

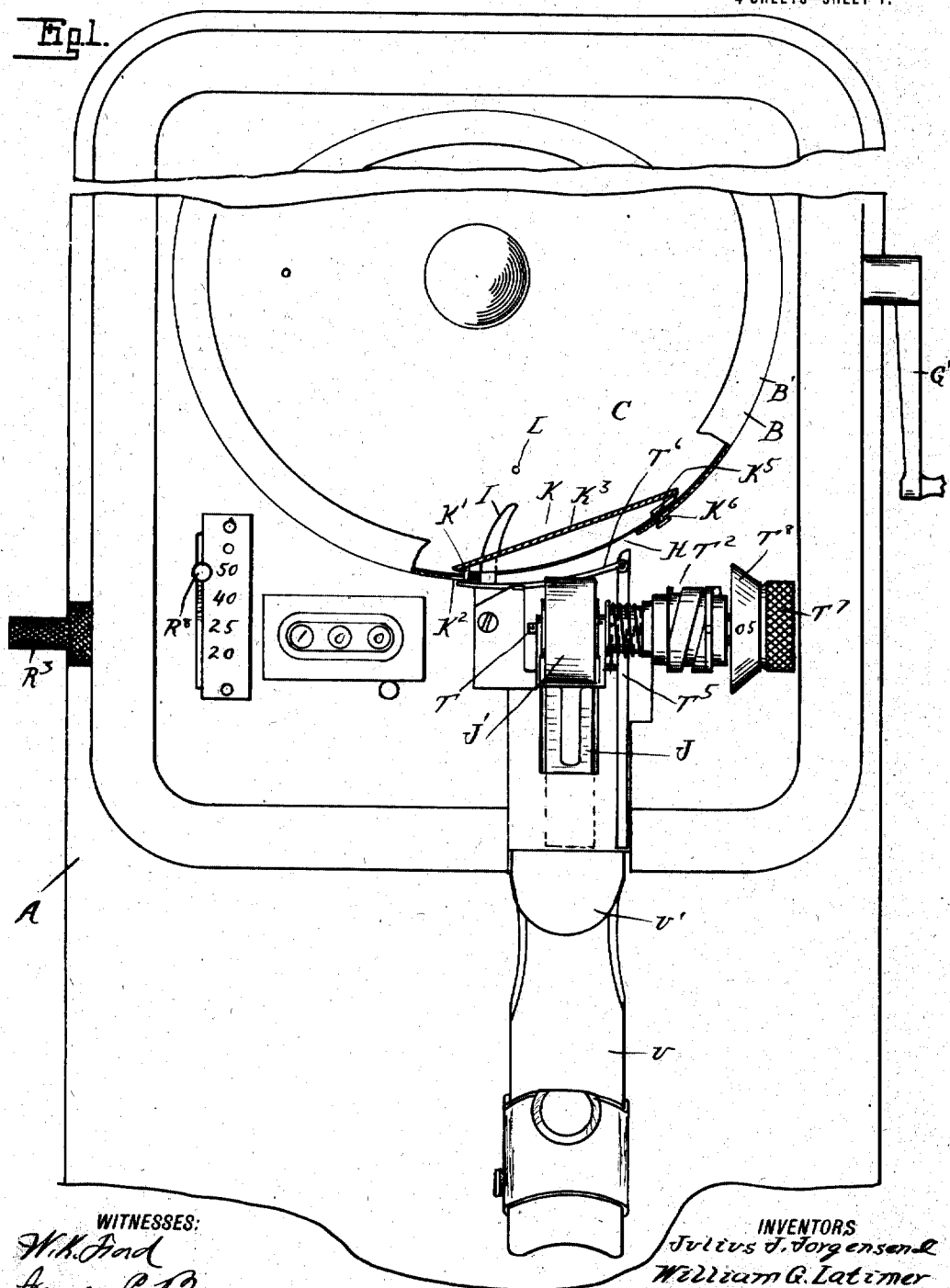
J. J. JORGENSEN & W. G. LATIMER.
 COIN SORTING AND COUNTING MACHINE.
 APPLICATION FILED SEPT. 8, 1914.

1,279,351.

Patented Sept. 17, 1918.

4 SHEETS—SHEET 1.

Fig. 1.



