Feb. 21, 1950 D. S. BRAHE ET AL 2,498,150

CHANGE MAKER

Filed July 29, 1946 2 Sheets-Sheet 1

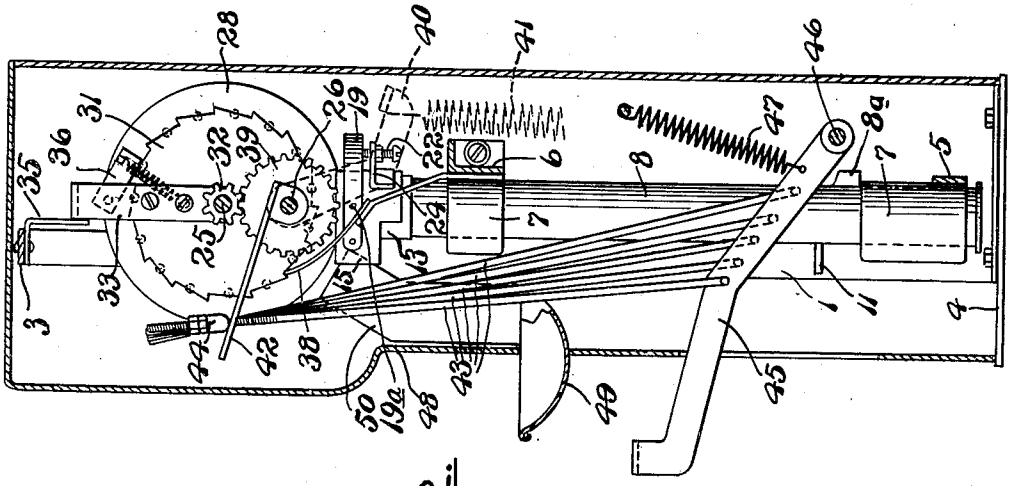

FIG. 2.

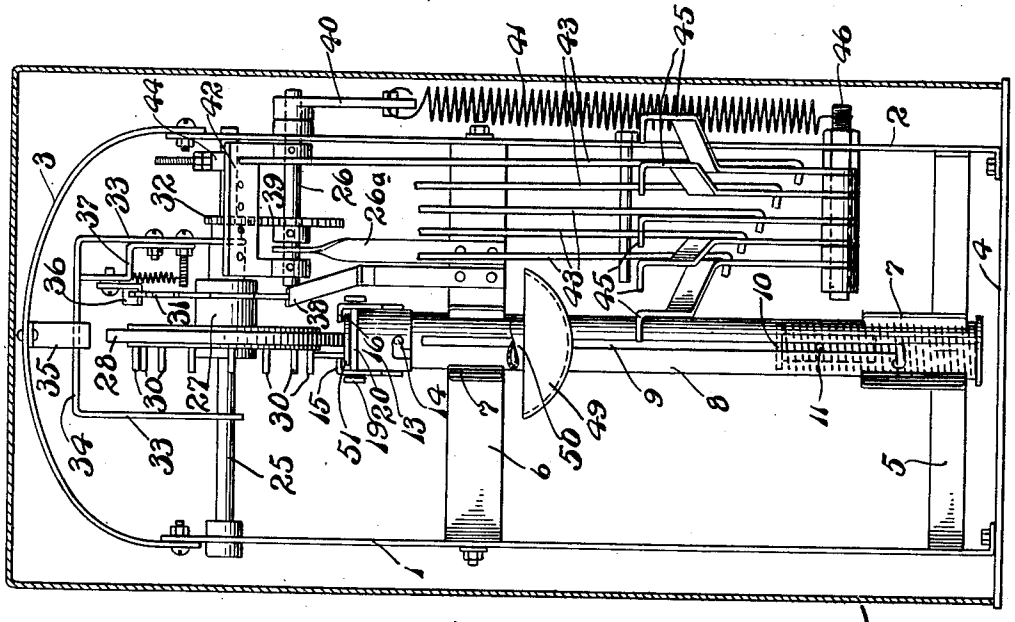

FIG. 1.

