

No. 777,421.

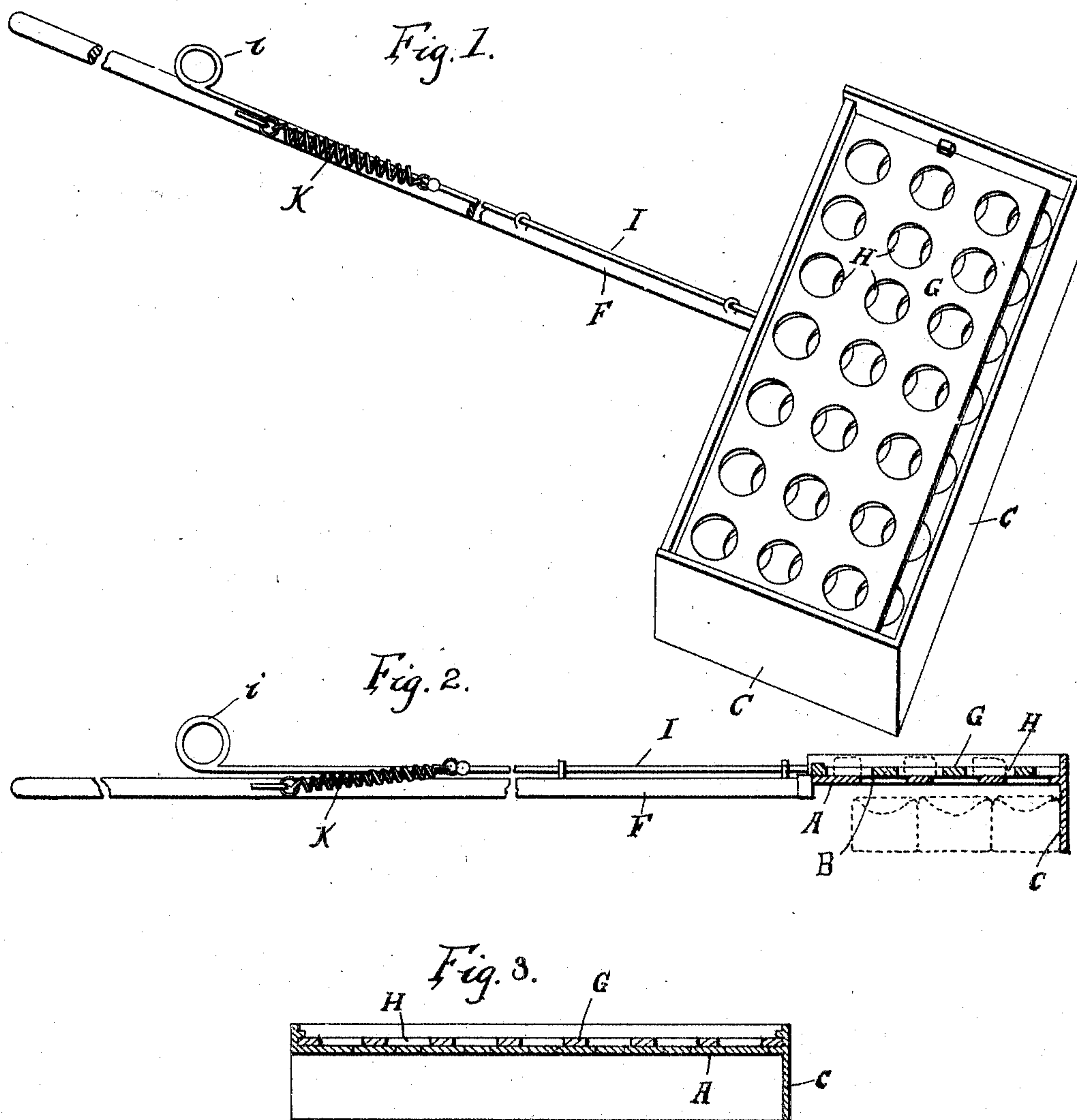
PATENTED DEC. 13, 1904.

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ASSAY BUTTON DROPPER.

APPLICATION FILED SEPT. 13, 1904.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## ASSAY-BUTTON DROPPER.

SPECIFICATION forming part of Letters Patent No. 777,421, dated December 13, 1904.

Application filed September 13, 1904. Serial No. 224,336. (No model.)

*To all whom it may concern:*

Be it known that we, EDWARD KELLER, ALBERT FERRELL, and KENNETH W. McCOMAS, citizens of the United States, residing at Baltimore city, Maryland, have invented certain new and useful Improvements in Assay-Button Droppers; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in apparatus for use in laboratory assay-work, especially cupellation, the objects of the invention being to facilitate the handling and placing of the small pieces of metal resulting from scorification and known as "buttons" in the cupels after the latter are in the cupeling-furnace and heated to the requisite degree.

