Jan. 17, 1956 A. J. MARQUIS 2,731,187

AUTOMATIC SMOKING PIPE FILLER

Filed April 10, 1953 2 Sheets-Sheet 1

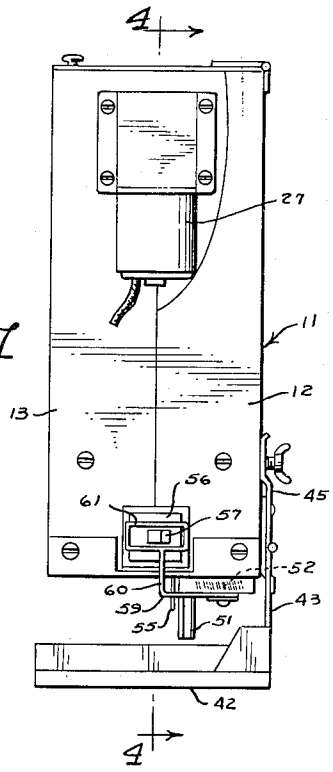


Fig. 1

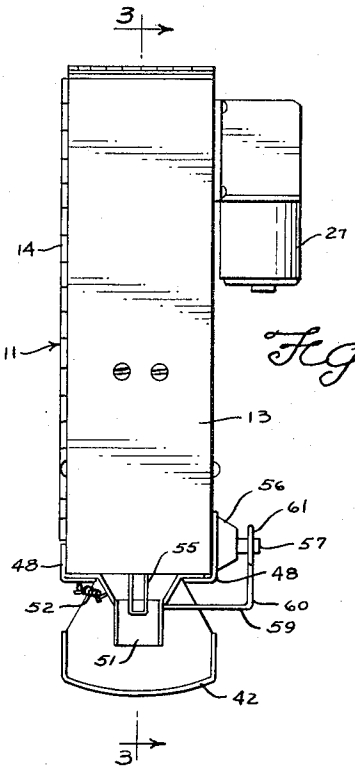


Fig. 2

Fig. 5

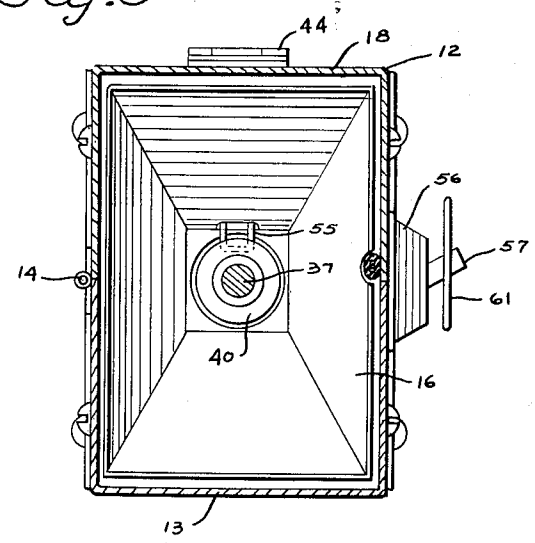
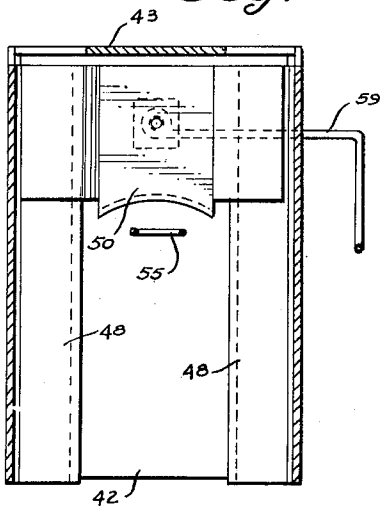


Fig. 6



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Filed April 10, 1953 2 Sheets-Sheet 2

