Sept. 5, 1933. F. W. SNYDER 1,925,287

CIGAR OR CIGARETTE LIGHTER

Original Filed Dec. 7, 1931 2 Sheets-Sheet 1

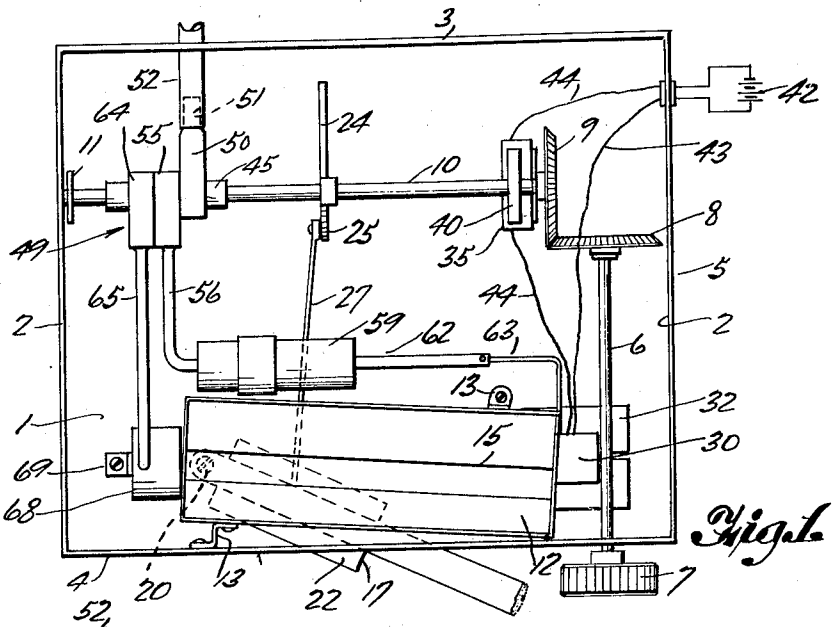


Fig. 1.

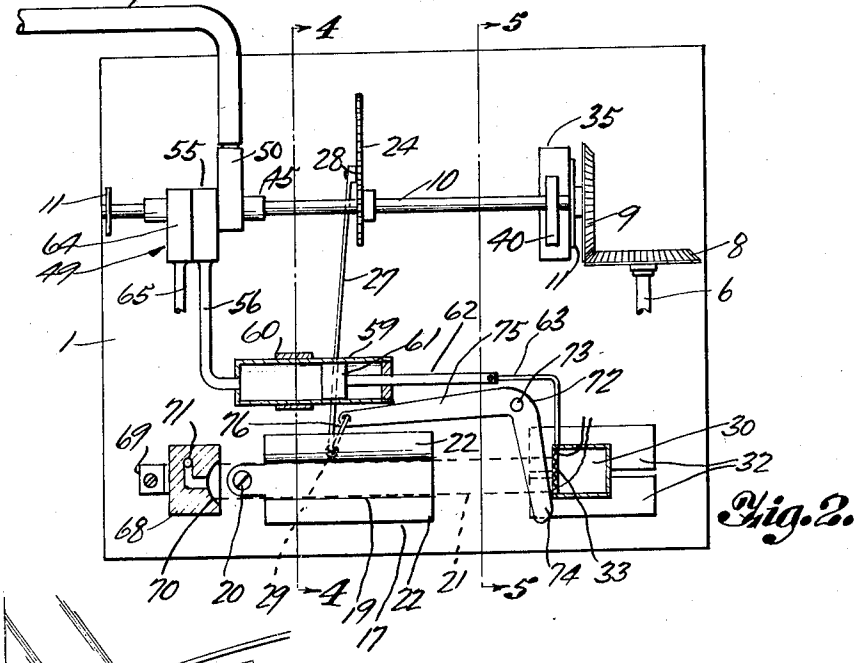


Fig. 2.