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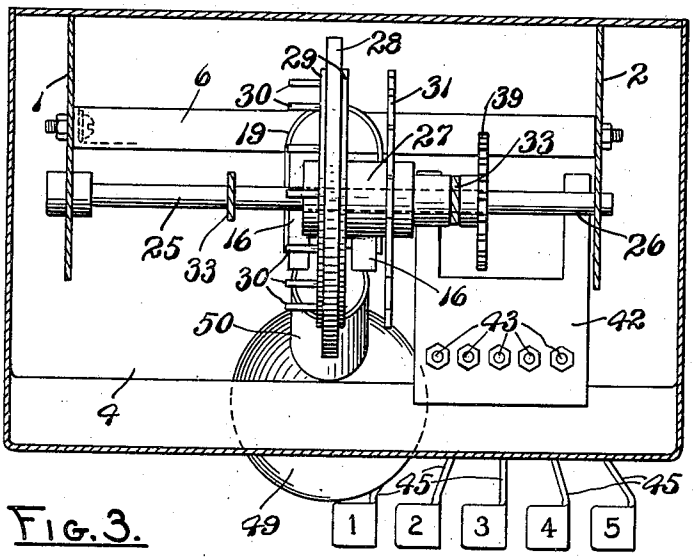

FIG. 3.

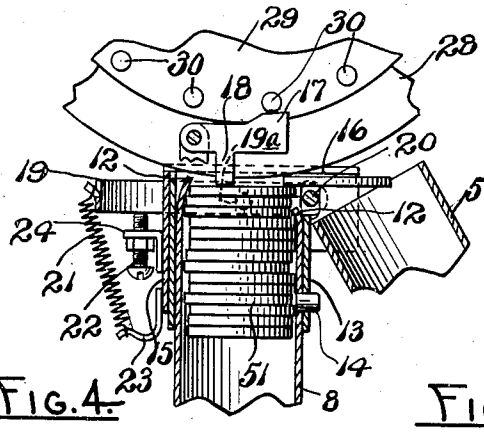

FIG. 4.

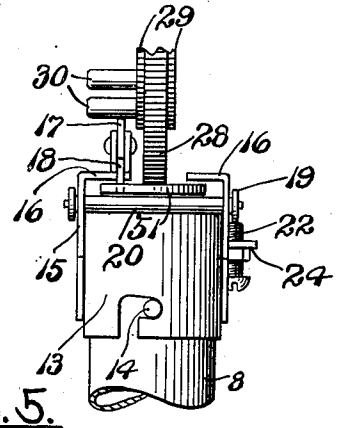

FIG. 5.

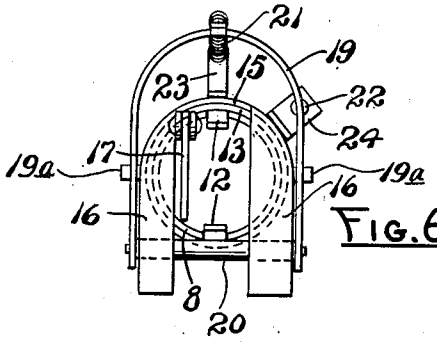

FIG. 6.

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UNITED STATES PATENT OFFICE

2,498,150

CHANGE MAKER

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Application July 29, 1946, Serial No. 687,000

7 Claims. (Cl. 133—5)

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This invention relates to change makers. It is desirable in merchandising articles sold that the clerk or other seller of the goods, or the one in an office who receives the payment, have a ready and effective means for getting the change which is returnable to the customer, payment for which in most instances is by an amount greater than the purchase price so that the difference must be returned; also for changing larger coins into smaller ones. The present invention is directed to a novel and very practical machine for making change, and of which a number may be used, one for example for each of the commonly used coins, cents, nickels, dimes and the like. A large number of coins in a tubular magazine therefor are applied and a selected number of such coins may be readily removed from the magazine, the number of the coins being determined by selection and operation of manually operated levers, one for each of the number of coins desired. Said coins thus removed are delivered at the front of the machine.