Fig. 3

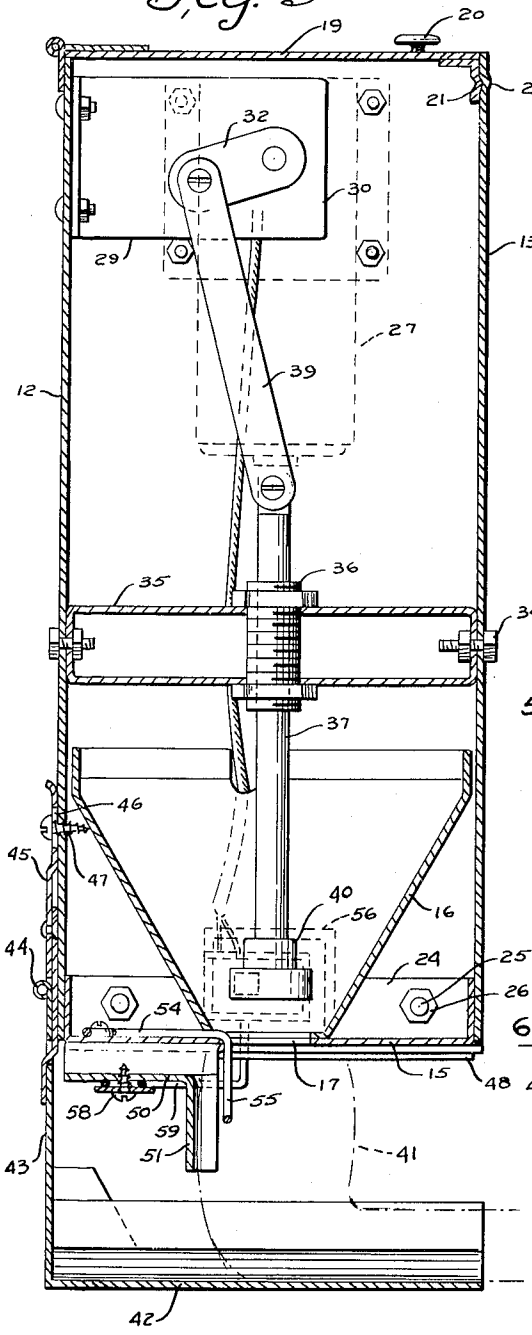
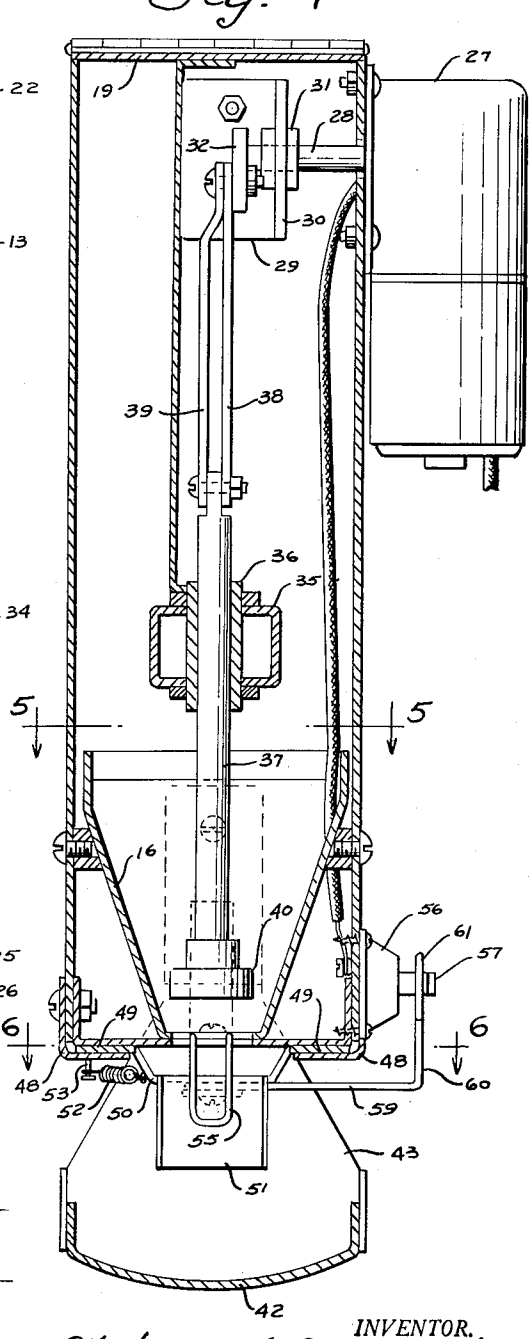


Fig. 4



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AUTOMATIC SMOKING PIPE FILLER

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4 Claims. (Cl. 226—125)

This invention relates to devices for filling smoking pipes, and more particularly to an improved automatically operated smoking pipe filling device especially suitable for use in motor vehicles for the convenience of the driver of the vehicle.

