

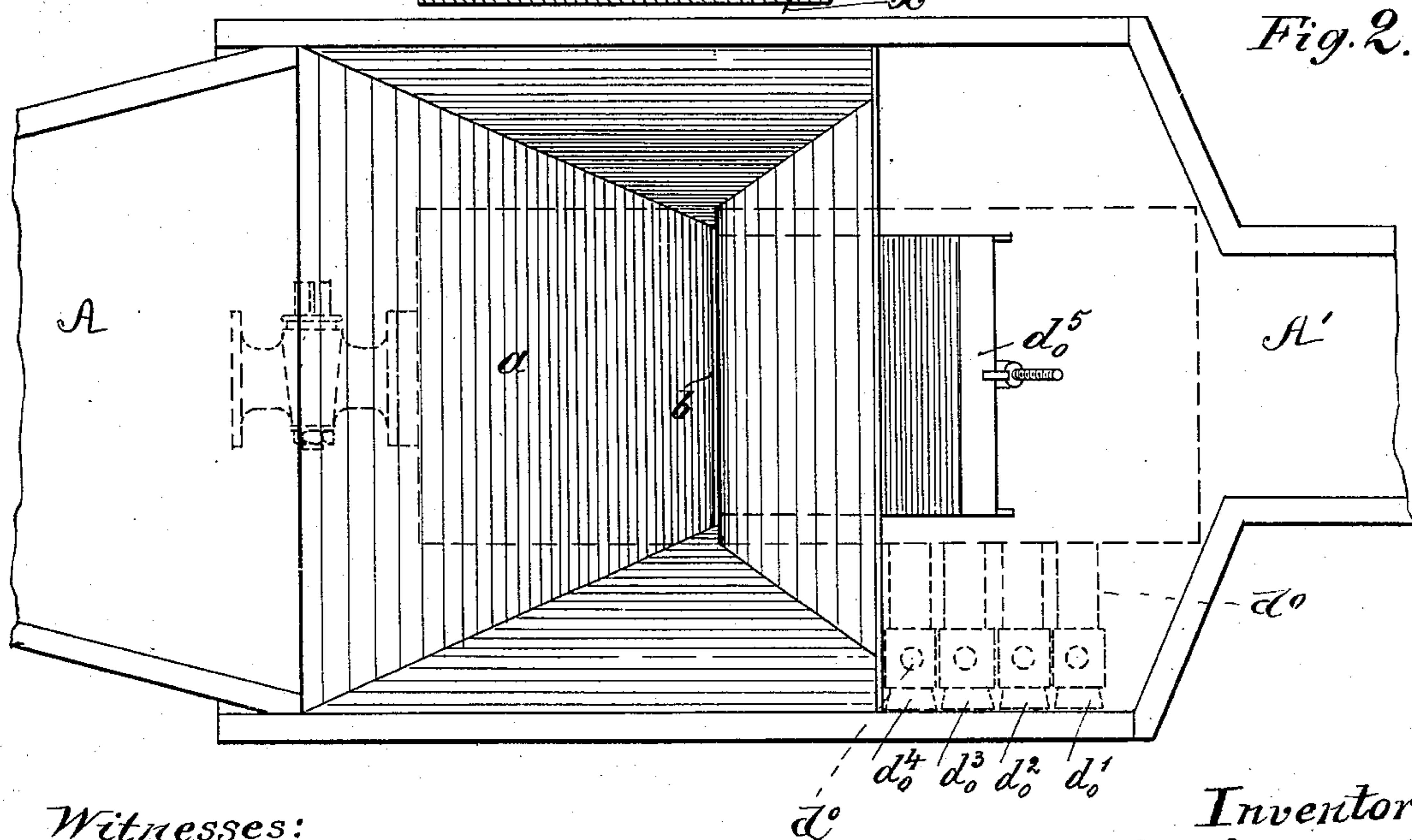
