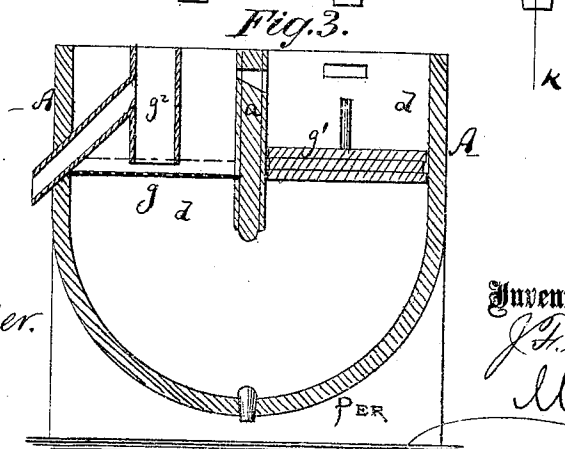
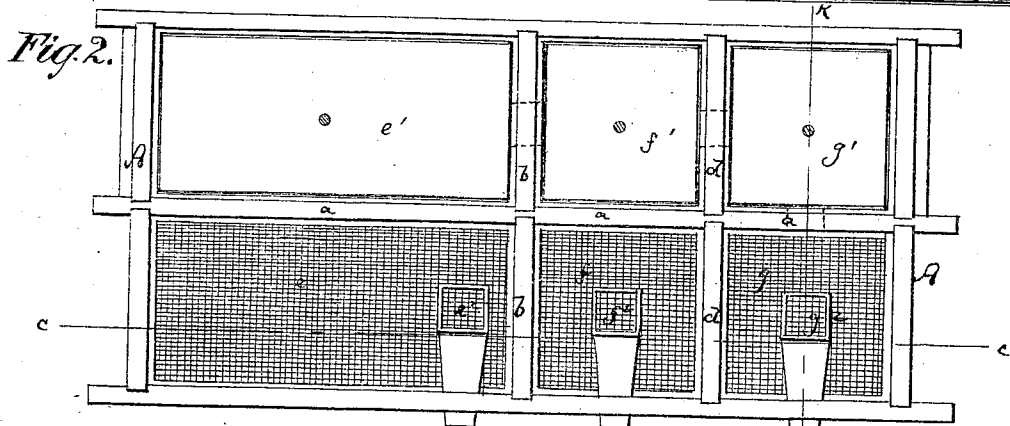
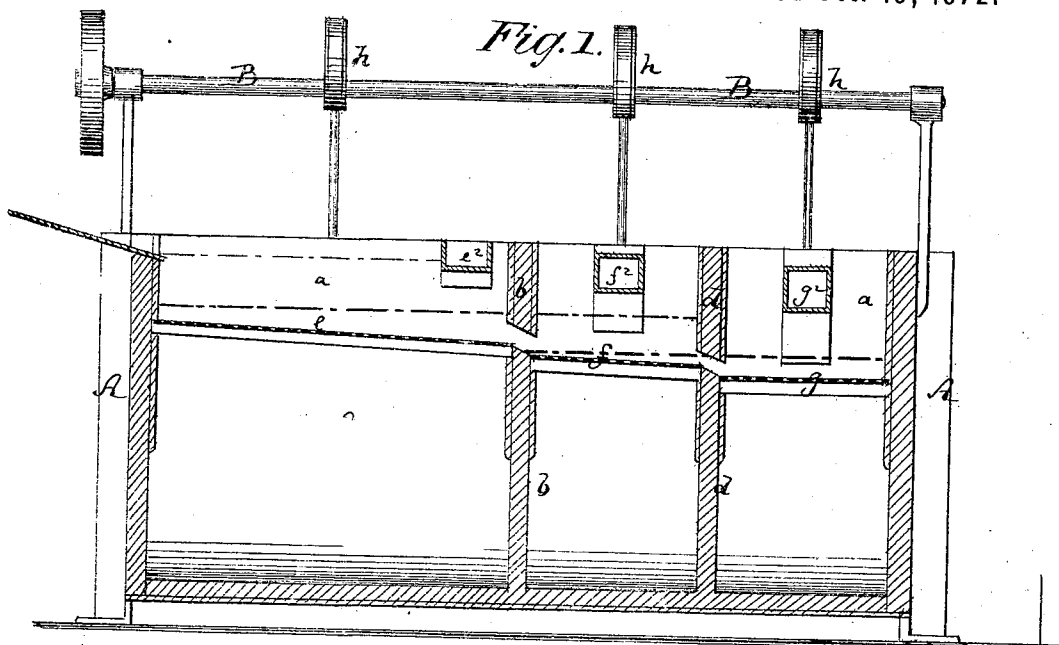


J. F. UTSCH.
 Improvement in Ore Separators.
 No. 132,336. Patented Oct. 15, 1872.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHANN FRIEDRICH UTSCH, OF ISERLOHN, GERMANY.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. 132,336, dated October 15, 1872.

