No. 740,935. PATENTED OCT. 6, 1903.

C. R. SMITH.

COIN VENDING MACHINE.

APPLICATION FILED OCT. 17, 1901.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

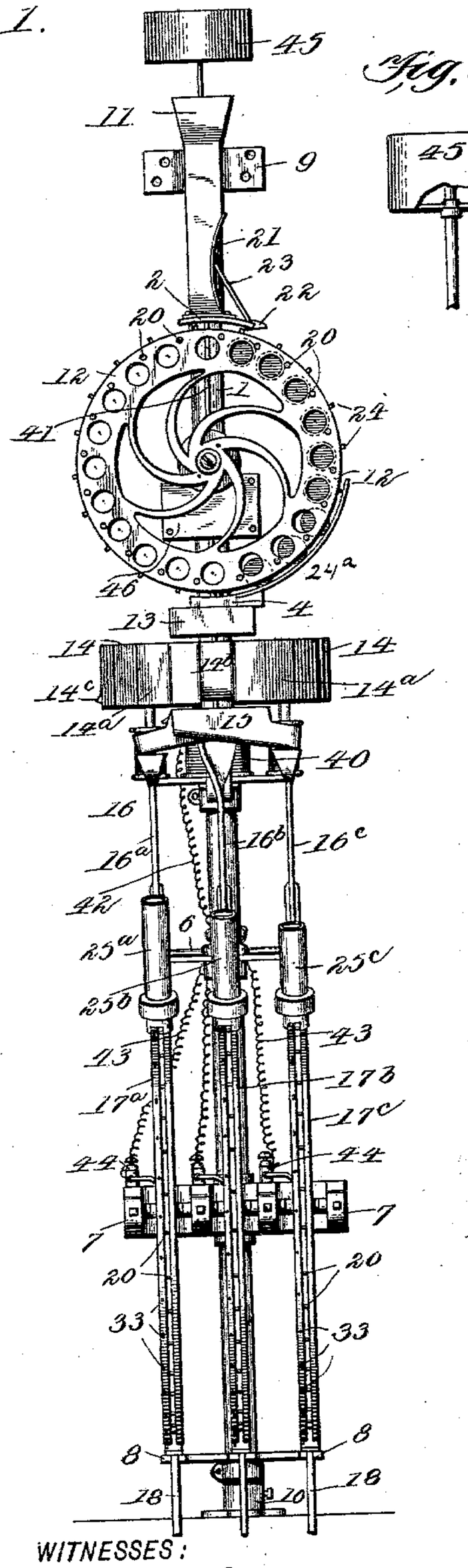

Fig. 2a.

Fig. 2.

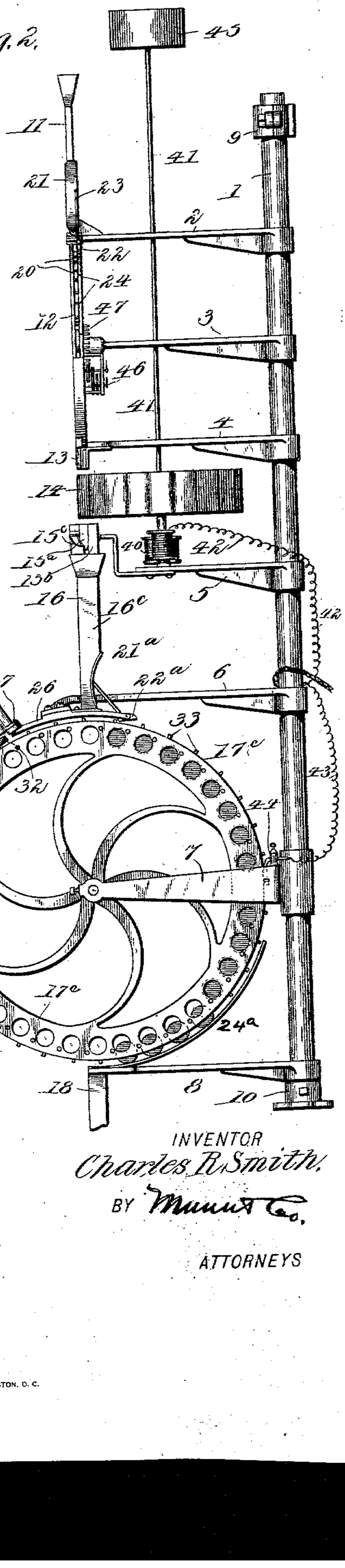

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Fig. 3.

