(No Model.) 2 Sheets—Sheet 1.

J. B. UNDERWOOD.

VENDING APPARATUS.

No. 381,892. Patented Apr. 24, 1888.

Fig. 1.

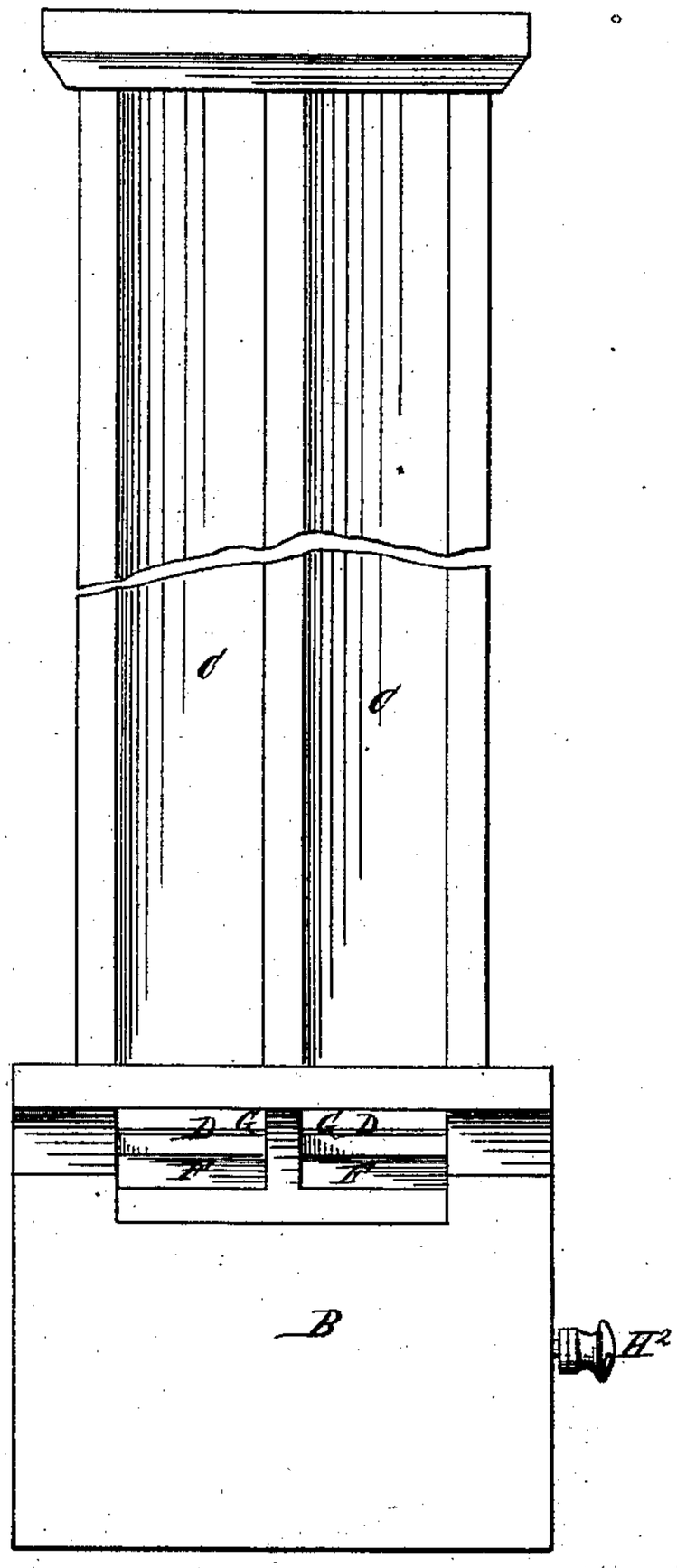


Fig. 2.

