Sept. 4, 1934. M. HNATH 1,972,591

CIGARETTE DISPENSER

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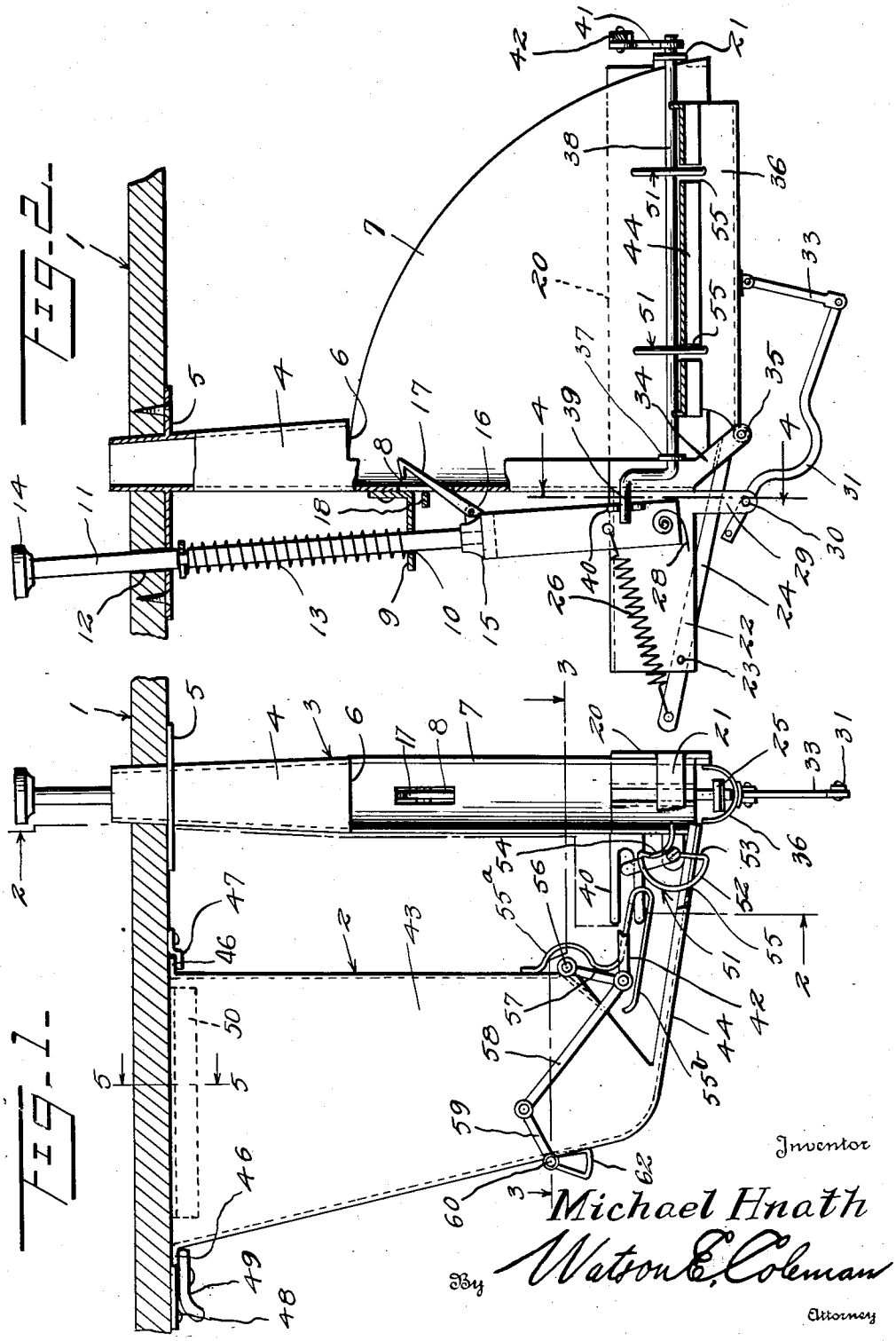


Fig. 2.

Fig. 1.

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Fig. 3.