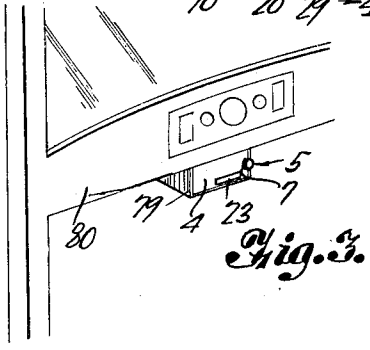


Fig. 3.

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CIGAR OR CIGARETTE LIGHTER

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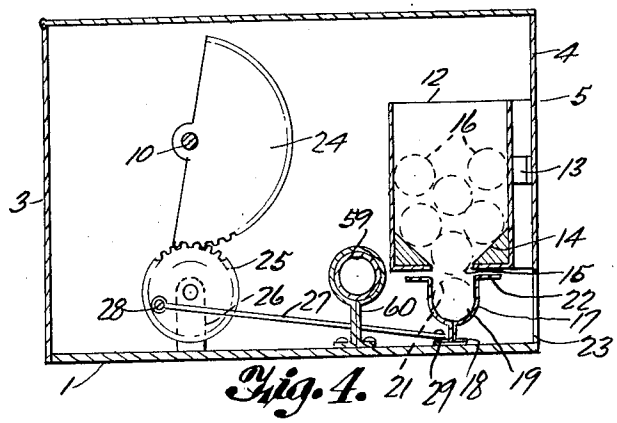


Fig. 4.

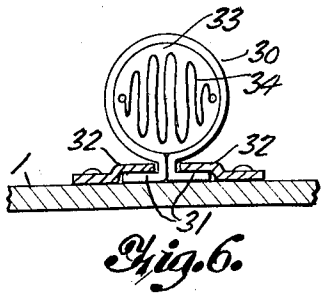


Fig. 6.

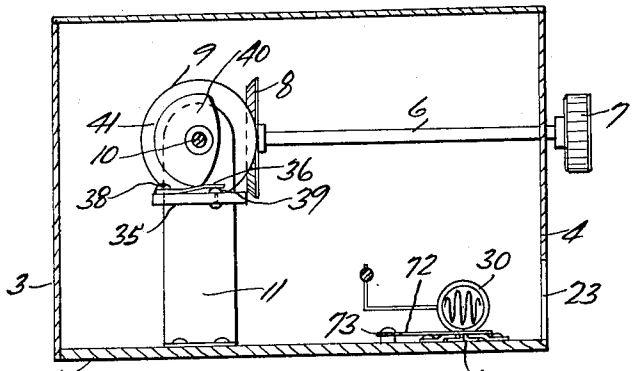


Fig. 5.

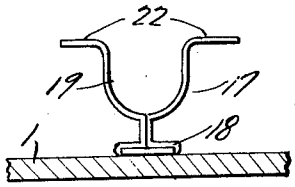


Fig. 7.

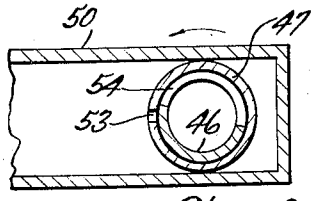


Fig. 8.

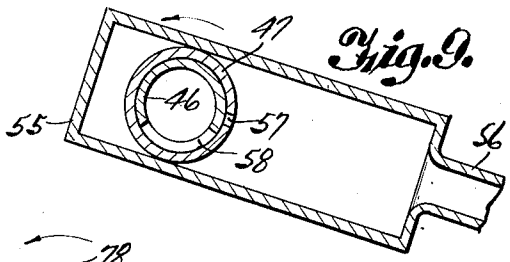


Fig. 9.

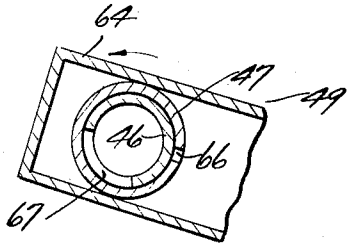


Fig. 10.