A main object of the invention is to provide a novel and improved automatic smoking pipe filler especially suitable for use in a motor vehicle, said device being relatively simple in construction, being easy to install in a motor vehicle, and being arranged so that the filler is automatically placed in operation responsive to the insertion thereinto of the smoking pipe.

A further object of the invention is to provide an improved automatic smoking pipe filler which may be installed in a motor vehicle for the convenience of the driver, the device being arranged so that the driver need not stop the vehicle in order to fill his pipe, said device being relatively inexpensive to manufacture, being durable in construction, and being arranged so that it is automatically energized responsive to the insertion of the smoking pipe therein and automatically terminates its operation when the pipe has been filled with tobacco.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an improved automatic filling device for a smoking pipe constructed in accordance with the present invention.

Figure 2 is a front elevational view of the automatic pipe filling device of Figure 1.

Figure 3 is an enlarged vertical cross sectional view taken on the line 3—3 of Figure 2.

Figure 4 is an enlarged vertical cross sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a horizontal cross sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a horizontal cross sectional view taken on the line 6—6 of Figure 4.

Referring to the drawings, the improved pipe filling device is designated generally at **11** and comprises a vertical channel-shaped housing **12** provided with a channel-shaped vertical cover **13** hinged to one edge of the housing **12** at **14**. The housing **12** is provided with the horizontal bottom wall **15**, and secured in said housing is the downwardly tapering hopper **16** which communicates with a discharge aperture **17** formed substantially centrally in the bottom wall **15**. Hinged to the top edge of the main vertical wall **18** of housing **12** is the top cover **19**, said top cover being provided with the handle **20** and being further provided with the depending corrugated lip **21** which is receivable inside the top portion of the major wall of cover **13** and which is lockingly engageable in a mating corrugation **22** formed in the top portion of said major wall of the cover **13**. The top cover **19** is thus releasably secured in the position thereof shown in Figure 3 but may be opened by elevating said top cover by means of handle **20**.

The bottom wall **15** of the housing is formed with the marginal flange elements **24** which extend vertically around the edges of the bottom wall, whereby the cover **13** may be secured in closed position, as by bolts **25** extending through the flange elements **24**, said bolts being provided with the nuts **26** for securing same. It will be understood that when access is desired to the interior of the housing, the bolts **25** may be removed, whereby the cover **13** may be swung to open position.

Mounted on one side of the housing **12** is a small electric motor **27** of conventional construction and provided with speed reduction means, whereby the shaft **28** of the motor rotates at a relatively slow speed. For example, the motor **27** may be a conventional windshield wiper motor operable from the automobile battery of the vehicle in which the pipe filling device is installed.

Secured in the housing **12** is a bracket **29** having a flange element **30** through which the motor shaft **28** extends, said shaft being rotatably supported in a suitable bearing **31** provided in the flange **30**, and secured to the end of the shaft **28** is the arm **32**. Secured between the major wall surfaces of housing **12** and cover **13**, as by bolts **34**, is a hollow beam member **35**, and secured centrally in said hollow beam member is the vertical bearing sleeve **36**. Extending slidably through the sleeve **36** is the plunger rod **37**, said plunger rod being thus supported in vertical position for reciprocation through the sleeve **36**, the top end of the plunger rod **37** being connected by a pair of link bars **38** and **39** to the arm **32**, whereby rotation of shaft **28** causes arm **32** to reciprocate plunger rod **37**. The rod **37** is in vertical alignment with the aperture **17** and is provided at its bottom end with the plunger head **40**. As shown in Figures 3 and 4, the plunger head **40** is normally located a short distance above the aperture **17** and is effective to force tobacco downwardly through the hopper **16** and through said aperture **17** into the bowl of a pipe **41** positioned below the aperture **17**, as will presently be described.

