

(No Model.)

J. B. ATWATER.
COUNTERFEIT COIN DETECTOR.

No. 264,431.

Patented Sept. 19, 1882.

Fig. 1.

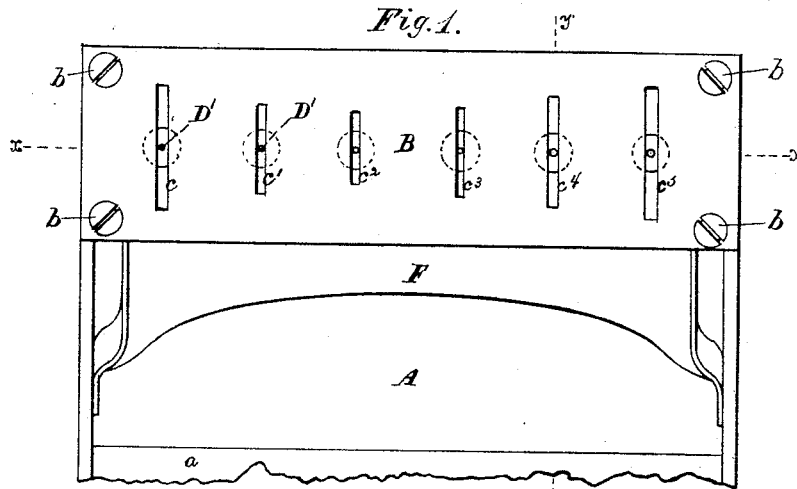


Fig. 2.

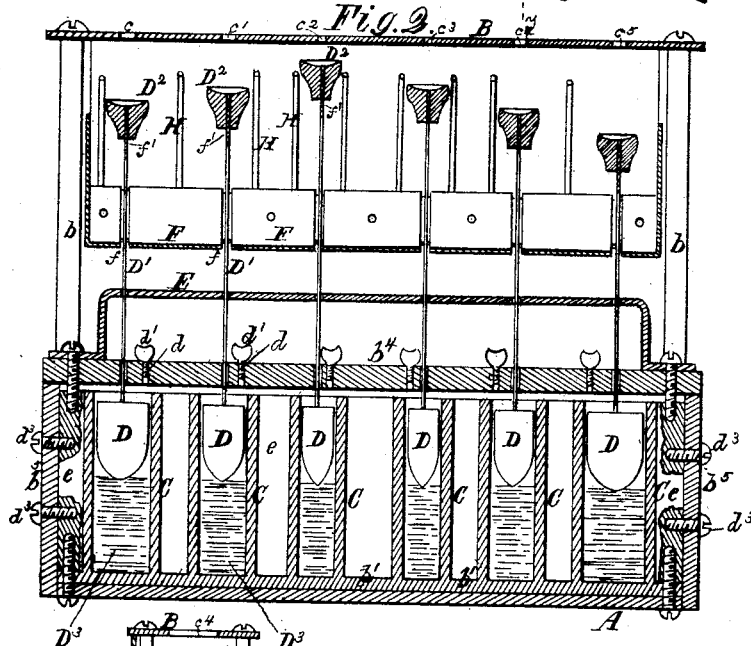
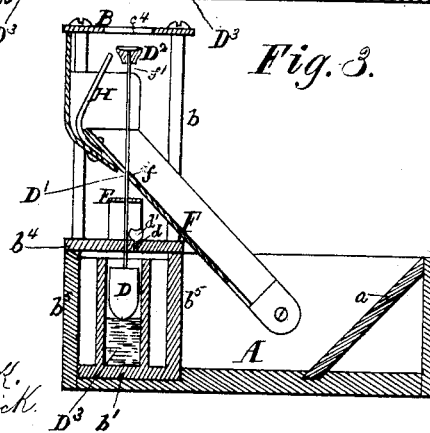


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN B. ATWATER, OF CHICAGO, ILLINOIS.