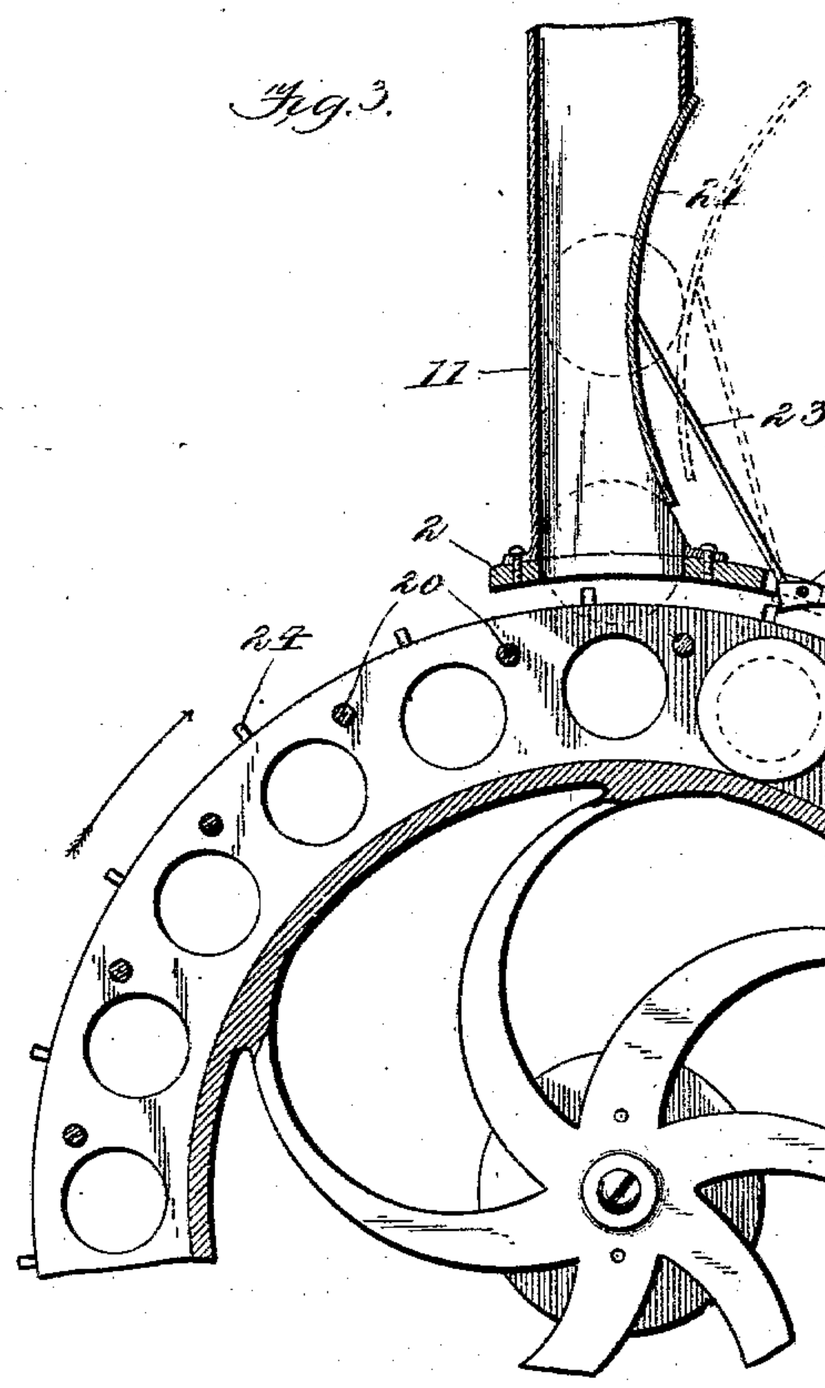


Fig. 3a.

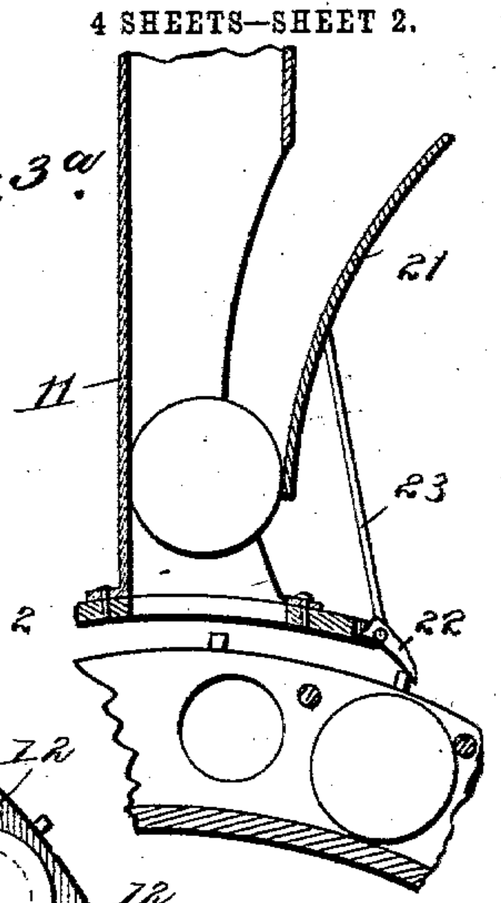


Fig. 5.