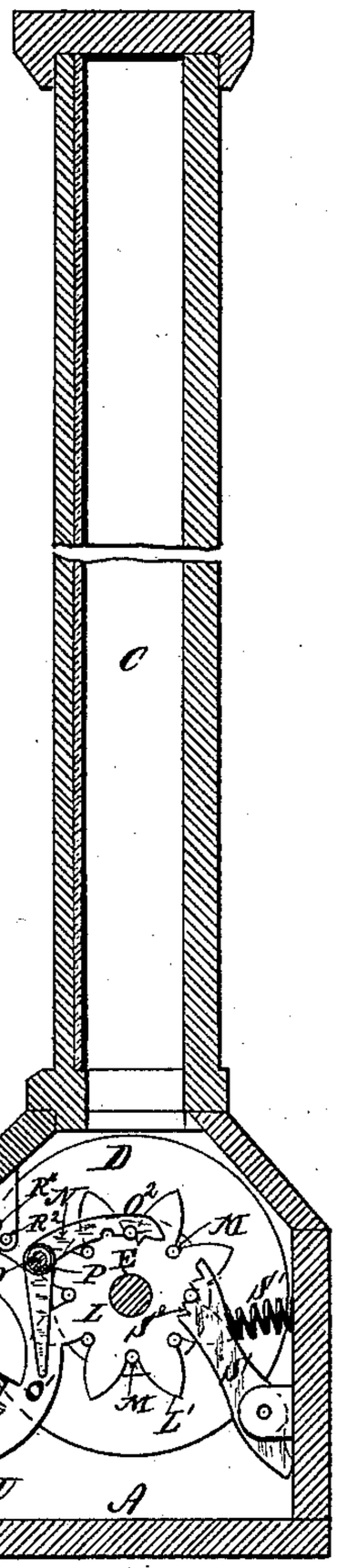
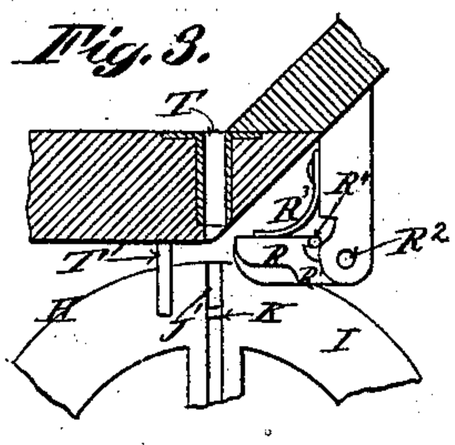


Fig. 3.



Witnesses:
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Chas. Burnell Norton.

Inventor:
Joseph B. Underwood
by Phillips Abbott, his Atty.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