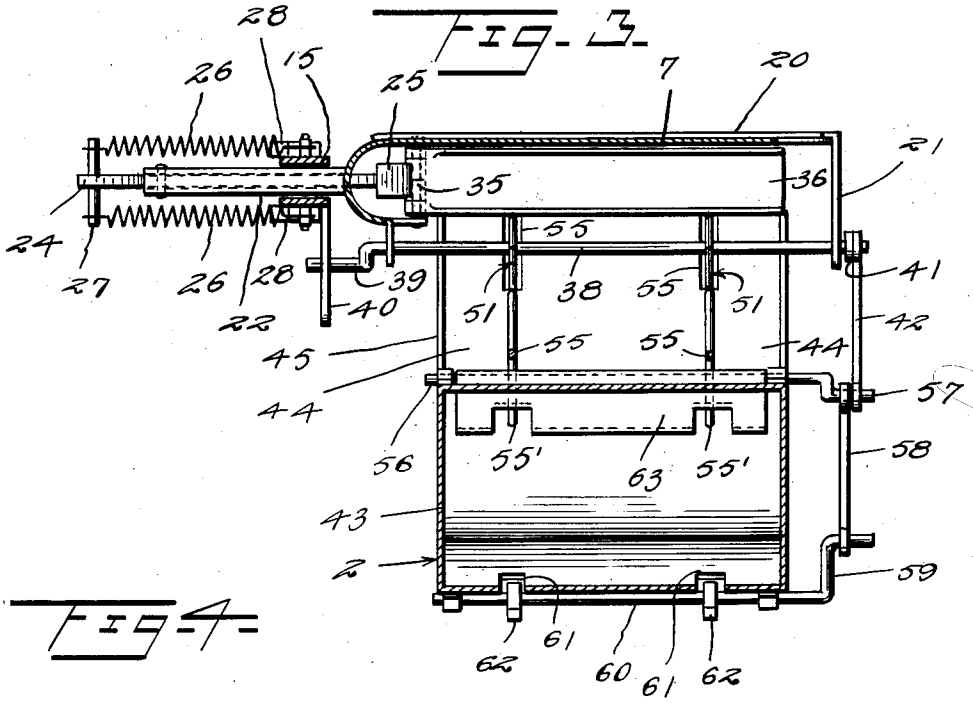


Fig. 4.

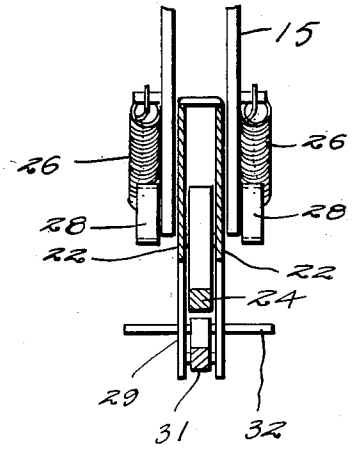
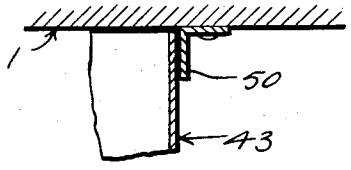


Fig. 5.



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UNITED STATES PATENT OFFICE

1,972,591

CIGARETTE DISPENSER

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17 Claims. (Cl. 312—75)

This invention relates to the class of dispensing devices and pertains particularly to a device for discharging or dispensing cigarettes individually.

The primary object of the present invention is to provide a new and novel device designed for application to a cigarette stand or to a table, by means of which cigarettes may be singly discharged through the top of the table upon which the device is mounted.

Another object of the invention is to provide a novel mechanism for discharging cigarettes in the manner described in which novel means is employed for preventing the cigarettes becoming damaged and for preventing the same piling up in such a manner as to interfere with their free movement and individual ejection.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a view in side elevation of the device embodying the present invention, showing in section a portion of a table top to which the device is attached.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1, with portions of the device broken away.

Figure 3 is a view in horizontal section taken substantially on the line 3—3 of Figure 1.

Figure 4 is a detail sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a sectional view taken on the line 5—5 of Figure 1.

Referring now more particularly to the drawings wherein like numerals indicate corresponding parts throughout the several views, the numeral 1 indicates a portion of a supporting structure in association with which the device embodying the present invention may be used and may represent the top of a table or smoking stand. The cigarette ejecting device is mounted upon the under side of this top 1 and comprises two main units which are a cigarette hopper indicated generally by the numeral 2 and a discharge unit indicated generally by the numeral 3 with certain connecting parts between the units.

The unit 3 comprises a tube 4 which is secured to and passes through a plate 5 which is secured, as shown in Figure 2, to the under side of the top 1 so that the upper end of the tube may project through a suitable opening in the table top.

