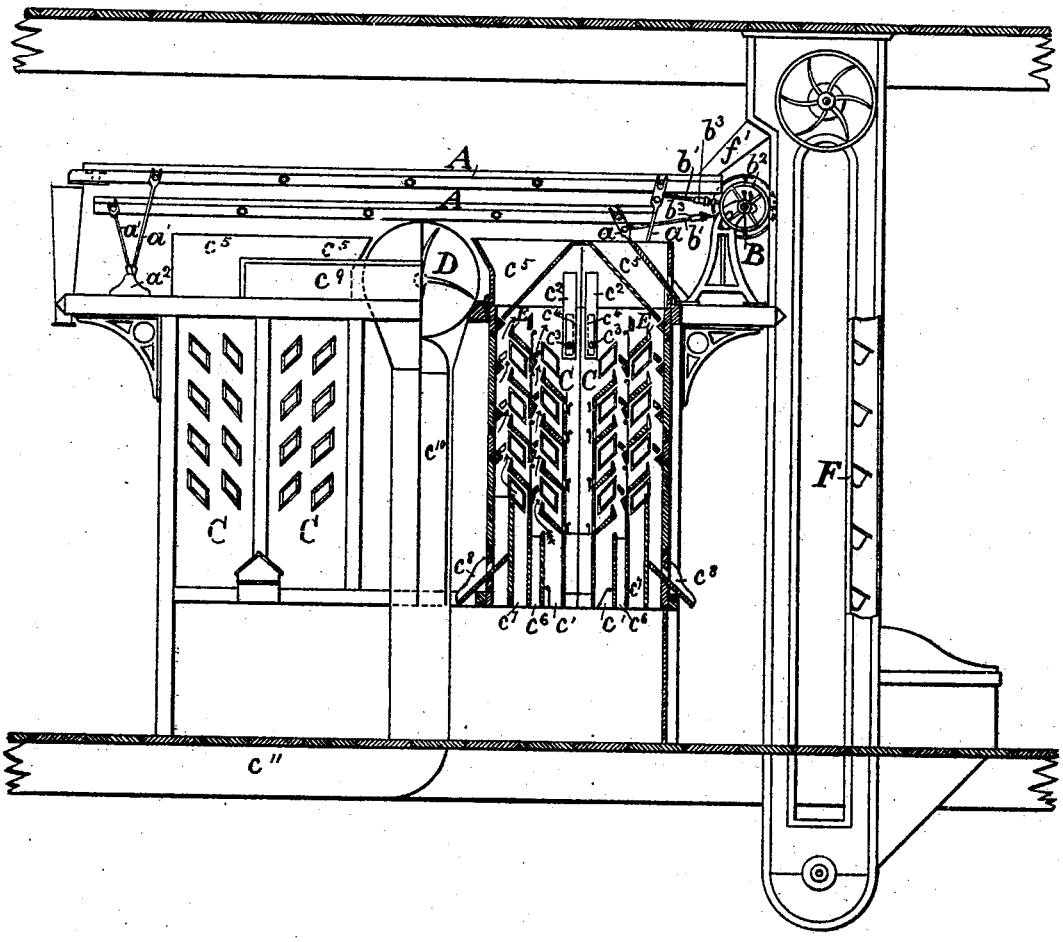
3 Sheets—Sheet 1.

# J. WÖERNER.

## Machines for Sorting and Cleaning Semolino, &c.

**No. 211,487.** **Patented Jan. 21, 1879.**

FIG 1




Witnesses
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Geo. Davis

Inventor
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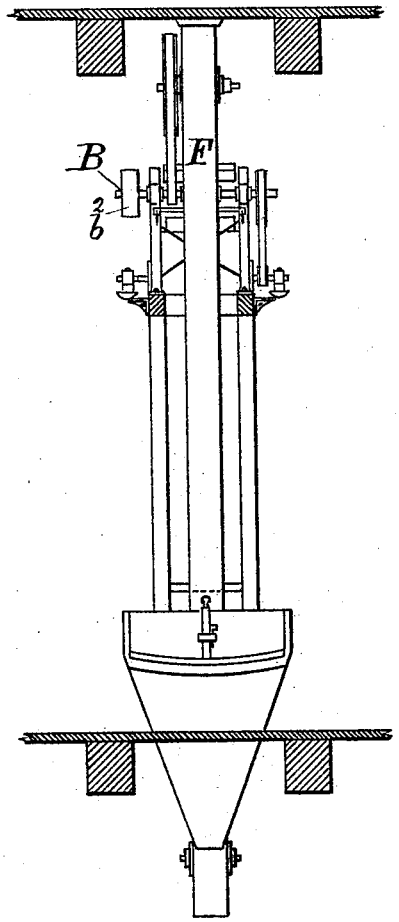
# J. WÖERNER.