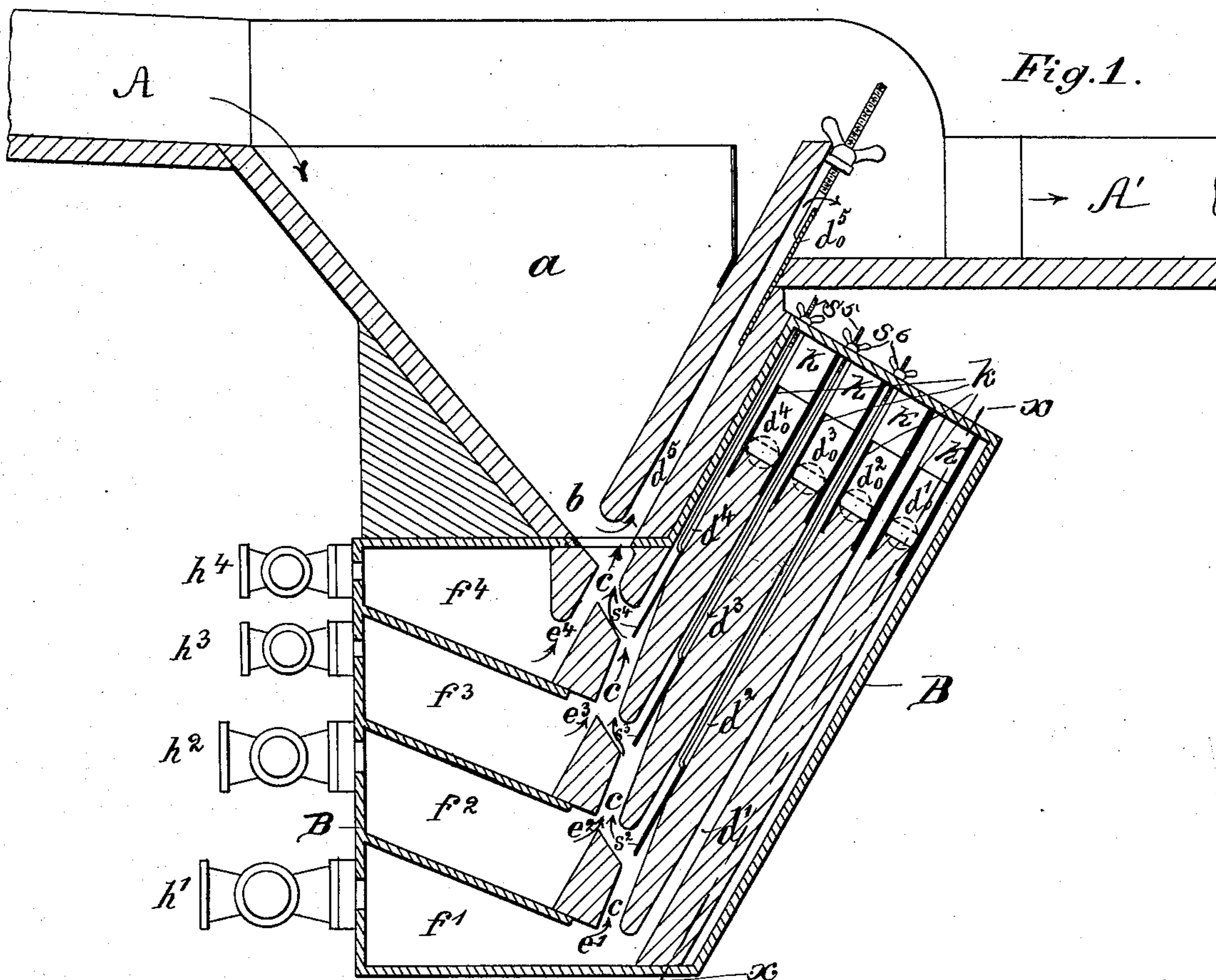
(No Model.)