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James P. Barry

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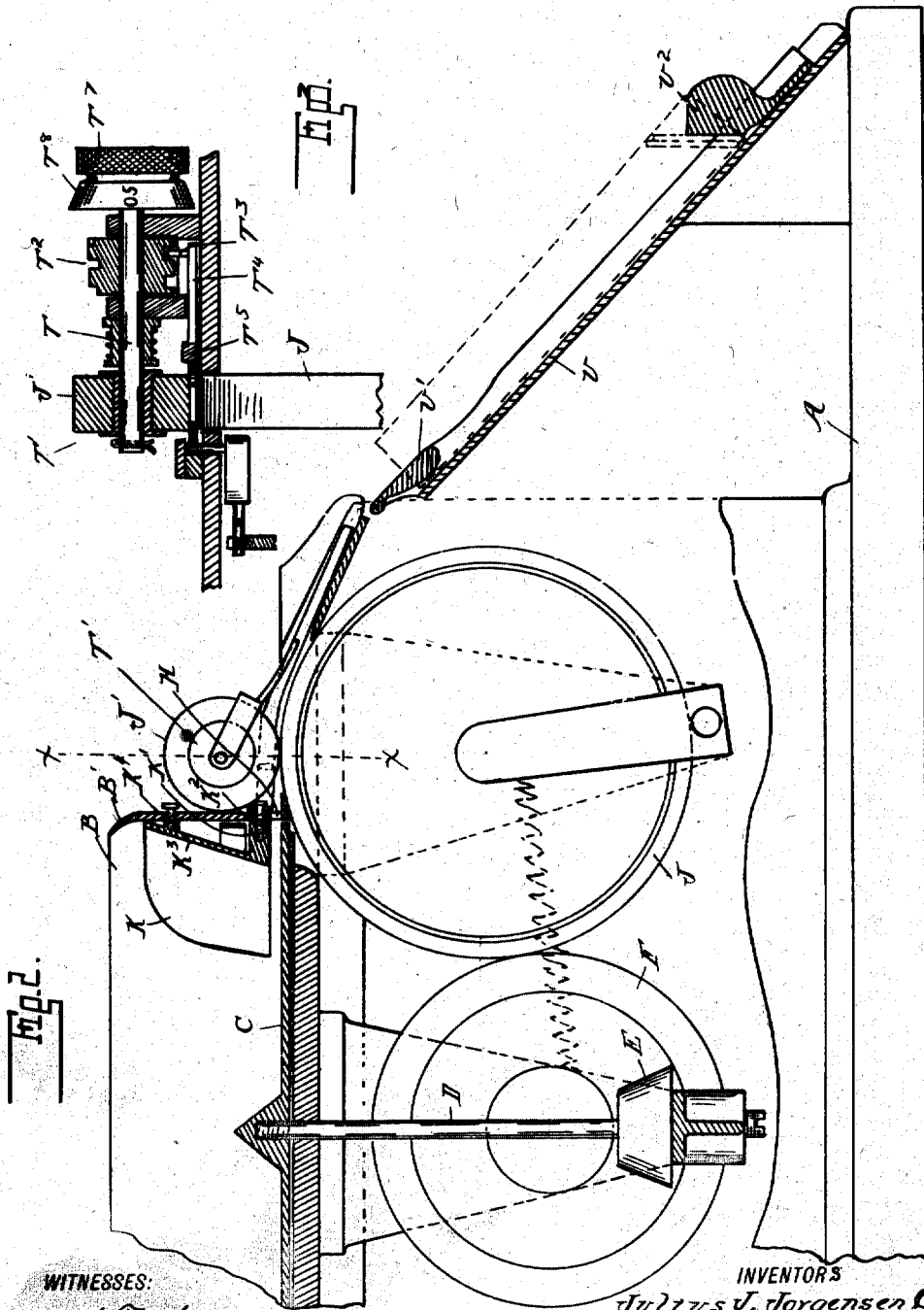


Fig. 2.