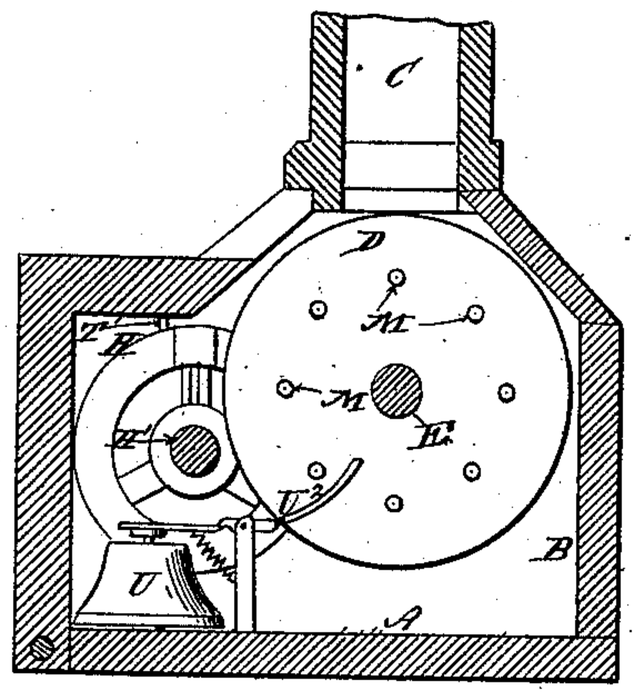
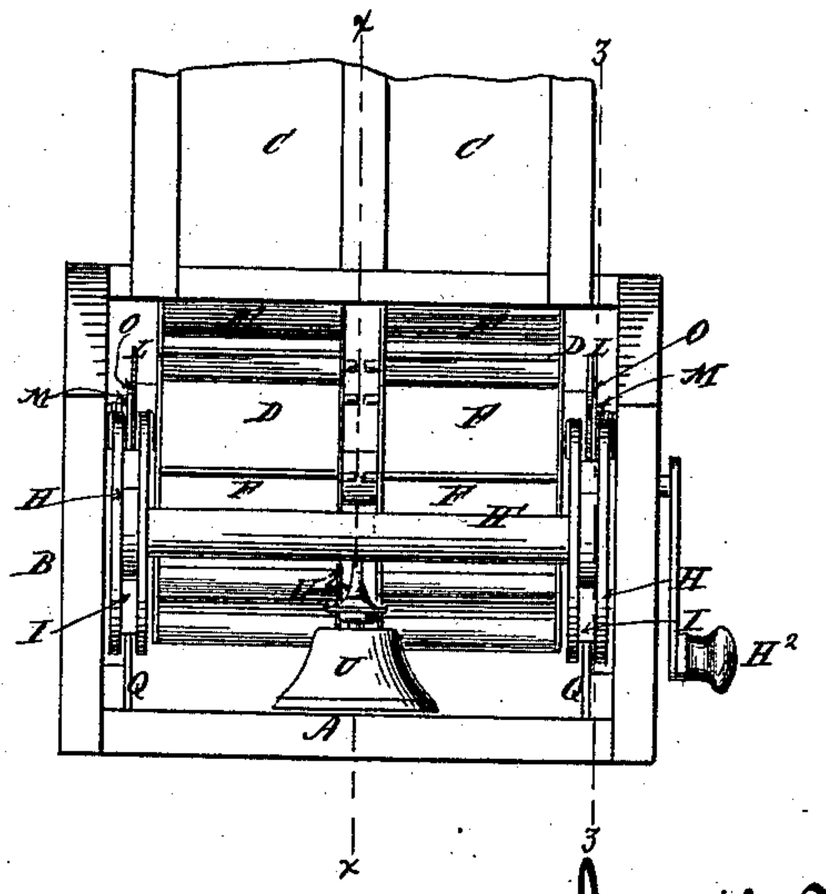


Fig. 5.



Witnesses:
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Chas Russell Norton.

Inventor:
Joseph B. Underwood.
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Atty.

UNITED STATES PATENT OFFICE.

JOSEPH B. UNDERWOOD, OF FAYETTEVILLE, ASSIGNOR TO JAMES B. DUKE, OF DURHAM, NORTH CAROLINA.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 381,892, dated April 24, 1888.

Application filed October 25, 1887. Serial No. 253,337. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. UNDERWOOD, a citizen of the United States, and a resident of Fayetteville, in the county of Cumberland and State of North Carolina, have invented a certain new and useful Vending Apparatus, of which the following is a specification.

My invention relates to apparatus for selling and delivering articles or packages in exchange for coin of a predetermined value, which is to be deposited within the aparatus, and upon such deposit of the coin the apparatus becomes operative.

The apparatus comprises one, two, or more magazines or receptacles for holding the articles to be sold, an equivalent number of rotary delivering-cylinders and coin-receiving devices, a crank to operate the apparatus, a device for detecting spurious coin or other material wrongfully used to simulate the coin, and mechanism whereby the extraction of more than the proper quantity of the goods sold for the amount of coin deposited is prevented.

My apparatus may, if desired, be so constructed that several differing kinds of goods of the same or differing prices or classes may be sold by it, the purchaser having his selection of the same.

The apparatus shown in the drawings illustrates a double machine, or, in other words, one adapted to sell two kinds of goods.

In the drawings the same reference-letters indicate the same parts in all the figures.