A primary object and purpose of the present invention is to simplify and reduce the cost of such machines so that their utilization in many places now unequipped may be greatly increased. Many novel constructions, combinations and arrangements of parts for the effective attainment of the results desired will appear and be understood, from the following description, taken in connection with the accompanying drawing of a practical embodiment of our invention, in which,

Fig. 1 is a front elevation of the change making machine of our invention.

Fig. 2 is a side elevation and vertical section from front to rear.

Fig. 3 is a plan and horizontal section.

Fig. 4 is a fragmentary enlarged vertical section through the upper portion of the coin holding magazine and the mechanism used in association therewith.

Fig. 5 is a side elevation of the structure shown in Fig. 4, and

Fig. 6 is a plan view of the coin holding magazine.

Like reference characters refer to like parts in the different figures of the drawing.

In the construction shown, a frame is provided having two vertical side plates 1 and 2 spaced from each other, which at their upper ends, may be connected by a curved bar 3 and at their lower ends are secured to a horizontal base 4. A bar 5 extends horizontally between the sides 1 and 2 adjacent their lower ends and back of their front edges, and a heavier horizontal bar

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6 extends between and is connected to said sides above the bar 5. Said bars 5 and 6 at their front sides carry sheet metal holding clips 7 permanently secured in place with which a vertical tubular coin holding magazine 8 may be detachably connected. A lug 8a (Fig. 2) is permanently secured at the rear side of the tube 8 and rests upon the upper edge of the lower tube holding member 7.

The tubular magazine 8 at its outer side is vertically slotted at 9 from a short distance below its upper end to within a short distance of its lower end, the slot having a lateral branch at its lower end. A spring actuated movable follower 10 is located within the tube 8 and is moved upwardly by a coiled compression spring, the lowermost coin within the tubular magazine resting upon the upper end of the follower. A pin 11 is connected with the follower and extends outwardly through the slot 9 so that the follower may be moved to a lowermost position and held therein by turning the pin into the lateral offset with the coins which are to be used. The tube at its upper end (Fig. 6), at two different levels, is provided with upwardly and inwardly curved fingers 12 at opposite sides, whereby when the coins are moved upwardly in the tube by the action of the spring follower, should they have any tendency to stick together at adjacent sides they will be slightly moved horizontally (Fig. 4) to break or disrupt any such tendency to adhesion.

At the upper end portion of the magazine 8 and above the upper end of the slot 9 therein a tubular sleeve 13 is detachably connected by the use of a pin and bayonet slot connection 14. Such sleeve is embraced at its rear side by a U-shaped band 15 of metal secured thereto by soldering or other similar connection, the forwardly extending legs of which have inwardly turned horizontal flanges 15 and 16 extending partly over the upper end of the tube 8 and against which the uppermost coin carried by the magazine 8 is pressed at its opposite side edges. At the rear end of one of said flanges, spaced ears extend upwardly, between which an arm 17 is located at one end thereof and pivotally connected, it having a downwardly extending finger 18 between its ends which normally rests against the uppermost coin in the magazine. As shown in Fig. 4 the free end portion of the arm 17 at its upper edge is widened in an upward direction for a purpose later appearing. A lever 19 of flat metal and U-shaped has the legs thereof extending forward at the outer sides of each of the sides of the band 15 and is pivotally mounted at 19a for rock-

ing movement about a horizontal axis. Between the forward ends of the sides of the U-shaped lever a roller **20** is mounted extending through short vertical slots in the sides of said band, the upper side of said roller being normally located substantially flush with the lower side of the uppermost coin. A spring **21** connected with the rear end of said lever lifts the roller to an upper position until stopped by an adjustable stop screw **22**. The spring at its opposite end is connected to a finger **23** and the screw is mounted upon a bracket **24** both of which are soldered or otherwise permanently secured to the band **15**. The yieldability of the roller **20** permits the passage of bent or mutilated coins.

