Aug. 21, 1923. 1,465,409

H. J. BAUR

UNIVERSAL CHANGE MAKER

Filed July 7, 1919 3 Sheets-Sheet 1

Fig. 1

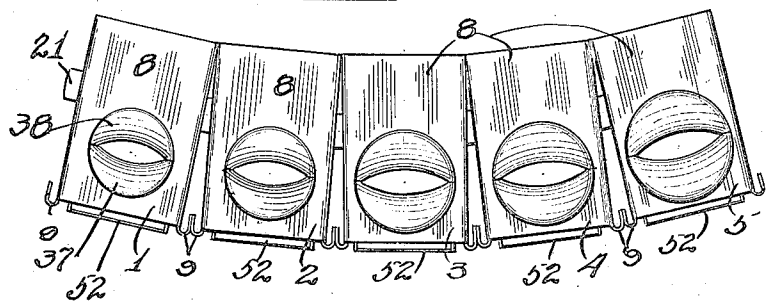


Fig. 2

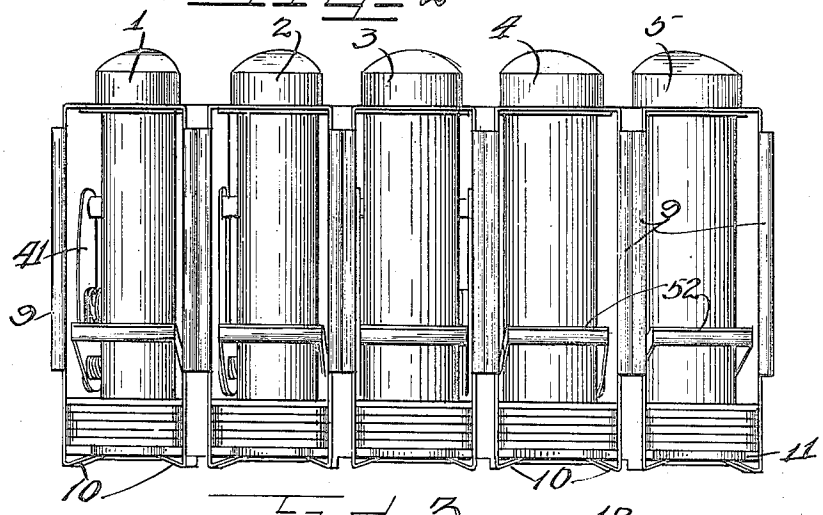
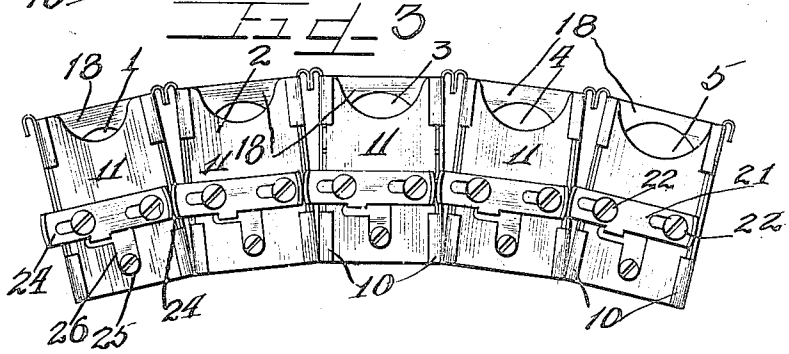


Fig. 3



Witnesses
J. W. Angell
Charles E. Foltz.

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Hugo J. Baur.
by Charles E. Foltz
Atty.

