

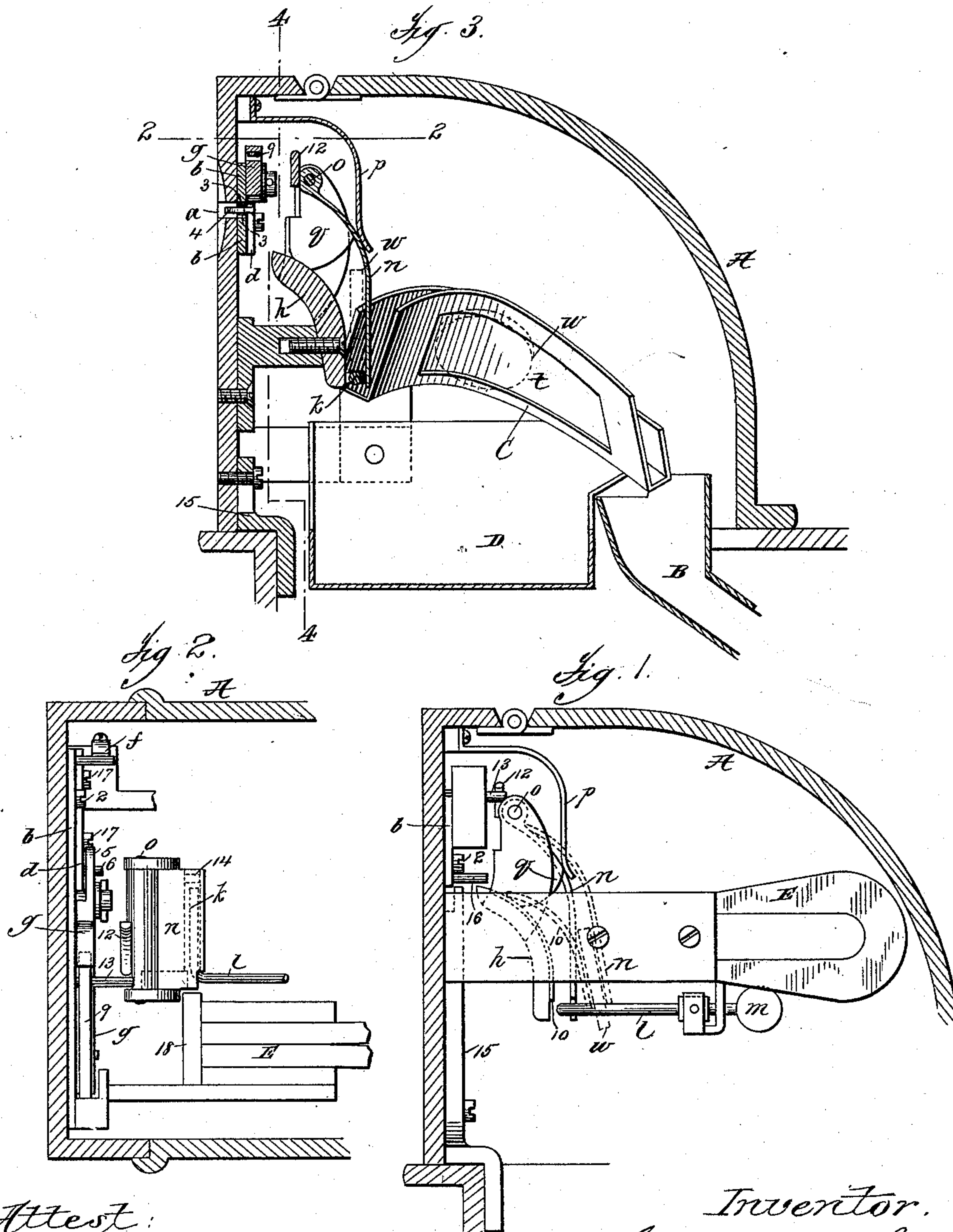
(No Model.)

2 Sheets—Sheet 1.

C. F. DE REDON.
VENDING APPARATUS.

No. 406,633.