This tube 4 increases slightly in diameter from its upper end downwardly and its lower portion, a substantial distance beyond the supporting plate 5, is cut out to form an open side 6 by means of which open side the cigarettes are introduced into the tube. Along one edge of the cut out opening, there is secured and extends forwardly from the tube 4 the arcuate wall plate 7 which extends downwardly to the bottom end of the tube.

The wall of the tube 4 has an opening 8 therethrough which faces or is directed outwardly through the opening 6 and directly above this opening 8, there is secured to the back of the tube the bracket 9 having an aperture 10 through which extends an operating plunger rod 11. This rod extends upwardly and passes through an opening 12 in the table top 1 and surrounding the rod and located between the plate 5 and the bracket 9 is a coil spring 13, the lower end of which rests upon the bracket while the upper end is secured to the rod and normally tends to urge the same upwardly. The upper end of the rod 11 is provided with a button or head 14 by which the actuation of the rod is made more convenient.

Secured to the lower end of the rod 11 beneath the bracket 9 is a bifurcated foot 15 and to the upper end of this foot is pivotally attached at the point 16, the pointed finger 17 which passes through the opening 8 into the tube, as illustrated in Figure 2. Extending across the opening 8 is a bar 18 which prevents the escape of the free upper end of the finger 17 when the plunger rod 11 is forced downwardly in the operation of the mechanism.

Secured across the back of the wall plate 7 is a bar 20 with one end of which is integrally formed the right angularly extending arm 21 which projects across the free edge of the wall plate 7 as illustrated in Figure 3. With the other end of this bar 20, there are integrally formed the connected spaced plates 22 which are disposed against and project rearwardly from the wall of the tube at the lower end and in a direction opposite that in which the opening 6 faces. The connection between these plates is at the top edges of the same, as shown in Figure 4, and oscillatably mounted between the plates upon the pivot pin 23 is the projector arm 24, one end of which extends beneath the longitudinal center of the tube 4 and carries the platform 25.

The furcations of the bifurcated foot 15 are disposed upon opposite sides of the plates 22 and each of these furcations has secured to its outer side at a point normally well above the pivot 23, one end of a tension spring 26. The other ends of these springs are connected with the outer end of the cigarette projecting arm 24 by means of the cross pin 27 illustrated in Figure 3. At the lower end of each of the furcations of the foot 15, there is secured to the outer side thereof, the spring arm 28, the purpose of which will be hereinafter more fully set forth.

Extending downwardly from the lower edges of the plates 22 are the ears 29 between which a pivot pin 30 connects and oscillatably mounted upon the pin 30 is a lift lever 31 which has mounted transversely of one end, which terminates beneath the foot 15, the bar 32. The other end of this lift lever 31 connects with one end of a link 33.

Forwardly of the ears 29, the lower edges of the plates 22 have another set of ears depending therefrom, which are indicated by the numeral 34 and between these ears is disposed a pivot pin 35 upon which is oscillatably mounted one end of a trough 36 which extends along the lower part and parallel with the wall plate 7. To this trough 36 is pivotally connected the other end of the link 33 as illustrated in Figure 2.

One of the plates 22 which positions at the side of the tube opening 6 remote from the wall plate 7, has a bearing arm 37 extending therefrom and through this arm and the arm 21, there passes the rock shaft 38.

This rock shaft 38 parallels the wall plate 7 and at the end adjacent the plunger foot 15 is formed to provide the crank 39 which has loose connection in the fork 40 which is carried by the adjacent furcation of the foot 15, so that when the foot is moved directly upon depression of the rod 11, a rocking motion will be imparted to the shaft 38. To the end of the shaft 38 is rigidly secured the upright arm 41 and to the upper end of this arm is pivotally connected one end of a link rod 42.

The unit 2 consists of a hopper 43 which is open at its top and at its bottom, the bottom opening being laterally directed and having connected with the lower edge thereof the chute 44, the edges of which are provided with the low upstanding walls 45. The top of the hopper 43 is provided at opposite edges with outwardly extending flanges 46 and the under side of the table top 1 has secured thereto a supporting flange 47 upon which one of the hopper flanges 46 rests. Opposing this supporting flange 47 is a plate 48 upon which are mounted suitable swinging latches such as the one indicated at 49, which may be oscillated to a position to engage under the other hopper flange 46 and coact with the flange 47 in suspending the hopper in proper position relative to the unit 3. At either side of the hopper is disposed a guard plate 50 which is secured to the under side of the table top and which prevents lateral movement of the hopper as will be readily understood.