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Filed July 7, 1919 3 Sheets-Sheet 2

Fig. 4

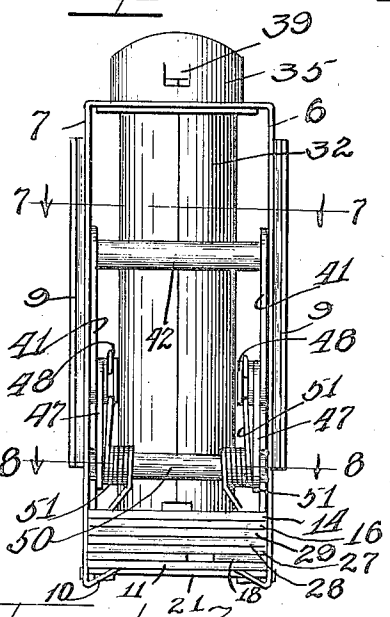


Fig. 5

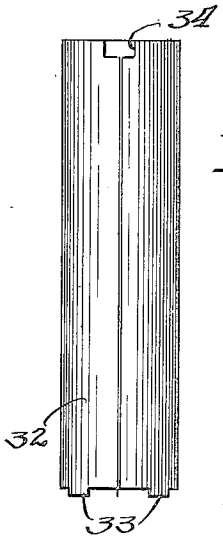


Fig. 6

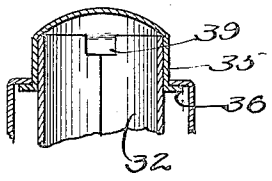


Fig. 7

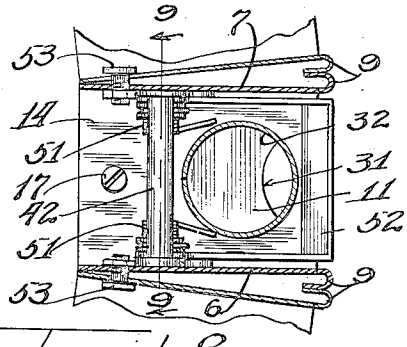


Fig. 8

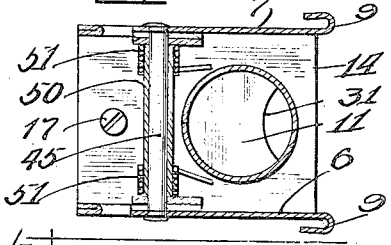
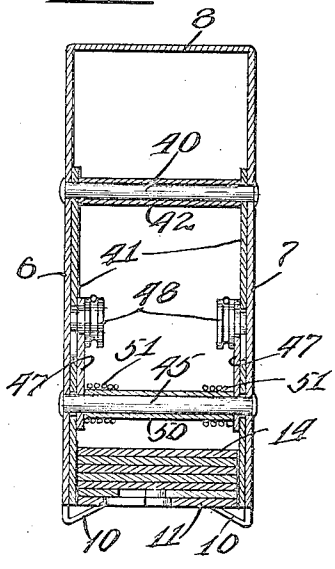


Fig. 9



Witnesses

J. W. Angell

Inventor

Hugo J. Baur

by Charles W. Hills Atty.