Figure 1 is a front elevation. Fig. 2 is a vertical section upon the plane of the line *z z*, Fig. 5. Fig. 3 is a section of the coin-receiving wheel, showing a knife for removing spurious or imitation coin. Fig. 4 is a vertical section upon the line *x x*, Fig. 5. Fig. 5 is a front view with the front portion of the box removed.

A is a box constituting the base of the apparatus.

B is an upwardly-extending frame resting upon the box A. In it are contained the magazines C C, two being shown in the drawings, in which the goods to be sold are placed. The goods are fed to the delivery apparatus by gravity. There may be as many partitions in this frame, constituting as many separate magazines for the reception of the goods, as desired. The delivery-cylinders below the magazines and also the coin-receiving devices should conform in number to that of the magazines. The magazines may be provided with glass fronts or sides, if desired, so that the goods can be inspected by the purchaser, and access thereto for the introduction of the goods may be obtained either through the top, back, sides, or front and in any preferred manner, and the opening therefor may be fastened by a lock of any desired construction to prevent tampering therewith.

D D are rotary delivery-cylinders. They are independent of each other and are respectively placed on a shaft, E.

F F, &c., are pockets or receptacles made in the periphery of the delivery-cylinders, in which are successively received the articles or packages to be sold as they are fed by gravity from the magazines.

G G are two openings in the front of the box A, which substantially conform to the size and shape of the pockets F in the rotary delivery-cylinders, so that the purchaser may readily remove from the exposed pocket the article he has purchased.

H H are coin-receiving devices, which are rigidly mounted on a shaft, H′, journaled in the sides of the box A, or in an independent frame, if preferred, which shaft has a crank, H^2, on its exposed end. The coin-receivers consist each of a wheel having a deep groove, I, formed circumferentially in its periphery and smaller crosswise and radial grooves, J J, made opposite each other in the inside of the larger groove, I. The grooves J J are adapted to receive the coin which is appropriate to the machine.

K K are slight projections or shoulders formed crosswise of the small grooves J J about half the width of the coin from the periphery of the wheels H H. They are made of sufficiently hard metal to withstand the wear to which they will be subjected. Below the shoulders K K the grooves J J extend and open sidewise at J′ through the side of the wheels respectively.

L is a star-wheel attached to the end of each of the delivery-cylinders D, there being one for each cylinder. The points L′ of the star-

wheel extend laterally and enter the groove I in the coin-receiving wheel to which it appertains. It will be observed from the description hereinafter contained that the points of the star-wheel are practically so many arms, which, engaging with the coin as it is carried around by the coin-wheel, operate the delivery device. It is not essential, therefore, that they should be in the form of a star-wheel.

M M are a series of pins rigidly attached to the end of the delivery-cylinder or cast or otherwise formed on the star-wheels.

N is a locking-lever pivoted at O to any suitable support, one end, O′, of which enters the groove I in the wheel H by the sides of the teeth of the star-wheel L, and the other end, O^2, which has a notch or recess therein, engages with the pins M.

P is a spring which normally throws the locking-lever O into engagement with the pins M. The adjustment of these parts is such that when the lever O is in engagement with the pins the pockets F of the delivery devices will be held in such position that one of them will be opposite the opening G in the front of the case A and the one next in rear thereof will be under the magazine above it in position to receive the article or package to be sold.

Q is a stripper rigidly attached to the side of the case A or other suitable support, and entering the groove I in the wheel H, and passing therein so far as to be above the upper edge of the coin held in the crosswise grooves J J when the coin comes in contact with the stripper.

R is a knife-blade having an upwardly-rounding point and a lateral enlargement, R′, rearwardly thereof. It is pivoted at R^2 to a suitable support on the case A.

R^3 is a stiff spring which normally tends to hold the blade downwardly against the stop R^4. This knife-blade is placed immediately in rear of the slot, hereinafter to be described, through which the coin is introduced, and the adjustment of the parts is such that the upwardly-rounding end of the blade will abut sharply against the upper edge of the coin when held in the coin-receiving wheel.