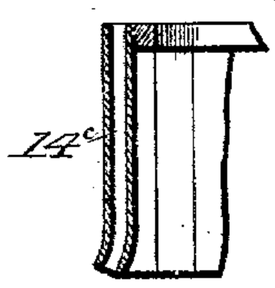
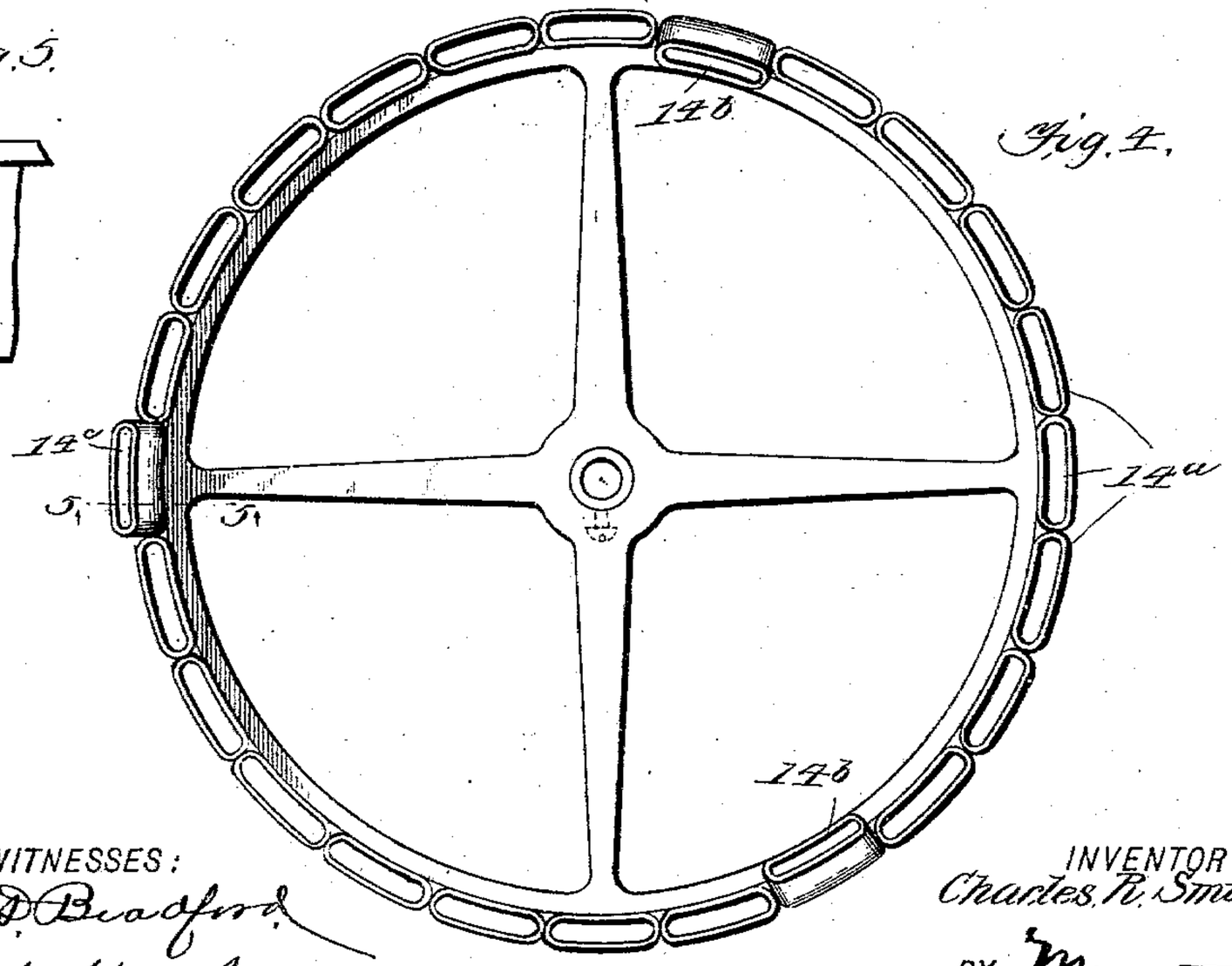


Fig. 4.



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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 6.

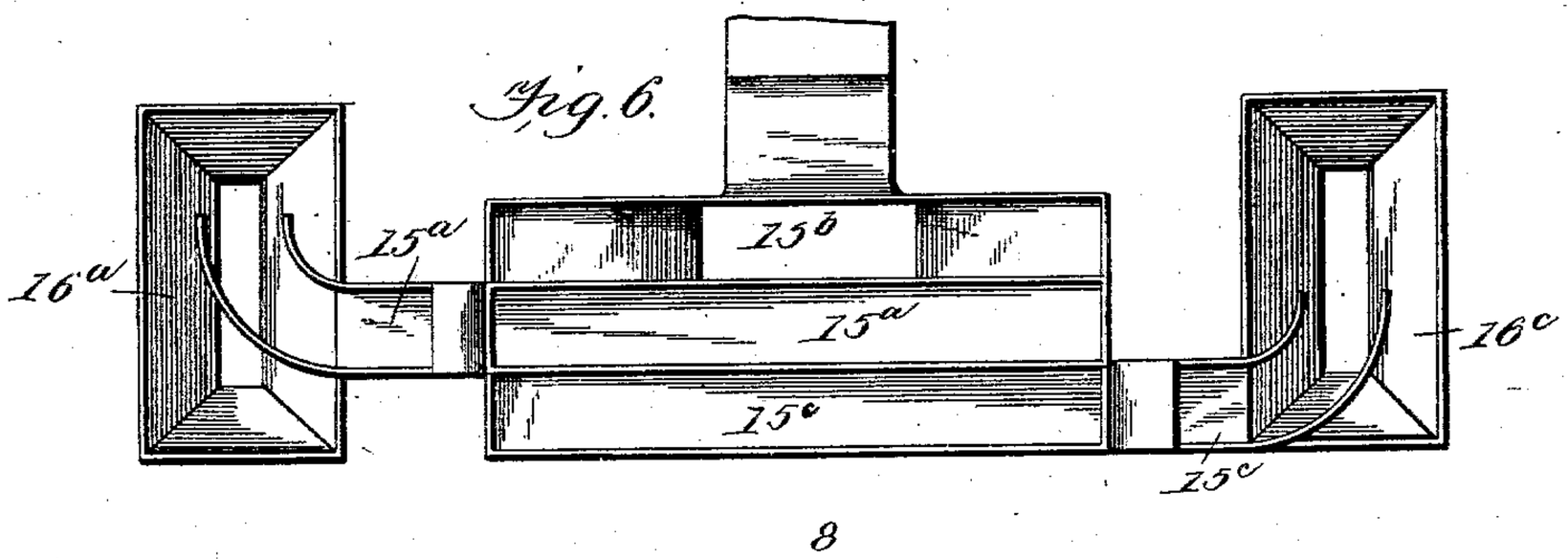

Fig. 7.