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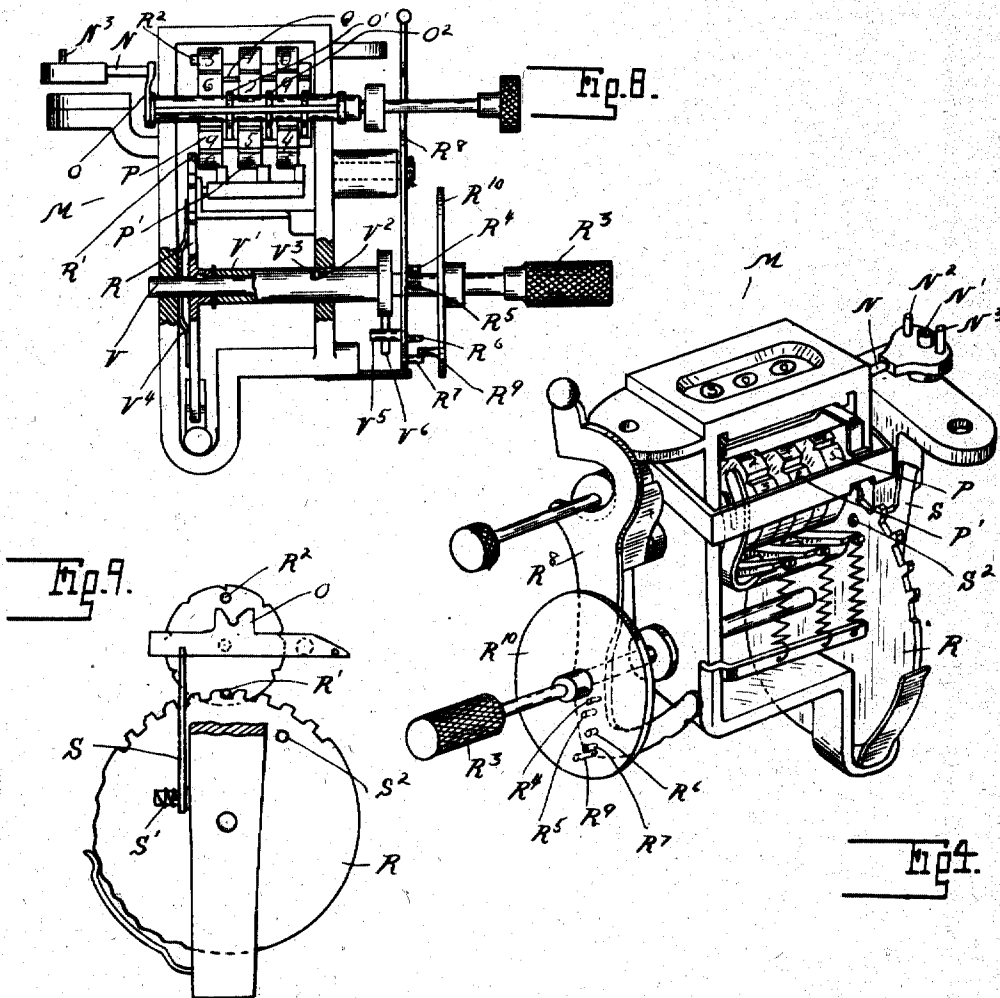
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4 SHEETS—SHEET 4.

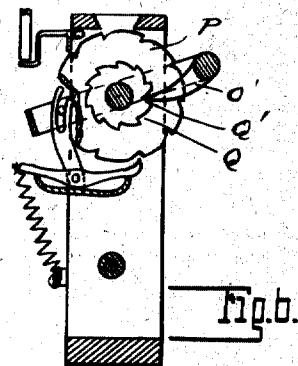
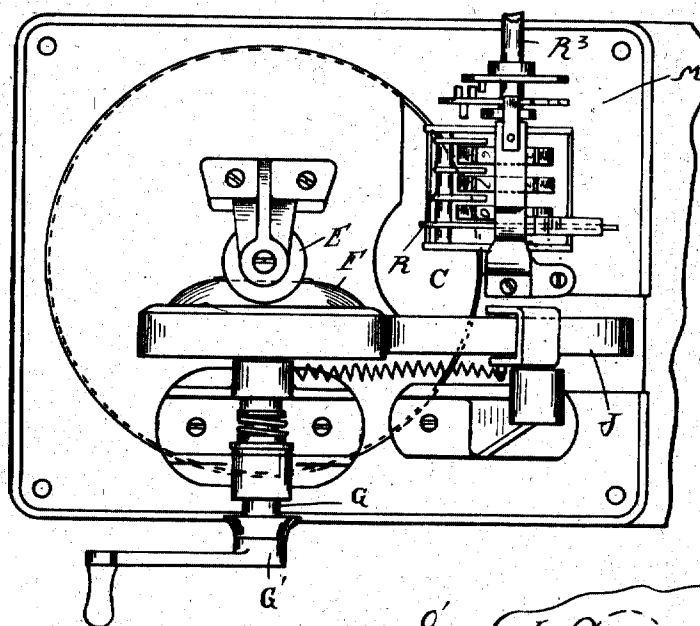


Fig.10.