Patented July 9, 1889.



Attest:

L. H. Bothe,
J. J. Kennedy

Inventor.

Constant F. de Redon

By Philip Phelps Hoovey

Attys

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

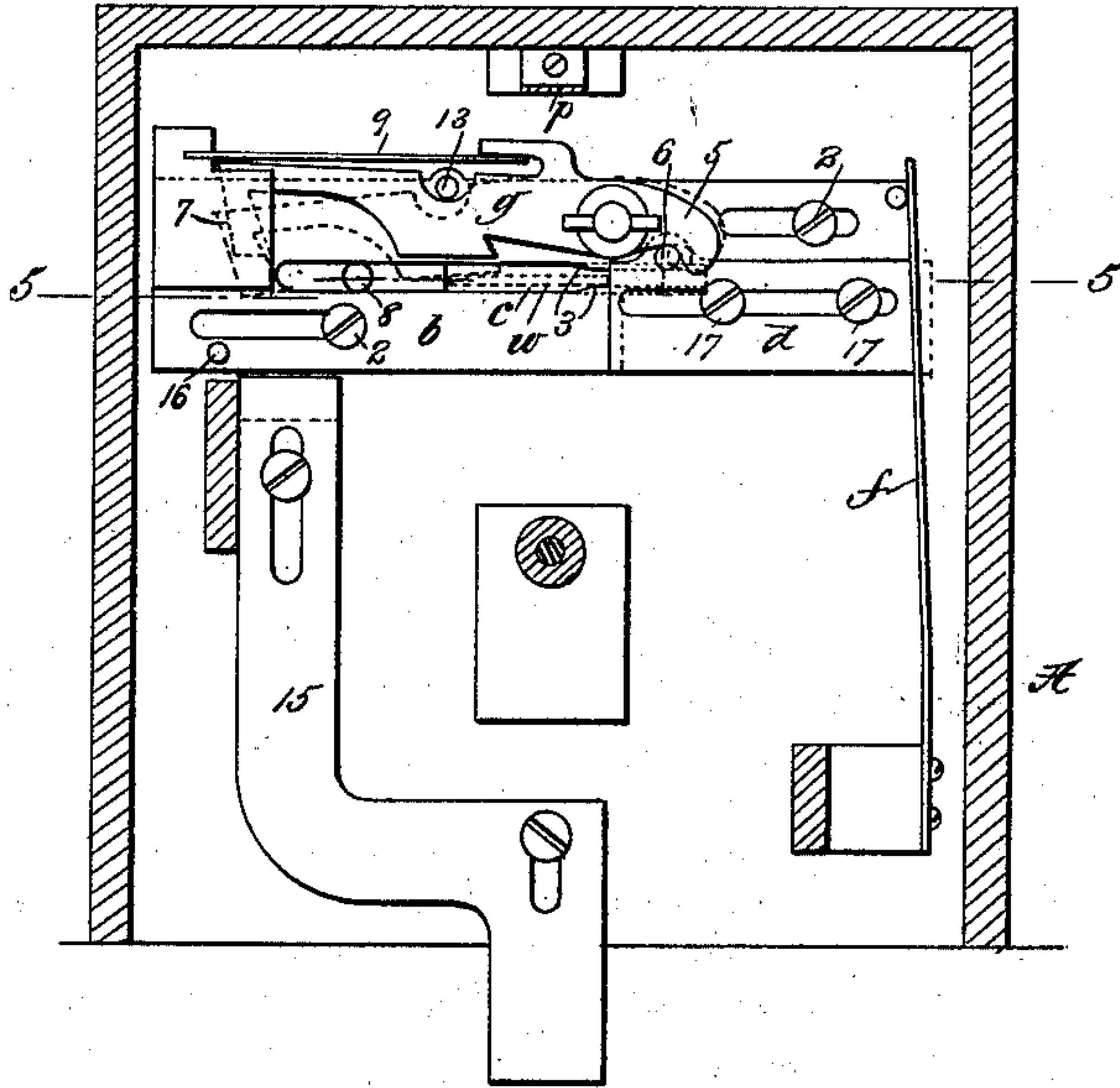
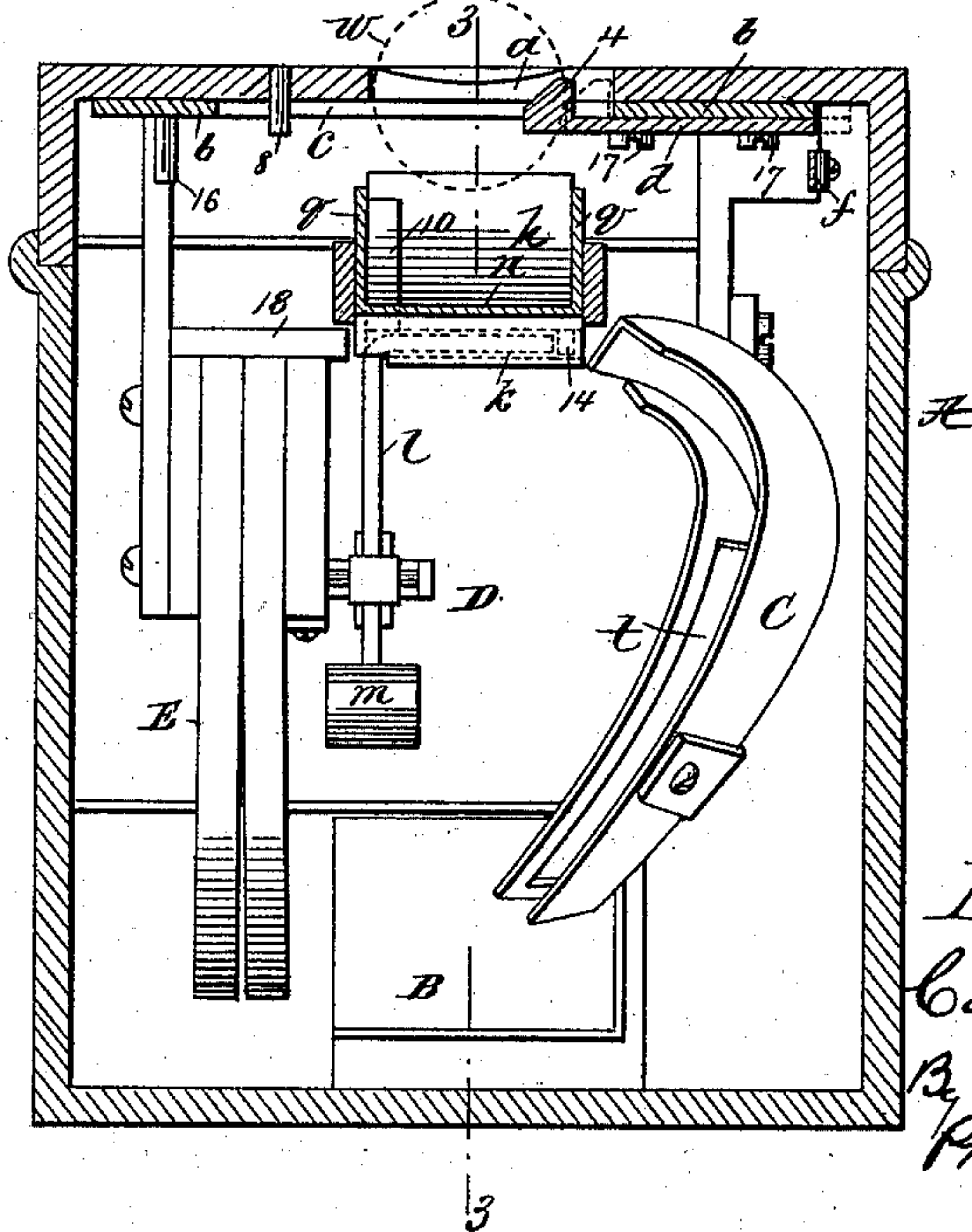


Fig. 5.