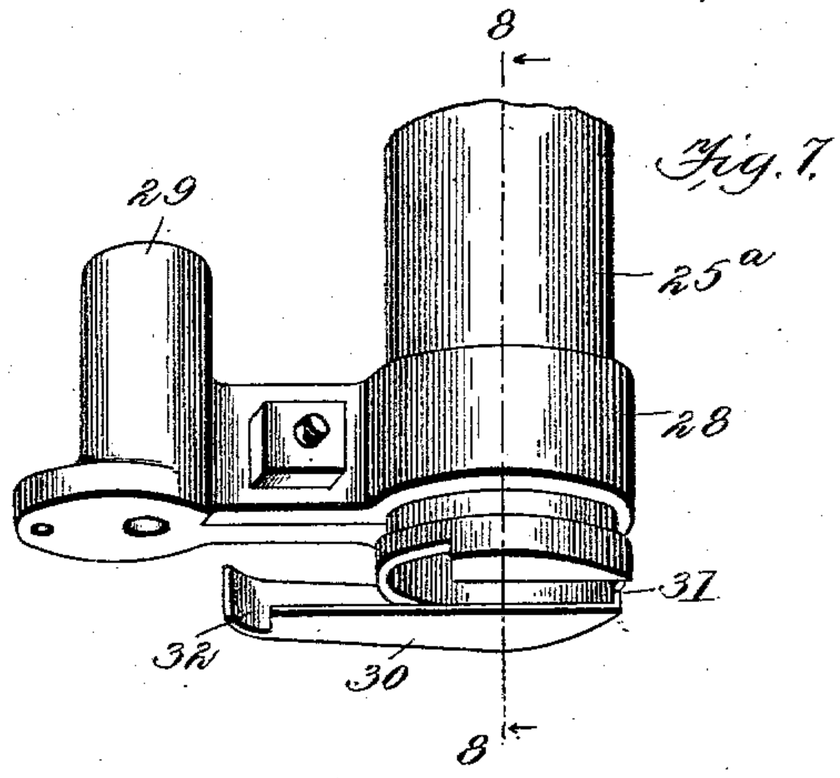

Fig. 8.

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COIN VENDING MACHINE.

APPLICATION FILED OCT. 17, 1901.

NO MODEL. 4 SHEETS—SHEET 4.

Fig. 9.