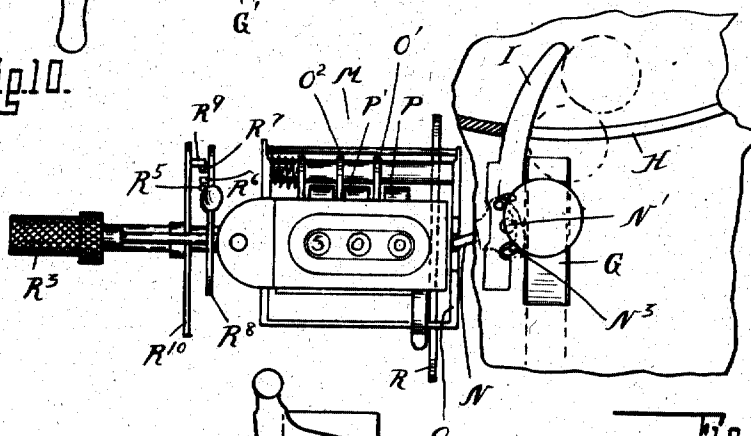
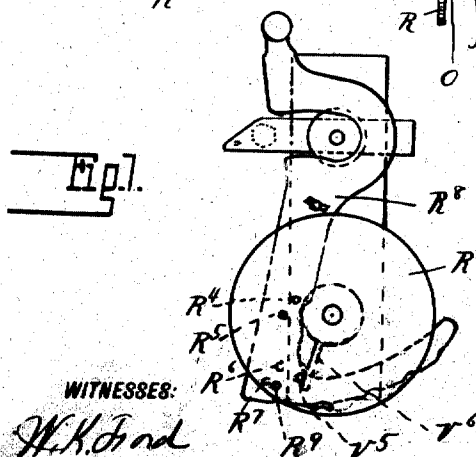


Fig 5.



WITNESSES:

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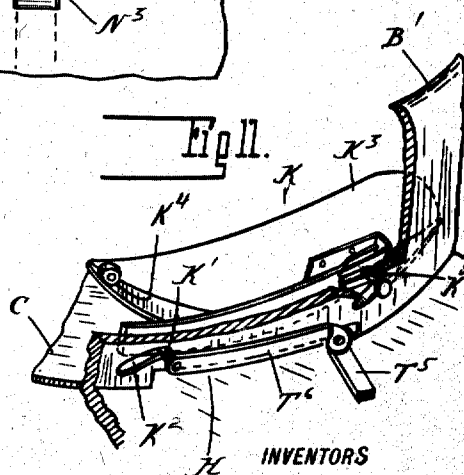


Fig 11

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UNITED STATES PATENT OFFICE.

JULIUS J. JORGENSEN AND WILLIAM G. LATIMER, OF DETROIT, MICHIGAN, ASSIGNORS
TO COINOMETER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF
DELAWARE.

COIN SORTING AND COUNTING MACHINE.

1,279,351.

Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed September 8, 1914. Serial No. 860,531.

To all whom it may concern:

Be it known that we, JULIUS J. JORGENSEN, subject of the King of Denmark, and WILLIAM G. LATIMER, citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Coin Sorting and Counting Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to machines designed for the counting and the sorting of coins, and it is the object of the invention to obtain a simple, compact and easily manipulated mechanism by which the coins will be rapidly counted and sorted. It is a further object to provide means for variably limiting the count or stopping the operation after a definite number of coins have been ejected from the machine. Still further, it is an object to provide means for depositing the ejected coins directly into the wrappers or coin cases. With these and other objects in view the invention comprises the various features of construction as hereinafter set forth.

In the drawings:

Figure 1 is a plan view partly in section;
Fig. 2 is a longitudinal section;

Fig. 3 is a transverse section on line $x-x$ Fig. 2;

Fig. 4 is a perspective view of the coin register;

Fig. 5 is a plan view showing the operating connection for the register;

Fig. 6 is a cross section through the register;

Fig. 7 is an elevation of the stop mechanism for limiting the count;

Fig. 8 is a rear view of the register;

Fig. 9 is a view in detail of a portion of the mechanism for limiting the count of the register;

Fig. 10 is a bottom view of the machine;

Fig. 11 is a detail perspective view of the outlet portion of the receptacle which initially receives the coins, showing means for adjusting the size of the outlet.

