

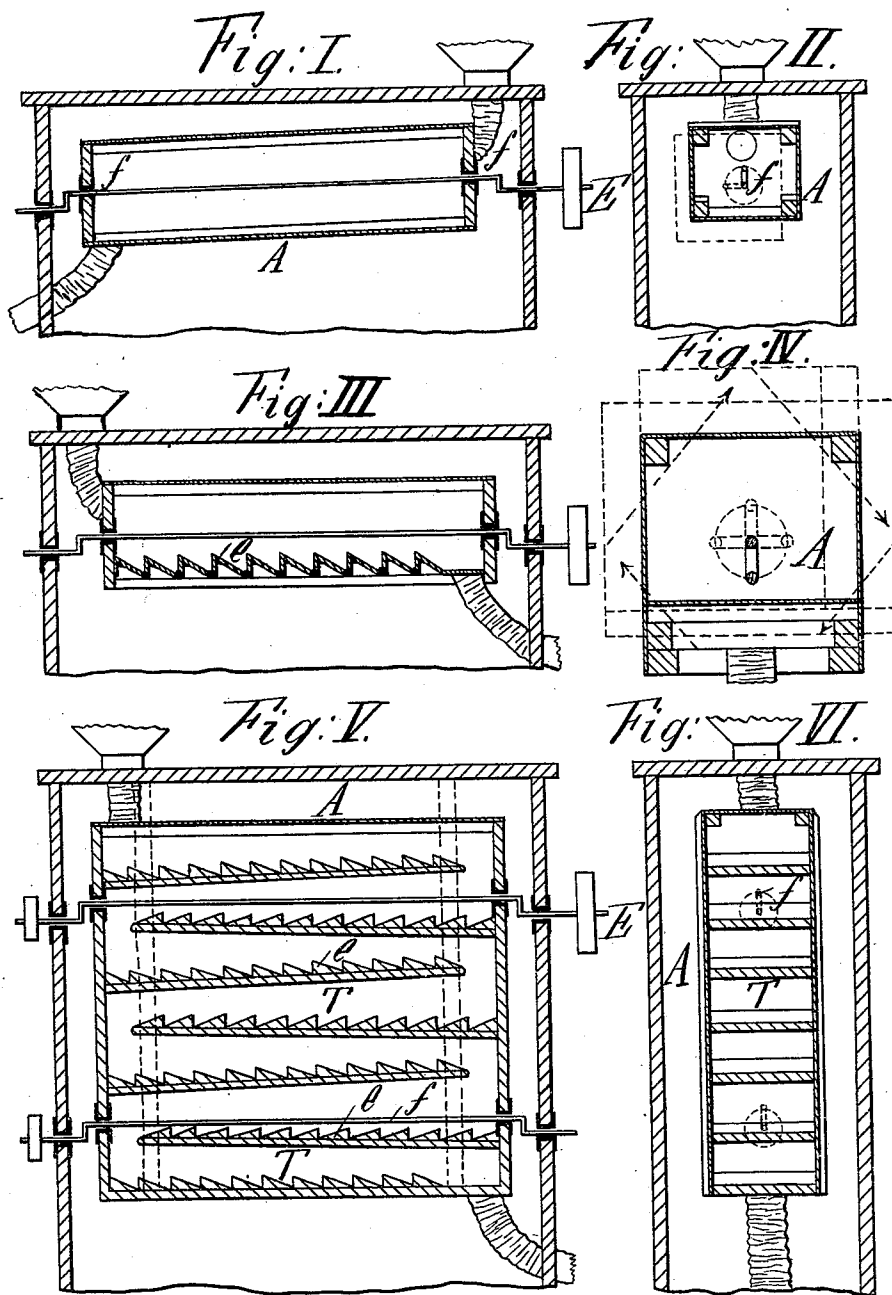
(No Model.)

2 Sheets—Sheet 1.

O. FUCHS.
SIFTING APPARATUS.

No. 542,884.

Patented July 16, 1895.



Witnesses:

G. W. Pea.

Robert Everett.

Inventor:

Otto Fuchs.

By James L. Norris.
Atty.

No Model.)

2 Sheets—Sheet 2.

O. FUCHS.
SIFTING APPARATUS.

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Fig: VII.