2 Sheets—Sheet 1.

C. A. E. MEINICKE.  
ORE SEPARATOR.

No. 485,962.

Patented Nov. 8, 1892.



Witnesses:

C. Sedgwick

E. M. Clark

Inventor:

C. A. E. Meinicke

By Munn & Co

Attorneys.

(No Model.)

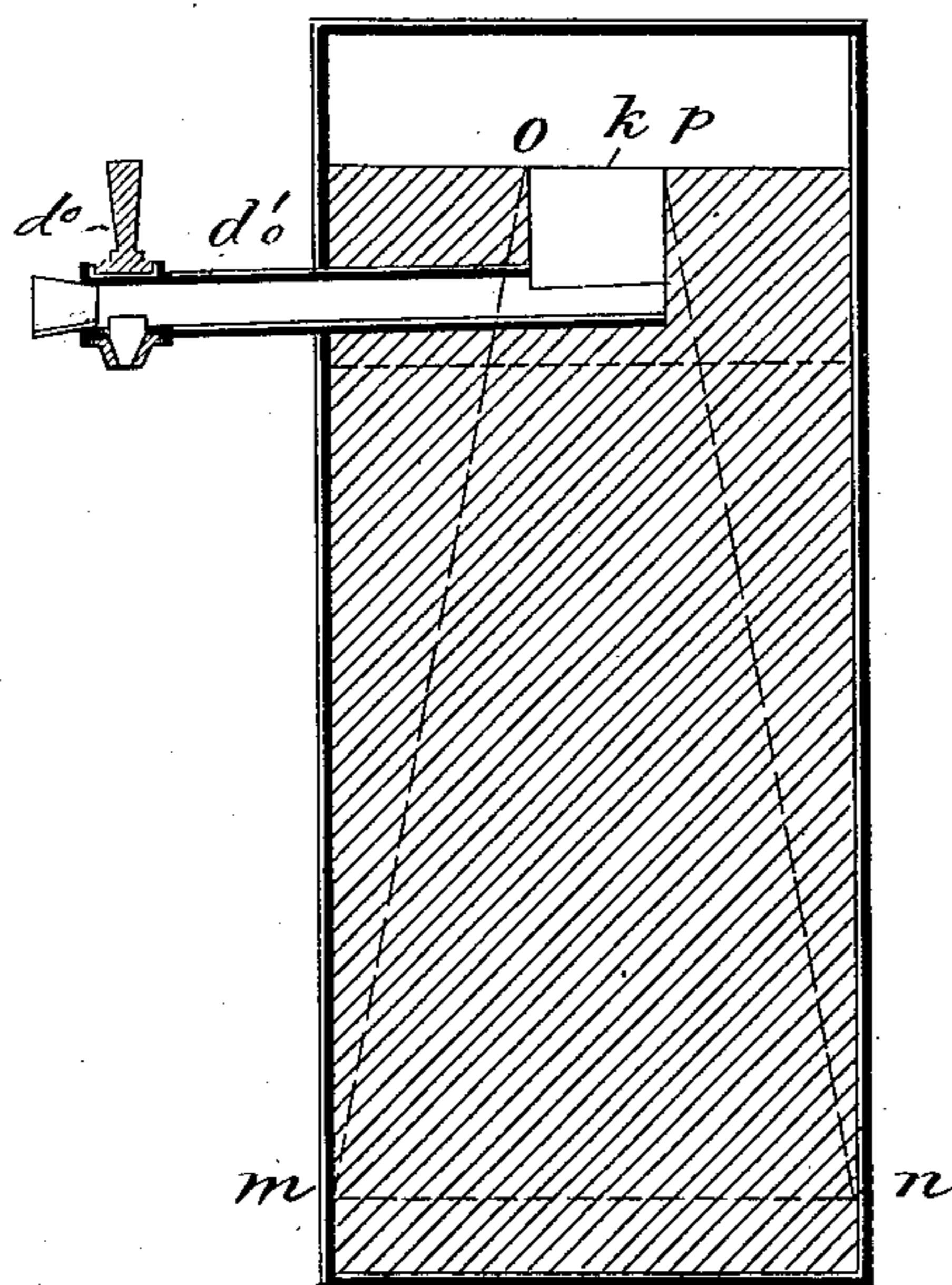
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*Fig. 3.*



WITNESSES:

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INVENTOR

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# UNITED STATES PATENT OFFICE.

CARL AUGUST EMIL MEINICKE, OF CLAUSTHAL, GERMANY.

## ORE-SEPARATOR.

**SPECIFICATION** forming part of Letters Patent No. 485,962, dated November 8, 1892.

Application filed October 27, 1890. Serial No. 369,469. (No model.) Patented in Germany April 28, 1887, No. 41,599, and in Austria-Hungary July 1, 1887, No. 26,502 and No. 61,312.

*To all whom it may concern:*

Be it known that I, CARL AUGUST EMIL MEINICKE, a subject of the King of Prussia, residing at Clausthal, in the Kingdom of Prussia, Germany, have invented new and useful Improvements in Ore-Separators, (for which I have obtained Letters Patent in Germany, No. 41,599, dated April 28, 1887, and in Austria-Hungary, No. 26,502 and No. 61,312, dated July 1, 1887,) of which the following is a specification.

The object of the invention is to provide an oresizing or grading apparatus in which an ascending column of water will separate the valuable material and pass it through different channels, according to its size and weight.

The invention consists in the construction and arrangement of parts hereinafter described and claimed.

Referring to the drawings forming part of the specification, Figure 1 is a central vertical longitudinal section of the apparatus. Fig. 2 is a plan; and Fig. 3 is a detail section on line 1 1 of Fig. 1 through one of the partitions, the channel  $d'$  being shown in dotted lines  $m n o p$ .

