

(Model.)

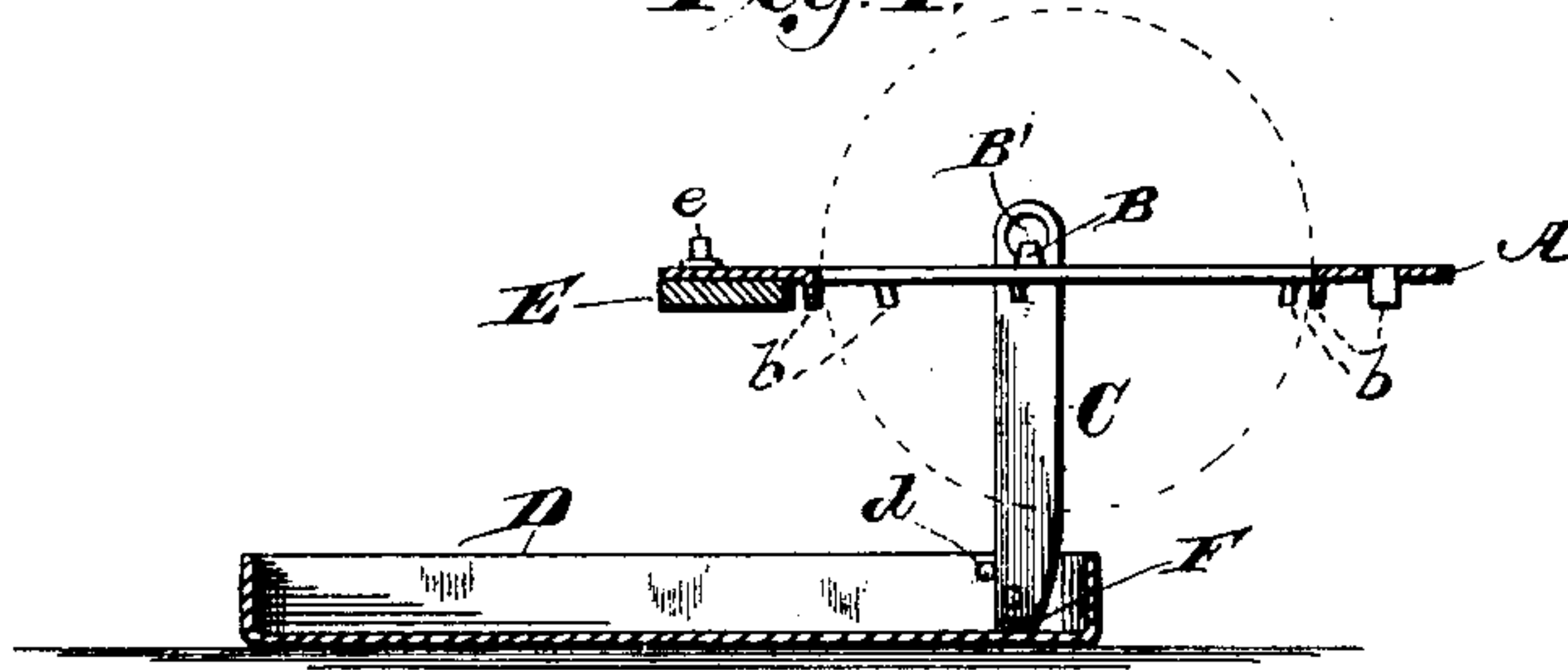
M. CLARKE.

COIN TESTER.

