal, and other pulverous substances; and the object of my said invention is to provide means for thoroughly agitating and shaking up such flour, meal, or other substance in being sifted, so as to bring every particle thereof into intimate and repeated contact with the sifting surfaces of the apparatus in passing through the latter.

My invention therefore consists in a sifting apparatus in which the flour, meal, or other substance to be sifted is by reason of the peculiar construction and manner of moving the said apparatus caused to pass with a positive movement between two sifting-surfaces or between a sifting-surface and a solid or impervious wall or surface in such a manner as to be in a vertical sense tangentially thrown against the sifting surface or surfaces of the apparatus by giving the opposite sifting-surfaces a line of movement corresponding to a succession of full circles or other curved lines and having a direction perpendicular or rectangular to the plane of the sifting surface or surfaces, by reason of which movement the flour, meal, or other substance moving in such circular or curved line or direction will at regular intervals be brought into contact with projections or ribs arranged at certain distances from each other on the inner side of one of the sifting-surfaces moved in such circular or curved line or direction.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical longitudinal section of a sifting apparatus embodying my invention and here shown as being arranged in an inclined position, the plane of section being on a line similar to the line *x x*, Fig. 3, in which figure substantially the same apparatus is shown arranged in a vertical instead of an inclined position. Fig. 2 is a vertical longitudinal section on the line *x x* of Fig. 3, showing a similar apparatus arranged in a vertical position. Fig. 3 is a ver-

tical section on the line *y y* of Fig. 2; and Fig. 4 is a detail showing a modified form of the sifting-surfaces.

w designates a crank-shaft having a driving-pulley B, provided with a counter-weight B' and journaled in suitable bearings on the frame. A designates a casing mounted loosely on the said crank-shaft and having crank-pins *e e'* likewise journaled in suitable bearings arranged on the frame. The said casing or sifting apparatus proper A is provided within with two parallel sifting-surfaces *a* and *b*, one of them *a* having a number of projections or ribs *c* directed inwardly.

d is an inlet-opening for admitting the flour, meal, or other substance to be sifted, which enters the casing A at *f*, and is introduced between the two sifting-surfaces *a* and *b* from below, the latter being, by reason of the motion transmitted to the casing A from the shaft *w* and pulley B, gyrated or swung in a circle, thereby causing the flour, meal, or other substance to be agitated between the said sifting-surfaces and thrown to and fro from one surface to the other and against the sifting-surfaces, and to be at the same time moved slowly toward the delivery end of the casing, although, by reason of the direction of movement of the gyrating casing in the arrangement, as shown in Fig. 1, it will be continually thrown back again in the direction toward the inlet end. It is by reason of just this direction of movement, however, that the desired result is obtained when the sifting-surfaces are arranged in an inclined or horizontal position, as the flour, meal, or other substance to be sifted would, if the casing were gyrated in the opposite direction, be thrown in a moment through the entire length of the space between the two surfaces without becoming thoroughly sifted in passing.

The letter *g* indicates an opening for receiving the unsifted residue escaping from the upper end of the apparatus, and *h* indicates a similar opening arranged below the bottom of the apparatus, into which opening the sifted material dropping down from the sifting surface or surfaces is discharged.

The manner in which the flour or other substance to be sifted is moved onward in passing between the sifting-surfaces may be briefly explained as follows: Supposing a cer-

tain quantity of flour had been introduced at *f* into the space between the walls *a* and *b*, now when the casing is moved in the direction of the arrow, or, in other words, when it at first moves in a downward direction the flour, by reason of inertia, will have a tendency to reoccupy its previous position—that is to say, it will move upward and adhere to the surface *b*. As the casing now continues its gyrating movement and thereby moves to the right, the substance to be sifted will be removed from the wall *b* to be caught by the projections or ribs *c* on the wall *a*, being, during the upward movement of the casing *A*, held on the said wall *a* and prevented from dropping down therefrom through the said projections or ribs *c*. It will then be carried upward with the casing, and during and in consequence of the subsequent movement of the latter to the left the said substance will again be thrown against the surface *b* to the right, striking the same, however, on a higher point thereof, where it will then again adhere, while the casing now again moves in a downward direction, and so on.