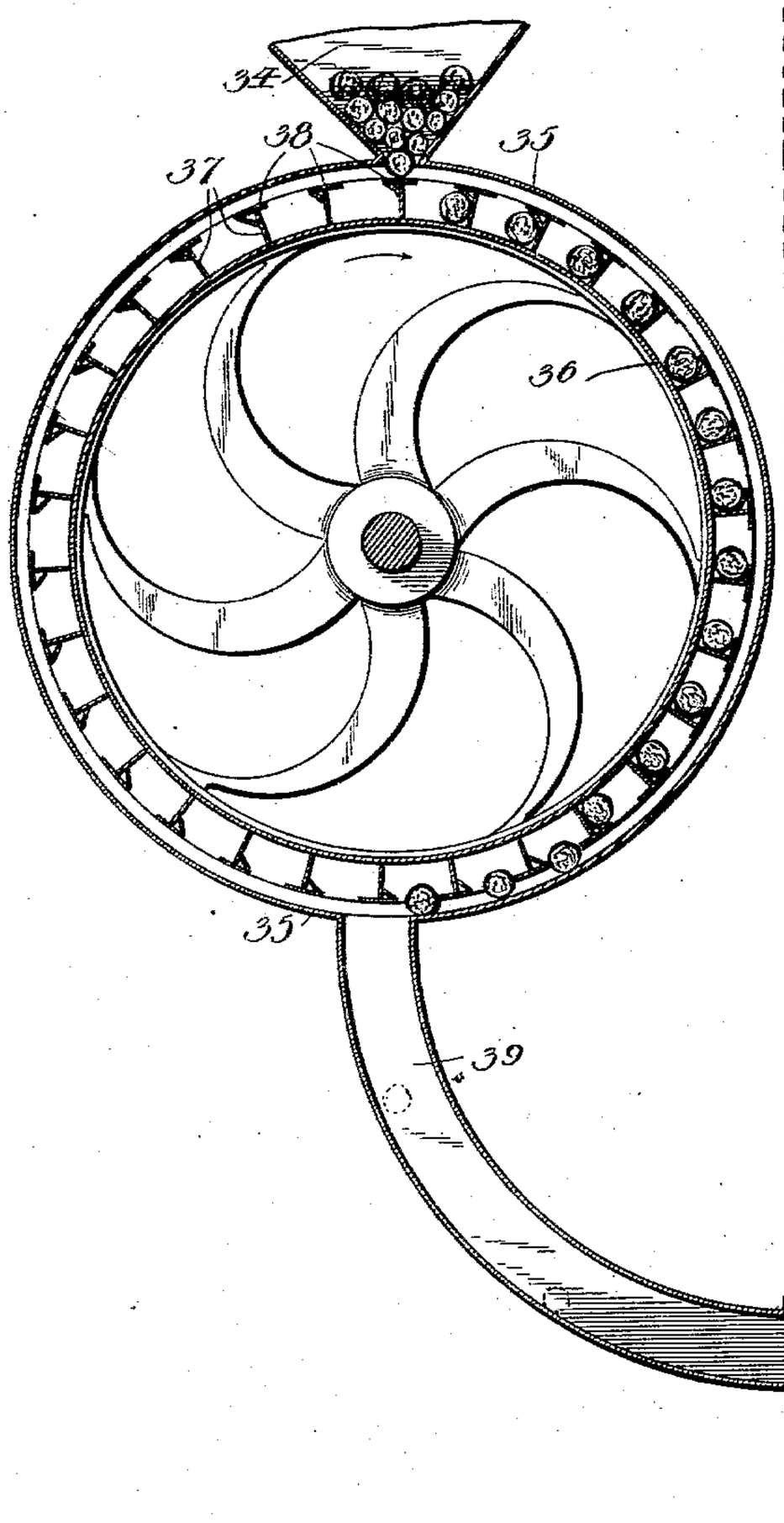
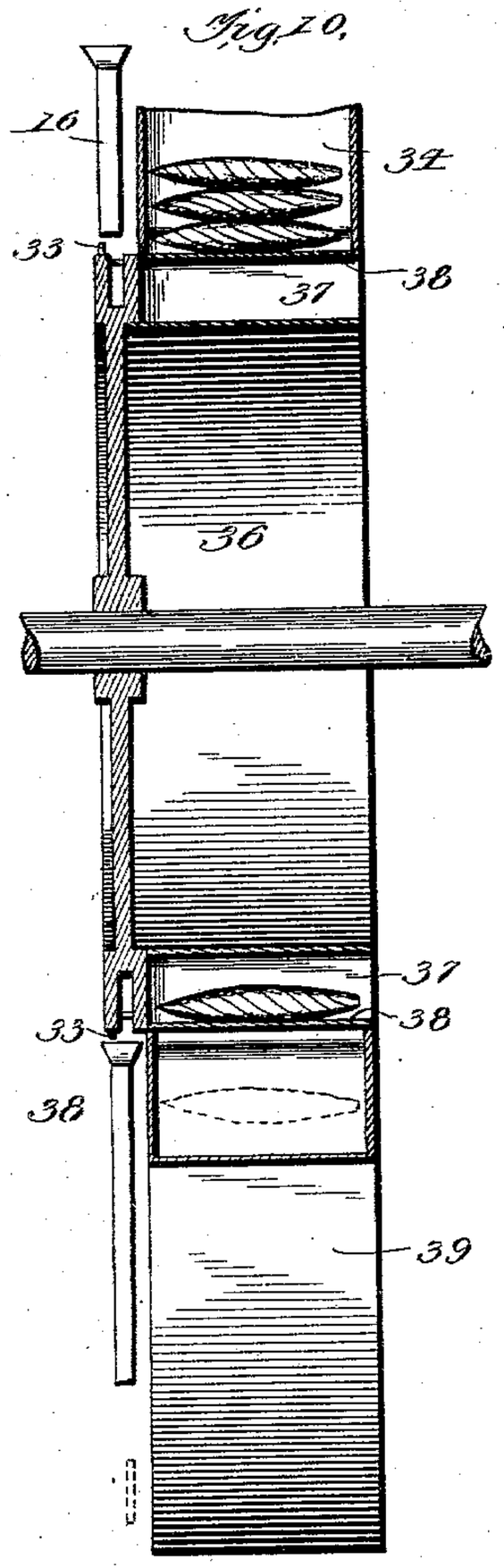


Fig. 10.



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No. 740,935. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

CHARLES RUFUS SMITH, OF MONTPELIER, VERMONT, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STAR TRADE REGISTER COMPANY, OF MONTPELIER, VERMONT, A COPARTNERSHIP.

COIN VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,935, dated October 6, 1903.

Application filed October 17, 1901. Serial No. 78,961. (No model.)

To all whom it may concern:

Be it known that I, CHARLES RUFUS SMITH, a citizen of the United States, residing at Montpelier, in the county of Washington and State of Vermont, have made certain new and useful Improvements in Coin Vending-Machines, of which the following is a specification.

My invention is an improvement in that class of vending-machines which are operated automatically by the weight of a coin or equivalent mark deposited therein.

The details of construction, arrangement, and operation are as hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of my improved machine. Fig. 2 is a side view of the same. Fig. 2ª is a detail section illustrating the attachment of an advertising-drum to the motor-shaft. Fig. 3 is an enlarged vertical section of the receiving coin-chute and the starting or primary wheel into which the coin is delivered from said chute. Fig. 3ª is a detail view illustrating the operation of locking mechanism for a coin-wheel. Fig. 4 is a bottom plan view of the rotary or adjustable coin chute or guide. Fig. 5 is a detail section of the same on the line 5 5 of Fig. 4. Fig. 6 is a plan view of certain coin guides or distributers. Fig. 7 is a perspective view of a check-holding device. Fig. 8 is a central longitudinal section on the line 8 8 of Fig. 7. Fig. 9 is a vertical section of the means for delivering goods or articles to be sold. Fig. 10 is a vertical transverse section of the parts shown in Fig. 9.