COUNTERFEIT-COIN DETECTOR.

SPECIFICATION forming part of Letters Patent No. 264,431, dated September 19, 1882.

Application filed May 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ATWATER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Counterfeit-Coin Detector, of which the following is a specification.

My invention relates to a machine which determines the genuineness of coins by measuring and weighing the same; and the nature of my improvements consist, first, in the combination of a series of tight cylinders or other shaped vessels supplied with quicksilver through a suitable plugged aperture, a series of weighing-trays mounted at different altitudes upon suitable guide-stems of a series of conical or other suitably-shaped floats which rest upon the quicksilver within the said vessels, and a measuring table or plate provided with a series of slots of a length and width corresponding respectively to the diameter and thickness of the respective standard coins of the United States or other countries, this combination being such that the float-stems which support the weighing-trays hold the trays while empty at different distances below the horizontal plane of the slotted measuring-table, such relatively different distances being in accordance with the different diameters of the coins, while the amount of float-surface which is immersed in the quicksilver will be in proportion to the respective diameters and weights of the different coins placed upon the respective trays through the respective slots of the table; second, in a combination of the slotted measuring-table, overhanging rods for properly directing the descent of the coins after they are weighed, an inclined conducting-apron, vertically rising and descending trays applied on guided float-stems, and cylindrical vessels supplied with a fluid which retards the descent of the floats, and a coin-receiving box; and, third, in the combination of trays made adjustable on float-stems with vessels containing quicksilver, whereby, in the event of any material change occurring in the density of the quicksilver from effects of temperature, the same may be compensated for by adjusting the altitude of the trays on the float-stems.

In the accompanying drawings, Figure 1 is a broken top view of the improved counterfeit-

coin detector; Fig. 2, a vertical section in the line $x x$ of Fig. 1, and Fig. 3 is a vertical section in the line $y y$ of Fig. 1.

In said drawings, A represents a coin-receiving box, of rectangular or other shape, and having the forward portion of its bottom inclined, as at a , so as to cause the coins, after they are measured and weighed and caused to descend, to slide properly down upon the flat portion of the bottom of the box, and also to facilitate the removal of the coins from the box.

B is a measuring table or plate mounted upon standards b of the box. This table is a sufficient distance above the box to allow the weighing mechanism to be placed below it, and allow said mechanism to operate properly. Through the table or plate B a series of slots, $c c' c^2 c^3 c^4 c^5$, are cut transversely of its length, and these slots are of a diameter and width respectively corresponding to the diameter and thickness, respectively, of twenty-dollar, ten-dollar, and five-dollar gold pieces, and one-dollar, fifty-cent, and twenty-five-cent silver pieces, which pieces are of standard size and weight, those lettered $c c' c^2$ being for gold pieces and those $c^3 c^4 c^5$ silver pieces. The slots will only admit through the table or plates coins of standard size having a standard weight. Therefore, if a counterfeit coin of full weight is brought over either of the slots, its thickness or diameter will prevent it from passing through the slot. By this means counterfeit or alloyed coins of full weight are detected; but if the coins should be of less weight than the established standard they could be passed through the slots in the table, and hence the weighing mechanism now to be described is combined with the measuring table or plate.

The weighing mechanism which I have devised, and believe to be more accurate than a vibrating weighted beam, is as follows: A series of tight cylindrical vessels, C, of varying diameter and capacity, and supplied with quicksilver through apertures d , closed by screw-plugs d' , are cast upon a base-plate, b' , and connected and stayed by a web, e , and, if necessary, the whole inclosed by outer walls, b^5 . These cylinders are placed within the coin-box A, directly under the slots of the plate or table B, and secured in position by screws d^2 , as shown. The upper ends of the cylin-

