G. F. E. HENNING.

COIN HANDLING APPARATUS.

APPLICATION FILED AUG. 4, 1910.

1,043,006.

Patented Oct. 29, 1912.

Fig. 1.

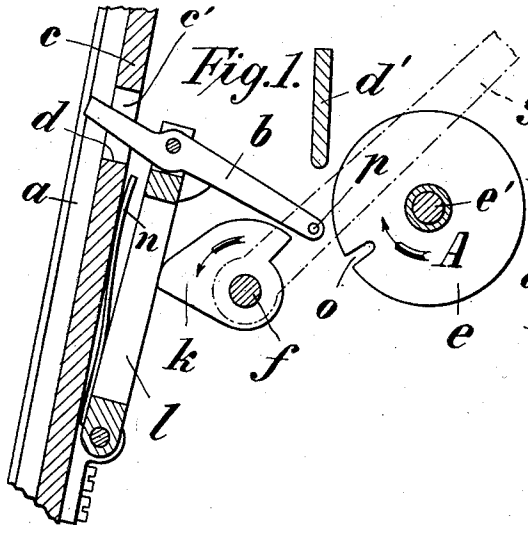


Fig. 2.

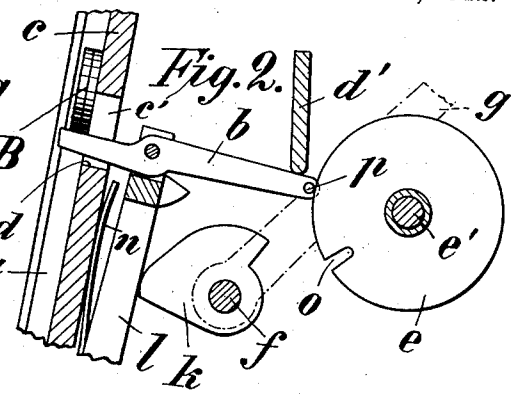


Fig. 3.

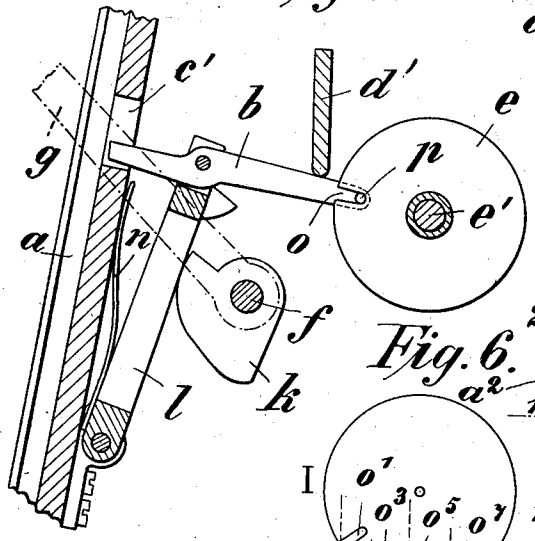


Fig. 4.

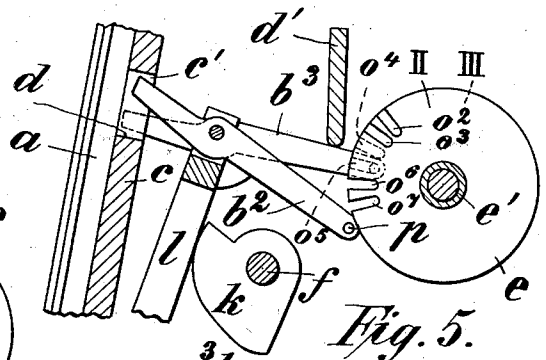


Fig. 5.