A is a suitable base upon which is mounted a circular receptacle B having a revoluble disk C forming the bottom thereof. The disk C is mounted upon a vertical shaft D which may be rapidly revolved by suitable means such as the beveled wheels E and F,

shaft G and hand crank G'. The receptacle B is designed to receive the coins which are to be counted and in the rapid revolution of the disk bottom C these coins are thrown outward by centrifugal action. The upper end of the receptacle is preferably provided with an inwardly curved flange B', which prevents the throwing out of any of the coins.

At one side of the receptacle B is a slot or opening H of sufficient size for the passage of the largest coin which is handled by the machine, and adjacent to this aperture is a finger I which projects over the disk C and forms a rake or deflector for directing coins carried by the revolving disk through the slot. Outside of the receptacle and in line with the slot H are feed rolls J and J', the former being driven from the wheel F. Both of these wheels are provided with a yieldable peripheral facing, such as rubber, which will frictionally engage the coins and will compensate for different thicknesses. Thus each coin which is ejected from the receptacle through the combined centrifugal action of the revolving disk and the deflector finger I will engage these feed rolls J and J', and will be positively withdrawn from the path of succeeding coins.

To prevent clogging of the machine it is essential that the slot through which the coin is ejected should be approximately the thickness of the coin, and it is further necessary to provide some means of preventing wedging or interlocking of coins which are in the same plane immediately above the revolving disk. We have therefore provided an adjustable gage K which may be raised or lowered to alter the depth of the slot. Also the disk C is provided with one or more lugs or projections L on its upper face, which are so located as to disengage any interlock between coins adjacent to the finger I. Thus in operation whenever coins are deposited in the receptacle B and the crank G' is rotated, this will result, first, in throwing coins outward centrifugally toward the wall of the receptacle; and second, in passing them beneath the gage K and deflecting them by the finger I outward through the slot H into engagement with the rolls J and J'.

The machine as thus far described is adapted for various uses as follows:

First,—by providing a counting register

the machine is adapted for the rapid counting of coins;

Second,—by the addition of a stop mechanism the coins thus counted may be limited to the number required for the filling of the wrapper or for any other purpose;

Third,—the coins may be directly fed from the counter into the coin wrappers; and

Fourth,—the machine may be used for sorting by setting the gage K so that only coins under a predetermined thickness will be permitted to pass out and by then gaging according to diameters.

For use as a coin counter, a counting register M is mounted so as to be operated by the passage of each coin. The mechanism whereby the coins actuate the register is best illustrated in Figs. 3 and 5. As the coins pass between the rolls J and J' they are guided at one side of their path of travel by a member T², more fully described hereinafter. At the other side of said path, there is mounted a rockable member N pivoted at N' and carrying two pins N² and N³ which project upwardly and are successively encountered by each coin, and displaced out of its path of travel. As the first of said pins is displaced out of the path of the coin the resultant rocking of the member N displaces the other pin into said path, and upon encountering the second pin, the coin will rock the member N back to its former position, ready to be acted upon by the next coin. This rocking movement is transmitted to a rockable pawl member O by which the register is operated. The register may be of any suitable construction, but, as shown, comprises a series of wheels P P', etc., of different denominations, all of which are operated by the rockable pawl O engaging notches or teeth on the several wheels. The unit wheel P has its notches or teeth Q always in engagement with the arm O' of the pawl and one notch Q' is of greater depth than the others to permit a greater inward movement of the pawl arm O'. The arm O' for the tens wheel or wheel of next denomination is normally out of engagement with the notches of said wheel, but once in each revolution when the arm O' enters the deep notch Q' of the unit wheel this will permit the engagement of the arm O' with the notch of the tens wheel so as to cause the simultaneous rotation of both unit and tens wheel. In the same manner one of the notches of the tens wheel is deeper than the others so as to permit a further inward movement of the pawl to engage the same with the notched wheel of the next higher denomination, and thus the carrying may be effected through a series of any number of wheels.

