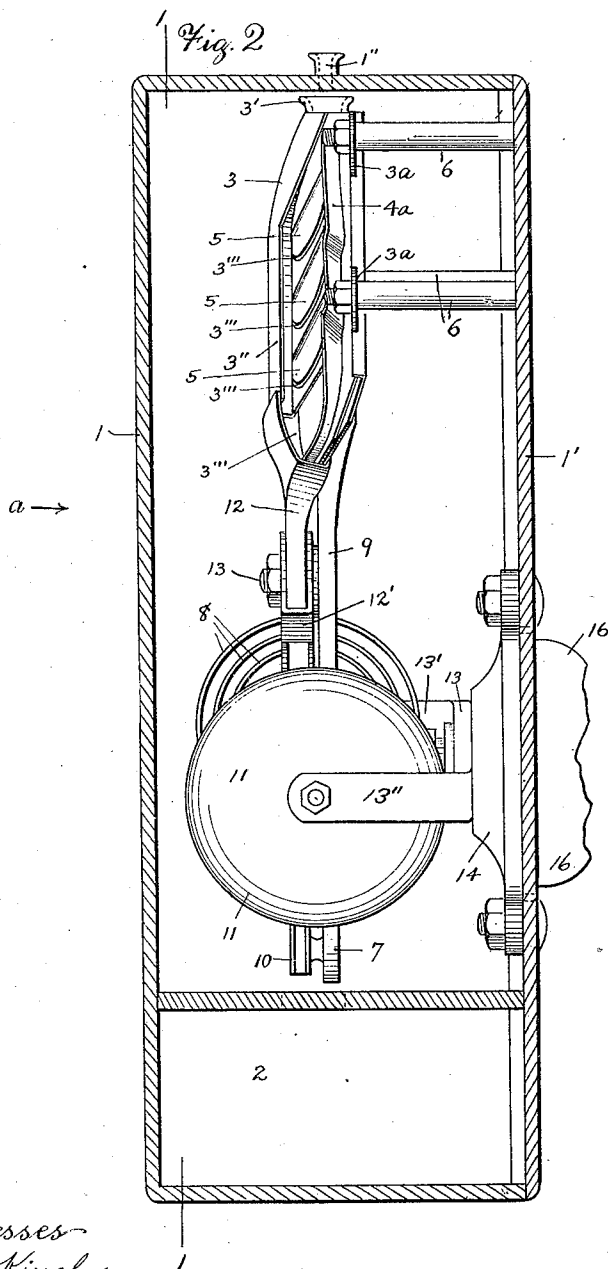


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TELEPHONE TOLL OR PAY STATION.
APPLICATION FILED JUNE 10, 1907.

1,009,134.

Patented Nov. 21, 1911.

3 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GEORGE H. DAVIS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO LIVERMORE PAY STATION COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

TELEPHONE TOLL OR PAY STATION.

1,009,134.

Specification of Letters Patent.

Patented Nov. 21, 1911.

Application filed June 10, 1907. Serial No. 378,109.

To all whom it may concern:

Be it known that I, GEORGE H. DAVIS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Telephone Toll or Pay Stations, of which the following is a specification.

My invention relates to a telephone toll or pay station, and particularly to a single coin slot telephone toll station for coins of different denominations.

The object of my invention is to improve upon the construction of a telephone toll or pay station, as now ordinarily made, and to provide a single receiving coin slot toll station for coins of different denominations, for instance twenty-five cent, ten cent, five cent, and one cent pieces.

In my improvements, I provide a coin distributor of novel construction and operation, and by means of which the coins, dropped into the receiving slot in the box or receptacle are distributed into their proper channels, through which they pass into the receiving receptacle, and in passing they engage a bell or gong, and give a signal to the operator.

