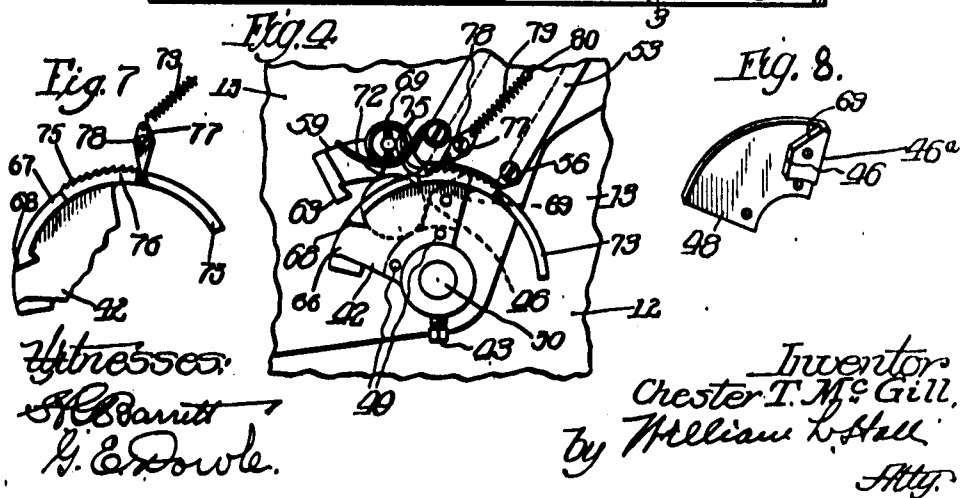


1,058,817.

2 SHEETS--SHEET 1.

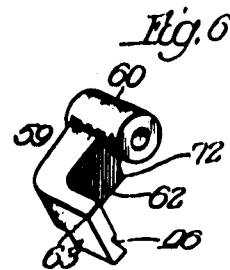
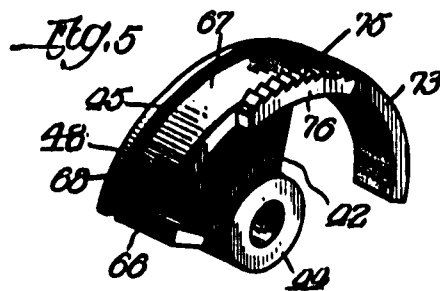
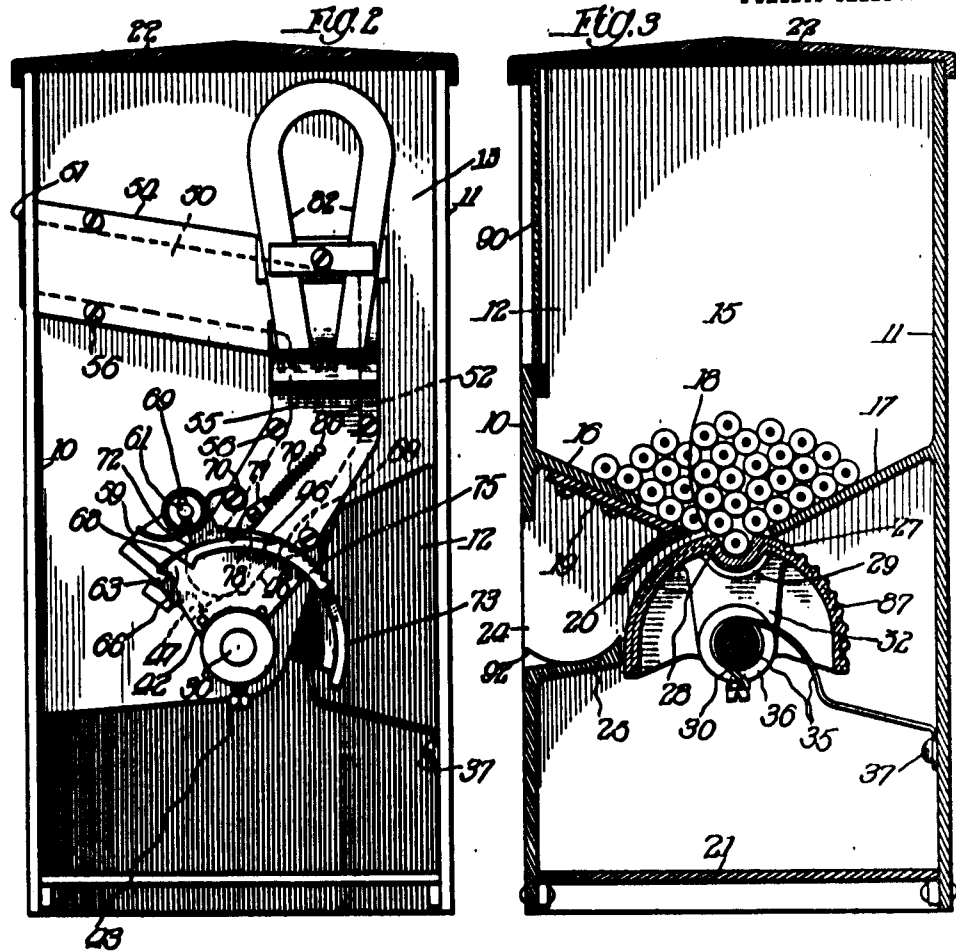