For limiting the count there is provided an automatic stop mechanism of the following construction: R is a toothed wheel which

is laterally adjustable into and out of co-operative relation with one or more actuating pins upon the units wheel, two pins R' and R² being provided in the construction shown. The wheel R when disengaged from the pins R' and R² may be revolved by a handle R³ to different positions of rotative adjustment, these positions being selectively determined by a series of stops. The stops R⁴ R⁵ R⁶ and R⁷ are preferably arranged upon an adjustable lever R⁸, which in its several positions of adjustment will place said stops respectively in the path of a co-operating stop pin R⁹ on a disk R¹⁰ which rotates with the wheel R. Thus by adjusting said lever R⁸ and then turning the knob R³ the wheel R may be adjusted to the desired position. Each position of adjustment corresponds to a limited count, movement being imparted to the wheel R through the pins R' and R² successively engaging the teeth thereof, and when the wheel R is returned to its initial position it is automatically locked to prevent further rotation and to also lock the register and the coin-ejecting mechanism. This locking, as shown, is effected by a dog S actuated by a spring S' and engaging a perforation S² in the wheel R, thus preventing further rotation, and, by the interlock between the wheel R and the counter and between the latter and the escapement N, stopping operation of the machine.

To render the escapement mechanism operative with coins of different diameters it is necessary that the width of the coin channel should be varied. It is also essential that the gage K should be raised or lowered to correspond to the thickness of coin which is ejected from the coin receptacle. These two adjustments are effected by a common mechanism of the following construction: T is a horizontal shaft; T' is an eccentric portion of said shaft which forms a journal for the roll J'; and T² is a spirally grooved cam upon the shaft which engages a pin T³ upon an adjustable slide T⁴ carrying a gage bar T⁵ for the coins which pass out from the machine and by the escapement N. The gage bar T⁵ is also connected by a link T⁶ with the gage K and the latter is slidably attached to the wall of the receptacle B by pins K' passing through cam slots K² in said wall. These slots are so fashioned that the adjustment of the slide T⁴ will cause the raising or lowering of the gage K. K³ is a guard member which is pivotally attached at one end K⁴ to the receptacle B, while at its opposite end it is connected to the gage K and is raised and lowered thereby. This connection consists of a pin K⁵ on the gage K engaging a cam slot K⁶ on the guard K³. This guard extends over a segment of the revolving plate C and also a portion of the rake or finger I, being provided with an

outwardly extending flange K' which lies substantially parallel to the plane of the disk C. T' is an adjustable wheel at the end of the shaft G by which it may be rotated to different positions as indicated upon an adjacent index wheel T⁸.

With the construction of mechanism just described in operation whenever the machine is to be set for a particular denomination of coin, as for instance for pennies, the knob or wheel T' is adjusted according to the index T⁸ to the proper position. This will cause, first, a rotation of the eccentric journal T' so as to move the wheel J' toward or from the wheel J to correspond to the gage or thickness of the coin. The same movement of the shaft T will rotate the cam T², causing the pin T³ to move the slide T⁴ shifting the guide T⁵ to adjust the width of the coin channel to correspond to the diameter of the coin. A further effect produced by this same adjustment is to move the link T⁶ and thereby to adjust the gage K so that the slots K² operating upon the pins K' will raise or lower said gage corresponding to the thickness of the coin. Lastly this same adjustment will, through the connection between the gage K and guard K³, effect raising or lowering of the free end of said guard to space the same from the revolving bottom correspondingly to the gage of the coin.

It is usual to place coins when counted in wrappers and this operation is also performed by the machine by means of the following construction: U is an inclined chute arranged to receive the coins delivered from the revolving wheels J and J'. U' is a spring clip for attaching to the chute U the upper end of a flattened cylindrical coin wrapper of proper diameter for receiving the coin. The lower end of this wrapper is engaged with a lug U², which has a vertical face forming a stop for the coins. The arrangement is such that the coins as delivered from the rolls and through the combined action of gravity and inertia will be directed into the open end of the wrapper. This wrapper, being flattened, will be of a diameter in excess of the diameter of the coin, so that the latter will freely pass thereinto and move downward against the stop U². Here the coin will straighten up against the vertical face of the stop but will still be in a plane inclined to the longitudinal axis of the wrapper so as to fit loosely therein. When the proper number of coins have been placed in the wrapper the latter may be withdrawn from the chute U and in swinging over the lug U² will adjust the coins to a plane perpendicular to the longitudinal axis, thereby tightly contracting the wrapper about the coin, after which the ends may be tucked in and the package completed. This method of filling avoids the necessity of a split wrapper, and the operation may

be performed with greater rapidity than with the more complex mechanisms heretofore employed.