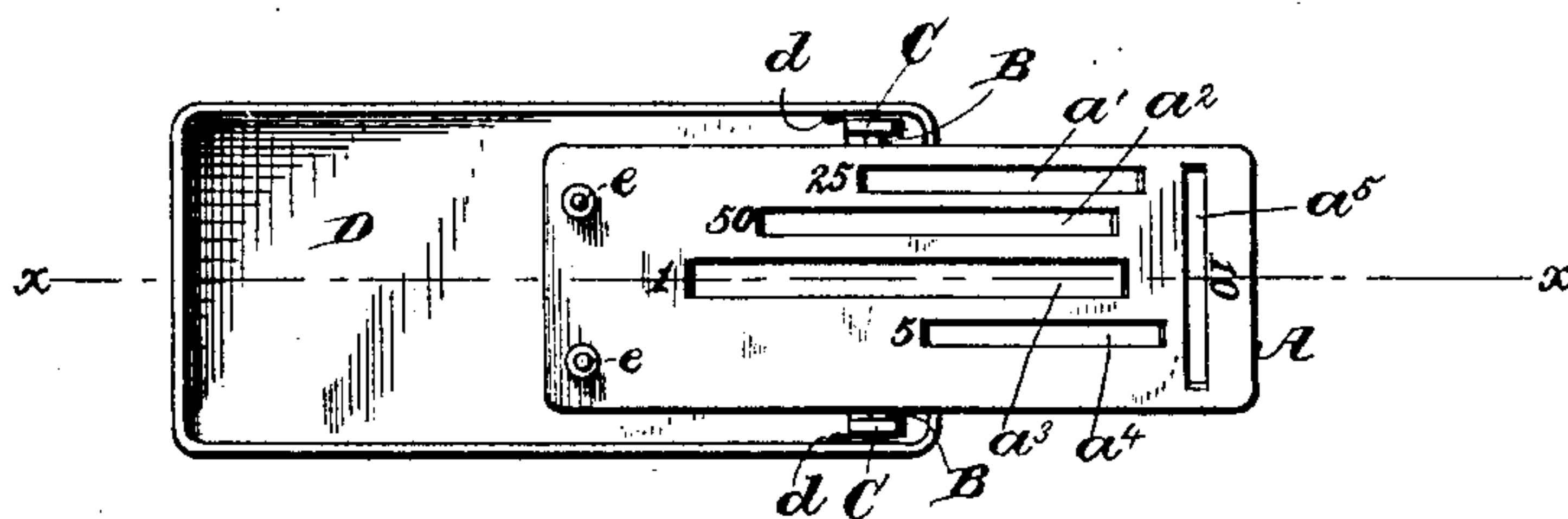
No. 273,667.

Patented Mar. 6, 1883.