O. T. MCGILL.
 COIN CONTROLLED PENCIL VENDING MACHINE.
 APPLICATION FILED SEPT. 27, 1911.

1,058,817.

Patented Apr. 8, 1913.

2 SHEETS-SHEET 2.



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 Atty.

UNITED STATES PATENT OFFICE.

CHESTER T. MCGILL, OF ELGIN, ILLINOIS.

COIN-CONTROLLED PENCIL-VENDING MACHINE.

1,058,317.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed September 27, 1911. Serial No. 651,514.

To all whom it may concern:

Be it known that I, CHESTER T. MCGILL, a citizen of the United States, and a resident of Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Coin-Controlled Pencil-Vending Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in coin controlled vending machines for vending lead pencils and like elongated articles, and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects is to provide an exceedingly simple machine for the purpose which is made of few parts; which requires little or no expensive machining in its construction; which is strong and durable, and which is certain in its operation to deliver a single pencil in each operation of the machine.

In the drawings:—Figure 1 is a partial front elevation and partial vertical section of my improved machine. Fig. 2 is a side elevation thereof with one side wall removed, showing the top wall in section. Fig. 3 is a vertical section on line 3—3 of Fig. 1. Fig. 4 is a detail of the coin controlled mechanism in a position changed from that shown in Fig. 2. Fig. 5 is a perspective view of a rocking sector shaped member constituting part of the coin controlled mechanism. Fig. 6 is a perspective view of a dog to normally lock the sector shaped member and the dispensing member stationary. Fig. 7 is a detail of the coin pocket of the coin controlled mechanism. Fig. 8 is a diagrammatic view illustrating another position of the ratchet and pawl mechanism for preventing retraction of the dispensing member during its operation of dispensing a pencil.

The frame of the machine is in the form of a cast metal casing, it comprises the front and rear walls 10 and 11 respectively, the end wall 12 and the end wall or plate 13 which extends between the front and rear walls and terminates short of the bottom wall. The members of the frame referred to may, and preferably will, constitute an integral casting, and inclose a chamber 15 to receive the pencils or other articles to be

vended. The bottom of said chamber comprises the members 16, 17 which are made integral with, and incline inwardly and downwardly toward each other from, the front and rear walls of the casing to constitute a hopper bottom to direct the pencils to the longitudinally arranged dispensing opening 18 between the adjacent edges of said members 16, 17, through which the pencils drop one at a time on the dispensing member below, as will hereinafter appear. In order to properly adjust the width of the dispensing opening between the hopper bottom members 16 and 17 to correspond with the diameter of the pencils to be vended, one of said bottom members (the member 16, as herein shown) may be provided with the detachably affixed plate 19, having a forwardly and downwardly extending cylindrically curved flange 20.

The casing shown comprises, in addition to the parts described, the separably formed bottom wall 21, the top wall 22 and an end wall 23, which are fixedly attached to the integral portion of the frame, and some of which, in practice, are removable to permit access to the interior of the casing and the money box therein.

