

Patented July 10, 1883.

No. 280,994.



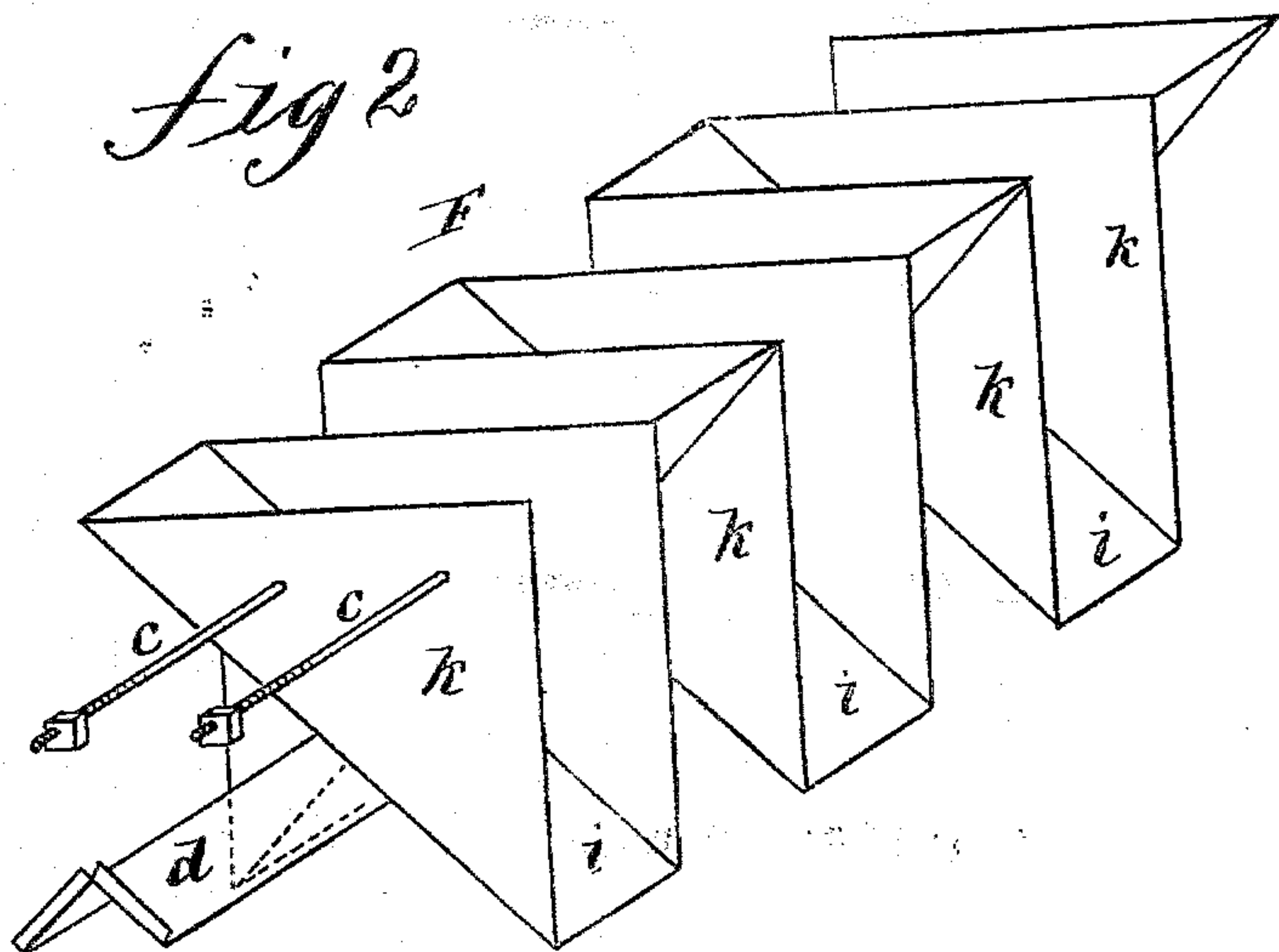
(No Model.)