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Geo. H. Bots
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UNITED STATES PATENT OFFICE.

CONSTANT F. DE REDON, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE POSTAGE STAMP SERVICE MACHINE COMPANY, OF NEW YORK.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 406,633, dated July 9, 1889.

Application filed March 30, 1889. Serial No. 305,397. (No model.)

To all whom it may concern:

Be it known that I, CONSTANT F. DE REDON, a citizen of the Republic of France, residing at New York, county of New York, and State of New York, have invented certain new and useful improvements in Vending Apparatus, fully described and represented in the following specification and the accompanying drawings forming a part of the same.

10 This invention relates to a means for preventing fraud in the use of that class of vending-machines, weighing-machines, and similar machines, in which the deposit of a coin in a suitable aperture provided for the purpose sets the machine in operation and causes it to deliver the article purchased, or indicate the weight of the person depositing the coin, or to perform any other operation for which the machine is designed.

20 It has been found in the use of this class of machines that frauds are frequently perpetrated by persons who, instead of depositing the required coin in the machine, deposit a piece of lead or iron or other metal of a size and weight corresponding more or less approximately to the size and weight of the required coin. It has also been found that frauds are frequently perpetrated by users who introduce a wire or rod through the coin-
25 aperture, and by properly manipulating said wire or rod cause it to set the machine in operation.

30 It is the object of the present invention to provide means by which frauds of these classes can be prevented in a simple and reliable manner; and to that end the invention consists in certain details and combinations of parts in a machine of the class referred to, which will now be described and pointed
35 out in detail.

40 The improvements constituting the present invention are applicable to all or nearly all machines of the general class referred to. They are, however, especially designed and adapted for use in connection with a vending apparatus of the character shown and described in my prior Letters Patent No. 397,975, and also in a companion application for Letters Patent which I am about to file.

In the accompanying drawings, Figure 1 is a side elevation of an apparatus embodying the present invention, the casing being shown in section. Fig. 2 is a horizontal section taken on the line 2 of Fig. 3. Fig. 3 is a vertical section taken on the line 3 of Fig. 5. Fig. 4 is a vertical section taken on the line 4 of Fig. 3. Fig. 5 is a horizontal section taken on the line 5 of Fig. 4.

Referring to said figures, it is to be understood that A represents the casing of the vending or other machine; *a*, the slot or aperture through which the coin is introduced into the machine, and B the chute through which the coin passes to be delivered in proper position to set the machine in operation.

Located between the slot *a* and the chute B is the apparatus constituting the present invention, and which, as before stated, is designed to prevent the fraudulent use of the machine by the deposit of anything other than the proper coin or by the introduction of a wire or other rod through the slot. This apparatus consists of three sets of devices. The first set is designed to prevent the introduction through the slot *a* of a coin or other piece of metal which is of less thickness than the required coin. The second set of devices are designed to arrest and divert from the chute B any pieces of iron or other metal which are capable of being attracted by a magnet, or any pieces of metal which are heavier than the required coin, or pieces of metal which are not perfectly round, so as to be capable of rolling readily down a moderate incline; and the third device is designed to similarly divert any coin or round piece of metal which is of less diameter than the required coin.

The slot *a* is of a width just sufficient to receive the required coin—as, for example, in the case of the machine herein illustrated, a nickel five-cent piece—but is of a length somewhat more than sufficient to receive such coin. Located upon the inside of the casing A is a plate *b*, which is secured to the casing by means of studs 2, which pass through slots in the plate, so as to permit the latter to slide freely endwise. The plate *b* is pro-

vided with a slot *c*, which coincides with the slot *a*, but is of somewhat greater length. One end of the slot *c* is contracted slightly, so as to provide shoulders 3, which, when the plate is in its normal position, overlap one end of the slot *a*, as is best shown in Fig. 4. Located upon the inner face of the plate *b* is a second plate *d*, which is secured to the plate *b* by means of studs 17, which pass through a slot in the plate, so as to permit it to move freely endwise. The plate *d* is so positioned that it normally covers a portion of the contracted end of the slot *c*, the end of the plate *d* being provided with a lip 4, which projects into the slots *c a*. The plate *b* is acted upon by a spring *f*, which tends to hold the plates *b d* normally in position to partly cover the slots *a c* respectively.