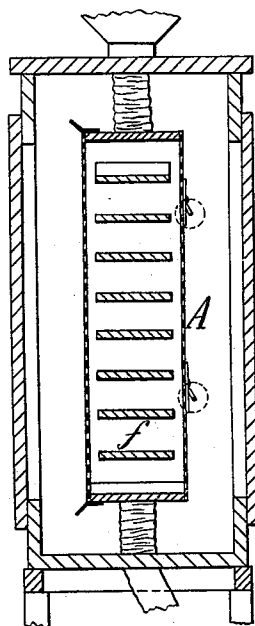
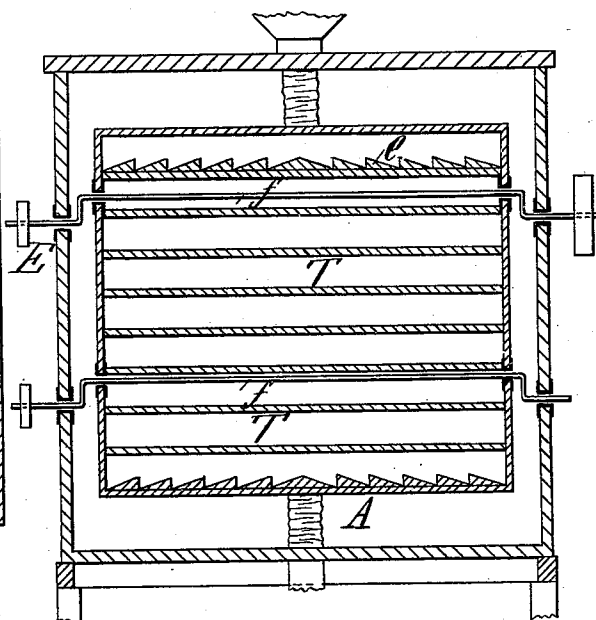


Fig: VIII.



Witnesses.

G. W. Rea.

Robert Emmett.

Inventor.

Otto Fuchs.

By James L. Norris.

Atty.

UNITED STATES PATENT OFFICE.

OTTO FUCHS, OF BUTTSTAEDT, GERMANY.

SIFTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 542,884, dated July 16, 1895.

Application filed June 20, 1894. Serial No. 515,087. (No model.) Patented in Germany November 28, 1892, No. 74,950; in Switzerland May 14, 1894, No. 8,478; in Luxemburg May 15, 1894, No. 2,028; in England May 17, 1894, No. 9,703; in Belgium May 17, 1894, No. 110,010; in Norway May 19, 1894, No. 3,825; in Italy May 28, 1894, No. 36,469; in Portugal May 30, 1894, No. 1,904; in Spain June 1, 1894, No. 15,899; in Canada June 26, 1894, No. 46,929; in Hungary September 12, 1894, No. 1,100, and in Austria October 11, 1894, No. 44/5,411.

To all whom it may concern:

Be it known that I, OTTO FUCHS, a subject of the Grand Duke of Saxe-Weimar, residing at Buttstaedt, in the Grand Duchy of Saxe-Weimar, German Empire, have invented new and useful Improvements in Sifting Apparatus, (for which I have obtained Letters Patent in Germany, No. 74,950, dated November 28, 1892; in Austria, No. 44/5,411, dated October 11, 1894; in Hungary, No. 1,100, dated September 12, 1894; in England, No. 9,703, dated May 17, 1894; in Belgium, No. 110,010, dated May 17, 1894; in Luxemburg, No. 2,028, dated May 15, 1894; in Italy, No. 36,469, dated May 28, 1894; in Spain, No. 15,899, dated June 1, 1894; in Portugal, No. 1,904, dated May 30, 1894; in Norway, No. 3,825, dated May 19, 1894; in Canada, No. 46,929, dated June 26, 1894, and in Switzerland, No. 8,478, dated May 14, 1894,) of which the following is a specification.