In my improvements, the metal channels through which the coins pass are preferably provided with felt or other suitable material upon their inner surface, to render the passage of the coins through the channel noiseless, and one of the channels has an adjustable section by means of which the speed of the coin passing through the channel may be adjusted or regulated as desired. And in my improvements, I preferably provide a base for the transmitter, made of some insulating material in the form of a block or plate, which extends through an opening cut in the door, to furnish a base to fasten the transmitter to, and I preferably support the several parts of the toll mechanism upon the inner side of the door, forming the front side of the cabinet or case.

I have only shown in the drawings a detached portion of a telephone toll or pay station embodying my improvements, sufficient to enable those skilled in the art to understand the construction and operation thereof.

Referring to the drawings:—Figure 1 is a

section on line 1, 1, Fig. 2, showing an inside view of the several parts of my toll mechanism, looking in the direction of arrow *a*, Fig. 2. Fig. 2 is a section, on line 2, 2, Fig. 1, showing an edge view of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure. Fig. 3 is a transverse section, on line 3, 3, Fig. 1, looking in the direction of arrow *c*, same figure. Fig. 4 is a front view of the coin distributor for the coins, shown in Fig. 1, detached, and shows a coin in the distributor, and by broken lines a coin dropped through an opening in the distributor. Fig. 5 is a section, on line 5, 5, Fig. 4, looking in the direction of arrow *d*, same figure. Fig. 6 is a transverse section through one of the coin channels, on line 6, 6, Fig. 1, and Fig. 7 is a section, on line 7, 7, Fig. 4, looking in the direction of arrow *e*, same figure.

In the accompanying drawings, 1 is a portion of the cabinet or case of a toll or pay station, within which is located my toll mechanism. Below the box 1 is an inclosed receptacle 2, which may have a removable drawer, as is customary, to receive the coins dropped into the toll station. The cabinet or case 1 has preferably upon its front side a door 1', see Fig. 3, which is preferably hinged at one edge, to open outwardly, and has secured upon its inner side the several parts of my toll mechanism, the signals forming a part thereof being properly insulated electrically from the case and the door.

The coin distributor which forms a part of my present improvement is preferably made of metal and located at the upper end of the box 1 in a longitudinally inclined position, so that a coin entering the upper end of the distributor will be moved by gravity toward the lower end. The upper end of the distributor 3 is made double, with an opening therethrough and has a flaring mouth 3', see Fig. 2, located directly below an opening 1'' in the top or upper side of the case 1. The coin distributor 3 comprises a metal plate having its lower edge flanged to form a support for the edge of the coin, and having a strip 3'' extending along its lower edge, which, in connection with the lower part of the distributor 3 forms a trough shaped track or way through which the coins roll or slide as they pass

down the inclined distributor. Near the upper edge of the plate forming one side of the distributor and upon the same side thereof, as the strip 3'' is a second metal strip which, in the present instance, is made separate from the plate forming the side of the distributor 3 and is secured thereto by rivets 4'. The strip 4 is provided with a flange 4^a projecting at right angles to the strip 4 and having, in the present instance, three angular offsets, arranged in certain relation to three openings 3''' through the side wall of the distributor. The upper offset 4'' is arranged at the proper distance above the bottom of the distributor to contact with the upper edge of the largest coin, as a twenty-five cent piece, and check its further passage along the trough shaped track or way, causing it to be deflected through the upper of the openings 3'''. The next angular offset 4''' is arranged to contact with the upper edge of the next smaller coin, as a five cent piece, thereby checking its passage along the track or way of the distributor, and causing it to be deflected through the second of the openings 3'''. Similarly the third offset 4'''' is arranged to contact with the next smaller coin, as a one cent piece, and deflect it through the third opening 3'''. A fourth opening 3'''' is provided at the lower end of the distributor above which the flange 4^a is curved downwardly to guide the smallest coin, as a ten cent piece, through the lower opening of the distributor.

In order to prevent the smaller coin from passing through the upper openings, each of the three upper openings is provided with a flap or lid 5 which is hinged or pivotally supported near one end by a small pintle 5^a held in lugs 3^b projecting from the side of the coin distributor. The upper end of each flap 5 carries a counterweight 5' which acts to keep the flap normally closed, with the body of the flap entering the opening 3'''' in a plane coincident with the side of the distributor so as to form a continuous smooth surface over which the coin may move. In order to hold the flap in a plane coincident with the side of the distributor, the end opposite the counterweight is provided with a projection 5'' which strikes against the coin distributor and limits its swinging movement of the flap in one direction.