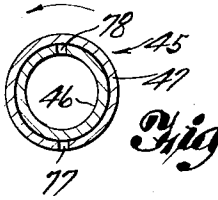


Fig. 11.

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UNITED STATES PATENT OFFICE

1,925,287

CIGAR OR CIGARETTE LIGHTER

Frank W. Snyder, Cody, Nebr., assignor to N. V. Franklin, Omaha, Nebr.

Application December 7, 1931, Serial No. 579,516
Renewed February 4, 1933

4 Claims. (Cl. 312—86)

My invention relates to improvements in cigar or cigarette lighters.

The main object of the invention is to provide a lighter which will light a cigar or cigarette and then eject the same ready for smoking without requiring that the smoker do more than manipulate a single knob or control.

Another object is to provide a lighter of this kind particularly adapted for use in the automobile and which utilizes the current from the storage battery for lighting the cigar or cigarette and uses the suction set up in the intake manifold of the engine to draw air through the cigar or cigarette to aid in lighting the same.

A further object is to provide a lighter including a cigar or cigarette container, a carrier for removing a cigar or cigarette from the container, subjecting it to the lighting process and then ejecting it convenient to the hand of the smoker, a lighter element, a suction element for drawing air through the cigar or cigarette, controlling mechanism for the carrier, lighter and suction elements and a single operating knob or control for controlling and actuating all the elements set forth.

Still a further object is to provide a lighter of this kind in a simple, efficient and inexpensive form and of a construction employing a minimum of working parts.

With these and other objects in view the invention resides in the novel construction and arrangement of parts as hereinafter set forth and claimed, reference being had to the accompanying drawings wherein:

Figure 1 is a plan view of a lighter for cigarettes as constructed in accordance with the invention.

Figure 2 is a view similar to Figure 1 but showing the cigarette container removed and showing certain of the parts in horizontal cross section.

Figure 3 is a perspective view of one mounting of the lighter under the dash of an automobile, the scale in this view being reduced relative to previous showings.

Figure 4 is a vertical cross section along the line 4—4 in Figure 2.

Figure 5 is a vertical cross section along the line 5—5 in Figure 2.

Figure 6 is an enlarged end view of the heating or lighting element alone.

Figure 7 is an enlarged end view of the cigarette carrier.

Figure 8 is an enlarged cross section through the intake valve head.

Figure 9 is an enlarged cross section through the lighter control valve head.

Figure 10 is an enlarged cross section through the suction control valve head.

Figure 11 is an enlarged cross section through the vent or escape valve.

In carrying out my invention I provide a base 1 surrounded by vertically positioned ends 2, back 3 and front 4, the whole forming a housing or container designated generally at 5 to contain the operating mechanism of the lighter. An operating shaft 6 is journaled through the front 4 adjacent one end thereof and is provided at its outer end with an operating knob or handle 7 by means of which it may be manually rotated. At its inner end the shaft 6 carries a beveled gear 8 meshing with a similar gear 9 secured on the end of the line shaft 10 which is journaled in bearings 11 adjacent and in parallelism with the back 3 of the housing 5. A cigarette container or tray 12 is secured within the housing adjacent the front 4 and spaced upwardly from the base 1 thereof by means of brackets 13, the said container being disposed at an angle to the said front with one end in contact therewith while the other is set inwardly for some distance as shown and for a purpose to be described. This container 12 has a sloping bottom 14 and longitudinally extended slot 15 through which cigarettes, shown in dotted lines 16, may drop from the container. A cigarette carrier 17 having a base 18, and U-shaped socket 19 is pivoted at one end at 20 to the base 1 beneath the inwardly spaced end of the container 12. The carrier 17 is thus adapted to swing inward and outward at its free end beneath the container 12 and as the socket 19 comes in alignment with the slot 15 a cigarette will of course drop into the socket as indicated by the dotted lines 21. In its lighting position the carrier 17 is disposed in parallelism with the front 4 as shown in Figure 2, and hence the socket 19 is out of registry or alignment with the slot 15 and a cigarette cannot drop from the container. The same is true when the carrier is in its ejecting position shown in Figure 1 and it is for this purpose of preventing the discharge of a cigarette from the container except at a point intermediate the aforesaid lighting and ejecting positions that the container is set at an angle in the housing as aforesaid. The carrier 17 has laterally extending wings 22 along the upper margins of the socket 19 which will rest beneath the slot 15 in the container 12 and hold the cigarettes from falling except as the carrier