Aug. 21, 1923. 1,465,409

H. J. BAUR

UNIVERSAL CHANGE MAKER

Filed July 7, 1919 3 Sheets-Sheet 3

Fig. 11

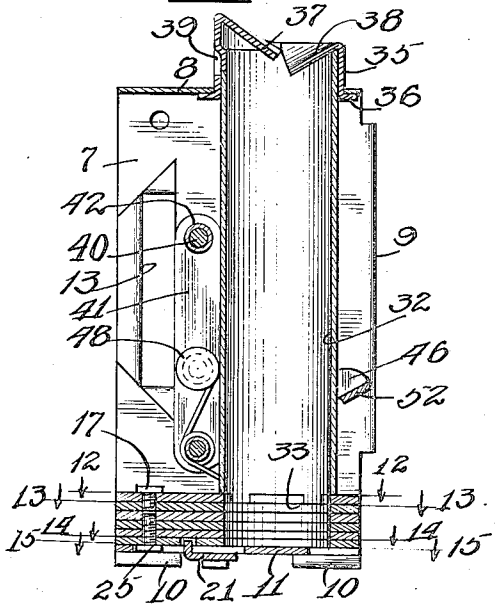


Fig. 10

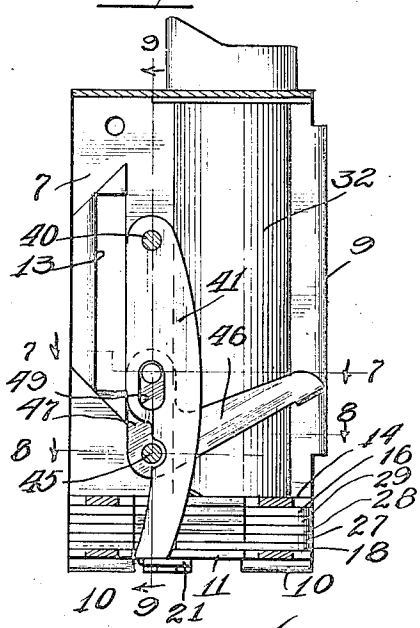


Fig. 12

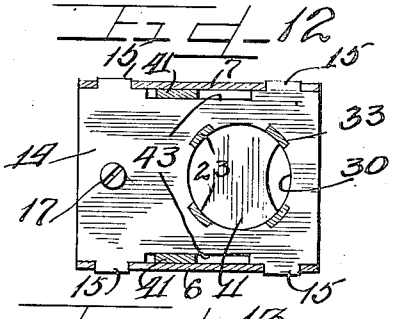


Fig. 14

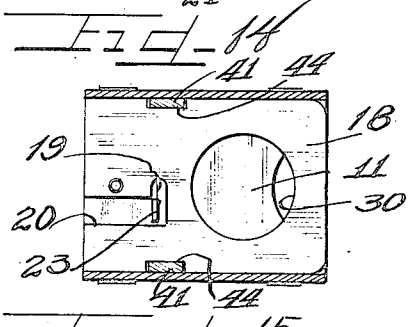


Fig. 13

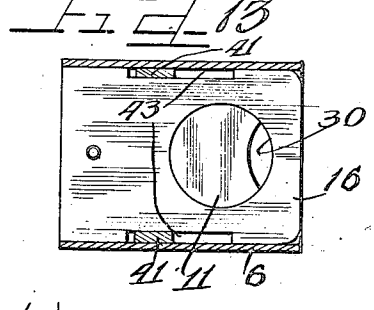
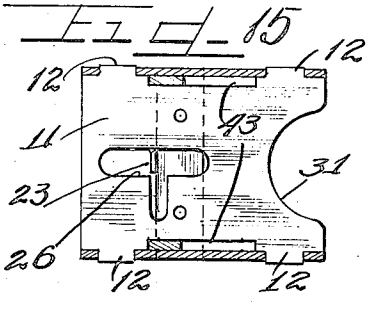


Fig. 15



Witnesses

J. W. Angell

Inventor

Hugo J. Baur.

by Atty.

Patented Aug. 21, 1923. 1,465,409

UNITED STATES PATENT OFFICE.

HUGO J. BAUR, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHNSON FARE BOX COMPANY, A CORPORATION OF NEW YORK.

UNIVERSAL CHANGE MAKER.

Application filed July 7, 1919. Serial No. 303,996.

To all whom it may concern:

Be it known that I, HUGO J. BAUR, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in a Universal Change Maker; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

Many different kinds of change making devices are in use on practically all transportation lines and are a great convenience for the conductor but that which is worn upon the person has been found to be the most practical. The objection heretofore, however, to a change-maker device has been due to the fact that on certain lines of transportation, particularly in the large cities, the denominations of coins received by the conductor from the passengers vary to a large extent and the change making devices have not been sufficiently large to accommodate the predominant denomination of coins received. As a consequence certain of the tubes of the change making devices have been practically empty, whereas others are entirely filled and the surplus coins must be carried in the pocket or some other receptacle. It is not at all unusual that the predominating coins received on one transportation line is a five cent piece and on another a ten cent piece or even coins of greater denomination. Consequently a standard type of change-making device is not well adapted for use upon the different transportation lines.