I deem it a preferable form of construction to slightly tip the coin distributor sideways so it will stand at a slightly oblique angle to the vertical plane, as shown in Fig. 7, with the flaps 5 upon the lowermost side, so that the coins in passing through the distributor will be supported by their edges upon the flanged bottom of the distributor, and also by their sides resting against the inclined side of the distributor. Each of

the flaps 5 is so supported, and has its counterweight so adjusted that when the proper coin to pass through a certain opening is presented to the flap covering that opening, the latter will yield readily and allow the coin to pass through.

In order to facilitate the opening of the flaps by the appropriate coins I preferably place the angular offsets 4'', 4''', and 4'''' at an oblique angle to the path of the coin as it moves through the distributor, so that the contact of one of the angular offsets with the upper edge of the coin will not only impede its continued movement through the distributor, but will also serve to deflect or turn the course of the coin toward the hinged flap, as illustrated with reference to the offset 4''' in Fig. 5, which shows a coin passing through one of the side openings 3''' of the distributor. The flaps 5 are pivoted at a point between their ends and nearer the upper than the lower end, so that the axis of the flap divides it into two arms of unequal length, the upper and shorter arm carrying the counterweight 5', and the lower and longer arm receiving the impact of the coin. The action of the coin in swinging the longer arm of the flap outward carries the shorter arm of the flap inward into the path of the coin in their movement through the distributor, and in position to obstruct the downward movement along the track of the distributor of a following coin so long as the flap is held open.

The delivery of a coin through any of the side openings closed by the flaps provides an obstruction to a second coin following too closely upon the first. The flap 5, in Fig. 5, shows the position of the flap during the lateral or sidewise delivery of a coin through one of the openings 3''', and also the counterweighted end 5' swinging into the path of the coins as they pass through the distributor so as to form an obstruction 5^b to a succeeding coin, which, contacting with obstruction 5^b would be held from further movement through the distributor until the flap was closed by the delivery of the advance coin. The coin distributor 3 is supported upon the inner side of the door 1' by bolts 6 passing through lugs or ears 3^a upon the upper edge of the distributor, and a lug or ear 3^{a'} on the lower edge of the distributor, thereby holding the distributor 3 and the coin channels leading therefrom, in a fixed position.

Extending downward from the coin distributor are four channels to conduct the coins to the receptacle 2, two of the channels represented are for the first and third openings 3''' and are located in the same vertical plane, the lower channel leading into the upper channel, so that one discharge opening into the receptacle 2 serves for both

channels. The other two channels are for the second and fourth openings 3'' and are located in a vertical plane in front of the first two channels, the lower channel of the last two channels leads into the other, so that both channels have the same discharge opening. The first channel 7 is in alinement with the first opening 3'' intended for twenty-five cent pieces. It has an opening at one edge at 7' to allow the coin in passing through the channel to contact with a gong 8 suitably connected to signal the operator. The third channel 9 in alinement with the third opening 3'' delivers a coin into the lower part of the first channel 9 and is intended to deliver a coin of the third size, such as a one cent piece, into receptacle 2 without sounding a signal. The second channel 10 is in alinement with the second opening 3'' intended for a coin of the second size, a five cent piece, which will pass through the channel 10 into position to contact with a bell 11, suitably connected to signal the operator. The fourth channel 12 is in alinement with the lower opening at the lower end of the coin distributor adapted for coin of the smallest size, as a ten cent piece. The channel 12, preferably has an adjustable section 12', adjustably secured on a stud 9' and held in position by a nut 12''. The section 12' receives the coin from the channel 12 and delivers it into the channel 10. The section 12' has an opening on its lower side to allow the coin to strike the upper edge of the bell 11, and as the coin is carried through the channel 10 it contacts a second time with the lower edge of the bell 11, thereby giving two signals to the operator. By adjusting the section 12' and varying the angle thereof relatively to the channel 12, the period of time required for the passage of a coin into the receptacle 2 may be varied, thereby varying the interval between the two signals produced by the coin. I prefer to deaden the noise of coins passing through the various channels by lining the interior of the channels with felt, or similar material, as shown at 20, Fig. 6.