## Machines for Sorting and Cleaning Semolino, &c.

No. 211,487. Patented Jan. 21, 1879.

FIG 2

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3 Sheets—Sheet 3.

# J. WÖERNER.

## Machines for Sorting and Cleaning Semolino, &c.

**No. 211,487.** **Patented Jan. 21, 1879.**

FIG. 3.

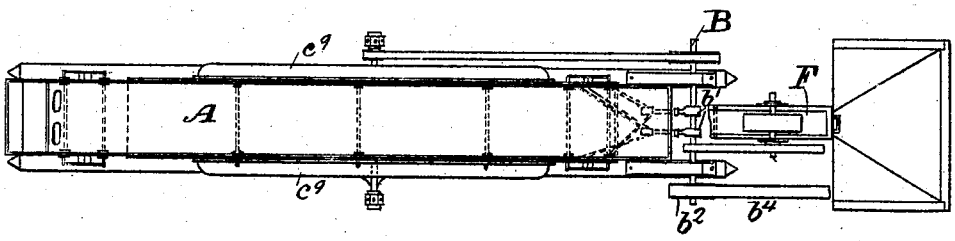



FIG. 6.

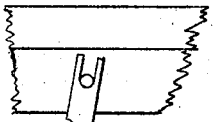


FIG. 4.

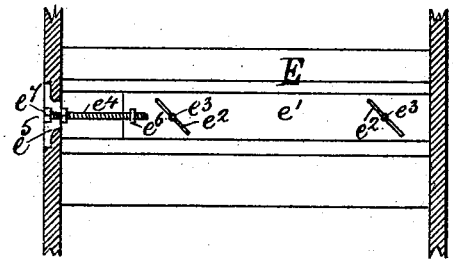
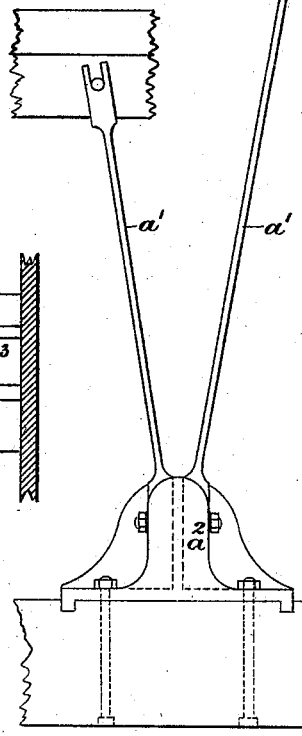
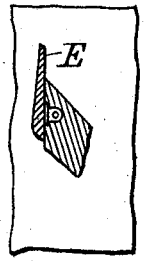



FIG. 5.




Witnesses
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# UNITED STATES PATENT OFFICE.

JACOB WOERNER, OF BUDAPEST, AUSTRIA, ASSIGNOR TO CARL HAGGENMACHER.

## IMPROVEMENT IN MACHINES FOR SORTING AND CLEANING SEMOLINO, &c.

Specification forming part of Letters Patent No. **211,487**, dated January 21, 1879; application filed July 3, 1878.

*To all whom it may concern:*

Be it known that I, JACOB WOERNER, of Budapest, in the Austro-Hungarian Empire, have invented new and useful Improvements in Machines for Sorting and Cleaning Semolino, Corn, and other seeds, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

My invention relates, principally, to a grain sorting and cleaning machine for which a United States patent, bearing date the 19th December, 1876, was granted to one Carl Haggenmacher. That machine consisted of a box or case divided into compartments by vertical partitions, the said compartments communicating with each other, and being furnished with inclined shelves, between which the grain descended as it was operated upon by air drawn or forced through the said machine by a fan.

My present invention consists, first, in combining several of such machines with one and the same fan, as hereinafter described, so as to form one combined machine, and thus save driving-power and space.

My invention consists, secondly, of the improvements, hereinafter described, in the mode of constructing, mounting, and actuating the sieves used in grain sorting and cleaning machines.

My invention consists, thirdly, of the improved arrangement, hereinafter described, for adjusting the "grit-dividers" used in grain sorting and cleaning machines.

I will describe my invention with reference to the accompanying drawings, Figure 1 of which represents, partly in side elevation and partly in vertical section, a grain sorting and cleaning machine constructed according to my invention. Fig. 2 is an end elevation of the said machine; and Fig. 3 represents the said machine partly in plan and partly in horizontal section. Figs. 4 and 5, respectively, represent, in side elevation and transverse vertical section, one of the grit-dividers of the said machine and the mechanism by which it is adjusted, the said Figs. 4 and 5 being drawn to a larger scale than the other figures.

The same letters of reference indicate the same parts in all the figures.