By reason of the speed and uniformity of the gyrating movement of the casing the flour, meal, or other substance therein will, in the direction of circles or regular curves, be thrown into the spaces between each two projections or ribs, which will then in turn throw the said substances to be sifted against the opposite sifting-surfaces *b*, thereby causing it to gradually move in an upward direction. It is evident that this movement will cause the said substances to become thoroughly agitated, and by being thus thrown against the sifting surface or surfaces with great force or impetus to be sifted in a much more effective manner than has been possible with the rocking sieves heretofore usually employed.

The action, as above described, may, in other words, be explained by saying that the speed imparted to the apparatus and in turn by the latter to the material to be sifted, is such as to cause the effect of the impulses thereby imparted to the material to overcome the effect of gravity.

Instead of having projections or ribs the sides may also be formed with a number of projecting angles and corresponding recesses, as shown in detail in Fig. 4; also, instead of one both surfaces may be provided with the said projections, ribs, angles, or recesses. Moreover, instead of both surfaces moving in the manner as described, one of them may remain stationary while the other is moved.

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

1. In a sifting apparatus having two sifting-surfaces arranged opposite each other, as described, one of them having transversely-arranged projections, as described, the combination, with the said sifting-surfaces, and a frame or casing having an inlet-opening at one end for the material to be sifted between

the surfaces, an outlet-opening at the other end for the unsifted residue, and an outlet for the sifted material, of means for imparting to at least one of the said sifting-surfaces a swinging movement corresponding to a succession of endless curved lines the planes of which will be rectangular to the said surfaces and the movement being so directed as to cause the material to be thrown against the surface having the projections in a direction toward the inlet end of the apparatus, substantially as and for the purpose set forth.

2. In a sifting-surface, the combination, with a casing having an inlet-opening for the material to be sifted, an outlet-opening for the unsifted residue, and an outlet for the sifted material, of two sifting-surfaces arranged opposite each other within the said casing, as described, and one of them provided with transversely-arranged projections, as described, and means for imparting to the said casing and to the sifting-surfaces a common swinging movement corresponding to a succession of endless curved lines, the planes of which will be rectangular to the said surfaces and the movement being so directed as to cause the material to be thrown against the surface having the projections in a direction toward the inlet end of the apparatus, substantially as and for the purpose set forth.

3. In a sifting apparatus having two surfaces arranged opposite each other, as described, one of which may be a sifting-surface and the other an impervious surface, and one of the said surfaces having transversely-arranged projections, as described, the combination, with the said surfaces, of a frame or casing having an inlet-opening at one end for the material to be sifted between the surfaces, an outlet-opening at the other end for the unsifted residue, and an outlet for the sifted material, of means for imparting to at least one of the said surfaces a swinging movement corresponding to a succession of endless curved lines, the planes of which will be rectangular to the said surfaces and the movement being so directed as to cause the material to be thrown against the surface having the projections in a direction toward the inlet end of the apparatus, substantially as and for the purpose set forth.

4. In a sifting apparatus, the combination, with a casing having an inlet-opening for the material to be sifted, an outlet-opening for the unsifted residue, and an outlet for the sifted material, of two surfaces arranged opposite each other within the said casing, as described, one of which may be a sifting-surface and the other an impervious surface and one of them provided with transversely-arranged projections, as described, and means for imparting to the said casing and to the surfaces a common swinging movement corresponding to a succession of endless curved lines, the planes of which will be rectangular to the said surfaces and the movement being so directed as to cause the material to be

thrown against the surface having the projections in a direction toward the inlet end of the apparatus, substantially as and for the purpose set forth.

- 5 5. In a sifting apparatus, the combination of a number of surfaces arranged parallel or substantially parallel to each other, the intermediate spaces between the surfaces being provided on one side with a number of trans-
10 versely-arranged projections, as described, and one or both sides being a sifting surface or surfaces, means for introducing into the said intermediate spaces at one end the material to be sifted and for discharging at the
15 other end the unsifted residue, one or more outlets for the sifted material, and means for

imparting to the said surfaces a common swinging movement corresponding to a succession of endless curved lines, the planes of which will be rectangular to the said surfaces 20 and the movement being so directed as to cause the material to be thrown against the surfaces having the projections in a direction toward the inlet end of the apparatus, substantially as and for the purpose set forth. 25

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HEINRICH SECK.

Witnesses:

PAUL DRUCKMÜLLER,
FRITZ DEITRICK.