A horizontal rod **25** is located above the upper end of the coin magazine **8** and is secured to and extends between frame sides **1** and **2**. A shorter rock shaft **26** is mounted on the side **2** and a supporting bracket **26a** connected with the frame bar **6** (Fig. 1) being located a short distance below the rod **25**. A hub **27** is rotatably mounted on the rod **25** and carries a disk wheel **28** between two side plates **29**. The disk wheel **28** is preferably of a semi-hard rubber and at its edge portions extends beyond the plates **29**, which are of metal. A plurality of spaced pins **30** are secured to one of the side plates **29** so as to pass over the arm **17** having location close to the edges of the plate **29**. The lowermost portion of the edge of the disk **28** comes into frictional engagement with the uppermost coin in the magazine.

A ratchet wheel **31** is connected with a hub **27**. A pinion **32** is mounted for rotation on the rod **25** and has connected thereto one side **33** of a U-shaped stirrup, the two sides of which are integrally connected at their outer ends by the cross member **34**. A stop **35** is permanently connected with the upper frame member **3** and extends at the front side of the cross member **34**, limiting its forward movement. A spring actuating dog **36** is connected to the stirrup **33** and bears against the toothed edge of the ratchet wheel **31**. A spring stop member **38** engages with the edge of the ratchet wheel, being located opposite the dog **36** preventing movement of the wheel except in one direction.

A gear **39** mounted on the rock shaft **26** is in mesh with the pinion **32**. At the outer end of the rock shaft **26** an arm **40** is connected, to which a coiled tension spring **41** is secured at one end and is anchored at the other end, thereby tending to resist turning of the gear **39** in a counterclockwise direction (Fig. 2) and, when thus moved, turning it back in a clockwise direction, when free to do so.

A plate **42** is permanently connected with the rock shaft **26** extending upwardly and forwardly therefrom. A plurality of connecting rods **43**, shown as five in number and threaded at their upper ends, pass through spaced openings in the plate **42** and through sleeves **44** above the plate, adjusting nuts being on the rods above the sleeves. Said rods at their lower ends are connected each to a manually operable lever **45**, five of them as shown, all mounted for rocking movement at their inner ends about a shaft **46** permanently secured to the frame plate **2**. Each of the levers **45** is acted upon by a tension spring **47** tending to lift the levers to upper position. The levers **45** have finger engaging horizontally positioned outer ends and each may be independently manually operated.

The mechanism may be housed within any suitable housing generally but not specifically disclosed in the drawing, said levers traversing vertical slots in the front of the housing. Also at the front of housing and above the levers and extending through said housing is a coin receiving cup **49**, from which a chute **50** of tubular form extends upwardly and inwardly to the upper end of the coin magazine **8** at its front and between the sides of the band **15** in a position to receive the coins which are moved horizontally forward at the upper end of the magazine to the chute, through which they drop by gravity to the cup **49**.

In the operation, the magazine **8** is filled to any desired amount with a plurality of coins **51** disposed horizontally one over the other. The spring actuated plunger **10** in the lower part of the magazine forces the coins upwardly so that the uppermost one comes to the flanges **16** and is pressed against the lower edge of the disk **28**. It will be noted that the connections of the rods **43** to the levers **45** are at progressively further distances from the rod **46** about which they are moved.