The front wall of the casing is provided with a delivery opening 24, having at the bottom thereof a floor or flange 25, upon which the pencils are delivered by the dispensing member, in position to be readily removed by the hand. The pencils drop one by one through the dispensing opening in the hopper bottom of the pencil chamber upon a rocking dispensing member 27, herein shown as comprising a shell of approximately semi-cylindric form. Said shell is provided at its apex with a longitudinal groove 28 of a size to receive a pencil, said groove being depressed at its ends 29 for a purpose hereinafter described. The said dispensing member is fixed to and rotates with a rock shaft 30, that is mounted at its ends in suitable bearings in the casing and extends at one end beyond the end wall 12 of the casing to receive a crank 31 by which to rock said shaft and dispensing member. The dispensing member is mounted on a shaft through the medium of the arms 32 through which the shaft extends, the shaft being non-rotatively fixed to said arms, as by means of the pins 33 shown. The dispensing member is normally maintained with its pencil receiving groove

uppermost by means of a volute spring 35 coiled about the rock shaft, with one end attached to a collar 36 fixed to said shaft, and with its other end fixed at 37 to the rear wall of the casing. The said spring acts on the shaft in a direction to hold the crank 31 against a fixed stop 39 on the end of the casing, and to maintain the dispensing member in its normal position. When the crank is swung toward the front of the machine the dispensing member is rocked forwardly, against the action of the spring 35, and carries the pencil resting in the groove of said member between same and the flange or apron 20. When the pencil passes the lower margin of said flange 20 it is free to drop on the floor 25 at the delivery opening 24 in position to be removed by the hand. When the crank is released the spring 35 restores the parts and when the dispensing member groove reaches the upper side of the member another pencil falls into the same, to be dispensed in the next operation of the machine.

The rocking dispensing member is locked in its normal position, shown in Fig. 3, by means of a coin-controlled mechanism which is made as follows: 42 designates, as a whole, a sector shaped arm which is non-rotatively fixed to the end of the shaft 30 just outside of the plate 13, as by means of a set screw 43 which extends through the hub 44 of the arm and impinges upon said shaft. The upper side or edge of said arm is curved concentrically to the axis of the crank shaft. Said sector shaped arm is provided with a pocket 45 to receive a coin from the coin chute above the same, as indicated in Figs. 2 and 4, the pocket being open at its top and front edge of the arm. The rear side of the coin pocket is closed to constitute a contact surface 46 to engage with the coin, as the sector is swung forwardly, as indicated in Fig. 4, and the lower wall of the pocket upon which the coin drops is formed by the curved surface 47. As herein shown, and preferably, the coin pocket 45 is formed between the main body of the sector shaped arm 42 and a sector shaped plate 48 that is applied to the inner side of the arm and is attached thereto by the screws 49, as shown in Fig. 1. When so formed the coin engaging surfaces 46 may be formed on a thickened part or shoulder 46^a of the plate 48, as shown in Fig. 7, and the bottom of the slot may be formed on the hub 44 at the inner side of the arm 42. In this way the device may be made of two plain castings which require no machining to form the pocket 45.

The coin chute as herein shown comprises the rearwardly and downwardly inclined portion 50, the mouth 51 of which opens on the front wall of the casing, and the downwardly extending portion 52, which is con-

nected at its upper end with the portion 50. The lower end of the upright portion of the chute is directed obliquely downwardly toward the pocket 45, and is curved at its extreme lower end to correspond to the curvature of the upper side of the sector shaped arm 42, so that the relative position of the sector shaped arm and the coin slot is not changed during the swinging movement of the arm. The said horizontal and upright portions of the slot are formed as shallow grooves in a thickened portion 53 of the wall or plate 13, and the outer side of said slot comprises the plates 54, 55 which are applied over the grooved portions of the cast plate or wall and are attached thereto by screws 56.

The arm 42 and the dispensing member 27 are normally held from rocking forwardly to dispense a pencil by means of a swinging locking dog 59 having a hub 60 by which it is pivoted to a pin or stud 61 extending from the plate or wall 13. Said dog comprises a flat portion 62, adapted to lie over the coin pocket 45, and a laterally turned portion 63 having a notched tooth which extends into an opening 66 of a curved flange 67 that extends laterally and outwardly from the arm 42 and is curved concentrically to the shaft 30. Said notched tooth of the dog lies in the path of the edge 68 of said flange at the rear of the opening 66 therein. The dog 59 is held pressed toward the sector shaped arm 42 by means of a volute spring 69 which is coiled about the hub 60 of said dog, with one end fixed by the screw 70 to a fixed portion of the casing, and with the other end engaging over the dog between its free end and its pivot mounting.