This invention comprehends what I term a universal change-maker, that is one which may be built up of any desired number of tubes inasmuch as each of the coin tube elements is readily detachable and releasable from the others, and yet when the same are in assembled relation, they are all co-actively connected to be locked as a unit to prevent discharge of coins from any one thereof.

This invention further comprehends an entirely new feature in change-making devices in that the number of coins ejected by single operation of the ejecting lever for one or more tubes may be more than one coin if desired, and by a preliminary adjustment of the parts a predetermined number of coins from any one or more of the tubes may be discharged by single operation of the ejecting lever.

This is particularly desirable since the recent increase of cash fares above the usual five cent fare, and on many lines the fare now required is six or seven cents.

The inconvenience resulting is due to the fact that change of three or four pennies is required and the usual coin tendered to the conductor is the ten cent piece. With the general type of coin changers now in use, in order to return four pennies to the passenger, necessitates four operations of the ejecting lever by the conductor and consequently where a great number of passengers are received into the car a considerable time and effort is expended in making the change where the exact fare is not tendered.

I overcome these objections to the ordinary type of coin changers in my new universal type of changer by making it possible to vary the number of coins ejected by one operation of the ejecting lever, and as a consequence the three or four pennies in the instance above described may be easily ejected by one operation of the lever.

It is an object, therefore, of this invention to construct a universal change making device wherein the coin receiving and ejecting elements for the respective coins are detachable one from another and readily assembled in any relation whatsoever, and with an interlocking mechanism on each of the coin elements to prevent ejection of coins therefrom.

It is also an object of this invention to construct a change making device wherein mechanisms are provided for varying the number of coins ejected from a coin tube with one operation of the ejecting lever.

It is also an object of this invention to construct a change making device constituting coin tube elements for different denominations of coins which may be readily assembled one to another in any desired relation or order and each independently operable to eject the coins from a particular tube and with the locking mechanism of each tube element co-acting with those of all the others whereby operation of one effects operation of all thereof as a unit.

It is also an object of this invention to

construct a change making device wherein a number of coin elements exactly similar in construction may be readily assembled one to another, each having a separate ejecting mechanism which is adaptable to cause ejection of any predetermined number of coins desired by one operation, and each element provided with a locking mechanism to lock the same from operation and with all of said locking mechanisms co-operating to operate as a single unit when said elements are in assembled relation.

It is finally an object of this invention to construct a simple, cheap and durable universal type of change making machine for coins with the parts practically all of stamped metal and with the elements of the device independently operable as a single unit and readily connected to one another to form an assembly of unlimited number of coin elements.

Other and further important objects of this invention will be apparent from the disclosures in the specification and drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a top plan view of a device embodying the principles of my invention.

Figure 2 is a front elevation thereof.

Figure 3 is a bottom plan view of the device.

Figure 4 is a rear elevation of one of the coin tube elements of the assembly shown in Figure 2.

Figure 5 is a rear elevation of a coin tube detached.

Figure 6 is a sectional detail through the upper end of the coin tube element.

Figure 7 is a sectional detail on line 7—7 of Figure 4.

Figure 8 is a similar section on line 8—8 of Figure 4.

Figure 9 is a vertical section taken on line 9—9 of Figure 7.

Figure 10 is a side elevation of one of the tube elements with parts broken away and shown in section.

Figure 11 is a central vertical section taken through the coin tube element similar to Figure 10.

Figure 12 is a fragmentary section taken on line 12—12 of Figure 11.

Figure 13 is a section on line 13—13 of Figure 11.

Figure 14 is a section on line 14—14 of Figure 11.

Figure 15 is a section on line 15—15 of Figure 11.