On depressing any selected lever **45** of the bank of levers described downward, the plate **42** is likewise moved downward rocking the rock shaft **26** and turning the gear **39** in the same direction, thereby actuating the pinion **32** in the opposite direction to move the dog **36** in a clockwise direction. The dog **36** engaging the ratchet wheel turns the ratchet wheel and the disk **28** in a clockwise direction (Fig. 2) so that the uppermost coin engaged by the disk is frictionally moved in a forward direction and delivered to the chute. If the lever farthest to the left in Fig. 3 and the one having its rod **43** connected nearest the rod **46** is actuated, the movement of the plate **42** is sufficient that only a movement of the ratchet wheel **31** in one step of movement occurs and one only of the coins is taken from the magazine and delivered to the coin receiving cup **49**. With operation of the next adjacent lever to the right of the first one described as actuated, the movement of the dog **36** is sufficient to turn the ratchet wheel and the disk wheel twice as far as with the first lever mentioned. The uppermost coin is ejected from the magazine from the chute **50** and with continued movement of the disk wheel **28**, the succeeding coin is also delivered, the finger **18** on the arm **17** which has been bearing by gravity against the side of the uppermost coin comes into engagement with the next succeeding coin when the uppermost coin has been moved partially over the roller **20** to the chute **50**, and the finger **18** is forced against the next succeeding coin by a pin **30** riding upon the upwardly widened free end portion of the arm **17**. The design of the connection of the rods **43** to the levers **45** is such that there is a progressively increasing throw of the first lever, that is, the first lever will cause a movement of a dog **36** a predetermined distance to eject one coin, the second twice as far, the third three times as much and fourth and fifth, four and five times as much respectively. Therefore, the number of coins which are delivered may be selected in any number from one to five by selecting the proper lever **45** for operation.

The magazine is readily removed from its spring holding clips, **7**, the sleeve **13** detached from the magazine, the pin **11** forced to the bottom of the slot **9** and the magazine replenished with coins wherever needed after which the sleeve **13** is replaced and the plunger **10** released to push the uppermost coin in the magazine against the flanges **16**.

The structure described is practical and effective and is built at low cost. One of the ma-

chines may be utilized for each of the coins which are used in change making. In some cases, for example, in making change at subway stations, inasmuch as, at the present time, the patrons of the subway trains require five cent pieces, a machine in accordance with the invention having a magazine for carrying such coins may be the only one needed. In any event and with the machines properly designed as to dimensions for the purpose, all standard coins are readily handled and any number of them, from one to five, quickly obtained; and, evidently, also in greater numbers by repeating the operation of the machine.

The change making machine of our invention has been built and fully and completely operated and tested with eminently satisfactory results.

The invention is defined in the appended claims and is to be considered comprehensive of all forms of structure coming within their scope.

We claim:

1. In a structure as described, a vertical tubular coin holding magazine open at its upper end adapted to receive a plurality of coins located flatwise one over the other, spring means moving the coins upwardly, means for supporting said magazine, a wheel located over the upper end of the magazine positioned so that the uppermost coin at its upper side is normally in frictional engagement with the lower edges of the wheel, means for mounting said wheel to turn about a horizontal axis, manually operable means for turning the wheel and means mounted on said magazine combined with means on said wheel to engage therewith to force the coins in the magazine, except the uppermost coin downwardly against the spring elevating means on lateral displacement of the uppermost coin by movement of said wheel.

2. A structure as defined in claim 1, and upwardly and inwardly inclined fingers at opposite sides of the upper end of the tubular magazine, one located at a higher plane than the other, with which edges of the coins engage on upward movement to thereby displace uppermost coins in the tubular magazine laterally with respect to each other.

3. In a construction as described, a vertical tube for the reception of a plurality of coins therein located flatwise one over the other, spring means in the lower portion of the tube for moving said coins upwardly, a vertical sleeve member, detachably connected at and around the upper end portion of said tube, a flanged member connected on opposite sides of said sleeve having horizontal flanges located a short distance above the upper end of the sleeve extending toward each other against which opposite side portions of the uppermost coin in the tube may engage, a U-shaped bail pivotally mounted on said flanged member to turn about a horizontal axis, a horizontal roller extending between and connected with the sides of said bail at a side of the tube over which roller the uppermost coin may be moved laterally, a spring for elevating said roller, adjustable stop means located in the path of movement of said bail to limit the extent of the roller elevation, a wheel mounted to turn about a horizontal axis located over the upper end of said tube having its lower edge portion disposed between said flanges to engage against the upper side of the uppermost coin, manually operable means for turning the wheel whereby the uppermost coin is ejected laterally by frictional contact therewith, means mounted on the flanged member and means on the wheel for operating said last mentioned means to press against the next succeeding uppermost coin when the uppermost coin has been moved laterally over the roller to deliver it from the tube.