With this construction it will be observed that when no coin is in the pocket and the dispensing member and the sector shaped arm 42 are swung forwardly said parts will be arrested by engagement of said dog, with the edge 68 of the flange 67 so as to prevent the dispensing member being swung forwardly a sufficient distance to dispense a pencil from the machine. When a coin of proper diameter is in the pocket, however, as indicated by the dotted lines in Fig. 2, said coin extends above the level of the heel 72 of the dog, so that when the arm 42 is swung forwardly to engage the coin with the rear wall 46 of the coin pocket, said coin is forced forwardly, and acts to quickly raise the locking dog 59 to swing its notched tooth out of the path of the flange 67, and to thereby permit the dispensing member to be swung forwardly a sufficient distance to dispense a pencil and to deliver the coin through the open side of the pocket into the money box below (not shown) placed in the lower part of the casing. When the crank 31 is released the parts are restored

to their normal positions by the spring 35 and are arrested in said normal positions by engagement of the crank 31, with the stop 39; the notched tooth of the dog dropping 5 into the opening 66 as the sector shaped arm 42 swings backwardly, in position to prevent further operation of the device until another coin is inserted into the machine.

The flange 67 of the arm is provided with 10 a rearwardly extending portion 73, concentric with the axis of the shaft 30, which curved portion serves to close the lower end of the coin slot when the arm and the dispensing member are swung forwardly, and 15 to thereby prevent a coin being dropped through the slot into the money box below at a time when the machine is in operation. The coin engaging surface 46 terminates at its inner end in a rearwardly inclined portion 69 which operates, when more than one 20 coin is presented to the pocket at one time, to force the last or rearward coin back into the chute when the dispensing member is rocked forwardly so as to prevent the coins 25 locking the machine from operation.

In order to prevent the dispensing member returning, under the action of the spring 35, should the crank 31 be released, after the coin has been delivered into the coin box 30 and before the pencil has been dispensed, I may provide the flange 67 of the arm 42 with a series of ratchet teeth 75, formed on the lateral extension 76 of the flange, said ratchet teeth to be engaged during the 35 dispensing movement of the parts by the locking pawl 77 which is pivoted at 78 to the outer wall plate 55 of the lower portion of the coin slot. The said pawl 77 is pivoted between its ends, with its biting end 40 normally in the path of the ratchet teeth 75 and the extension 76 which carries the teeth, as shown in Fig. 2, and is normally held in position by a spring 79 that is attached at one end to the tail of the pawl and 45 its other end to a pin 80 which is fixed in the outer wall of the plate 55 of the coin slot. When the sector and the dispensing member are swung forwardly therefore, the ratchet teeth move beneath and in contact 50 with the pawl, so that after the coin drops out of the coin pocket into the money box below, the dispensing member can not be restored until after it has been swung forwardly far enough to deliver a pencil, and 55 far enough for the ratchet extension 76 to pass the pawl to permit the latter to fall behind said extension. Upon the return movement of the dispensing member, after the complete operation of dispensing a pencil, the pawl is turned backwardly or reversed from the position shown in Fig. 2 by 60 engagement of the rear edge of the extension 76 with said pawl, as indicated in Fig. 7, and in this position the 65 ratchet teeth 75 are free to ride under

the biting end of the pawl. After the forward edge of the ratchet extension 76 passes from under the pawl 77 during the restoring movement of the dispensing member the spring 79 acts on said pawl to restore it 70 into the position shown in Fig. 2, or in position to again lockingly engage the ratchet teeth when the dispensing member is again swung forwardly.

Preferably, and as herein shown, that portion 75 of the upper surface of the semi-cylindric dispensing member in rear of the pencil slot of said member is formed on its upper surface to provide a series of longitudinal corrugations 87 which, when the dispensing member is swung forwardly, engage 80 the lowermost pencils in the pencil chamber in a manner to joggle or tumble the same upon each other and thus rearrange them in case they should become disarranged or should lie in crosswise relation 85 to each other. In this manner the pencils may be maintained in such position that when the dispensing member is restored to normal position one of the pencils will always be free to drop into the dispensing 90 groove thereof.

The provision of the curved shield or flange 20, carried by the forwardmost member of the hopper bottom, prevents the delivery of a pencil to the delivery space or opening until after the dispensing member has been rocked a sufficient angular distance to release the coin from the coin pocket. Said flange also permits the dispensing 100 member to have some freedom of angular movement, as indicated in Fig. 2, without liability of a pencil being dispensed when no coin is in the coin pocket.