Referring to the accompanying drawings, Figure 1 is a perspective view of an assay-button dropper embodying the present improvements. Fig. 2 is a sectional view through the same with cupels in position to receive the buttons. Fig. 3 is a section at right angles to Fig. 2.

Like letters of reference in the several figures indicate the same parts.

In assaying by the cupellation process the lead buttons resulting from scorification are placed in bone-ash cupels, the latter having been previously placed in a cupeling-furnace and heated to the requisite degree. Usually a number of cupels are placed in the furnace, and at the proper time the furnace is opened and the lead buttons are dropped one by one in the cupels by means of long-handled pincers. As the result of such procedure, not only is the furnace kept open for a long period, but the workman is so exposed to the heat of the furnace that protective measures have to be observed, and the buttons will melt and the process proceed serially in the order of their insertion, thereby retarding the final result and causing a lack of uniformity, which in practice is found disadvantageous.

To overcome the difficulties mentioned and to secure other advantage, we provide an im-

plement with which the cupels may be straightened or brought into proper alinement in the furnace and the lead buttons simultaneously dropped into their respective cupels by a manipulation requiring scarcely more labor or time than required in the placing of a single button in its cupel by the ordinary practice.

Generally speaking, the implement embodies a support, plate, or base A, having a series of apertures B therethrough and flanges C projecting on the under side and in such relation to the apertures that when a cupel or series of cupels rest against the flange (see dotted lines, Fig. 2) the recesses or craters in the cupels will register with the openings in the support A. The flange preferably projects from the front edge and one end of the support, thus serving as the means for determining when the support is in proper position, or if the cupels are not regularly arranged a short diagonal movement will crowd them together, as well as position them to register with the apertures.

The support is provided with a handle F of convenient length and a slide G, having apertures H, which may be brought into registry with the apertures in the plate, although they are normally out of registry therewith, as shown in Fig. 1. The slide is provided with an operating-rod I, preferably extended through guides on the handle and having at its outer end a hand or finger piece J, by means of which the slide may be manipulated. In the preferred construction a spring K is provided for holding the slide with its apertures normally in one position or the other, and the workman only needs to move it by pressure in one direction against the tension of the spring.

In use the lead buttons are placed in the apertures in the slide and rest on the support, the furnace is opened and the dropper passed in and brought into proper relation to the cupels, the latter, if necessary, being straightened and arranged by the flange, and in any instance the flange serves as a guide to indicate when the apertures in the base-plate are in register with the cupels. To deposit the buttons, it is only necessary to move the slide



until its apertures register with the apertures in the support, when the buttons will drop through and the implement may be immediately withdrawn from the furnace.

5 Obviously the capacity of the implement may be varied by increasing or decreasing the number of pockets or apertures, and while three rows are shown in the implement of the drawings it may well have but one or two  
10 rows, especially where the number of samples to be essayed is not great or the capacity of the furnace is small.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

15 1. In metal-assay work, an assay-button dropper embodying a portable handled support for a series of buttons adapted to be introduced into the furnace and a slide mounted  
20 on said support for simultaneously discharging all of the buttons from the support into cupels arranged in the furnace for their reception; substantially as described.

2. In metal-assay work, an assay-button  
25 dropper embodying a portable handled support for a series of buttons adapted to be introduced into the furnace, a slide mounted on said support for simultaneously discharging all of the buttons from the support and an operating-rod extending parallel with and guided  
30 by the handle of the support; substantially as described.

3. In metal-assay work, an assay-button dropper embodying a portable handled support adapted to be introduced into the furnace  
35 having a series of apertures therein, and a slide mounted on the support for discharging a series of assay-buttons through said apertures; substantially as described.

40 4. In metal-assay work, an assay-button dropper embodying a portable handled support adapted to be introduced into the furnace

having a series of apertures therein and a slide mounted on the support and having a series of apertures therein adapted to be brought into registry with the apertures in the support and an operating-rod for the slide; substantially as described. 45

5. In metal-assay work, an assay-button dropper embodying a handled support for a series of buttons having a downwardly-extending flange for positioning the support with relation to a series of cupels and a slide mounted on the support for simultaneously discharging the buttons into the cupels; substantially as described. 55

6. In metal-assay work, an assay-button dropper embodying a handled support for a series of buttons having a downwardly-extending flange along two of its sides, a slide mounted on the support and having an operating-rod; substantially as described. 60

7. In metal-assay work, an assay-button dropper embodying a handled support having a series of apertures therein and a downwardly-extending flange, and a slide mounted on the top of said support for simultaneously discharging a series of buttons through the apertures; substantially as described. 65

8. In metal-assay work, an assay-button dropper embodying a portable handled support adapted to be introduced into the furnace having a series of apertures therein and a slide mounted on the support and having a series of apertures therein adapted to be brought into registry with the apertures in the support, an operating-rod for the slide, and the spring for returning the slide to normal position. 75

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