The gong 8 is attached to an arm 13' on a metal plate 13, the bell 11 is attached to an extension 13'' on the metal plate 13, and the metal plate 13 is attached to a plate 14 of insulating material, such as fiber, extending through an opening in the door 1' and is attached to the door. A terminal 15 which is not insulated from the plate 13 leads to the base 13 of a transmitter, partly shown in Fig. 3. The other terminal 17 is insulated from the plate 13 and leads to the base 16 of the transmitter, which is attached to the insulating plate 14. A wire 18 connects the terminal 15 with the supports for the bell 11 and gong 8. A wire 19 is connected with the terminal 17 and is insulated from

the signal supports forming a closed circuit, without any liability of short circuiting the wires 18 and 19.

In the operation of my coin distributor the coins of different denominations, as may be required in the payment of telephone tolls, are inserted through the single coin slot or opening 1'' and mouth 3' of the coin distributor 3. The coins roll on their edges along the longitudinally inclined distributor until they contact with one of the offsets 4'', 4''' and 4'''. This contact checks the forward movement of the coin along the distributor 3 and imparts an impulse to the coin toward the corresponding opening in the side wall of the distributor, bringing a pressure against the longer arm of the flap by which the opening is normally closed. As the flap yields the coin passes through the opening and falls into the corresponding coin channel which extends downward from the coin distributor 3 to the coin receptacle 2. The counterweight which is carried by the shorter arm of the flap normally extends outside the side wall of the distributor and serves as a stop to check the forward movement of a coin which has been delivered through the next preceding opening, causing it to fall by gravity into the downwardly extended coin channel. Whenever a flap is swung to allow a coin to pass, the counterweighted end of the flap is moved inwardly into the path of the coins as they roll through the distributor, thereby forming a stop to check the passage of a succeeding coin until the flap is closed and the counterweighted end moved out into its normal position. The counterweighted end of the flap, therefore, performs a double function: viz., when the flap is closed to impede the forward movement outside the distributor of a coin delivered through the next preceding opening, and second, to impede the passage of a following coin inside the distributor when the flap is open. The axes of the flaps are slightly inclined from a vertical plane to cause the openings to be normally closed, but to be opened by a moderate pressure of the coin against the longer arms of the flaps. This inclined arrangement of the axial lines of the flaps renders the flaps operable by a delicately adjusted pressure of the coins against them, and it also renders the distributor 3 inoperative whenever the apparatus is tipped substantially from its normal position. If the distributor be tipped in one direction so as to bring the axes of the flaps nearer a horizontal plane, the force of gravity exerted by the counterweights may be so increased as to prevent the flaps from being opened by the coins, while if the distributor be tipped sufficiently in the opposite direction, the force of gravity will be exerted to hold the flaps open, with the counterweighted ends

of the flaps carried into the path of the coin through the distributor.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. A coin distributor, comprising a longitudinally inclined track, adapted to support the coins on edge, and in rolling contact with the bottom of said track, and provided with side openings for the lateral delivery of the coins, positive means for preventing a coin from passing by the opening through which it is designed to pass, and hinged flaps each held closed in one of said openings with a pressure adjusted to permit the flap to open for the coin designed to pass through the opening in which such flap is placed and remain closed against the pressure of the coins not designed to pass through it.

2. A coin distributor, comprising a longitudinally inclined track, having a bottom adapted to support coins on edge, and a side adapted to contact with the side of coins passing through said track; said side having openings for the delivery of coins there-through, and means for normally closing said openings, consisting of pivoted, counterweighted flaps, having their axes of rotation slightly inclined from the vertical, and a top for said track, the height of which is graduated by steps so as to contact with the top portion of the coins designed for each opening, and direct each coin to its proper opening.