4. A change maker comprising a tubular magazine having an open end and adapted to hold a plurality of coins in superimposed relation, a friction wheel having a portion of its periphery adjacent said open end and in contact with the outermost coin, means for rotating said friction wheel a predetermined distance whereby said outer coin is ejected from said magazine, retaining means adjacent the ejection side of said magazine and means for normally and yieldingly holding said retaining means immediately below the plane of ejection of said outer coin.

5. In a machine of the class described, a supporting frame, a vertical coin holding tube carried by said frame, a spring actuated elevating means in the lower part of the tube, said tube being adapted to hold a plurality of superimposed coins therein above said elevating means, a wheel mounted to turn on a horizontal axis located above the upper end of said tube and against the periphery of which the uppermost coin in the tube is pressed to frictionally engage thereagainst at the upper side of the coin, a plurality of pivotally mounted levers mounted to turn about a common horizontal axis, each being adapted to be depressed at its free end, rods one for each of the levers connected thereto at the lower ends of the rods, at progressively increasing distances from the axis of turning of the levers, a rock shaft, a plate connected to said rock shaft extending therefrom in the same direction as said levers extend from their axis of turning and located above said levers, said rods passing through said plate, means carried by said rods operatively connecting them with the plate to move it in a downward direction on manual operation of any of said levers, means actuated by said rock shaft for turning the wheel a predetermined distance upon actuating the lever the rod connected to which is nearest the common axis of turning of all of said levers, and for moving said wheel a multiple of said distance upon actuation of any of the remaining of said levers, and different multiples of such distance for each of the remaining levers, a spring for each lever acting to return the lever to initial position, said wheel at one side thereof having a plurality of spaced pins extending horizontally therefrom and located at equal radial distances from the center of the wheel, and a lever pivotally mounted at one end at the upper end of said tube having an elevated free end portion against which said pins come in succession when the wheel is turned, said lever at its under side having a finger extending downwardly and bearing at its lower end against the uppermost coin in the tube.

6. In a structure of the class described, a support, a vertical tubular coin receiving magazine detachably connected with said support, spring means in the lower part of the magazine for moving said coins upwardly therein as they are removed at the upper end thereof, a wheel mounted to turn on a horizontal axis over the upper end of the magazine against the lower edges of which an uppermost coin is frictionally pressed, means for turning said wheel to move an uppermost coin at the upper end of the magazine laterally for delivery, stop means at opposite sides of the upper end of the magazine extending partially thereover, preventing coins leaving the tube at

the upper end when disengaged from the support, and between which the lower edge portions of said wheel extends, and a lever pivotally connected at one end at the upper end of said magazine extending over the uppermost coin in the tube, said lever having a downwardly extending finger adapted to come at its lower end to the upper side of the uppermost coin, and said lever at its free end portion being increased upwardly in dimensions, said wheel having a plurality of spaced apart pins extending laterally therefrom, each at the same radial distance from the center of the wheel, said pins in succession riding upon the upper edge of said lever at its free end portion after said wheel has been turned to frictionally move an uppermost coin in the tube laterally a predetermined distance, and press said finger against the next succeeding coin and move it and the coins below downwardly a short distance.

7. A change maker comprising a tubular magazine having an open end and adapted to hold a plurality of coins in superimposed relation, a friction wheel having a portion of its periphery adjacent said open end and in contact with the outermost coin, means for rotating said friction wheel a predetermined distance whereby said outer coin is ejected from said magazine, means for pressing the next outer coin in the magazine after the first outer coin has become partially ejected, retaining means adjacent the ejection side of said magazine and means for normally and yieldingly holding said retaining means immediately below the plane of ejection of said outer coin.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
479,688	Weller	July 26, 1892
563,435	Wendt	July 7, 1896
635,943	Scott	Oct. 31, 1899
1,080,381	Smith	Dec. 2, 1913
2,265,748	Slezak	Dec. 9, 1941

FOREIGN PATENTS

Number	Country	Date
3,916 of 1901	Great Britain	Feb. 20, 1902
459,852	Great Britain	1937