Pivoted upon the plate *b* above the slot *c* is a plate *g*, having a cam-shaped extension 5, which is acted upon by a stud 6 projecting from the plate *d* in such manner that when the latter plate is moved longitudinally against the tension of the spring *f*, the plate *b* remaining stationary, the opposite end of the plate *g* will be rocked downward across the face of the slot *c*, thereby closing or partly closing said slot. The plate *g* is provided at its end opposite to the cam projection 5 with a hook 7, which, as the plate is rocked downward, engages with a stud 8, secured to the casing *A* and projecting through a slot in the plate *b*. The plate *g* is provided with a spring 9, the tendency of which is to normally hold the plate in its raised position.

The devices which have just been described constitute the means for preventing the introduction into the machine of coins or pieces of metal of less than the proper thickness, unless such coins or pieces of metal are of considerably less diameter than the required coin. These devices also operate incidentally to prevent in many cases the introduction into the machine of pieces of lead or other soft metal.

Located in front and beneath the slots *a c* is a curved guide *h*, upon which the coin, after passing through the slots, falls and is directed downward onto a narrow table or support *k*, upon which it rests upon its edge. The support *k* is connected to a pivoted lever *l*, which is suitably weighted, as indicated at *m*, to counterbalance the weight of the support *k* and of a coin of the required denomination. The coins are retained upon the support *k* by means of an upper guide *n*, which conforms approximately to the guide *h*. The guide *n* is pivoted at its upper end, as indicated at *o*, and is normally held in its depressed position by means of a spring *p*, which acts upon its outer side. The guide *n* is provided with side flanges *q*, which extend downward to the sides of the guide *h*, and one of these flanges is provided with a curved piece 10, which I call a "lifter," and which is normally seated in a recess formed in the edge

of the guide *h*. The guide *n* is provided above its pivots *o* with a cam projection 12, which is acted upon by a stud 13, projecting from the plate *b*, so that whenever said plate *b* is moved endwise the guide *n*, including its flanges *q*, and the lifter 10 will be rocked outward, as indicated by dotted lines in Fig. 1. The purpose of this organization will be made clear when the operation of the machine is explained.

The support *k* is slightly inclined, so that the coins falling upon the support tend to roll laterally off the same into a curved inclined chute *C*, the end of which is located adjacent to the support *k* in such position as to properly receive the coin. After entering the chute *C* the coins roll downward on their edges along the chute and are finally deposited in the chute *B*, to be conveyed to the proper position to operate the machine, as before explained.

The chute *C*, in addition to being inclined lengthwise, so as to cause the coins to roll along it, is also inclined laterally, so as to slightly tilt the coins and cause them to lean against one side of the chute. This side of the chute is provided with an opening *t*, the width of which is so adjusted that as the proper coin rolls along the chute its upper edge will be supported by the side of the chute above the opening, while if any coin or piece of metal of any less diameter than the required coin finds its way into the chute it will, as it rolls downward, have no support for its upper edge, and as a consequence will tilt and fall through the opening *t* and enter the hopper *D*, provided for its reception, and thus be prevented from passing into the chute *B* and operating the machine.

Located at the side of the chute *C* is a permanent magnet *E*, the armature 18 of which is so positioned as to be in close proximity to the edges of the coins or pieces of metal as they rest upon the support *k*.

The remaining features in the construction and organization of the apparatus will be described in connection with an explanation of its operation, which is as follows: In describing this operation it will be first assumed that a purchaser attempts to operate the machine by means of the proper coin—a nickel five-cent piece, for example.