As indicated in Figs. 1 and 2, the active or movable parts of the machine are supported upon a vertical fixed standard 1 by means of a series of horizontal arms 2 to 8, inclusive, which are arranged practically in vertical alinement. The said standard 1 is preferably constructed as a tube and is held in place by brackets 9 and 10. It will be understood that the entire machine, save certain parts hereinafter specifically indicated, is inclosed in a case or box (not shown) and that the brackets 9 and 10 are secured to the same by means of screws.

I will first indicate briefly the course of a deposited coin—say a nickel—through the machine. The coin will be deposited in a fixed vertical chute 11, whence it will pass to the starting or primary wheel 12 and from it be delivered into a vertical guide 13, and thus pass into some one of the pockets of the rotatable coin guide or chute 14. Passing through the latter, the coin will enter one of the three distributers, (indicated at 15,) thence into one of a corresponding series of fixed vertical chutes, (indicated at 16,) and therefrom into one of the series of wheels 17ª, &c., termed "vending-wheels." From the latter the coin passes into one of the series of fixed chutes 18 and is thereby delivered into a box or receptacle arranged within the casing of the machine. The starting or primary wheel 12 and the vending-wheels 17ª, &c., are similarly constructed and differ only in size. The starting-wheel 12 is practically double, it being composed of two parallel annular portions, which are spaced apart, so as to receive a nickel or other coin between them, and are provided with a series of transverse holes, which are of less diameter than a nickel or other coin for which the machine may be adapted. A series of transverse pins 20 connect the two annular parts of the wheel 12 and serve to divide the same into spaces slightly larger than the width of a nickel. Thus when a nickel is delivered from the chute 11 into the wheel 12 it falls into any one of the series of pockets formed by these pins 20, which is directly under the chute. The side of the latter is cut out upon the arc of a circle and the arc plate 21 normally closes the opening thus formed. Such plate forms practically a trip, upon which the coin deposited in the chute 11 strikes in its passage through the latter. The said plate is connected with the dog or catch 22 by means of a rod 23. As shown best in Fig. 3, the dog 22 is pivoted to a piece attached to the base of the chute 11. It consists practically of a curved piece, which when the trip-plate 21 is in normal position, as shown by full lines, engages one of the series of peripheral pins 24, with which the wheel 12 is provided. Thus the said wheel is prevented from rotating to

the right so long as such engagement exists. When, however, a coin is deposited in the chute 11 and the trip-plate 21 is thrown out to the position indicated by dotted lines, (see Fig. 3,) it is apparent that the dog 22 will be disengaged from the pin 24, thereby allowing the wheel 12 to rotate the distance at which the pins are located apart—that is to say, when the trip-plate 21 is closed the blunt or flat end of the dog 22 engages a pin on the wheel 12 and locks the latter; but when a coin passes through the chute the trip-plate and dog are thrown back into the position shown by dotted lines, Fig. 3, in which the dog drags on the released pin, and thus insures that the trip-plate will be thrown back into normal position should it fail to resume it by gravity alone. It will be understood that in order to cause the wheels 12 and 17 to rotate to the right it is necessary to deposit one or more coins or weights in the right-hand side of the same before the machine is put in actual use. Thus the said wheels being weighted on the right-hand side they will always rotate in that direction. In practice the casing of the machine will be provided with a glass plate or a series of openings in its front side, so that the wheel 12 may be visually inspected, whereby the deposit of a slug or other false device in place of a coin may be detected. Since the spaces between cross-pins 20 of the wheels 12 and 17 are wider than the diameter of the coins, it is apparent the latter will fall out after passing a certain point unless means be provided for preventing it. For this purpose I employ a guard-plate 24^a, which is applied to the under side of the wheels and whereon the coins ride down to the guide 13, by which they are delivered to the rotatable coin guide or chute 14. The latter is practically a wheel arranged horizontally and consisting (see Fig. 4) of a series of vertical guides or chutes 14^a and three curved chutes 14^b and 14^c. The chutes 14^b are curved inward at the bottom and the chute 14^c is curved outward. The several chutes of the wheel 14 are adapted to deliver into distributing-guides 15^a, 15^b, and 15^c, which deliver correspondingly to fixed chutes 16^a, 16^b, and 16^c. The arrangement of these guides or distributers is shown in detail in Fig. 6, and it will be seen that the vertical chutes 14^a of the rotary wheel 14 deliver to the central guide or distributer 15^a; also, that the inwardly-curved chutes 14^b deliver to the inner guide or distributer 15^b, and that the coin-chute 14^c delivers to the guide or distributer 15^c. As before stated, the several distributers 15^a, 15^b, and 15^c deliver to the fixed chutes 16^a, 16^b, and 16^c. By these latter the coins are delivered correspondingly to wheels 17^a, 17^b, and 17^c. As before stated, these wheels are provided with the same trip device and dog as the wheel 12, it being understood, however, that there is a trip-plate and dog for each wheel 17^a, 17^b, and 17^c. As shown in Fig. 2, the trip-plate is indicated by 21^a and the dog by 22^a. As shown in Figs. 1 and 2, a series of check-holders 25^a, 25^b, and 25^c are applied in connection with the vending-wheels 17^a, 17^b, and 17^c, respectively. For this purpose the several chutes 16^a, 16^b, and 16^c are provided with feet or extended base portions 26, each of which is provided with two pins 27 of unequal length, which are arranged practically in radial alinement with the particular wheel over which they are located. As shown in Fig. 7, each check-holding tube is held in a screw-clamp 28, forming an attachment of a socket 29, which is adapted to receive the pins 27. Thus each of the check-holding tubes 25^a, 25^b, and 25^c may be quickly applied to or removed from the holding-pins 27. The bottom portion 30 (see Fig. 7) of each of the check-holders is provided with a transverse slot 31 and an extended and curved guide-piece 32. The rear side of the tube adjacent to the guide 32 is cut away to allow a check to be pushed out. The slot 31 permits the passage of radial pins 33, set in the periphery of the several wheels 17^a, &c., and spaced apart corresponding to the distance between the centers of the pockets in which the coins are held. It is apparent that since the checks rest in the tubes by gravity one will be removed therefrom each time that a pin 33 traverses the slot 31, and the guide 32 will cause the check to be discharged laterally. The checks are received by curved guides, (not shown,) whereby they are delivered at the front of the machine, where they are accessible to the customer. The checks are about the size of a nickel and made of some suitable metal and marked to indicate gradation of value. Thus checks indicating least value are deposited in the longest tube 25^a, checks of the next higher value in the tube 25^b, and checks of the highest value in the shortest tube 25^c.