S is a pivoted pawl normally pressed forward by the spring S′. On its end are a series of teeth, S^2, &c., which successively engage with the pins M. The adjustment is such that as the delivery-cylinders revolve each increment of forward revolution will be held by the teeth of this locking-pawl, the pin M, with which it is then in engagement, entering them successively as the delivery-cylinder revolves, thus preventing any backward turning of the delivery-cylinders, which might be attempted for the purpose of working out from the magazine more than one package or article.

T T are slots made in the upper side of the case, or in any other suitable place, through which the coin is passed and by which it is properly guided to the coin-receiving wheel, and in such position that it will readily enter the slots J J in the wheel.

T′ are pins rigidly attached to the frame of the box A, which enter the groove I in the wheel H and prevent the backward turning of the wheel when a coin is in the grooves J J, which might result in loss of the coin to the purchaser without delivering to him the article or package for which he has paid. Of course there may be as many of the crosswise coin-receiving grooves J J in the wheel H as desired. Three are shown in the drawings.

U is a bell provided with a vertically-acting clapper, U′, which is caused to ring by the action of the spring-lever U^2, which engages with the pins M as the delivery-cylinders revolve.

The operation is as follows: The coin is dropped into the slot T and rests therein, being supported on the periphery of the wheel H. The crank is then turned until one of the pair of crosswise grooves J J comes coincident with it. The coin then drops into these crosswise grooves until it rests against the shoulders K. The crank is then further turned until the upper edge of the coin comes in contact with the rounding end of the knife-blade R. If the coin be genuine, it will resist the cutting action of the knife and will overcome the stress of the spring R^3, and the blade will pass above it. If, however, the coin be spurious—as, for instance, made of lead or a wooden or pasteboard disk—then the knife will cut into it, and when, in the revolution of the wheel H, the enlarged part R′ of the blade comes in contact with the spurious or imitation coin it (the spurious or imitation coin) will be forced out of the groove in the wheel H. Thus the delivering apparatus will not be operated. If the coin be genuine, then, as stated, the knife-blade will rise and the coin will pass beneath it, and as the wheel H is revolved it will come first in contact with the end O′ of the locking-lever N and will depress it, releasing the other end, O^2, from engagement with the pin M. The further revolution of the wheel H brings the edge of the coin in contact with that one of the teeth or arms of the star-wheel which is within the groove I in the path of the coin, and, pressing against it, carries the star-wheel and the delivery-cylinder to which it is attached around one point, at the same time causing the bell to ring by the engagement of the ringing-lever with one of the pins M. The delivery-cylinder in its revolution carries forward one space the bottom article or package from the vertical pile in the magazine above it into the opening G in the front of the box, so that the purchaser may take it, and the succeeding pocket then receives the next one ready for a repetition of the operation. When the coin has passed around to the under side of the wheel H, it drops out of the grooves J J; but if for any reason it should stick therein, then, upon the further revolution of the wheel, the stripper Q will force it out of the grooves and it will fall into the bottom of the box, from which it will be subsequently removed by unlocking the same.

The operation of the bell and of the pawl S

and their coacting parts has been pointed out heretofore, and further description is unnecessary.

It is obvious that the size of the coin-receiving slots J J may be varied in the different wheels H, and thus one of the coin-receiving wheels may be adapted to receive five-cent pieces and another twenty-five-cent pieces and another ten-cent pieces, and so on. Thus in the same machine may be aggregated several coin-receiving wheels and their corresponding magazines, adapted to sell and deliver articles in exchange for coins of any and all denominations.

Of course if the purchaser drops a coin into one of the slots smaller than the coin appertaining to that special part of the machine, it will fall down through the slots in the wheel H, passing the shoulders K, and will drop into the bottom of the box and be lost to him.

It is obvious that many alterations may be made in the details of construction of my apparatus and still my invention be employed. I do not, therefore, limit myself to the details of construction.

Having described my invention, I claim--

1. The above-described apparatus, comprising a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a knife-edge arranged in the path of the coin, a locking-lever for holding and releasing the delivery device, also placed in the path of the coin, a delivery device placed beneath the magazine and provided with an arm which is placed in the path of the coin, a pawl for preventing backward movement of the delivery device, and a stop to prevent backward turning of the coin-receiving wheel, substantially as and for the purposes set forth.

2. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a locking-lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, a pawl for preventing backward movement of the delivery device, a delivery device placed underneath the magazine, a stop to prevent the backward turning of the coin-receiving wheel, and a stripper to remove the coin from the coin-receiving wheel, substantially as set forth.

3. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a locking-lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, a pawl for preventing the backward movement of the delivery device, a delivery device placed underneath the magazine, and a stop to prevent the backward turning of the coin-receiving wheel, substantially as set forth.

4. The above-described apparatus, comprising a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a knife-edge arranged in the path of the coin, a locking-lever for holding and releasing the delivery device, a delivery device placed beneath the magazine and provided with an arm which is placed in the path of the coin, and a pawl for preventing backward movement of the delivery device, substantially as set forth.

5. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a portion of its revolution, a locking-lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, a pawl for preventing backward movement of the delivery device, a delivery device placed underneath the magazine, and a stripper, substantially as set forth.

6. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a portion of its rotation, a locking lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, and a delivery device placed underneath the magazine, substantially as set forth.

7. The combination of a rotary coin-receiving wheel operated from the outside of the apparatus and arranged to receive and hold the coin during a portion of its revolution, a locking-lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, a delivery device placed underneath the magazine, and a stop to prevent backward turning of the coin-receiving wheel, substantially as set forth.

8. The combination of a rotary coin-receiving wheel operated from the outside of the apparatus and arranged to receive and hold the coin during a portion of its revolution, a locking-lever for holding and releasing the delivery device, a delivery device provided with an arm, said locking-lever and said arm being both placed in the path of the coin, a delivery device placed underneath the magazine, a stop to prevent backward movement of the coin-receiving wheel, and a locking device to prevent backward movement of the delivery device, substantially as set forth.

9. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a delivery device provided with an arm which is

placed in the path of the coin, and a delivery device placed beneath the magazine, substantially as set forth.

10. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a delivery device provided with an arm which is placed in the path of the coin, a delivery device placed beneath the magazine, and a stop to prevent backward turning of the coin receiving wheel, substantially as set forth.

11. The combination of a rotary coin-receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a delivery device provided with an arm which is placed in the path of the coin, a delivery device placed beneath the magazine, a stop to prevent backward turning of the coin receiving wheel, and a stripper, substantially as set forth.

12. The combination of a rotary coin receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a delivery device provided with an arm which is placed in the path of the coin, a delivery device placed beneath the magazine, and a stripper, substantially as set forth.

13. The combination of a rotary coin receiving wheel operated from the exterior of the apparatus and arranged to receive and hold the coin during a part of its revolution, a delivery device provided with an arm which is placed in the path of the coin, a delivery device placed underneath the magazine, and a stop to prevent the backward movement of the delivery device, substantially as set forth.

14. The herein-described coin-receiving wheel, having the circumferential groove I, the crosswise grooves J J, and the shoulders K, substantially as set forth.

15. The combination of a rotary coin-receiving wheel operated from the exterior of the case, a rotary delivery device provided with an arm which lies in the path of the coin and engages with it during the revolution of the coin-wheel, a magazine containing the articles to be sold and which feeds them to the delivery device by gravity, and an opening in the case, whereby the said articles may be removed by the purchaser, substantially as set forth.

16. The combination of a rotary coin-receiving wheel with a rotary delivery device provided with an arm adapted to engage with the coin during the revolution of the coin-receiving wheel, and a case provided with an opening, whereby the goods may be removed by the purchaser, substantially as set forth.

17. The combination of a rotary coin-receiving wheel, a case provided with a slot to receive and guide the coin to the coin-receiving wheel, a delivery device provided with an arm against which the coin strikes during its revolution, and a magazine superimposed above the delivery device, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 18th day of October, A. D. 1887.

JOSEPH B. UNDERWOOD.

Witnesses:
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PHILLIPS ABBOTT.