A is a supply-chute discharging into a hopper  $a$ , and  $A'$  is the offtake-chute at the opposite end of the hopper and in a lower plane than the chute A. Below the hopper  $a$  is a casing B, having a vertically-extending zig-zag channel  $c$ , at one side of which is formed a series of chambers  $f' f^2 f^3 f^4$ , provided with water-inlet valves  $h' h^2 h^3 h^4$ , and communicating at their inner ends with the said channel  $c$  by means of passages  $e' e^2 e^3 e^4$ . The opposite side of the casing B is provided with a series of upwardly and outwardly inclined channels  $d', d^2, d^3, d^4$ , and  $d^5$ , communicating at their lower ends with the vertical channel  $c$ , and at their upper ends the channels  $d' d^2 d^3 d^4$  lead into chambers K over plates  $k$ . The chambers K at one side of their lower portions are provided with lateral outlet-pipes  $d^{40} d^{30} d^{20} d^{10}$ , having ordinary rotary slide-valves  $d^0$ . The channel  $c$  may be closed or partially closed at the lower ends of the channels  $d^2$  to  $d^4$  by means of slides  $s^2 s^3 s^4$ , carried by rods  $s^5$ , extending up through the said channels and provided at their upper ends with adjusting-nuts  $s^6$ . At the upper end of

the channel  $d^5$  is a sliding gate  $d^{50}$ , over the upper edge of which the waste water flows into the outlet-chute  $A'$ , and this gate may also be adjusted up or down by means of a rod and nut.

The operation is as follows: The ground ore or mud is fed from the chute A into the hopper  $a$ , and passes thence through the opening  $b$  into the upper end of channel  $c$ , where it meets the ascending current of water from one or all of the chambers  $f'$  to  $f^4$ , which causes the light worthless matter to rise with the water, passing up through the channel  $d^5$  to the offtake-chute  $A'$ . The heaviest ore particles will descend to the bottom of the channel  $c$  and be carried up through the channel  $d'$  and out through pipe  $d^{10}$  into any suitable receptacle, and so with the other ore particles, which will pass through the other channels  $d^2$  to  $d^4$  in like manner. If the force of water through the chamber  $f'$  is insufficient, then one or more of the valves  $h^2$  to  $h^4$  may be opened, as will be readily understood.

If the materials being treated so require, one or more of the chambers  $f'$  and corresponding channel  $d'$  may be cut out by closing the channel  $c$  by means of the proper slide  $d^2$ , &c., whereupon only the channels above such slide will be operative.

Should it be found that any light ore particles are passing over the gate  $d^{50}$ , said gate may be raised a little higher, which will prevent such action. The graded concentrates will be collected in suitable receptacles placed under the outlet-pipes  $d^{10} d^{40}$ .

Having thus described my invention, what I claim is—

1. An ore separator and grader comprising the hopper, a casing thereunder provided with a vertically-extending channel  $c$ , communicating with the outlet in the bottom of said hopper, a series of valved water-supply chambers at one side of the said channel communicating therewith, and a series of separate and independent channels leading upward and outward from the channel  $c$  to separate outlets, substantially as set forth.

2. The combination, in an ore separator and grader, with the hopper having an opening in its bottom, of the casing under the hopper, provided with a vertically-extending channel

c, a water-inlet at the bottom of the casing to cause an upward flow through channel c against the downward flow through the hopper-opening, a waste-channel leading upward and outward from the upper end of channel c, and a series of separate and independent grading-channels leading upward and outward from the bottom and between the ends of the channel c to separate outlets, substantially as set forth.

3. An ore separator and grader comprising the hopper having an outlet in its bottom, a casing thereunder having a vertically-extending channel c, into which the hopper discharges, a series of valved water-chambers communicating one above the other with said channel, a series of upward and outward inclined grading-channels at the opposite side of channel c, and a slide in the lower end of

each grading-channel to close or partially close the channel c, substantially as set forth.

4. In an ore-separator, the combination, with a hopper and a vertically-arranged channel into which said hopper discharges, one or more inlets opening into the said channel at one side, of a series of branch outlets arranged on the opposite side of the channel and located one above the other and an overflow arranged above the uppermost branch outlet, substantially as set forth.

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

CARL AUGUST EMIL MEINICKE.

Witnesses:

FREIDRICH CARL GLASER,  
G. HÜLSMANN.