The disposition of the hopper 43 is such that the free end edge of the downwardly inclined chute is disposed at the side of the trough 36 remote from the wall plate 7 so that a cigarette may be dropped off of the chute into the trough by the mechanism about to be described.

The rock shaft 38 has secured thereto a pair of cigarette lifts which are indicated by the numerals 51. These lifts are preferably formed of wire and each is shaped to form a substantially semi-circular portion 52 from one end of which a radially directed arm 53 extends inwardly to the rock shaft to which it is attached. The other end of each of these semi-circular portions 52 is extended to form the inwardly and forwardly curving finger 54 which, when the rock shaft is in normal position, has its free end directed across the trough 36 in such a manner that a cigarette would roll therefrom into the trough. The curved or semi-circular portions 52 of these lifts 51 operate in slots 55 formed in the free edge of the chute 44 and the degree of oscillation of the shaft 38 is such that the ends of the curved portions 32 of the lifts from which the fingers 54 extend, will move beneath the top surface of the chute so that a cigarette lying thereon will roll forwardly over the fingers 54 to be picked up thereby when the shaft 38 oscillates back to its normal position.

Secured to the wall of the hopper 43 which faces the wall plate 7 are wire arms 55^a which extend downwardly and terminate in straight portions 55^b which are disposed parallel with the chute 44 and spaced therefrom a sufficient distance to permit only one cigarette at a time to move down along the chute toward the lifts 51.

Disposed transversely of the hopper wall to which the arms 55^a are attached, is an oscillatable shaft 56 one end of which is formed to provide a crank 57 to which the other end of the link bar 42 is attached and to which is attached one end of a second link bar which is indicated by the numeral 58.

This second link bar has its other end connected with the crank 59 of a second rock shaft carried by the hopper and which is indicated by the numeral 60. This second shaft is oscillatably mounted upon the wall of the hopper opposite that upon which the shaft 56 is mounted and the angular extension of the cranks 57 and 59 is such that when the rock shaft 38 is oscillated, they will both swing in the same direction, one swinging over its center of oscillation and the other swinging under.

The wall of the hopper 43 adjacent the shaft 60 has two apertures 61 therein and upon the shaft 60 are mounted the two segmental members 62 which swing through the aperture 61 when the shaft is oscillated. The shaft 56 has secured thereto a plate 63 which swings beneath the wall of the hopper to which the shaft 56 is attached and into the lower part of the hopper and coacts with the segmental members 61 to give the necessary shaking motion to the cigarettes disposed in the hopper, to prevent the cigarettes from packing or getting out of proper position for passage onto the chute 44.

In the operation of the present device, the plunger rod 11 is forced downwardly and this brings the springs 28 into engagement with the bar 32 which is carried by the trough actuating arm 31. The first depression of the rod 11 removes the cigarette from the hopper chute 44 and places it in the trough 36. The plunger 11 is then released and returns to its former position. When the plunger 11 is again depressed the cigarette in the trough is lifted to upright position over the platform 25 and is then ejected through the tube 4 by the snap-up action of the arm. When the plunger 11 is again released and moves upwardly, another cigarette is taken by the elements 51 from the hopper chute and placed in the trough. This operation continues as soon as there are cigarettes in the hopper. In other words, each depression of the plunger 11 empties the trough 36 by ejecting a cigarette and each upward motion of the plunger places another

cigarette in the trough by taking it from the hopper chute.

The finger 17 is so disposed that, when the plunger rod 17 is in its normal rested position, the upper end of the finger is less than a cigarette length from the top of the tube 4. When the plunger 11 is depressed the finger 17 moves out of the slot to permit a cigarette to pass it, but returns again to the interior of the tube through the slot, when the plunger is released. As the plunger 11 moves upward, the finger 17 moves with it in the slot. When the plunger is at rest, the finger 17 has pushed any cigarette that may be in its way upward so that the top of the cigarette projects approximately three quarters of an inch above the top or outlet end of the tube 4. This action of the finger is not necessary in the case of a perfect cigarette but only when an ill-shaped cigarette is ejected.

The straight terminal portions 55^b of the arms 55^a operate to prevent the cigarettes piling up one upon the other upon the chute 44. By this means, they are kept moving singly toward the lifts 51.

Having thus described my invention, what is claimed is:—

1. A cigarette dispensing device, comprising a hopper, a tubular discharge element through which a cigarette is designed to pass endwise in a direction transversely to the cigarettes in the hopper, mechanism for transferring a cigarette from horizontal position in the hopper to vertical position in the tubular discharge body, means for forcibly projecting the cigarette through the tubular body, and a single actuating means for operating the cigarette transferring means and the ejecting means.