As the coin *w* is introduced through the slot *a*, it being of substantially a thickness to fill the whole width of the slot, its edge will abut against the shoulders 3; but the coin being of comparatively hard metal or composition the shoulders 3 will not press into it, and as pressure is applied the plate *b*, with the plates *d* and *g*, will be moved endwise against the tension of the spring *f*, so as to permit the coin to pass through the slot, as indicated by dotted lines in Fig. 5. After passing the slots *a c* the coin will pass onto the guide *h* and be directed downward, so as to fall upon its edge upon the support *k*, as in-

indicated by dotted lines in Fig. 3. The weight of the coin will not, however, overcome the counterbalancing weight m , so that the support k will remain in its raised position, and the coin will roll off its support into the chute C and down the chute, it being supported at its upper edge so as not to fall through the opening t , and will be deposited in the chute B and pass onward to operate the machine.

Let it now be assumed that a person attempts to operate the machine by means of a coin, such as a one-cent piece or a piece of metal of any description which is thinner than the proper coin and of approximately the same diameter. As the coin or piece of metal is introduced through the slot a , instead of abutting against the shoulders 3 of the slot c , so as to move the plates b d endwise, as before, it will enter the contracted portion of the slot c and abut against the lip 4 of the plate d , thereby moving said plate d along the plate b . As soon as the plate d is thus moved the stud 6, acting upon the cam projection 5 of the plate g , will rock said plate downward so as to carry it across, or partly across, the slot c , and thereby bind the coin in the slot, and at the same time the hook 7 of the plate g will be carried downward so as to engage with the stud 8, and thus lock both the plates b and d against any further endwise movement, and reduce the length of the slots c a to such an extent that the coin cannot be forced through them, as indicated by dotted lines in Fig. 4.

Let it now be assumed that a person attempts to operate the machine by introducing a piece of metal or a coin of considerably less diameter than the required coin and either of the same or about the same thickness as the required coin, or thinner. Such coin or piece of metal will pass the slots a c , and falling upon the guide h will be deposited upon the support k . If the coin or piece of metal is of such nature that it will be attracted by the magnet E, or if it is of other form than round, so that it will not readily roll, it will be retained upon the support k and discharged into the hopper D in a manner which will be presently explained. If, on the other hand, the coin or piece of metal cannot be attracted by the magnet E, and is round, so as to roll off the support k , it will pass into the chute C, but as it arrives at the opening t its upper edge will not be supported, and as a consequence it will tilt and fall through the opening into the hopper D.

Let it now be assumed that a person attempts to operate the machine by means of a piece of lead or other soft metal which is of substantially the size, both as to thickness and diameter, of the required coin. In most cases when such metal is engaged by the shoulders 3 of the plate b the shoulders will cut into the metal to such an extent as to make it impossible to pass the piece through the slot. If, however, by skillful manipula-

tion a person succeeds in passing it through the slot, it will pass onto the guide h and be deposited upon the support k . Such soft-metal piece, however, if of the size of the required coin, will be heavier than the coin, and will tilt the support k downward slightly, so as to be arrested by a stop 14, which projects from the guide h , and prevented from rolling off the support into the chute C. As soon as the next coin is introduced through the slots a c , so as to move the plate b endwise, as before explained, the stud 13, projecting from the plate b , will engage with the cam projection 12 of the guide n , so as to rock said guide, together with its flanges q and lifter 10, away from the guide h , as indicated by dotted lines in Fig. 1, thus removing the piece of metal from the support k and permitting it to fall into the hopper D. As soon as the piece of metal falls off the support k the weight m will restore the support to its normal position, and as soon as the newly-introduced coin has passed the slots a c the springs f p will restore the plate b and the guide n and the parts which they carry to their normal position, and this will take place in time to direct the newly-introduced coin onto the support k .

The operation will be exactly the same as just described whenever a person attempts to operate the machine by means of a scrap of metal which is of such dimensions as to permit it to be introduced into the slots, but is not of perfectly round form, so as to cause it to roll off the support k .