To all whom it may concern:

Be it known that I, JOHANN FRIEDRICH UTSCH, of Iserlohn, Germany, have invented a new and Improved Self-Acting Jig-Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 is a vertical longitudinal section of my improved jig-machine; Fig. 2 is a top view of the same; and Fig. 3 a vertical transverse section.

The lines *c c* and *k k* in Fig. 2 indicate, respectively, the planes of section for Figs. 1 and 3.

Similar letters of reference indicate corresponding parts.

This invention relates to a new self-acting jig-machine, in which separate chambers, having separate discharge-openings at varying heights, are arranged for the reception of the several kinds of ore, salts, or other material which are to be separated from one another by virtue of their varying specific gravity. By having the said chambers so united as to permit a free flow of the ore from one to another the process of separation is greatly facilitated, and the separation carried on with greater certainty than in the jig-machines now in use.

In the accompanying drawing, the letter *A* represents the case or box that constitutes the jig-machine. In it is a longitudinal partition, *a*, crossing two or more transverse partitions, *b d*. The transverse partitions extend from top to bottom of the vessel *A*, as shown in Fig. 1, while the longitudinal partition *a*, shown in Fig. 3, does not reach to the bottom. On one side of the partition *a* are arranged the several series *e, f,* and *g*, that serve as supports for the ore to be separated. On the other side of the partition *a* are plungers *e¹, f¹,* and *g¹*, moved up and down by eccentrics *h* on a shaft, *B*, or by other suitable means, to force the water up through the sieves and agitate the ore thereon. The first sieve, *e*, is slightly higher than *f*, and this again slightly higher than *g*, as shown in Fig. 1, the ore being first applied to *e* and thence allowed to flow to *f* and *g*. The partitions *b* and *d* are perforated (slotted) close above the sieves to allow the passage of ore from one sieve to another. The openings for the discharge of ore are arranged in the side of the box *A*, above the several sieves *e f g*, respectively, and marked *e², f²,* and *g²*. The opening *e²* is higher than *f²*, and this again higher than *g²*. The ore being fed to the first sieve *e*, and

agitated by the water, arranges its parts to have those of lighter gravity on top and the heavier at the bottom. The lighter quality will then immediately flow off through the aperture *e²*. The heavier ore passes thence to the sieve *f*, where the heaviest again settles to the bottom, the rest passing off through *f²*. Finally, the heaviest ore having reached the sieve *g* escapes through the opening *g²*. When the number of subdivisions are to vary, the number of sieves and discharge-openings must vary accordingly.

Whenever it is desired to dispense with the slotted partitions above the sieves there will be but one chamber with several discharge-openings at varying heights. In that case, however, I would prefer to have but two openings to one single chamber.

In every case the apparatus will be entirely self-acting. Even when no partitions are used the ore will, owing to the settlement of its parts in accordance with their specific gravity, discharge its several constituents through the several openings only, and this without attention, quite automatically.

When the ore is applied without the ingredient for which the highest discharge-opening is calculated, the discharge will take place through the remaining openings with equal promptness.

In this connection I will state that the varying heights of, or vertical distances between, the several discharge-openings are calculated in accordance with the ascertained difference in specific gravity of the constituents to be acted upon, as otherwise the subdivision of ingredients would not take place with the necessary exactitude.

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

1. The partitions *b d*, slotted above the sieves of an ore-separator to allow the convenient passage of ore from one sieve to another, as specified.

2. The several discharge-openings arranged at varying heights above the sieve or sieves of a jig-machine, in conformity to the variation between the specific gravity of the materials to be separated, as set forth.

Iserlohn, 15th August, 1872.

JOHANN FRIEDRICH UTSCH.

Witnesses:

SEUVBITZ,
C. TRAINER.