3. A coin distributor, comprising a longitudinally inclined track, having a bottom adapted to support a coin on edge, and a side adapted to contact with the side of the coin; said side having multiple openings for the delivery of the coin therethrough, and pivoted, counterweighted flaps for closing said openings, having their axes of rotation inclined from the vertical, said counterweights being so arranged as to move across and close the track against the passage of coins if the apparatus is moved from the vertical so as to cause the flaps to open by gravity alone.

4. A coin distributor, comprising a longitudinally inclined track, having a bottom adapted to support a coin on edge, and a side adapted to contact with the side of the coin; said side having multiple openings for the delivery of the coin therethrough, and pivoted, counterweighted flaps for closing said openings, having their axes of rotation inclined from the vertical, and substantially parallel with the plane of the said side of said inclined track, said counterweights being so arranged as to move across and close the track against the passage of coins if the apparatus is moved from the vertical so as to cause the flaps to open by gravity alone.

5. A coin distributor, comprising a longi-

tudinally inclined track, adapted to support a coin on edge, and permit it to roll downward, a plurality of openings in the side of the track, normally closed by counterweighted flaps having their axes of rotation inclined from the vertical, and substantially parallel with the plane of said side of the inclined track, with the counterweighted portion of the said flaps normally extending outside of the said track to form a stop for coins passing through the preceding opening, and moved inwardly by the opening of the said flap at the passage of the coin, so as to close said track against the passage of another coin until the first coin has passed through said opening, and devices in said track for directing coins through the various openings in order of their size, the largest first.

6. In a coin distributor, the combination with a longitudinally inclined track having a bottom adapted to support a coin on its edge and in rolling contact, and an opening in one of its sides for the lateral delivery of a coin, of a yielding pivoted flap for normally closing said opening, and means arranged to contact with the edge of the coin for deflecting the coin against said yielding flap.

7. In a coin distributor, the combination with a longitudinally inclined track having a bottom adapted to support a coin on its edge and in rolling contact, an inclined side having openings for the lateral passage of coins therethrough, pivoted flaps for normally closing said openings having their axes inclined, and rigid means for contacting with the upper edges of the coins and deflecting coins against said flaps as determined by the diameter of the coins.

8. In a coin distributor, the combination with a longitudinally inclined track having a bottom adapted to support a coin on its edge and in rolling contact, and a retaining side, said track being laterally tipped at an oblique angle to a vertical plane, whereby a coin moving along said track by gravity is supported partly by its edge and one of its sides, of a series of openings for the sidewise passage of coins through said coin supporting side of the track, yielding flaps normally closing said openings, and a series of deflecting means for laterally deflecting the coins against said yielding flaps and arranged at different heights from the bottom of the track.

9. A coin distributor, comprising a longitudinally inclined track adapted to receive a coin at its highest end and having a side wall provided with an opening for the delivery of the coin therethrough, a flap for closing said opening pivoted between its ends in a plane at an angle with the path of the coin, with the end nearest the receiving end of the distributor arranged to swing

into the path of the coin as the flap is opened.

10. A coin distributor, comprising a longitudinally inclined track adapted to support a coin on its edge and in rolling contact with the bottom of the track, a side wall for said track inclined from the vertical having a multiplicity of openings for the passage of coins therethrough, flaps for normally closing said openings, and means for deflecting a coin against one of said flaps as determined by the diameter of the coin.

11. In a coin distributor, comprising a longitudinal track having a bottom adapted to support a coin on its edge and in rolling contact with said bottom, a retaining side slightly inclined from a vertical plane, having an opening for the lateral delivery of the coin, a pivotally supported flap for closing said opening axially divided into two arms, with the arm nearest the receiving end of the track having a counterweight to hold the opposite end of the flap in a closed position, with the axis of said flap slightly inclined from a vertical plane, and means for deflecting a coin against said flap as determined by the diameter of the coin.