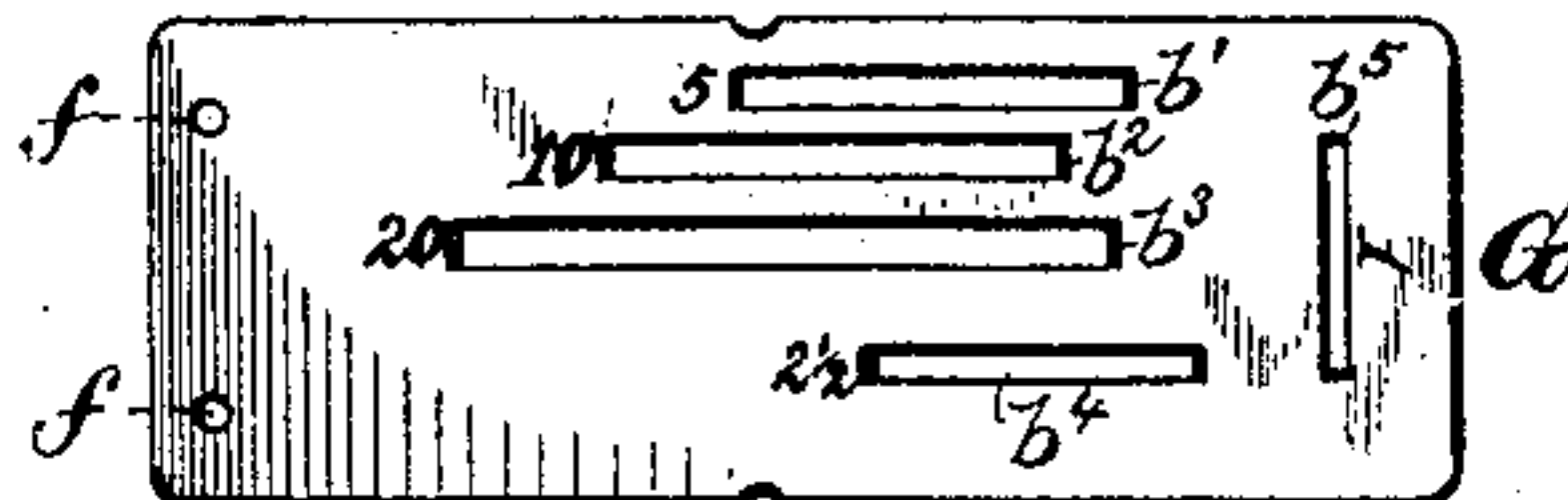
*Fig. 1.*



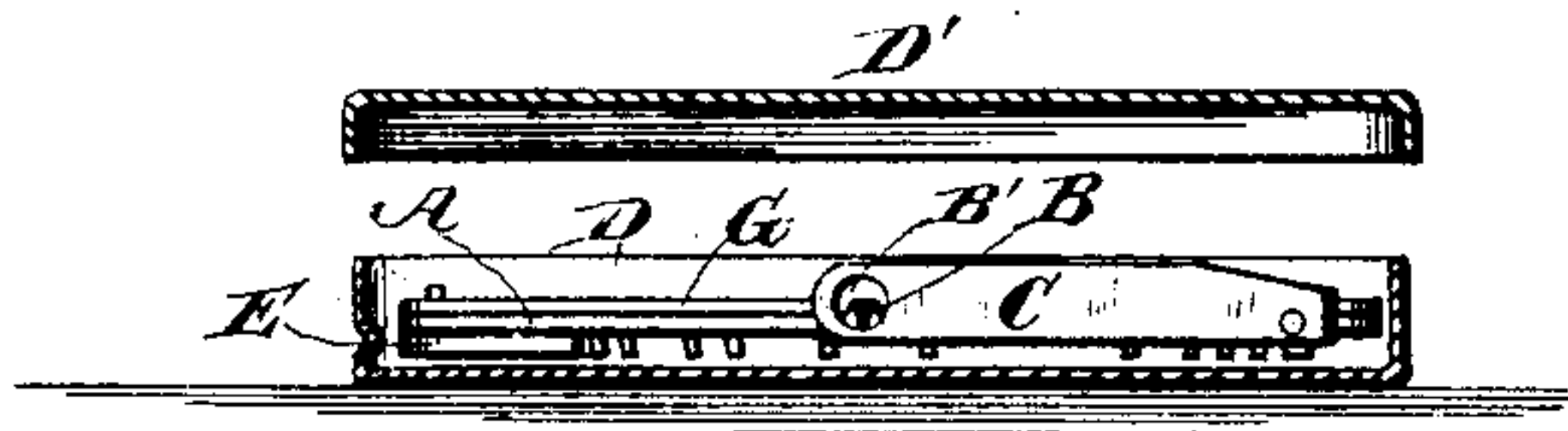
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

MERRITT CLARKE, OF POULTNEY, VERMONT.

## COIN-TESTER.

SPECIFICATION forming part of Letters Patent No. 273,667, dated March 6, 1883.

Application filed March 10, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, MERRITT CLARKE, a citizen of the United States, residing at Poultney, in the county of Rutland and State of Vermont, have invented certain new and useful Improvements in Instruments for Detecting Counterfeit Coin, of which the following is a specification.

My invention relates to certain improvements in apparatus for determining the value and genuine character of coin by measurements of thickness, diameter, and weight.

To this end my invention consists, first, in a coin-balance suspended by bearings from folding standards or supports in such a manner that both may fold into the same horizontal plane, and thereby be so far reduced in size as to be easily portable, both standards and balance being received by or contained in a suitable inclosing box or similar device; secondly, in a supplemental balance-plate calculated for testing gold coins only, which is so constructed that it may be applied to or detached from the balance-supports; third, in a novel arrangement of the measuring and coin-supporting slots, whereby economy of space and material diminution of the balancing-weight is effected.

Referring to the drawings forming part of this application, Figure 1 is a longitudinal section. Fig. 2 is a plan view. Fig. 3 is a plan view of the balance-plate for gold coin detached. Fig. 4 is a central longitudinal section taken in the plane  $xx$ , Fig. 2, showing the manner in which the several parts are folded.

A in said drawings indicates a flat metallic plate, which may be constructed of brass, copper, or any other suitable metal, and of any desired dimension, although I have found by experience that a plate having a length of two and one-half ( $2\frac{1}{2}$ ) inches and a breadth of seven-eighths ( $\frac{7}{8}$ ) of an inch will fully answer the purpose. In such a plate I form slots longitudinally arranged, but of varying length and width, as shown at  $a'$ ,  $a^2$ ,  $a^3$ , and  $a^4$ , Fig. 2, together with a transverse slot,  $a^5$ , to receive and measure silver coin of the several dimensions, as well as the nickel piece having a value of five (5) cents. These slots are cut with such accuracy as to afford a conclusive test of genuine coin, so far as the diameter and thickness of said

coin is concerned, the length of each slot being such that it will admit a genuine coin until the upper edge or surface line of said slot shall cut the central point of the coin introduced, and thereby test its diameter, while at the same time its thickness is measured by the width of the slot. Each slot formed in the plate is provided at its ends with short lips or tongues  $b b$ , turned down from the metal of the plate A and depending from its under side. These lips are bent slightly toward each other in such manner as to grip the edges of the coin at the point where the surface-line of the slot cuts through the center of said coin, the latter being thereby supported in place until its weight is determined.