As shown on the drawings:

The change making device may be built up of any number of coin tube elements, but for convenience of illustration I have shown the same as composed of five receiving elements, one or more thereof as desired, for certain denominations of coins and with the respective elements denoted as a whole by the reference numerals 1, 2, 3, 4, and 5. Each of said coin tube elements consists of a frame or yoke member substantially of U-shape, as shown in Figures 4 and 9, having upright portions 6 and 7, respectively and an integral connecting top piece 8. The outer or forward edges of this U-shaped member are beaded inwardly as denoted by the reference numeral 9 and clearly shown in Figures 4 and 7. At its lower extremity the U-shaped member has its ends bent upwardly and inwardly as denoted by the reference numeral 10, in Figure 9, to support a stationary base plate 11, shown in detail in Figure 15, and provided with tongues 12, which engage through apertures therefor in the side members 6 and 7 of the U-element. An elongated slot 13 is cut in each of said side members 6 and 7, as shown in Figures 10 and 11, with the metal beaded inwardly on the edges of said slot to afford attaching means for a belt or strap by which one or a number of coin tube elements may be carried.

Another plate 14 is attached between the side portions 6 and 7 of the U member, said plate 14 having tongues 15, which engage through apertures in said side members similar to the tongues 12 of the plate 11 already described. Said plate 14 has attached thereto beneath the same another plate 16, held in assembled relation therewith by a small screw or bolt 17.

Slidably disposed above the plate 11 is an ejecting plate 18, shown in Figure 14. This plate 18 has a locking notch 19 therethrough and communicating therewith is a long slot 20. A locking slide bar 21 is attached beneath the plate 11 by screws 22, as shown in Figure 3, and is slotted to permit sliding engagement with said attaching screws. Said plate 21 is provided with an upwardly turned locking tongue or lug 23, which projects into the slot 20 of the plate 18, (Fig. 14,) permitting longitudinal movement of said plate, but when the locking bar 21 is shifted laterally said tongue 23 engages into the notch 19, thereby locking said plate 18 from longitudinal movement. Each of said locking slide bars 21 is bent downwardly at its ends and these ends are of arc shape, as clearly shown in Figure 3, whereby, when the coin tube elements are in assembled relation, the ends of the respective locking slide bars 21 contact with one another so that movement of either locking bar 21 of either of the end elements of the assembly will cause a coincident movement of all of the locking bars as a single unit. Secured through the plate 18 is a screw 25, the head of which has sliding engagement with a slot 26 provided therefor in the plate 11, as

shown in Figures 3 and 15, and held attached to said ejecting plate 18 by said screw are other ejecting plates 27, 28 and 29 respectively.

The top plate 14 and the bottom plate 11 are always stationary, but any one or more of the four plates together with the slide plate may be movable to eject any number of coins by one operation, as hereinafter described. The length of the respective screws 17 and 25 determine the number of intermediate plates between the plates 18 and 14 which are movable with the plate 18 or stationary with the plate 14. The thickness of the respective plates 16, 29, 28, 27 and 18 corresponds to the thickness of the particular denomination of coins of the coin element of which these plates form a part. The screw 17 engages through the plate 14 and the plate 16, whereas the screw 25 engages through the plate 18 as well as plates 27, 28 and 29, as clearly shown in Figure 11. By changing the respective screws 17 and 25, to those of different length, any desired number of plates may be caused to move with the plate 18 for an ejecting operation and the remaining plates are held stationary with the plate 14.

Each of said plates is provided with a circular coin aperture equal in diameter to a particular denomination of coin and denoted by the reference numeral 30. The stationary bottom plate 11, however, is merely provided with a semicircular recess 31, which is on the end of said plate and normally out of register with the coin apertures 30 of the other plates, so that when an ejecting operation takes place and the apertures 30 of the movable plate slide outwardly to register with the recess 31, the coins moved outwardly thereby as hereinafter described will fall from the device. Supported upon the top stationary plate 14 is a coin tube 32, having tongues 33, at its lower end which engage in notches provided therefor in said plate 14 around the coin aperture 30. As shown in Figure 5, said coin tube is split longitudinally so that the same may be sprung, by pressure on its exterior surface to cause the tongues 33 thereon to engage into the apertures provided therefor in the plate 14, and due to the resiliency of the coin tube element 32 the same will be tightly engaged with said plate 14. At its upper end, as clearly shown in Figure 5, a notch 34 is provided in the tube element 34, and fitted over the upper end of said tube is a cap 35, having a flanged portion 36, which engages beneath the top member 8 of the yoke element, and said cap 35 is provided with two inwardly directed portions 37 and 38, which afford a coin slot for introduction of coins into the coin tube. Said cap 35 is provided with an inwardly directed tongue 39, to engage with the notch 34 of the coin tube, as shown clearly in Figure 11, to lock the cap from rotational adjustment on the coin tube.