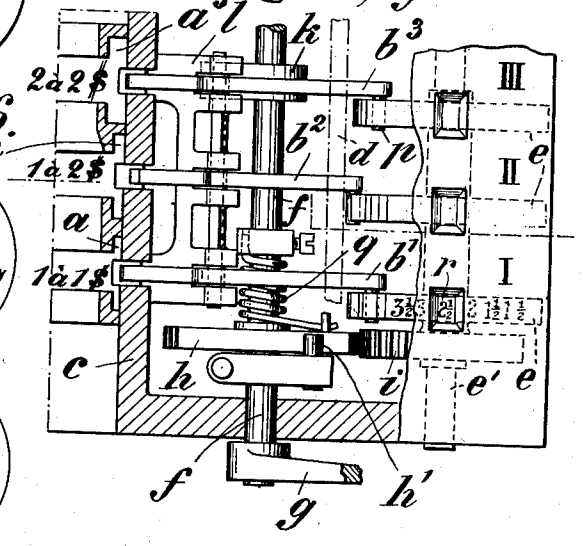
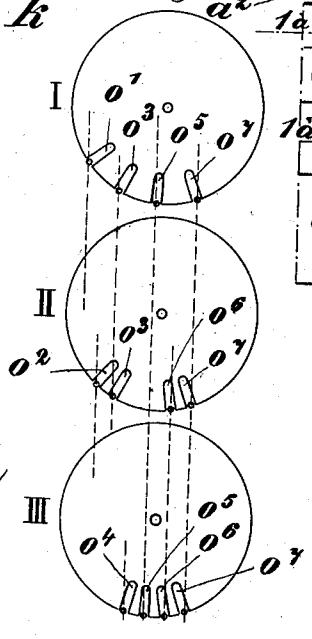


Fig. 6.



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COIN-HANDLING APPARATUS.

1,043,006. Specification of Letters Patent. Patented Oct. 29, 1912.

Application filed August 4, 1910. Serial No. 575,403.

To all whom it may concern:

Be it known that I, GEORG FRANZ EDUARD HENNING, a subject of the German Emperor, and resident of Bergedorf, near Hamburg, Germany, have invented certain new and useful Improvements in Coin-Handling Apparatus, of which the following is a specification.

This invention relates to coin handling apparatus such as cash-registering apparatus, coin counting machines, coin delivering machines, money changing machines or change makers, or the like.

The main object of the invention is to provide means for controlling the working of the apparatus by the amount of money passing the same, so as to insure perfect reliability. The controlling device moreover may be adapted to be combined with an indicator to enable the amount paid out by, or passing the apparatus, to be read off. The said controlling device consists of locking means adapted to project into chutes, channels, pipes or other conduits for coin, hereinafter termed chutes throughout the specification, and of controllers proper, which are locked in position by said locking means, when moved to an extent corresponding to the amount of coins passing the chutes. The controllers consist preferably of disks provided with perforations at the outer rim, adapted to be engaged by studs at the end of levers, which constitute the locking means spoken of above. The levers are carried by an arm, which is preferably acted upon by a spring and by a cam, to positively oscillate the arm and to reciprocate the levers, to either project into the chute, or when loaded by coins to enter perforations or slots on the disks to lock them in position.

Means are provided to rotate the cam and the controller-disks, which at every operation moves from the same starting point and, when turned to an angle corresponding with an amount of money determined by the stroke of keys, present perforations to the levers loaded by coins. The rotation of the cam, allows the loaded levers to enter the perforation and thus to lock the disks in position. The indicator operated by the disk indicates the amount of money allowed to pass.

In the accompanying drawing, Figures 1 to 3 show in elevation, partly in section, one way of constructing the controller forming my invention. Fig. 4 is a similar view of a modified construction of the same. Fig. 5 is a sectional plan view of the construction shown in Fig. 4. Fig. 6 shows diagrammatically, the controller disks of the modification and illustrating the relative position of the disks.

In said drawings, *a* designates a chute attached to any kind of coin-handling apparatus, for instance of a money delivering machine fed with money from any coin reservoir by an ejector not shown, in the drawing. A lever *b* adapted to project into the chute *a* through an opening *c'* in the wall *c* is pivotally attached to an oscillating arm or frame 1 and when loaded with money fed into the chute at one end is brought into an approximately horizontal position and rests against the lower edge *d* of the opening *c'* or with the other end against an abutment *d'* as shown in Fig. 2. The last named end is provided with a stud *p* adapted to enter a perforation *o* in the rim of a disk *e*, forming the aforementioned disk and attached to a suitably journaled shaft *e'*. Parallel to this shaft *e'* and also journaled in the framing of the apparatus is a second shaft *f* carrying rigidly attached thereto, a cam *k* engaging the lever carrier or arm *l*, which is pressed against this cam by a spring *n*.