2. In a cigarette dispenser, a hopper, a tubular body open at each end and designed to have one end extended through a table top or other body covering the dispenser, means for removing a cigarette from a horizontal position in the hopper and orienting it to a vertical position in the tubular body, and ejecting means for engaging one end of the cigarette in the tubular body and propelling it therethrough to and for removal from the other end of the same.

3. In a cigarette dispenser, a hopper, a tubular body designed to have one end extend through a table top from the under side thereof and directed transversely to the cigarettes in the hopper, an element movable in and longitudinally of the other end of the tubular body, means for imparting a snap action to said element, means for transferring a cigarette from the hopper and disposing it vertically in the tubular body on end upon said means, and means for actuating the said means by which the cigarette ejecting means is controlled.

4. A cigarette dispenser, comprising a hopper designed to have cigarettes arranged horizontally therein, a vertically disposed tubular body adjacent the hopper, said tubular body being open at each end and further being open throughout a portion of one side from the lower end, a carrying element adapted to move a cigarette into vertical position in the tube through the open side of the latter, means for transferring a cigarette from the hopper to the carrying element, and means for imparting a quick push to the lower end of the cigarette in the tube for ejecting the same through the upper end thereof.

5. A cigarette dispenser, comprising a hopper, a tubular body disposed vertically adjacent the hopper, said body being open at each end and having a portion of its side open from the lower end, a trough member pivotally mounted at one end adjacent the lower end of the tubular body, means for swinging said trough upwardly into the open side of the tubular body, means for transferring a cigarette from the hopper to said trough when the latter is in horizontal position, and means in the lower end of the tubular body operative to strike the lower end of a cigarette disposed therein to eject the latter through the upper end of the body.

6. A cigarette dispenser, comprising a hopper arranged to have cigarettes disposed horizontally therein, a vertically disposed tubular body having an opening in its side adjacent its lower end and having its upper end open, means for transferring a cigarette from horizontal position in the hopper to vertical position in the tubular body through the open side thereof, and means for imparting a quick push to the lower end of the cigarette to effect its ejectment through the upper end of the tube.

7. A cigarette dispenser, comprising a hopper, a vertically disposed tube open at its upper end and having a side wall opening, a movable carrier adapted to be shifted from a horizontal position to a position in said side wall opening, means for transferring a cigarette from the hopper to said carrier, a platform disposed in the lower end of the tube onto which a cigarette is placed vertically by the carrier, an operating element for shifting said carrier to vertical position, and means operating in advance of the positioning of the carrier vertically to forcibly eject a previously deposited cigarette from the open end of the tube.

8. A cigarette dispenser, comprising a hopper, a vertically disposed tube adjacent the hopper having its upper end open and having a side wall opening, said hopper having an outlet adjacent the lower end of the tube, a pivoted carrier designed to move from a normally horizontal to a vertical position to dispose a cigarette vertically in the tube, means operative to transfer a cigarette from the outlet of the hopper onto said carrier, a plunger, means connected with the plunger whereby upon its actuation the said cigarette transferring means and carrier will be coordinately operated, and means operated by the plunger in advance of the completion of the movement of the carrier to vertical position to eject a previously deposited cigarette through the open end of the tube.

9. A cigarette dispenser, comprising a hopper, a normally vertically disposed discharge tube open at its upper end and having a side wall opening through which a cigarette is introduced, said hopper having a discharge opening disposed adjacent the lower end of the tube, a troughlike cigarette carrier pivotally mounted for movement from a horizontal position to a vertical position relative to said opening, means for transferring a cigarette from the outlet opening of the hopper to said trough, a pivotally mounted arm having one end disposed in the lower end of the tube and onto which end a cigarette is positioned in the tube, a reciprocable operating member, spring means for imparting a snap action to the swinging of said arm upon the operation of the operating member, and means coupled with the operating member whereby said trough will be raised and said cigarette transferring means will operate upon the return of the trough to horizontal position to transfer a cigarette thereto.