A A are the sieves by which the semolino or grain to be cleaned is sorted before it is delivered to the machine. Each sieve consists of a rectangular frame, over both the upper and under edges of which wire or silk gauze is stretched, the upper sheets of such gauze having a coarser or more open mesh than the lower sheets. Each sieve has thus a double covering. The said sieves are mounted one above the other on wooden springs or bars $a^1$ $a^1$, and are caused to oscillate by means of a cranked axle, B, to which they are connected by connecting-rods $b^1$ $b^1$. The bars $a^1$ $a^1$ are shown separately on a larger scale in Fig. 6, which is an elevation of two of the said bars. The said bars are bolted to brackets $a^2$ $a^2$. The cranked axle B is driven from the driving-shaft of the machine by a means of a driving-band, $b^4$, passing over the band-pulley $b^2$. Each connecting-rod is made in two parts, on the adjacent ends of which are screws, which engage in a screw-box, $b^3$, which has right and left handed screws formed in it, by turning which screw-box in one or other direction the rods $b^1$ $b^1$ can be lengthened or shortened, so as to increase or diminish the tension of the springs $a^1$ $a^1$, and thus regulate the oscillation of the sieves.

C C C C are four grain sorting and cleaning machines, which communicate, by means of trunks, with the fan D, by which air is drawn or forced through the said machines, the air entering at the bottoms of the machines through openings $c^1$ $c^1$, and passing out to the fan through side openings, which can be closed or partially closed by plates $c^2$ $c^2$, the said plates being raised and lowered for the purpose by means of pinions $c^3$ $c^3$, which engage with racks $c^4$ $c^4$ in the said plates. When the machines are intended to act by air forced through them, an air-trunk must be constructed from the fan to the bottoms of the several machines. Each of the machines C C is furnished with partitions and inclined shelves, as described in the specification of Carl Haggenmacher's aforesaid United States patent.

E E are the adjustable grit or grain divid-

ers, (see Figs. 4 and 5,) which are raised and lowered, as required, by means of a plate, $e^1$, having inclined slots $e^2$ $e^2$, in which engage pins $e^3$ $e^3$, carried by the said grit-dividers. An endwise motion is imparted to the plate $e^1$ by means of a screw, $e^4$, which works in a fixed bearing, $e^5$. The said screw works through a screw-box, $e^6$, on the plate $e^1$, and is turned by its square head $e^7$ from outside the machine. The grit-dividers can thus be adjusted with the greatest nicety. $c^5$ $c^5$ are hoppers, and $c^6$ $c^6$, $c^7$ $c^7$, and $c^8$ $c^8$ are exit-chutes. F is an elevator of the ordinary kind. $f$ is a chute. $c^9$ $c^9$ are trunks leading from the machines C C C C to the fan D, and $c^{10}$ $c^{11}$ are trunks leading from the said fan to the bran-chamber, which may be in any suitable part of the mill. $c^2$ $c^2$ are the adjustable valves.

A greater or less number of machines than four may be combined with one fan according to my invention.

The action of the combined machines is as follows: On the driving-shaft being set in motion the elevator F raises the grain to be sorted and cleaned, and delivers it onto the uppermost of the sieves A A, whence it passes through the lower sieve to the hoppers $c^5$ $c^5$ $c^5$ $c^5$, and thence into the machines C C C C, in which it is acted upon by the air drawn or forced through the said machines by the fan D, and is thus cleaned and sorted into different qualities, which respectively pass out by the chutes $c^6$ $c^6$ $c^7$ $c^7$ $c^8$ $c^8$. The bran passes out through openings into the trunks $c^9$ $c^9$, thence to the fan D, and thence, by the trunks $c^{10}$ $c^{11}$, to the bran-chamber.

Having thus described the nature of my invention, and the manner in which the same is to be performed, I wish it to be understood that I do not limit myself to the precise details hereinbefore described, as they may be varied without departing from the nature of my said invention; but

I claim as my said invention—

1. In a grain sorting and cleaning machine composed of a double series of intercommunicating compartments, provided with inclined shelves and grit-dividers and grit-collecting receptacles, the hoppers arranged to deliver the grain to the interior of the machine, and forming, by means of their inclined sides, an air-chest, with which the fan communicates, substantially as set forth.

2. The herein-described mechanism for mounting and actuating the screens of grain cleaning and sorting machines, the same consisting of the inclined spring-arms, supporting the screens, and the adjustable operating-rods, substantially as set forth.

3. The combination, in a grain sorting and cleaning machine having a series of vertical intercommunicating apartments, with the inclined shelves and grit-collecting receptacles, of adjustable grit-dividers, the position of which is regulated by mechanism operated at the ends of the said inclined shelves by power from without the machine, substantially as described.

4. The combination, with the grit-dividers of a grain sorting and cleaning machine, of movable plates having inclined slots, wherein rest pins fixed on the grit-dividers, for adjusting the same, substantially as set forth.

JACOB WOERNER.

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