The operation of the device, so far described is as follows:—By allowing money to drop into the chute *a* by any known means for instance by striking a key in a coin-delivering machine, to which the device may be attached, the lever *b* will be rocked from the position shown in Fig. 1 to the position shown in Fig. 2. Hereupon, the shaft *f* is rotated by a handle *g* at its end, to change the position of the cam *k*, which is so shaped as to allow the arm or frame *l* to give way to the pressure of the spring *n*, thus tending to withdraw the lever away from the chute *a*. This tendency is opposed by the stud or pin *p* resting against the outer rim of the disk *e*. By means hereinafter more fully described with reference to Fig. 5, the rotation of the shaft *f* is transmitted to the shaft *e'*, to give the disk *e* part of a turn in the direction indicated by the arrow A, (Fig. 1) until the perforation or slot *o* is presented to the pin *p*, which immediately enters the same, by the action of the spring *n*, which withdraws the lever *b* from the chute *a* allowing the money B to pass. At the same

time, the disk e is stopped and locked in position by the pin or stud p, the lever b bearing against d or d'. It may be remarked here that the disk e always commences to move on every operation, from the same starting point and that the indicator, operatively connected with it, starts from zero position. Thus, when the disk e is locked by the lever b, it has turned to a certain angle and the indicator must have moved to a corresponding degree, thus indicating the exact amount, which has passed the chute, as will be hereinafter more fully described.

For a better illustration and an understanding of the invention, in the Figs. 1 to 3, the disk e is provided with only one perforation, and therefore the disk e can merely be turned to one position to allow the indicator to indicate a single amount. This however, will very rarely happen, as may be gathered from the following. Generally, a greater number of amounts are to be controlled by a single controlling device.

In the example shown in Figs. 4 to 6, seven different amounts of money can be controlled by three controlling disks I, II and III, all rigidly fastened on the shaft e', each disk belonging to one coin-chute, one being intended, for instance for a half-dollar piece, one for a one dollar piece, and one for two one dollar pieces. For enabling the controller to operate when one half-dollar is paid out, the disk I, is provided with a slot o' in a certain position. For paying out one dollar the disk II is provided with a slot o^2 a short distance beyond the place opposite the slots o' of the disk I; for one dollar and a half, both the disks I and II are provided with a slot o^3 a short distance beyond the slot o^2, the slot o^3 however standing accurately opposite one another; for two dollars the disk III is provided with a slot o^4 a short distance beyond the place opposite the slots o^3 of the disks I and II; for two dollars and one-half, the disk I and the disk III are both provided with a slot o^5, the slot o^5 being placed a short distance beyond the slot o^4 on the disk III and the slot o^5 on the disk I being placed accurately opposite that on disk III; for three dollars the disks II and III are provided with a slot o^6 still a short distance further and finally for three dollars and one-half, all three disks I, II and III are provided with a slot o^7, all three slots o^7 being situated accurately opposite one another as before. For each disk I, II and III there is of course a locking lever b', b^2 and b^3 respectively provided at one end with a pin p and adapted to project with the other end into the corresponding chute a', a^2 and a^3 respectively. The levers b', b^2 and b^3 are pivoted to a common carrier or frame l acted upon by a cam k and spring n, as described with reference to Figs. 1 to 3. The cam k is rigidly fastened to the shaft f, which loosely carries a pinion or toothed segment h meshing with a gearing i keyed to the shaft e'. A coiled spring q, fastened with one end to the shaft f, presses with its other end against the segment h, to hold it in position against an abutment h'.