The plate A is provided with bearings B B, projecting from its sides at a point a little to one side of the center of said plate. These bearings are provided with knife-edges, and are received and supported by standards C C, each having a recess,  $B'$ , formed in its extremity, and adapted to receive the journal or fulcrum bearing of the plate A. These standards C C are pivotally attached to a platform, D, which may be made in the form of an open box of shallow depth, as shown, or in any other suitable style of construction. As the point of attachment of said standards is at or near one end of the support D, it is evident that by simply turning the pivoted standards down they may be folded, together with the balance-plate which lies between them, into substantial parallelism, and be thereby caused to lie within the support D, as shown in Fig. 4.

To one end of the plate A is attached a small weight, E, which serves to balance the coins as they are severally introduced. It is attached to the plate by riveting, and serves as a test-weight for coins of all the denominations now in use. It will be noticed that, with a single exception, the longitudinal slots in the plate A pass the fulcrum-bearings B B, each one of the three larger openings—viz.,  $a'$ ,  $a^2$ , and  $a^3$ —lying partly upon one side and partly on the other side of said bearing-points. It is evident, therefore, that when a coin is placed in any one of said openings a certain portion of said coin will counterbalance an equal portion of the same coin lying upon the opposite side of the fulcrum-point. By this arrangement it will readily be seen that a part only of these



coins will be balanced by the weight E; but with ordinary accuracy in construction this test may be made extremely delicate, being even more sensitive than it would be if the entire weight of each coin were to be counterbalanced by a corresponding test-weight upon the opposite end of the plate. A convenient construction is to make the supporting-plate in the form of a shallow box, which may be provided with a cover, so that the entire device may, when folded, be inclosed by and carried in the vest-pocket, or, if desired, may be permanently set up upon an office-desk or counter, as shown in Fig. 1. In any form of construction it is necessary that the standards, when unfolded, shall occupy substantially a vertical position, in order that they may not be struck by the balance-plate as it vibrates. In order, therefore, to determine the proper position and to retain the standards therein, I employ the following construction: Said standards C C are connected at their lower ends by a plate, F, by which they are held in parallelism, said standards being so pivoted to the box that the plate F swings just above the floor thereof, the arrangement of the parts being such that as the standards are folded or unfolded its lower edge has friction upon the floor of the support D. This prevents the accidental dropping of the standards; and in order to determine their vertical position and to more effectually retain them therein I may form with a small punch a burr, *d*, in the vertical sides of the box D, each burr being so situated that when the standards are in a vertical position their edges are just clear of said burrs, as shown in Figs. 1 and 2. These burrs therefore serve both to determine the proper position of the standards as well as to sustain them more effectually in such position, sufficient friction being produced by the contact of the standards with said burrs to prevent their folding until sufficient pressure is given to overcome said friction.

The apparatus as thus described is adapted for testing silver coins and nickels only. To adapt it for use in testing gold coin, I provide a thin removable or supplemental plate, G, (illustrated in Fig. 3,) which in essential respects is very similar to the plate A. The slots or openings in the plate G are specially adapted, however, to testing gold coin of the several standard denominations, and the whole is so constructed that it may be laid upon the balance-plate A and adjusted in proper position. When so placed the slots in the plate G so far coincide with the openings in the plate A that coins placed in the former will pass down freely through the latter, the openings in the plate G being of less dimensions than those in the plate A. Moreover, the lips depending from the ends of the slots in the gold-testing plate will readily pass through the slots in the plate A, thereby allowing the former to lie flat upon the latter, it being held in proper position by pins or nipples *e e*, which engage with small perfora-

tions *f f* in the plate G. It will be seen that as the same weight or counter-balance E is used for both metals the position of the openings in the supplemental plate must be somewhat modified to compensate for the difference in weight between gold and silver. This difference in relative position is much less, however, than would be supposed, and rendered practicable by the greater length of the openings in the plate A. The relative arrangement of the openings in the two plates is shown approximately in Figs. 2 and 3.