The operating mechanism for causing movement of the assembled ejecting plates is described in the following: Secured transversely between the side frame members 6 and 7, as shown clearly in Figure 9, is a shaft 40. Pivoted adjacent said frame members are depending levers 41, with a spacing sleeve 42 therebetween on said shaft. Each of the plates 11, 14, 16, 27, 28 and 29 respectively is provided with a cutaway portion 43, on each side thereof, as clearly shown in Figures 12 to 15 inclusive, with the exception of plate 18, and the lower ends of said levers 41 engage through the cutaway portions 43, to interfit with notches 44 in the plate 18. Also secured between the side frame members 6 and 7 is another shaft 45, as shown in Figure 9, and pivoted thereon are actuating levers or cranks 46, (see Fig. 10,) one on each side, and each having an upwardly extending crank arm 47 provided with a pin 48, which engages in a slot 49 of the respective lever 41. A spacing sleeve 50 is provided on said shaft 45 between the levers 46 and coiled about said sleeve are springs 51, one on each end thereof, one end of each of which, as shown in Figure 7, bears downwardly on the top of the stationary plate 14, and the other end of each of which is bent around the grooved ends of the pins 48, shown in Figure 9. Said actuating levers 46, are joined by a cross piece 52, which extends across the front of the coin tube 32, as clearly shown in Figures 2 and 7.

The adjacent side frame members 6 and 7 of a number of coin tube elements assembled with one another, are provided with apertures therethrough to receive small attaching bolts 53, shown in Figure 7, whereby any number of coin tube elements may be assembled with one another, and furthermore the same may be strung on a carrying belt passed through the apertures 13, as shown in Figure 11.

The operation is as follows:

The coins according to their particular denominations are deposited in the coin tube elements, either 1, 2, 3, 4, or 5, as the case may be, the coin tube element 1 being designed for dimes, the element 2, for pennies, the elements 3 and 4 for nickels and the element 5 for quarters. Of course, any number of elements of a particular denomination of coins may be used in the assembly and the assembly is not limited to five such elements associated with one another, as I have shown, but to any number, more or less than 5 as desired. Each of these elements is independently operable in so far as the deposit and ejection of coins is concerned, but the locking mechanisms of all

of said elements are co-active, whereby movement of the locking member into locking position of the end coin tube element serves to operate all of the locking mechanisms to locking position and conversely, release operation upon the locking member at the opposite end of the assembly serves to unlock all of the locking mechanisms of the assembly. This is due to the fact, as pointed out, that the respective locking bars 21 contact with one another at the ends, as clearly shown in Figure 3, when the devices are assembled together. Furthermore the assembly is susceptible to an additional operation such that certain of the coin elements may be locked as desired. This feature of operation is attained by operating any of the locking bars intermediate the end elements thus throwing one group into locked or unlocked relation and leaving the other group in their original relation. Thus only one element may be unlocked for operation and all the others locked or one locked and all the others unlocked, or the number of locked and unlocked elements may be varied at will.