My invention relates to a sifting apparatus whereby the material to be sifted is sifted by the sifting device being caused to oscillate rapidly in a vertical direction, so that the particles (of the material under treatment) situated inside the sifting-cylinder are caused by the action of the centrifugal force produced to arrange themselves according to their specific gravities, the lighter particles collected more toward the center of the sifting device and the heavier particles being driven toward the gauze-covered inner wall of the sifting device; also, the cleansing of the sifting-gauze is effected simultaneously with the sifting by means of sudden puffs of air. These puffs of air are produced by the sifting device being arranged inside an hermetically-closed vessel, which almost touches the sifting device in the oscillatory movement of the latter, and also by a rapid motion being imparted to said sifting device. The amount of air contained in the box inclosing the sifting device is thereby suddenly compressed on one side in such a manner as to act as a puff or by impact upon the sifting device and the gauze covering of the latter. This action has the effect of dividing or scattering asunder the heavier particles by means of the sudden current of air, which

result is of great advantage in the case of very adhesive flour, while powerful currents of air are caused to pass through the sifting device.

The sifting apparatus, according to the present invention, is designed to serve for sifting glutinous material.

The said apparatus is illustrated in various forms of construction in the accompanying drawings, in which—

Figure I is a longitudinal section, and Fig. II a cross-section of a sifting apparatus in accordance with the present invention, in which the sifting device is fixed on an inclined axle and is caused by an arrangement of cranks on said axle to oscillate rapidly. Fig. III illustrates a modification of the arrangement shown in Fig. I, in which the sifting device is provided internally with stop-ribs *e* for the purpose of rendering the sifting action more effective. Fig. IV illustrates the action of the sifting device. Figs. V and VI illustrate a sifting device with a number of superposed floors in contact with the gauze-covered side walls. Figs. VII and VIII are respectively a cross-section and a longitudinal section of an arrangement in which the floors are not in contact with the gauze sides.

The arrangement of the sifting apparatus is as follows: The sifting device *A* is preferably made in the shape of a rectangular box, which is caused to oscillate rapidly in a vertical plane by means of a crank-shaft *f* connected to the driving-shaft *E*, carried in bearings in the casing. The sifting device is inclosed on all sides by the air-tight casing of the sifting apparatus. On the shaft *E* being rotated rapidly the sifting device *A* describes a path and assumes positions such as are shown in Fig. IV. The sifting device does not rotate about its axis. While oscillating the sifting device is in its various positions, and in consequence of the velocity of the oscillatory motion suddenly brought near to the side walls or to the end wall. The air contained in the sifting-box on one side or at the end thereof is in consequence of the great velocity of the movement of the sifting device unable to move out of the way of the sifting device,

and is therefore compressed by the movement of the latter and thereby exerts a sudden powerful impulse or puff upon the covering of the sifting device, so that the heavy particles of the material being sifted which have been
5 caused by centrifugal action to press against the gauze covering are forced away from the covering, and in this manner the sifting-covering is cleansed. The impulse or puff of air
10 also acts through the purified gauze covering (nearest to the wall) of the sifting device, and thus exerts a pressure upon the material to be sifted which is adhering to the wall that is situated opposite and is not exposed to
15 the current of air. This material is driven through the meshes of the gauze covering, and is thereby divided and thus very uniformly sifted. The intensity of the impact of the air is regulated by varying the velocity of the oscillatory movement according to experience.
20 In order to cause the material to be sifted to describe a path of the greatest possible length, walls or partitions and sides or ends T, provided with stop-ribs e, may be arranged in the
25 sifting-vessel. These also prevent the material from moving back. The ends or sides T need not extend up to the gauze-covered walls of the sifting device, as shown in Figs. V and

VI, but may, as shown in Figs. VII and VIII, stop short of and out of contact with the side
30 walls. The sifting-vessels may be coupled together in any number, one above the other, in order to have an approximately constant consumption of power.

What I claim as my invention, and desire
35 to secure by Letters Patent, is—

1. A sifting-apparatus comprising a gauze-inclosed box, a casing tightly inclosing said box, one or more shafts, having cranked portions on which said box is mounted, and means
40 for imparting continuous revolution to said shafts, substantially as described.

2. A sifting apparatus, comprising a gauze-inclosed box, a tightly closed casing within which said box is arranged, a plurality of
45 shafts having cranked portions on which said box is mounted, and means for revolving said shafts continuously and in unison, substantially as described.

In testimony whereof I have hereunto set
50 my hand in presence of two subscribing witnesses.

OTTO FUCHS.

Witnesses:

FANNIE MOORE,
WILK KAHNERT.