It is evident that, instead of being adapted to lie upon the plate A, the gold-testing plate G may be provided with bearings similar to the bearings B B, and as the plate A may be readily dismounted by springing the standards C C slightly apart the plate G, having such bearings, might be readily mounted in its place. In the end of each plate opposite the test-weight I cut a transverse slot, (shown at *a*<sup>5</sup> in Fig. 2, and at *b*<sup>5</sup> in Fig. 3,) the former being adapted to receive and test the silver dime and the latter to receive and test the gold dollar.

The manner of using the apparatus is shown in Fig. 1, wherein the dotted lines indicate a genuine silver dollar placed in its appropriate slot. It will be seen that the length of said slot accurately gages the diameter of the coin, while its thickness is tested by the width thereof. At the same time the weight E counterbalances the preponderating portion of the coin upon the opposite side of the fulcrum-points B B.

It should be noted that coins of different dates do not always give the same weights or measurements, partly owing to loss by wear and partly to a slight difference in the amount of alloy. No difficulty will be found, however, in instantly determining the genuine from the counterfeit or from coins that have been filled or otherwise tampered with.

It will be noticed that the bearings B B are slightly raised above the upper surface of the plate, as shown in Fig. 1. They also have a true "knife-bearing." By this construction the proper poise of the plate is preserved and the weight-test is rendered extremely delicate.

In the apparatus thus described I provide a delicate and accurate test for determining the genuineness of coins of both metals and of all denominations. Its size is such that it may readily be carried in the vest-pocket; or it may be permanently erected upon an office-desk. The economy of space I effect by the peculiar arrangement of the slots in the test-plates, and also by causing the parts to fold into substantial parallelism, as shown in Fig. 4. The arrangement of the openings in the plate also promotes the accuracy of the weight-test, since part of each of the three larger coins is counterbalanced by a corresponding portion of said coin lying upon the opposite side of the fulcrum-points, thus leaving a small portion, comparatively, to be counterbalanced by the test-weight E. The degree to which the size and weight of the apparatus



are diminished by this construction will be readily perceived.

In the case of new coins which have not been subjected to use, it will be found that the milling occasionally leaves the edge of an unequal thickness, and that such coins will enter the measuring-slots with a little difficulty. With a little care, however, and by turning the coin, no difficulty will be experienced in determining its dimensions.

It is well, in using the apparatus, to introduce all coins with the date downward.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A coin-balance suspended in folding standards or supports, the latter being pivoted to a platform or receiving-box, whereby the parts may be folded into substantial parallelism, as and for the purpose described.

2. In a coin-balance adapted to test silver coin and nickels, the combination, with the balance-plate, of an attachable supplemental plate having openings adapted to determine the legal dimensions of gold coins, the latter being supported at the same time in said openings, for the purpose of determining their weight, substantially as and for the purpose described.

3. In an apparatus for testing coin, a balance-plate having openings of such size as to admit coins of different denominations, and thereby test their diameter and thickness, part of said openings being arranged longitudinally in said plate, and projecting upon both sides of a line drawn through the fulcrum-points of said plate, whereby a fractional portion of each

coin upon one side of said line counterbalances a corresponding portion of the same coin upon the opposite side of said line, thereby leaving only a part of the coin to be balanced by the test-weight, substantially as and for the purpose described.

4. The combination, with the balance-plate having one or more measuring-openings, of a second adjustable plate having openings which so far correspond with those of the balance-plate as to permit the former to be applied to or mounted upon the latter for the purpose of testing coins of a different metal by means of the same balance, substantially as and for the purpose described.

5. The combination, with the folding standards in which the balance-plate is mounted, of a box to which they are pivoted, and within which said standards are adapted to fold together with the balance-plate supported by them, the several parts folding into substantial parallelism, as and for the purpose set forth.

6. The combination, with the folding standards which support the balance-plate, of a receptacle which serves as a platform or support, burrs or equivalent projections being formed upon the vertical sides thereof in such a position as to have frictional contact with the folding standards until the latter attain a substantially vertical position, as and for the purpose set forth.

MERRITT CLARKE.

Witnesses:

MARION P. CLARK,  
EDWARD CLARK.