In the complete operation of the machine when it is desired to merely count coins of the same denomination and without limit to the count, the lever R⁸ is adjusted to the extreme end of its movement in one direction. This in addition to adjusting the stops R⁴ R⁵, etc., effects automatically an axial adjustment of the wheel R to disengage the teeth thereof from the pins R' and R²; or, in other words, to render the wheel R inoperative from the register M. The means for accomplishing this comprises a shaft V having a tubular shaft V' thereon, upon which latter the wheel R is mounted. V² is a pin projecting laterally from the shaft V and engaging a spiral slot V³ in the tubular shaft V'. V⁴ is a spring at the end of the shaft V' bearing against the wheel R for holding the latter in position of engagement with the pins R' and R². V⁵ is a pin upon the lever R⁸, which in the extreme position of adjustment of the latter strikes against a pin V⁶ extending radially from the tubular shaft V' into the path of the pin V⁵. Thus in operation the striking of the pin V⁵ against the pin V⁶ will relatively rotate the sleeve or tubular shaft V' upon the shaft V, whereupon the pin V² engaging the spiral slot V³ will cause a relative longitudinal movement of the sleeve upon the shaft against the tension of the spring V⁴, and this movement is sufficient to disengage the teeth of the wheel R from the pins R'. This will prevent any movement of the register from being transmitted to the wheel R and consequently the counting can proceed indefinitely without throwing into operation the stop mechanism.

When the machine is used for counting a limited number of coins the lever R⁸ is adjusted to any one of its various positions other than the one just described, which will cause one of the stops R⁴ R⁵ etc. to be placed into the path of the pin R⁹ on the wheel R¹⁰. The shaft V is then revolved by the knob R³ which will rotate said shaft and the wheel R until raised by the stop. This movement is permitted without interference from the pins R' and R² upon the units wheel, as in the zero position of this wheel said pins are both out of engagement with the teeth of the wheel R.

When the machine is properly set, either for a limited count or for an unlimited count, the coins are placed in the receptacle B and motion is imparted to the disk C through the hand crank G'. This will throw the coins out centrifugally to the stationary annular wall of the receptacle and will also carry them around in a circular path. The coins lying directly upon the revolving bottom will pass under the guard

K³ and against the finger or rake I, but those coins which are raised upon other coins will strike against the guard K³ which will deflect them inward. Thus there is an alternate movement radially inward and radially outward, the superposed coins being moved inward and the bottom coins moving outward. This will continue until all of the superposed coins find a place upon the revolving bottom and can thus pass beneath the guard K³ and into contact with the rake or finger I.

Under certain conditions there might occur an interlock between the coins resting upon the revolving bottom, which would prevent any one from being deflected by the rake I out through the slot H. This is prevented by the raised points of lugs L which are so positioned as to clear the finger I, but to pass in sufficient proximity thereto to dislodge any coin which might interlock with the coin in engagement with said finger.

The coins deflected by the finger I pass through the slot beneath the gage K and through the slot H in the outer wall of the receptacle, and then pass in the channel between the adjustable gage T⁵ and the escapement mechanism N. As this gage T⁵ is adjusted by the rotation of the knob T⁷ to correspond to the adjustment of the gage K for the thickness of the coin it is obvious that any coin which can pass through the gage K will also pass through the channel at the side of the gage T⁵. In passing through this channel the coins are fed at a uniform rate by the feed rolls J and J' which also furnish the necessary power for actuating the escapement N and operating the counting register.

After passing through the discharge channel the coins may be either directed into wrappers as has been described, or where the operation is merely to count they may be caught in any suitable receptacle.

What we claim as our invention is;—

1. A mechanism for handling coins comprising a revoluble plate upon which the coins are supported to throw the same outward by centrifugal action, a stationary wall surrounding said plate and cut away at one point, a finger for engaging the coins directly supported on said plate, and deflecting the same outward through said cut away portion, a gage for limiting the depth of the slot through which said coins pass outward, a guard for throwing the superposed coins inward, and a common means for adjusting said gage and guard.