In order to prevent a magnetizable check 105 from being inserted into the machine to operate it, I may arrange a magnet 82 at the angle of the coin slot where the coin changes its direction of movement to pass from the generally horizontal portion 50 to the upright portion 52. When such magnet is used the slot is provided adjacent to the poles of the magnet with a release opening 83, as best shown in Fig. 1, such 110 release opening being formed by bending out the lower margin of the plate 54 at 84 and bending outwardly the upper margin of the plate 55 at 85. The outwardly bent portion 84 of the plate 54 is located just 115 below the poles of the magnet so that when a magnetizable check reaches this point it is deflected outwardly toward the lip 84 and is diverted from the coin slot and falls into the coin box beneath without operating the machine. When a magnet is so used the 120 plates 54 and 55 will be made of brass or like the non-magnetizable material. It is advantageous to provide an indirect coin slot when such a deflecting magnet is employed in the manner shown, inasmuch as 130

the speed of the spurious check is slowed down so as to insure the proper deflection or withdrawal of the check from the slot.

In the use of the machine the chamber 15 is filled or partially filled with pencils or like objects to be vended, and the number of pencils in the chamber may be observed through the glass front 90. When a pencil is to be dispensed a coin is dropped through the coin slot or chute into the coin pocket 45 of the sector shaped locking arm 42 and the crank 31 is pulled forwardly to swing the dispensing member and said locking arm forwardly. As the locking arm moves forwardly the rear surface 46 of the coin pocket engages the coin and carries the same forwardly with the arm, and the said coin raises the dog 59 with its tooth 63 out of the path of the flange 67 so as to permit the dispensing member and locking arm to move throughout the entire dispensing movement of said member, or approximately 90 degrees. This movement of the dispensing member may be limited by engagement of the crank 31 with a stop 91 on the end wall of the machine. As the locking arm moves forwardly the ratchet teeth 75 ride beneath and are engaged with the pawl 77 to prevent accidental retraction of the vending member in case the crank should be released before said member has completed its vending movement. The pencil carried forwardly in the grooved dispensing member is released as the groove of the dispensing member passes the edge of the flange 20 and the pencil drops on the flange 25 at the delivery opening 24. Lugs 92 at the ends of said flange prevent the pencils from rolling out through the delivery opening, while permitting water, which may fall into the delivery opening, to be drained therefrom. When the crank 31 is released the spring 35 restores the parts to their normal position so as to bring the groove of the dispensing member into position to receive another pencil, to be dispensed in the succeeding operation of the machine.

I claim as my invention:

1. In a coin controlled vending machine, a to and fro rocking dispensing member, with means for rocking the same forwardly, a spring for retracting said member, a locking arm movable therewith and provided with a lateral flange and with a coin pocket, a locking dog provided with a tooth, normally in the path of said flange and adapted

to be moved out of the path of said flange by a coin in said pocket, when the arm is swung forwardly, said flange being provided at its lateral margin with a series of ratchet teeth, and a pawl arranged in a plane at the side of the plane of said dog and adapted to ride over said ratchet teeth in the forward throw of said arm to lock said arm and dispensing member from retractive movement, and arranged to drop off said flange at the end of the forward movement or throw of said arm to reverse the pawl.

2. In a coin controlled vending machine, the combination with a dispensing member, of a rocking arm provided with a coin pocket which is open at its top and front and is closed at its rear side, a coin slot to direct a coin to the open top of the pocket and a dog to normally lock the arm from swinging forwardly, and adapted to be raised out of the path of the arm when the arm is swung forwardly with a coin in said pocket, the rear wall of the pocket being provided with an inclined surface arranged to force a rear coin back into the coin slot when the arm is swung forwardly with more than one coin presented to the pocket.

3. In a coin controlled vending machine, the combination with a dispensing member, of a rocking arm provided with a coin pocket which is open at its top and front and is closed at its rear side, a coin slot to direct a coin to the open top of the pocket and a dog to normally lock the arm from swinging forwardly, and adapted to be raised out of the path of the arm when the arm is swung forwardly with a coin in the pocket, the rear wall of the pocket being provided with an inclined surface arranged to force a rear coin back into the coin slot when the arm is swung forwardly with more than one coin presented to the pocket, said arm being provided with a curved portion disposed concentrically to the axis of movement of said arm to close the lower end of the coin slot when said arm is swung forwardly.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 25th day of September A. D. 1911

CHESTER T. MCGILL

Witnesses:

PERCY McDONALD,
W. C. THIERS.