10. A cigarette dispenser, comprising a hopper

having a bottom outlet, a chute leading downwardly from the outlet, a vertically disposed tube open at its upper end and having a side wall opening and disposed adjacent the lower end of the chute, a trough pivotally mounted at one end adjacent the lower end of the tube and normally horizontally disposed across the lower edge of the chute, a rock shaft disposed across the end of the chute, elements carried by the rock shaft for transferring a cigarette from the chute to said trough, an operating plunger, connecting means between the plunger and the rock shaft for actuating the latter, means made operative by the plunger after a predetermined period of movement for raising said trough to vertical position before said tube side opening, and means made operative by said plunger in advance of the movement of the trough for ejecting through the open end of the tube a cigarette previously disposed thereon.

11. A cigarette dispenser, comprising a hopper having a bottom outlet, a chute leading downwardly from the outlet, a vertically disposed tube open at its upper end and having a side wall opening and disposed adjacent the lower end of the chute, a trough pivotally mounted at one end adjacent the lower end of the tube and normally horizontally disposed across the lower edge of the chute, a rock shaft disposed across the end of the chute, elements carried by the rock shaft for transferring a cigarette from the chute to said trough, an operating plunger, connecting means between the plunger and the rock shaft for actuating the latter, means made operative by the plunger after a predetermined period of movement for raising said trough to vertical position before said tube side opening, a pivotally mounted arm having one end disposed in the lower end of the tube for movement longitudinally thereof, and spring means connecting said plunger with the opposite end of the arm for imparting a snap action to the first mentioned end of the same in advance of the movement of the trough to vertical position.

12. A cigarette dispenser, comprising a hopper having a bottom outlet opening, a vertically disposed tubular body adjacent the hopper having its upper end open and a side wall opening, an operating plunger, mechanism operated by said plunger for transferring a cigarette from the hopper to vertical position in the tube and for ejecting from the tube a cigarette previously positioned therein, and means operated by and simultaneously with the operation of the plunger for agitating the cigarettes in the hopper to prevent packing.

13. A cigarette dispenser, comprising a hopper having a bottom outlet opening, a vertically disposed tubular body adjacent the hopper having its upper end open and a side wall opening, an operating plunger, mechanism operated by said plunger for transferring a cigarette from the hopper to vertical position in the tube and for ejecting from the tube a cigarette previously positioned therein, a pair of shafts oscillatably mounted upon the hopper, connecting means between the shafts and the plunger whereby the shafts will be rocked upon the actuation of the plunger, and elements carried by the shafts and disposed in the hopper for engaging and agitating the cigarettes to prevent packing.

14. In a cigarette dispenser, a cigarette receptacle, supporting means for the receptacle, said receptacle having an outlet through which cigarettes disposed horizontally therein pass by gravity, a tube having an open end and disposed vertically adjacent said receptacle, said tube having an inlet opening, shiftable means arranged adjacent said receptacle and said tube for receiving a cigarette from the receptacle and transferring it in vertical position into the tube through the inlet of the latter, a plunger operatively mounted adjacent the tube, and means operable by and simultaneously with the actuation of said plunger for actuating said cigarette transferring means and forcibly ejecting upwardly through the tube a cigarette previously deposited therein.

15. In a cigarette dispenser, a hopper adapted to contain cigarettes in horizontal position and having an outlet, a tubular body having an open discharge end and having an elongated opening in the wall extending from adjacent the opposite end, a carrier oscillatably mounted adjacent the lower end of the tubular body for movement relative to the said wall opening thereof, means for receiving and transferring a cigarette from the outlet of the hopper to said carrier, and means for actuating the carrier whereby the received cigarette will be up ended to position vertically in the tubular body and to simultaneously eject from the tubular body a previously deposited cigarette.

16. In a cigarette dispenser, a tubular body having an outlet end and an entrance opening, a collar formed integral with the tubular body adjacent the outlet end whereby the body may be secured to a supporting structure such as a table top with the open end projecting through the structure, a hopper, means for securing the hopper adjacent the tubular body to the under side of the supporting structure, means for discharging cigarettes from the hopper in horizontal position, and manually actuated progressively operating means for receiving the cigarette from the hopper, vertically positioning and moving the same into the tubular body through the entrance opening thereof and ejecting it vertically through the outlet end of the tubular body.

17. A dispenser for bodies of the nature of cigarettes, comprising a receptacle having a discharge opening through which the bodies may pass horizontally, a tubular body disposed vertically adjacent the receptacle, means for transferring a body from the receptacle to vertical position in the tubular body, a reciprocable actuating element for said transferring means, and spring actuated means which is set by the reciprocable member and released for the ejection of a previously deposited cigarette from the tubular body in advance of the transferral of another cigarette thereto from the receptacle.

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