reaches its filling position. At the aforesaid ejecting position the carrier 17 projects angularly at its free end through a slot 23 provided in the front 4 of the housing 5.

The line shaft 10 carries a semicircular gear segment 24 intermediate its ends and adapted to mesh with a crank gear 25 journaled in a bracket 26 secured to the base 1. A connecting rod 27 is eccentrically pivoted by one end at 28 to the crank gear 25 and is pivotally attached at 29 at its other end to the cigarette carrier 17 at a point spaced from the pivot 20 thereof. It will thus be evident that a rotation of the knob 7 will result in a rotation of the crank gear 25 causing the swinging movement of the carrier 17 as aforesaid during the time that the gear segment 24 meshes with said gear 25.

A cylindrical cigarette lighter head 30 having laterally projecting feet 31 is slidably mounted in spaced and aligned slides 32 secured to the base 1 adjacent and beneath the end of the cigarette container 12 which engages the front 4, said slides 32 overlying the feet 31 of said lighter head as shown. This head 30 is so arranged that it will be in alignment with the end of the cigarette 21 in the socket of the carrier 17 when the same is in its lighting position and the slides 32 are so disposed that the lighter may be moved toward or away from the end of the cigarette by a means to be set forth. An end piece 33 of insulating material is secured in the end of the lighter head 30 nearest the carrier 17 and a grid or coil of resistance wire 34 forming the heating element is mounted on this end piece. Secured to the bearing 11 of the line shaft 10 and adjacent the gear 9 is a supporting shelf 35 of insulating material on the upper face of which a switch blade 36 of spring metal is secured by a screw 38. A switch contact 39 is secured in the shelf 35 beneath the free end of the blade 36 which is spring set to normally spring or stand upward out of contact therewith. A switch operating cam 40 having its lobe 41 of substantially semi-circular form is secured on the line shaft 10 above the switch blade 36 and is arranged to press said blade downward into engagement with the contact 39 when the shaft 10 is turned to bring the cam lobe 41 downward as will be understood. The source of electrical current for the heating element of the lighter is here shown in diagrammatic form as being a battery 42 as for instance the battery of an automobile and the same is connected by one wire 43 direct to the resistance wire 34 while the other wire 44 connects to the switch blade 36 and then from the switch contact 39 to the other end of said wire 34. It will thus be evident that the heating of the lighter element will be controlled by turning the knob 7 and closing the control switch.

A valve jacket designated generally at 45 is mounted on the line shaft 10 adjacent the end remote from the gear 9 and comprises an inner rotatable sleeve 46 and outer fixed sleeve 47 as shown in Figures 8 to 11 inclusive. The inner sleeve 46 is secured to the shaft 10 to be rotated thereby while the outer sleeve 47, which has a close fitting engagement with sleeve 46, is mounted through and secured against rotation in three valve heads designated generally at 49. These heads 49 are mounted side by side along the valve jacket 45 which extends at each end for some distance laterally of the heads. The suction intake valve head 50 is of hollow rectangular or box-like form and at one end has a tubular extension 51 over which the end of a flexible tube 52 is slipped, the other end of which is connected to the intake manifold of the automobile engine (not shown) or to any other suction producing device which will create a suction through the said tube. The valve head 50 is extended rearwardly from the line shaft 10 as shown and the tube 52 passes through an aperture in the back 3 of the housing 5. In alignment and within this valve head 50 the outer sleeve 47 has an aperture 53 through its wall and on the rear side thereof and the inner sleeve 46 has a circumferentially extended slot 54 cut through its wall around substantially half the periphery thereof and adapted to register with the aforesaid aperture 53 as the inner sleeve is rotated. The lighter control valve head 55 next the suction intake head 50 is of similar construction but has a pipe 56 leading forwardly from its forward end. Within this head 55 the outer sleeve 47 has an aperture 57 opening through the forward side of its wall and the inner sleeve 46 has a circumferential slot 58 extended substantially less than half way around its periphery and located in alignment with the aperture 57. As the valve in the intake head 50 is opened and the slot 58 registers with the aperture 57 a suction will then be set up in the pipe 56.