When a certain amount, say two dollars and a half, are delivered by the apparatus, two one-dollar pieces are dropped into the chute a^3 and at the same time one-half dollar piece into the chute a' by the usual ejector from a reservoir, both not shown in the drawing. The coins drop on the levers b^3 and b^1 respectively and thus turn them into an approximately horizontal position, while the lever b^2, not loaded by any coin, remains in the position shown in Fig. 4. Now the handle g is operated to turn the cam k in the position shown in Fig. 4. Though immediately the shaft f starts to rotate by the aid of the spring q, the segment h and gearing i, the disks I, II, III are also turned, however, as long as the slots in the disks are not in a proper position, one or the other of the studs p rests against a rim of the disks, thus holding all three levers in a position as shown in Figs. 1 and 2. When now the disks I, II and III have turned to such an angle as to present the slots o^5 to the studs p of the levers b^3 and b', the frame l is turned into the position shown in Fig. 4 by the tension of the spring n, the studs p finding their way into the slots o^5 of the disks III and I and thus lock the controller.

Any kind of indicator may be combined with the controller, to indicate the amount paid out by the apparatus. By way of example as shown in Fig. 5, one of the disks e, for instance I may carry numbers on its rim in consecutive order of the slots o^1, o^2, o^3, etc., and the same distance apart, the numbers corresponding with the amounts determined by the slots, and in the cover of the apparatus opposite the disk I an opening is arranged in such position, that the number corresponding with the slot or slots, which are at the time of operation standing opposite the studs of the levers b, when in horizontal position will be visible through such opening. Thus in the position shown in Fig. 4, the number $2\frac{1}{2}$ will appear in the opening indicating that two and one-half dollars are paid in or out. The spring q allows the handle g to be turned even after the locking has been carried out, thus preventing the teeth of the gearing or other parts from being broken. When, for instance, three dollars and one-half are paid out, the difference is that the proper coin is dropped into the chute a^2 to bring the lever b^2 into horizontal position. Now on turning the handle g no stud p can enter any slot o until all three meet

a slot, that is when the disks are turned to the greatest extent and the slots o^7 are presented to the studs.

Evidently instead of three, more or less disks can be combined to form one group in which case all corresponding locking levers are carried by a common frame l operated by a cam k. If the number of disks is increased, each corresponding coin chute being arranged for different amounts, also the number of different amounts that can be delivered and controlled, increases to an extent that is far greater than the increase of the number of disks. For instance, if four disks are combined, fifteen different amounts can be paid out and controlled. The number of amounts can be calculated by the formula 2^n-1, if n is the number of disks in the controller or in one group of the controller. Of course any number of controllers or groups of disks may be employed in one apparatus as may be found convenient or necessary.

I claim:—

1. In a coin-handling apparatus, a series of coin chutes in combination with locking means adapted to hold coins in the chutes, and to be brought into locking position by a coin, and controllers adapted to be locked in position predetermined by said locking means and thereby cause the locking means to release the coin when the controllers are moved to an extent corresponding to the amount of coins passing the chutes.

2. In a coin-handling apparatus, a series of coin chutes in combination with levers adapted to project into the chutes, and rotatable disks adapted to be locked in position by said levers, each disk being provided with a number of perforations into which the levers are adapted to engage when the disks are rotated to an angle corresponding to the amount of coins passing the chutes.

3. In a coin-handling apparatus, a series of coin chutes in combination with levers adapted to project into the chutes, a movable carrier for the levers, rotatable controllers adapted to be locked in position by said levers when the carrier is moved toward the controllers and when the latter are rotated to an angle corresponding to the amount of coins passing the chutes.

4. In a coin-handling apparatus, a series of coin chutes in combination with levers adapted to project into the chutes with one end and provided with a stud at the other end, a movable carrier for the levers, rotatable disks corresponding in number with the chutes and levers and adapted to be locked in position by the disks, each disk provided with perforations into which the studs of the levers are adapted to engage when the carrier is moved toward the disks and when the latter are rotated to an angle corresponding to the amount of coins passing the chutes.

5. In a coin-handling apparatus, a series of coin chutes in combination with levers adapted to project into the chutes, a movable carrier for the levers, a cam engaging the carrier, a spring pressing the carrier against the cam, and rotatable disks provided with perforations near the rim adapted to be engaged by the levers to lock the disks in position.

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