ders are closed by a cap-plate, b^4 , in which the apertures d and holes for the stems of the floats to move through are provided. Within these vessels cone-shaped floats D , which are respectively of little less diameter than the respective cylinders, are arranged so as to rest in their normal position upon the quicksilver D^3 , as illustrated. The floats may be either of iron, steel, glass, ivory, hard rubber, or wood, or any other material to which the quicksilver will not adhere or by which it will be absorbed. The respective displacing-surfaces of these floats are to be proportioned to the diameter and weight of the coins to be weighed, as illustrated in the drawings. The floats are attached to stems D' , which pass up through a guide-bar, E , and through slots f of a coin-conducting apron F , which is screwed to the coin-box and connected to a back plate of the table B , as illustrated. On the upper ends of the stems weighing-trays D^2 are fitted by means of screw-threads F' , so that they can be raised or lowered according to the necessities of the case. The trays are arranged centrally under the slots of the measuring plate or table, and they stand respectively at such altitudes as will adapt them for weighing the different standard coins. In setting the trays for operation they may stand so as to require about one-half of the diameter of the respective coins to be passed below the surface of the table in order to rest the coins upon them, and the movement of the trays downward should be sufficient to allow the entire diameter of the respective coins to pass below the under side of the table or plate. This adjustment can be attained by making the stems of the floats for the different coins of different lengths and proportioning the diameter and capacity of the cylinders and the diameters and fluid-displacing surfaces of the floats with respect to the different coins to be weighed. By the use of quicksilver for the purpose described the great weight thereof is made available for keeping a portable counterfeit coin-detector steady while in use.

The inclined coin-conducting apron F is provided at its upper end with a series of separated overhanging directing-rods, H , which are arranged in close relation to the trays D^2 —one on each side of a tray—and they serve for properly directing the coins downward upon the apron as soon as they descend below the under surface of the table or plate B .

In operating with this invention the coins are placed by the hand edgewise through the slots of the table B , and as soon as they rest on the trays they are released, when, if of the standard size and weight, they depress the tray, stem, and float, so as to pass entirely through the table and descend upon the apron into the box, being directed by the overhanging rods; but should any one of the coins be

less than the standard weight, or a counterfeit, it will remain in the slot, either in consequence of its not being capable of depressing the tray, stem, and float upon which it is resting, or because its bulk has been so increased, in order to give it sufficient weight, by a baser metal than either gold or silver that it cannot pass through the slot. Thus whether a coin is too light and yet of standard metal, or too large on account of its being made heavy enough by a metal not of standard character, the fact will be detected.

In the event of any variation in the operation of the weighing mechanism occurring from change in the height of the quicksilver in the cylinders caused by extreme change of temperature, the same can be regulated by adjusting the trays up or down on the screw-threaded ends of the float-stems.

The great advantage in my weighing mechanism lies in the trays moving straight up and down against the quicksilver, also in its being very compact and regular in its operation. The quicksilver, offering great resistance and yet capable of flowing freely, admits of the machine being made quite small, yet capable of weighing the larger as well as the smaller standard coins with great accuracy, and the combination of a table with slots only adapted for coins of standard size with the weighing mechanism described enables the machine to arrest bogus coins and also coins of standard metal but not standard weight.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A coin-detector comprising in its construction a series of tight cylinders of relatively different diameter and capacity for containing a weighing-fluid—as quicksilver, for instance—a series of weighing-trays mounted at different altitudes upon the stems of a series of floats having respectively different amounts of fluid-displacing surface and being properly guided, and a measuring-table having slots corresponding to standard coins, substantially as and for the purpose described.

2. A coin-detector comprising a slotted measuring-table, overhanging directing-rods, an inclined conducting-apron, vertically-moving trays applied on guided float-stems, cylindrical vessels supplied with a fluid which acts against the floats in their descent, and a coin-box, substantially as described.

3. In a counterfeit-coin detector, floating trays which are adjustable by screw-threads on their stems, and vessels containing quicksilver, substantially as and for the purpose described.

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Witnesses:

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