At its forward end the pipe 56 is connected to the end of cylinder 59 secured in a bracket 60 on the base 1 and located alongside and inwardly of the cigarette container 12 and in which a plunger or piston 61 is slidably mounted. The plunger rod 62 extended from the plunger 61 out through the open end of the cylinder 59 is connected by a rod or link 63 to the lighter head 30 and it will thus be seen that as the valves in the intake and lighter control heads 50 and 55 are opened by turning the line shaft 10 the suction set up through the tube 52 and pipe 56 will cause the plunger 61 to move inwardly in the cylinder 59 and pull the lighter head 30 toward the end of the cigarette in the carrier 17.

The suction control valve head 64 is mounted alongside the lighter control valve head 55 and is identical in construction and has a pipe 65 leading forwardly from its forward end. Within this head 64 the outer valve sleeve 47 has an aperture 66 through its wall on the forward side thereof and the inner sleeve 46 has a circumferential slot 67 in its wall extended for substantially less than half way around the periphery thereof and adapted to register with the said aperture 66. At its forward end the pipe 65 enters a suction head 68 mounted by a bracket 69 on the base 1 beneath the end of the cigarette container 12 remote from the lighter head 30, the said head 68 having its end face cupped as shown at 70 to receive the end of the cigarette in the carrier 17. Communicating with this cupped end 70 of the suction head 68 is a passage 71 in which the end of the pipe 65 is inserted. A suction will therefore be set up in the head 68 when the valve in the head 64 is opened.

Outwardly of the suction control valve head 64 the outer sleeve 47 has a vent aperture 77 and the inner sleeve 46 has a similar aperture 78 adapted to register with the aperture 77, this to allow the intake of air to the valve jacket and to the cylinder 59 when the cigarette is lighted so that the plunger 61 may move outward and allow the lighter head 30 to move away from the end of the cigarette.

A bell crank lever 72 is fulcrumed at 73 on the base 1 and one arm 74 thereof rests against the

operating end of the lighter head 30 while the other arm 75 extends alongside the cigarette carrier 17 and terminates adjacent the connection of the connecting rod 27 to said carrier. This arm 75 is loosely connected by a link 76 to the carrier 17 as shown.