12. A coin distributor, comprising a longitudinally inclined track having a bottom adapted to support a coin on its edge and in rolling contact therewith, a retaining side adapted to receive a portion of the weight of the coin as it is moved along said track by gravity, said retaining side having an opening for the delivery of a coin by a side-wise movement, a pivoted flap for closing said opening having its axis substantially parallel with said retaining side, means for holding said flap normally closed, means for maintaining the inner surface of said flaps when closed in alinement with the coin supporting surface of said retaining side, and means for checking the forward movement of a coin along said track and opposite said flap as determined by the diameter of the coin.

13. A coin distributor, comprising a longitudinally inclined track adapted to receive coins at its upper end, a side wall for said track having a multiplicity of openings for the delivery of coins therethrough, pivoted flaps for closing said openings, means for holding said flaps normally closed, and means, when a flap is opened, for closing said track between its receiving end and the opened flap.

14. A coin assorting device consisting of an inclosing box, a single coin receiving slot in the upper portion thereof, a single longitudinally inclined track for receiving coins from said slot and permitting them to roll downwardly on edge, sides for said track, one closed against the passage of coins, the other having a plurality of openings for the passage of certain coins in the order of

their diameter, the largest through the first opening, steps at graduated heights from the bottom of the track to prevent a coin from passing by the opening designed for it, counterweighted flaps closing said openings normally, but opened by the pressure of the coin designed to pass therethrough, and not by the pressure of coins designed for the subsequent openings, an opening in the bottom of the track at its end for coins passing by the other openings, a coin channel arranged by each opening to receive the coins passing through that opening.

15. A coin assorting device, consisting of an inclosing box, a single coin receiving slot in the upper portion thereof, a single longitudinally inclined track for receiving coins from said slot and permitting them to roll downwardly on edge, sides for said track, and side openings for the passage of certain coins in the order of their diameter, the largest through the first opening, steps at graduated heights from the bottom of the track to prevent a coin from passing by the opening designed for it, counterweighted flaps for closing said openings normally, but opened by the pressure of the coin designed to pass therethrough, and not by the pressure of coins designed for the subsequent openings, a coin channel arranged by each opening to receive the coins passing through that opening.

16. A coin distributor, comprising a longitudinally inclined track adapted to support a coin on its edge, and sides for maintaining the coins on their edges, and side openings for the delivery of coins therethrough, and yielding flaps for normally closing said side openings, an opening in the bottom of the track at its end for coins passing by and not through the side openings.

17. A coin distributor, comprising a longitudinally inclined track having an opening to receive a coin at its highest end and provided with a bottom and a side wall adapted to support a coin on its edge, openings in said side wall for the delivery of coins therethrough, pivoted flaps for closing said openings, yielding means for normally holding said flaps in a closed position, coin channels leading from each of said openings, and means at each of said openings to check the forward movement of coins of a predetermined diameter.

18. A coin distributor, comprising a longitudinally inclined track having a side wall with openings for the delivery of coins therethrough, pivoted flaps for closing said openings, yielding means for normally holding said flaps in a closed position, a single coin receiving opening at the highest end of said track, individual coin channels at each of said openings extending downwardly therefrom, and means at each of said openings for imparting a sidewise impulse to a

coin of a predetermined diameter against said flaps.

19. A coin distributor, having a longitudinally inclined track adapted to receive coins through a single opening, or mouth, at its highest end, a side wall for said track having openings for the delivery of coins there-
through, flaps for closing said openings, yielding means for normally holding said flaps in a closed position, coin receiving channels at each of said openings extending downwardly therefrom, means at each opening for guiding a coin into its appropriate channel as it is delivered through the next preceding opening, and means controlled by

the opening movement of a flap for closing said track in advance of the opened flap.

20. In a coin distributor, a longitudinally inclined track having openings for the delivery of coins from said track, a series of coin channels communicating with said openings for the transmission of the distributed coins, with one of said coin channels capable of angular adjustment, whereby the period of transmission of a coin through said channel can be varied.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."