So far as described the operation of the machine has been already indicated for the most part.

In further explanation I will state that the movable coin-chute 14 may be rotated or set with any one of its chutes 14^a or 14^b or 14^c in position to receive a coin from the guide 13. If one of the chutes 14^a be set in alinement with the guide 13, the coin will be delivered to the central fixed guide or distributer 15^a, and thereby deliver to the fixed left-hand chute 16^a, by which it will be deposited in the left-hand wheel 17^a. (See Fig. 1.) In its passage past the trip device 21^a the latter will be thrown outward, as indicated in Fig. 3, and its dog 22^a will be thereupon disengaged from a pin 33, whereby the weighted wheel 17^a will revolve the distance of one tooth or pin, since the dog 22^a will have resumed its normal position by the time the wheel has rotated the interdental distance. In such movement of the wheel one of its pins will have passed through the slot 31 in the bottom of the holder 25^a, and consequently one of

the checks held therein will have been pushed out and delivered to the customer. The latter will then exchange it for the article or goods which he desires to purchase. If, on the other hand, the rotatable coin-guide 14 be adjusted with one of its inwardly-curved chutes 14^b in register with the fixed distributer or guide 15^b, (see Fig. 6,) the coin will pass to the central fixed chute 16^b and thence into the pocket on the vending-wheel 17^b. Then the latter rotating, as in the case of the wheel 17^a before described, a mark will be pushed out of the holder 25^b and delivered to the customer. In practice the marks held in tube 25^b may be of double the value of those held in 25^a. Thus the customer receiving a check from 25^b will receive one or more articles double the value of those delivered in exchange for checks extracted from the first tube 25^a. Again, if the rotatable coin-guide 14 be set with its outwardly-curved chute 14^c in register with the fixed guide or distributer 15^c the coin received by the latter will be discharged into the fixed chute 16^c, and thereby into the third vending-wheel 17^c, and consequently the latter will be operated, as in the case of the others, to extract a check from the tube 25^c, and thus the customer will receive the said check, which is exchangeable for goods of triple the value of those delivered in exchange for the checks held in 25^a. It will be seen that by adjustment of the wheel 14 the machine may be set to sell goods of different values. Such adjustment of the wheel 14 may be made manually, the casing of the machine being for that purpose provided with an opening and door at a point opposite the said wheel.

In place of the customer receiving a check and exchanging it for goods he may receive the goods themselves if they be of a character that enables them to be delivered mechanically.

I illustrate in Figs. 9 and 10 the delivery of cigars. It will be understood that when the apparatus shown is employed the check-holders 25^a, &c., are detached. The cigars are placed in a hopper 34, which is provided with a bottom opening having about the diameter of large cigars. Within a casing 35, to which the hopper is attached, is arranged a rotatable wheel 36, whose rim is provided with a series of radial partitions 37, which are spaced apart a distance corresponding to the distance between the teeth 33 (see Fig. 10) on the adjacent portion of the wheel. The rim 36 projects laterally from the wheel, as shown in Fig. 10. Each of the partitions 37 has a transverse cap-plate 38, which serves as a guard for preventing a cigar passing into a pocket except at the desired time. In other words, whenever the wheel 36 is at rest one of the guards 38 is directly beneath the opening in the bottom of the hopper 34, and when the wheel moves to the right the cigar resting on such guard-plate falls into the nearest pocket at the left. When the cigars reach the bottom of the casing 35, they pass out into a curved chute 39, by which they are delivered outside the casing at a point where they are accessible to the customer. The coins enter chutes 16 (see Fig. 10) and escape from chutes 18, as in the case before described. It will be understood that one or more of these wheels adapted to vend and deliver goods will be employed when it is desired to deliver different grades of goods, as in the case of the several check-holders before described, and that the wheel 14 may be set manually or otherwise to guide a coin into one or the other of the distributers 15^a, &c., and the connecting chutes 16^a. It will be further seen that this portion of the apparatus—to wit, the fixed coin-chutes 16^a, &c., the vending-wheels 17^a, &c., and their trip devices—may be employed separately or independently of the other parts of the machine arranged above them. I illustrate in Figs. 1 and 2 an electric motor 40 for rotating the coin-wheel 14. For this purpose the motor is attached to the shaft 41, upon which the wheel 14 is mounted, and wires 42 and 43 connect with a suitable battery (not shown) and a contact-point 44, which is arranged on the horizontal arm 7 in rear of and laterally from a vending-wheel 17^a, &c. The spring-contact 44 touches one of the pins 33 at each intermittent movement of the vending-wheel, so that a circuit is formed through the motor 40 each time that a coin passes from the chutes 16^a, &c., into one of the wheels 17^a, &c. Such rotation always occurs after passage of a coin through the wheel 14, and the latter comes to rest before another coin is deposited in the uppermost chute 11. The shaft 41 of the wheel 14 is extended above the machine proper and provided with an indicating-drum 45. This drum is so attached to the shaft 41 as to rotate when the latter does, but not in unison with it, and hence while its rotation indicates rotation of the coin-chute wheel 14 it never indicates the position of the chutes or guides of the latter relative to the guide 13. As shown in Fig. 2^a, the drum 45 is mounted loose on the shaft 41 and rests loose on a collar secured on the shaft and is rotated solely by friction with the collar.