2. A mechanism for handling coins comprising a revoluble plate for supporting the coins and for throwing the same outward by centrifugal action, a peripheral wall surrounding said plate cut away at one point, a finger for deflecting the coins directly

supported on said plate outward through said cut away portion, an escapement successively operated by the coins passing through said cut-away portion, a gage for limiting the thickness of the coins passing through said cut-away portion, a gage for the diameter of the coins cooperating with said escapement, and a common means for adjusting said gages to correspond to the thickness and diameter of the coins handled.

3. A mechanism for handling coins comprising a revoluble plate for supporting the coins and throwing the same outward centrifugally, a peripheral wall surrounding said plate and cut away at one point, a finger for engaging the coins directly supported on said plate and directing the same outward through said cut-away portion, an escapement actuated by the coins successively passed out through said cut-away portion, a gage for limiting the thickness of coins passing out through said cut-away portion, a gage for limiting the diameter of the coins cooperating with said escapement, a guard for deflecting inward the superposed coins, and a common means for simultaneously and correspondingly adjusting said gages and guard.

4. A mechanism for handling coins comprising a revoluble horizontal disk, a peripheral wall surrounding said disk and cut away at one point, a finger adjacent to said disk for deflecting the coins supported thereon outward through said cut-away portion, a gage for limiting the thickness of the coin passing outward through said cut-away portion, a roll for positively feeding the coin outward, a cooperating roll, a revoluble eccentric bearing forming a journal for said cooperating roll and means for adjusting the same to the gage of the coin, and a connection between said revoluble eccentric bearing and said gage for effecting a corresponding adjustment of each.

5. A mechanism for handling coins comprising a revoluble horizontally arranged disk, a peripheral wall surrounding said disk and cut away at one point, a finger adjacent to said disk deflecting the coins supported thereon outward through said cut-away portion, an escapement operated by the passing coins, cooperating rolls for engaging the coins and positively feeding the same past said escapement, an eccentric bearing for one of said rolls adjustable to vary the gage of the coin, a gage for limiting the thickness of the coins passing out through said cut-away portion connected with said eccentric bearing, and means for simultaneously actuating said eccentric bearing and gage.

6. A mechanism for handling coins comprising a revoluble horizontally arranged disk, a peripheral wall surrounding said disk cut away at one point, a finger adjacent to

said disk for deflecting the coins supported thereon outward through said cut-away portion, an escapement operated by the passing coins, cooperating feed rolls for positively actuating said coins past said escapement, an eccentric bearing for one of said feed rolls adjustable correspondingly to the gage of the coin, a shaft for rotating said eccentric bearing, a cam on said shaft, a gage for the diameter of coins cooperating with said escapement, a gage for the thickness of coins passing out through said cut-away portion, and means actuated by said cam for simultaneously adjusting said gages correspondingly and in correspondence to the adjustment of said eccentric bearing.

7. A machine for handling coins comprising a revoluble horizontally arranged disk, a peripheral wall surrounding said disk cut away at one point, a finger adjacent to said disk for deflecting the coins supported thereon outward through said cut-away portion, a gage for limiting the thickness of coins passing outward through said cut-away portion, a cam bearing for said gage upon said peripheral wall, an escapement operated by the coins passing out through said cut-away portion, cooperating rolls for positively feeding said coins past said escapement, an eccentric bearing for one of said rolls, a rotary shaft connected to said eccentric bearing, a cam upon said shaft, and a connection between said cam and said gage

for adjusting the same during the rotative adjustment of said eccentric bearing where- 35 by said cam bearing for said gage will effect the vertical adjustment thereof.

8. In a mechanism for handling coins, the combination with a feed-roll and a cooperating member, of a gage for limiting the size of the coins fed, a revoluble eccentric bearing forming a journal for said feed-roll, and a common means for rotatively adjusting said bearing and correspondingly adjusting said gage. 40

9. In a mechanism for handling coins, the combination with a container having a discharge opening, of a gage for limiting the thickness of the coins passing through said opening, a cam bearing for said gage upon said container, a feed-roll and cooperating member, an eccentric bearing for said roll, mechanism utilizing the cam mounting of said gage to permit variation of the discharge opening, and a common means for 45 adjusting said mechanism and eccentric bearing according to the size of the coins to be fed.

In testimony whereof we affix our signatures in presence of two witnesses.

JULIUS J. JORGENSEN.
WILLIAM G. LATIMER.

Witnesses:

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JAMES P. BARRY.