The most frequent attempts at fraud upon machines of this character are however made by using disks or washers of iron of substantially the dimensions of the coin required for operating the machine. These disks of iron or iron washers are readily attainable in large quantities and at a trifling cost or trouble and of almost any desired dimensions.

From what has been said it will readily be seen that a disk or washer of iron of substantially the size of the required coin can be introduced through the slots a c , the same as a coin, and being of substantially the weight of the coin, or slightly lighter, it will not tilt the support k downward, so as to be arrested at that point, as has been described in connection with a piece of lead or other heavy metal. If, however, such iron disk or washer, or a disk or washer of any other metal which will be attracted by the magnet E is passed through the slots a c and is deposited upon the support k , it will at once be attracted by the armature 18 of the magnet and held upon the support until the next coin or piece of metal is passed through the slots, when the guide n and lifter 10 will be operated, as before explained, to discharge the piece of iron or other metal from the support into the hopper D.

The organization which is herein shown is provided with means for preventing the introduction of coins through the slot a , to operate the machine after the stamps or other

articles have become exhausted, or substantially exhausted. This is accomplished in the Letters Patent before referred to, and in my companion application, by means of a plate 5 which is operated through electrical connections, so as to be carried into position to close the slot at the required time. In the present case, however, the same result is accomplished by means of an arm 15, which is operated in 10 the same manner as the closing-plate in the Letters Patent before referred to, and is arranged so that when raised, which will be the case when the articles which the machine is vending are nearly or quite exhausted, it will 15 be in position to engage with a stud 16, projecting from the plate *b*, so as to prevent said plate from being moved to open the slot *a* sufficiently to permit the introduction of the required coin.

20 What I claim is—

1. The combination, in a machine of the class referred to, of the casing having the slot to receive the coins with a movable plate *b*, having a shoulder arranged to extend partly 25 across said slot in position to be engaged by a coin of the proper thickness, substantially as described.

2. The combination, in a machine of the class referred to, of the casing having the slot 30 *a* to receive the coins with the movable plate *b*, having the slot *c* registering with the slot *a* and contracted at one end to form shoulders which project partly across the slot *a*, substantially as described.

35 3. The combination, in a machine of the class referred to, of the casing having the slot to receive the coins with a movable plate *b*, having a shoulder arranged to extend partly across said slot, and thereby reduce its width 40 at one end, a second plate *d*, movable with and independently of the plate *b* and extending across the portion of the slot *a* which is reduced in width by the shoulders, and in position to be engaged by a coin or piece of 45 metal of less than the proper thickness, and the latch-plate *g*, operated by said plate *d*, to lock the plate *b*, substantially as described.

4. The combination, in a machine of the class referred to, of a support *k*, arranged to receive the coins as they are introduced into 50 the machine and to direct them forward in the proper course, with a magnet *E*, located adjacent to said support and in position to attract and retain thereon pieces of iron or other metal capable of being attracted by a 55 magnet, substantially as described.

5. The combination, in a machine of the class referred to, of a support *k*, arranged to receive the coins as they are introduced into 60 the machine and to direct them forward in the proper course, a magnet *E*, located adjacent to said support and in position to attract and retain thereon pieces of iron or other metal capable of being attracted by a magnet, and 65 the guide *n*, operated to remove the arrested metal from the support by the deposit of the next coin, substantially as described.

6. The combination, in a machine of the class referred to, of the casing having the slot 70 to receive the coins with the guide *h*, the counterbalanced support *k*, and the stop 14, for arresting a coin or piece of metal which is heavier than the proper coin, substantially as described.

7. The combination, in a machine of the 75 class referred to, of the casing having the slot to receive the coins, with the guide *h*, the counterbalanced support *k*, and the stop 14, for arresting a coin or piece of metal which is heavier than the proper coin, and the guide 80 *n*, operated to remove such heavier coin or piece of metal from the support by the deposit of the next coin, substantially as described.

In testimony whereof I have hereunto set 85 my hand in the presence of two subscribing witnesses.

CONSTANT F. DE REDON.

Witnesses:

T. H. PALMER,
EDWARD R. WOOD.