Any predetermined number of coins desired may be ejected from any particular element in one operation by a preliminary adjustment of the parts. As pointed out, at the bottom of the coin tube 32 there is a stationary top plate 14 and a stationary bottom plate 11 and intermediate thereof are five slidable ejecting plates. The lower slidable ejecting plate 18, is capable of ejecting one coin, and each of the other plates thereabove, if locked to said plate 18 by the screw 25, is also adapted each to eject a coin. In the present instance shown three plates, 27, 28 and 29 respectively, are shown associated with the bottom plate 18, so that there are four coins ejected with each operation of the lever 52. This is the proper change for a ten cent piece where the fare on the car is six cents and the coin tube element shown is adapted to receive pennies, so that four pennies are ejected with each operation of the lever. By changing the length of the respective screws 17 and 25, any number of the four intermediate plates 27, 28, 29 and 16, may be made movable or stationary according to the desired number of coins it is intended to eject.

The method of assembly of the various coin elements or units is entirely simple, requiring only the insertion of the small assembly bolts 53, through the apertures provided therefor, and then of course the slots 13 in all of said units are substantially registered to permit insertion of a carrying belt therethrough. As clearly shown in Figure 10, all of the plates above the plate 18 are slotted or cut away to permit the lower end of the levers 41 to swing relative thereto in moving the slide plate 18, provided the plates above the slide plate 18 are stationary and not attached to said plate 18. When the operator depresses the lever 52, the crank arms 47 are pressed forwardly against the stress of the springs 51, and said cranks 47, with their pins 48 in the slots of the levers 41, operate said levers forwardly to move the ejecting plate 18 and other plates associated therewith. When the locking bar 21 of the coin element is moved laterally, the tongue 23 on said bar engages in the notch 19 of the slide plate 18 preventing complete movement thereof or consequent movement of any of said ejecting plates to carry the coins outwardly for discharge. Normally the coins within the coin tube rest upon the bottom plate 11 upon the portion shown in Figure 14, and when the plate 18 is moved outwardly together with any of the other plates attached thereto, the predetermined number of coins are caused to slide outwardly on the plate 11 until in alignment with the cutaway semi-circular portion 31, they fall from the device into the hand of the operator.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A change maker comprising a plurality of coin receiving and ejecting elements detachably secured together, a locking mechanism on each of said elements, the operating means of said locking mechanism being so located on each element that when the elements are secured together the said operating means will cooperate to enable all the locking mechanisms to be operated together.

2. A device of the class described comprising a plurality of detachable elements independently operable, and co-active locking mechanisms mounted on each thereof adapted to effect locking of all of said elements by operation of one thereof.

3. A device of the class described comprising a tube of suitable size to contain coins, a movable plate below the lower end of said tube for ejecting the lowermost coin, a plurality of plates above said movable plate, a plate above said plurality of plates rigidly connected to said tube, means for rigidly connecting a predetermined number of said plurality of plates to said movable plate and the remainder of said plurality of plates to said top plate whereby a predetermined number of coins will be ejected at one operation.

4. A change maker of the class described comprising a plurality of coin elements, ejecting means independently operable on

each thereof, and co-active locking mechanism mounted on each thereof co-acting when in assembled relation to lock all of said elements from operation by adjustment of one mechanism of one element.

5. A change making device of the class described comprising a plurality of coin receiving and ejecting means, a lever for each thereof for operating the ejecting means, a locking mechanism on each element, and means thereon for co-active operation with the locking mechanism of each other element whereby all of the elements are locked from operation by operation of one thereof when in assembled relation.

6. A plurality of coin receiving and delivering elements, means for uniting these elements into a curved row, locking means on each element, a sliding member for controlling each locking means, said members having rounded ends, said members being so located that when the elements are united the rounded ends contact, whereby movement of the sliding member of an element at one end of the row will cause all said sliding members to move to lock or unlock all said elements simultaneously.

7. A device of the class described comprising a tube of suitable size to contain coins, a movable plate below the lower end of said tube for ejecting the lowermost coin, a plurality of plates above said movable plate, and means for rigidly connecting a predetermined number of said plates to said movable plate to be moved thereby to eject a predetermined number of coins.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

HUGO J. BAUR.

Witnesses:
EARL M. HARDINE,
CHARLES W. HILLS, Jr.