Assuming that the cigarette container 12 is filled and the carrier 17 is disposed somewhere between its lighting and ejecting positions the operation of the device will now be described. The operator turns the knob 7 in a clockwise direction rotating the line shaft 10. The gear segment 24 rotates the crank gear 25 and pulls inward on the carrier 17 causing the same to pass beneath the slot 15 in the container 12 and allowing a cigarette to drop into the socket 19. As the carrier 17 reaches its lighting position shown in Figure 2 the toothed portion of the gear segment 24 moves out of engagement with the crank gear 25 causing the carrier to remain in this position. Simultaneously the switch blade 36 is pressed downward into engagement with the contact 39 by the cam 40 and the lighter element is heated. At this time the valves in all the valve heads 49 open allowing the suction set up in the tube 52 to extend into the pipes 56 and 65 causing the plunger 61 to move inward and draw the lighter head 30 into contact with the end of the cigarette in the carrier 17. The cigarette is thus pressed into the cupped end 70 of the suction head 68 and a current of air will be drawn through the cigarette to facilitate the lighting thereof. During this time the rotation of the knob 7 has been continued and as the cigarette is lighted the vent apertures 77 and 78 in the sleeves 46 and 47 come into registry at the same time that the valves in the heads 49 are closed by the movement of the slots 54, 58 and 67 out of registry with the apertures 53, 57 and 66 and air will then rush into the pipes 56 and 65 allowing the plunger 61 to move outward in the cylinder 59 as aforesaid. The cam 40 will also release the switch blade 36 opening the control switch and the gear segment 24 will again engage the crank gear 25 and cause the connecting rod 27 to swing the carrier 17 outward to its ejecting position at which time the lighted cigarette is presented through the slot 23 ready for smoking. The arm 74 of the bell crank lever 72 will engage and slide the lighter head 30 outward free of the cigarette as the cigarette carrier 17 swings to its ejecting position and pulls on the arm 75 through the link 76. The rotation of the knob 7 is then continued until the parts return to their normal position. The various gears, cam and valve openings are so positioned and timed relative to one another that the foregoing series of events will take place in the order set forth during one relatively slow complete revolution of the knob 7.

In Figure 3 a preferred mounting of the device is shown in which the housing 5 is mounted drawn-like in a frame 79 suspended below the dash 80 of an automobile. It is obvious that any other mounting may be employed as desired and that the shape and size of the various elements of the device may be varied for use in connection with any mounting as well as to adapt the device for lighting either cigars or cigarettes.

While I have herein set forth a certain preferred embodiment of my invention it is understood that I may vary from the same in minor structural details so as best to construct a practical device for the purposes intended, not departing from the spirit of the invention and within the scope of the appended claims.

I claim:

1. In a device of the kind described, a cigarette container having a longitudinally extended slot in its bottom, a cigarette carrier pivoted by one end beneath the cigarette container and adapted for swinging movement to a lighting position and ejecting position, the said carrier having a socket adapted to align with and receive a cigarette from the slot in the cigarette container at a point intermediate the lighting and ejecting positions of the carrier.

2. In a device of the kind described, a cigarette container having a longitudinally extended slot in its bottom, a cigarette carrier pivoted by one end beneath the cigarette container and adapted for swinging movement to a lighting position and ejecting position, the said carrier having a socket adapted to align with and receive a cigarette from the slot in the cigarette container at a point intermediate the lighting and ejecting positions of the carrier, and laterally extended wings on the margins of the socket in the said carrier adapted to normally close the said slot in the cigarette container.

3. In a device of the kind described, a base, a cigarette container mounted above the base, a cigarette carrier pivotally mounted on the base and adapted for swinging movement to a lighting and ejecting position, the said cigarette carrier having a socket adapted to receive a cigarette from the container, a lighter element slidably mounted on the base, suction operated means for drawing the lighter elements into engagement with one end of a cigarette in the carrier, means operable by the cigarette carrier as it swings to its ejecting position for withdrawing the lighter element from the cigarette, a suction head adapted to engage the opposite end of the cigarette in the carrier, and means for drawing a current of air through the cigarette to facilitate the lighting thereof.

4. In a device of the kind described, in combination with a suction producing device, a base, a cigarette container supported above the base, a cigarette carrier pivotally mounted on the base beneath the container and adapted to receive a cigarette therefrom, a lighter element slidably mounted on the base adjacent one end of the cigarette carrier, a control switch for the lighter element, a cylinder mounted on the base, a plunger mounted in the cylinder and connected to the said lighter element, a suction head mounted on the base adjacent the end of the cigarette carrier opposite the lighter element, a plurality of valves, pipes connecting the said valves to the said cylinder and suction head, a tube connecting the valves to the suction producing device, and operating mechanism for operating the said cigarette carrier, lighter element control switch and the valves.

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