It will be understood that the drum 45 may be visible above the top of the casing of the machine; but all other parts save the annular portion of the starting-wheel 12 and the mouth of the chute 11 will be inclosed and invisible to the customer.

It will be seen that the wheel 14 may be used—*i. e.*, when operated by the motor 40—to cause delivery of any one of three grades of goods or three different articles, this being determined by the point at which the wheel 14 stops after rotation. Since there are twenty coin-guides 14^a and but three curved guides or chutes, the percentage of goods delivered of the first or lowest grade will be greatly in excess. In every case, however, goods are delivered, there being no blanks.

In Figs. 1 and 2 a registering apparatus 46 is shown arranged directly below the axis of the starting-wheel 12 and is employed to register the operations of the machine and by computation the number of rotations of the wheel 12. For this purpose the lantern-wheel 47 is applied to the rear side of the wheel 12 and engages a toothed wheel of the registering apparatus proper. Further description of this part of my invention is unnecessary.

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

1. In a coin vending-machine, a fixed coin-guide and a rotatable circular coin-guide arranged horizontally below the same and comprising tubes or chutes adapted to deliver coins to different receptacles, as shown and described.

2. In a coin vending-machine, a movable coin-guide comprising chutes arranged vertically, one or more of them diverging laterally at its lower end, substantially as shown and described.

3. In a coin vending-machine, the combination, with a series of fixed guides or distributers, of a rotatable coin-chute comprising a series of chutes, some of which are vertical throughout and others curved outward and inward, corresponding to the position of the fixed coin-distributers, substantially as shown and described.

4. In a coin vending-machine, the combination, with a series of fixed chutes, and a series of vending-wheels arranged vertically and parallel below the same, of a like series of coin guides or distributers arranged for conveying coins into the fixed chutes, and a revoluble coin-wheel having chutes adapted to deliver into the several distributers according to the position of said wheel, substantially as shown and described.

5. In a coin vending-machine, the combination, with a vending-wheel, having a series of coin-pockets and provided with a series of peripheral pins, of a tubular check-holder arranged over and adjacent to the periphery of said wheel and having a bottom slot through which the pins on the wheel are adapted to pass, and a device adapted to engage said peripheral pins, for locking the wheel subsequent to the delivery of a coin thereinto, substantially as shown and described.

6. In a coin vending-machine, the combination, with a fixed chute, and a rotatable vending-wheel having a series of coin-pockets and a corresponding series of peripheral pins, of a pivoted dog which engages said pins successively as specified, a tubular check-holder arranged radially to the wheel and having its bottom portion slotted and provided with a lateral guide, whereby, as a coin passes through the said chute, the dog is tripped and the wheel allowed to rotate the distance of an interdental space and a check is simultaneously ejected from the holder by the same pins engaged by the dog, substantially as shown and described.

7. In a coin vending-machine, the combination with a fixed support, and a vending-wheel provided with coin-pockets, and a series of peripheral pins, of the coin-holder provided with a bottom slot and a lateral socket adapted to detachably engage a fixed projection on the frame, whereby it is held with its slot in coincidence and alinement with the pins of the said wheel, substantially as shown and described.

8. In a vending-machine, the combination, with a movable coin-chute, of an electric motor connected therewith a fixed coin-chute and a rotatable coin-wheel having a series of projections, with electrical connections between said motor and wheel, whereby mechanical contact is formed each time the wheel is moved the distance of an interdental space, thereby closing an electric circuit through the motor and causing movement of the coin-wheel, substantially as shown and described.

9. In a vending-machine, the combination, with a series of fixed chutes, and the rotatable coin-wheel arranged above the same and provided with a series of coin-chutes which are suitably shaped and so spaced as to deliver into the several chutes in the manner described, of a vending-wheel having coin-pockets and a series of peripheral pins and means for temporarily locking and releasing the said wheel, whereby it is adapted to rotate intermittently as coins pass through the chute, and an electric motor applied to the shaft of said coin-wheel, a spring-contact arranged adjacent to the vending-wheel and adapted to engage the pins thereof, and electrical connections between said contact and motor, substantially as shown and described.

10. In a vending-machine, the combination, with a rotatable circular coin-chute having individual chutes which are curved in opposite directions, and a rotatable drum set on the shaft of said wheel, and adapted to rotate simultaneously with the coin-chute, but out of unison therewith, substantially as shown and described.

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