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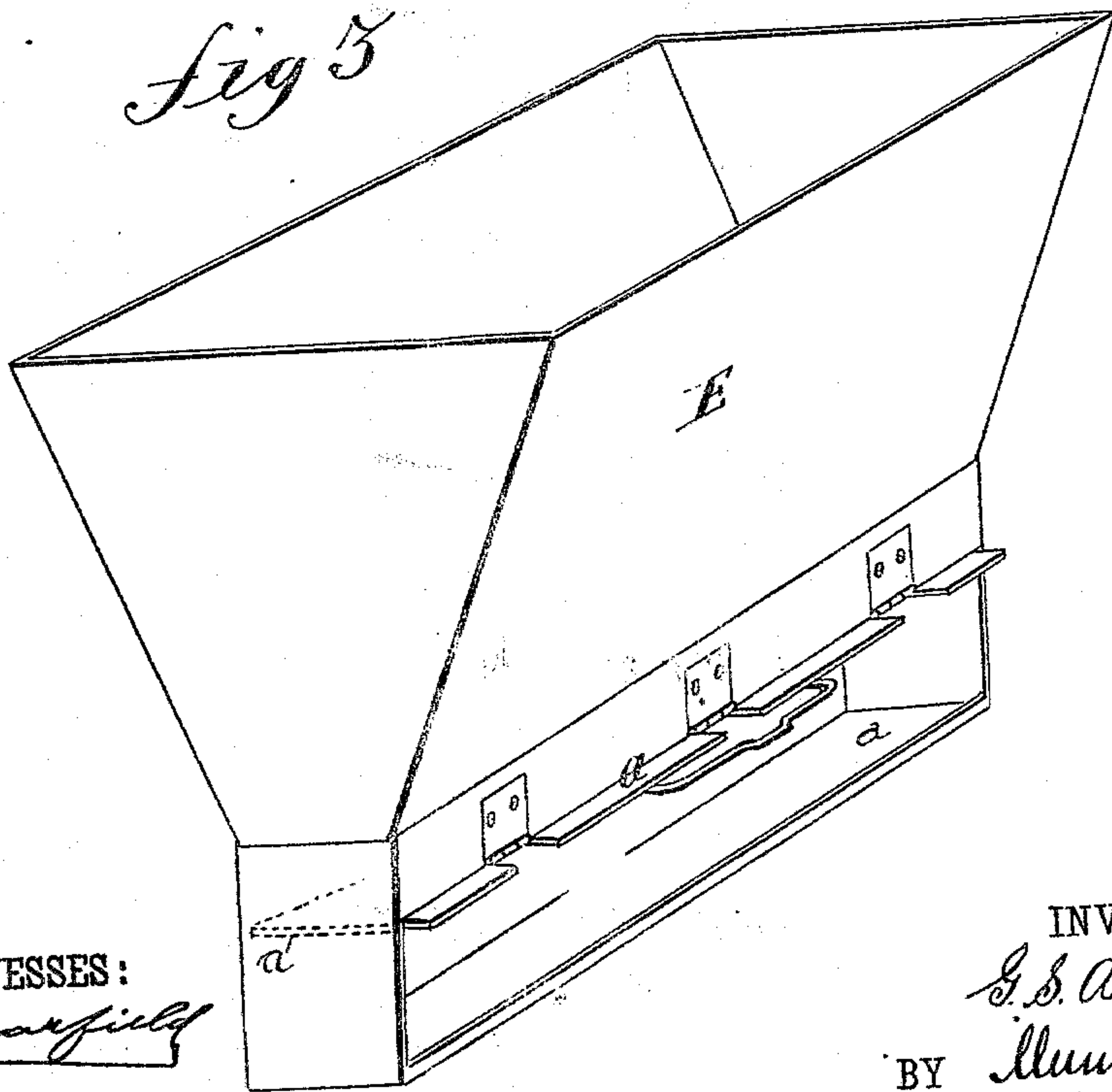
G. S. ANDRUS.  
SAMPLING APPARATUS.

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*fig 3*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE S. ANDRUS, OF COLUMBIA, COLORADO.

## SAMPLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 280,994, dated July 10, 1883.

Application filed March 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE S. ANDRUS, of Columbia, in the county of Ouray and State of Colorado, have invented a new and Improved

5 Sampling Apparatus, of which the following is a full, clear, and exact description.

My invention relates to apparatus for sampling ore concentrates, tailings, placer-gravel, and other minerals, for ascertaining the value

10 of such materials. Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

15 Figure 1 is a perspective view of the apparatus with the side of the case partially broken away. Fig. 2 is a detail view, showing the supports of the distributors. Fig. 3 is a perspective view of the hopper. Fig. 4 is a detail view

20 of the delivery-hopper. The inclosing-case may be of any suitable form and dimensions. A A are the ends. B B are hinged doors on the front and back, that give access to the boxes, and the lower part of the case is fitted with inclined boards C, that

25 lead to the delivery-hopper D. At the top of the case is a supply-hopper, E, provided with a damper, a, for regulating the supply of material, so that it shall descend through the

30 throat of the hopper in a compact mass the full width of the distributor. The distributor proper consists of chutes or distributors F, arranged in horizontal rows, and with the rows placed one beneath another,

35 and each row a little farther out than the one above it, so as to form a continuous series from the supply-hopper E to the bottom of the case. The chutes are made with inclined bottoms i at an angle that will permit the material to

40 pass down readily, and the bottoms incline alternately right and left in the horizontal rows, so that they shall empty one-half of them to the inside of the case and the others toward the outside. Each row is placed in such re-

45 lation to the row beneath that the chutes inclining to the front come above the partitions k of the next lower chutes, equally at each side thereof, and about midway from front to back.

50 The distributors or chutes are supported by saddles d, (shown most clearly in Fig. 2,) which

are supported on brackets or otherwise on the sides A of the case, and each row is provided with two supporting-bolts, e, that extend through the sides of the case.

5 The apparatus is to be used in connection with crushers, pulverizers, stamps, or other machinery used for crushing or pulverizing ore or other materials, and also for sampling concentrates, tailings, placer-gravel, or other

60 minerals or materials, for the purpose of ascertaining the average value of such material from a sample taken by repeated subdivisions of a certain quantity. For that purpose the material to be sampled is conveyed to the

65 hopper E, the hinged damper being closed, as shown by dotted lines in Fig. 3, until the hopper is filled. The damper is then opened, as shown by full lines in Figs. 1 and 3, and the material passes through the throat of the hop-

70 per to the upper distributors F, where, by the partitions, it is divided into two equal portions, one-half passing to the inside of the case and thence to hopper D, and the remainder passing to the second row of distributors, to

75 be again divided, as before, and so on until the lower chutes are reached, where the material passing outward goes to a suitable receptacle.

80 The apparatus, as shown in Fig. 1, is provided with a set of distributors at each side of the case, the object being to obtain duplicate samples, which is always desirable, and in that arrangement the single row of distributors F at the top discharge both right and left into

85 distributors below. Where but a single sample is required, one set of distributors only will be required. Each row may contain two or more of the chutes or distributors.

90 This apparatus is of inexpensive character, and, being without machinery, does not require extra labor to attend it. It is accurate in operation, as it divides every pound of material passing through it, instead of sampling one

95 portion, and the accuracy is further assured by the duplicate samples. It is durable, can be readily repaired and adjusted, and cannot get out of order.

100 By placing the apparatus between a crusher or pulverizer and the stamps or furnace, all the ore will be accurately sampled at no extra expense, and the per cent. of value saved in



treatment can be exactly determined. The sample may be taken from either row of chutes.

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

In a sampling apparatus, the combination, with the case, of the rows of chutes arranged one above another, and each row farther out than the one above it, said chutes being in-

clined alternately to the inside and outside of the case, and the chutes of one row being directly under the outwardly-inclined chutes of the row above it, as shown and described.

GEORGE S. ANDRUS.

Witnesses:

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