Designated at **42** is a trough member provided at its rear end with the upstanding flange **43** which is pivoted at **44** to the bracket **45**, said bracket being in turn secured to the major wall of housing **12**. As shown in Figure 3, the bracket **45** is provided with vertical slots **46** through which the securing screws **47** extend, whereby the bracket **45** may be adjusted vertically in order to allow the trough **42** to be properly positioned in accordance with the size of the bowl of the pipe **41** with which the device is to be employed. The hinge **44** is provided with a leaf spring **44'** biasing the plate **43** counterclockwise, as viewed in Figure 3, whereby the trough member **42** is biased towards a horizontal position but may be swung clockwise against the tension of said leaf spring.

Secured to the opposite bottom corners of the main housing **12** are the angle brackets **48, 48** having inwardly projecting horizontal flanges which slidably support the opposite flanges **49, 49** of an abutment member **50**, said abutment member being formed with a depending, forwardly concave flange **51** adapted to be engaged by the external surface of the bowl **41** of the smoking pipe as the pipe is inserted in the trough **42** and moved to a position below the aperture **17**. Thus, the abutment member **50** is slidably supported for movement horizontally toward and away from the flange **43** of trough member **42**. Said abutment member is biased forwardly, namely, to the right, as viewed in Figure 3, by a coiled spring **52** connecting the abutment member **50** to a depending pin **53** located a substantial distance forwardly of said abutment member and secured to the horizontal flange of one of the bracket members **48**.

Designated at 54 is a catch member formed of suitable relatively stiff wire or the like, secured to the bottom wall 15 internally of the housing 12 and provided with the depending loop 55 which extends vertically forwardly adjacent to the concave depending abutment elements 51. As shown in Figures 3 and 4, the loop 55 terminates a substantial distance above the bottom edge of the depending abutment element 51, and said loop is employed to retain the bowl 41 of the pipe in a position below the aperture 17 until the pipe has been filled, as will be presently described.

Secured to the lower portion of one of the sides of the channel-shaped housing 12 is the toggle switch 56 having the horizontally rotatable operating lever 57. Secured to the abutment member 50 at 58 is a wire rod 59 formed with the upstanding vertical arm 60. The top end of arm 60 is formed with the horizontal loop 61 which receives the operating lever 57 of switch 56. The loop 61 is arranged to actuate the lever 57 from a position wherein the switch is open to a position wherein the switch is closed and vice versa, responsive to the rearward movement of the slidable abutment member 50, namely, the movement of said abutment member to the left, as viewed in Figure 3, when a pipe bowl is inserted and moved into a position beneath the aperture 17, and is then, after filling, released and pushed forwardly by the return movement of the abutment member 50 caused by the biasing spring 52. The switch 56 is connected in series with the motor 27 and the vehicle battery, whereby closure of the switch energizes the motor 27.

The device is first filled with tobacco by opening the top cover 19 and emptying the contents of a tobacco container into the housing defined by the stationary housing member 12 and the cover 13, above described. The plunger head 40 will normally provide sufficient obstruction to block the discharge of tobacco from the device, since said plunger is of substantial area and overlies the discharge aperture 17.

When the vehicle operator desires to fill his pipe, he inserts the pipe in the trough 42 and rotates the trough 42 downwardly, at the same time moving the pipe bowl 41 rearwardly against the depending abutment element 51 until the edge of the bowl may be engaged between the abutment element 51 and the depending loop 55. The spring means acting on the hinge 44 will then elevate the trough 42 to a horizontal position, such as is shown in Figure 3, and, the rearward movement of the abutment member 50 will at the same time close the energizing circuit for the motor 27. Thus, the shaft 28 reciprocates the plunger rod 37, whereby the plunger head 40 reciprocates vertically and pushes tobacco downwardly through the discharge aperture 17 into the pipe bowl 41. The tobacco is thus pressed into the pipe bowl, and as the bowl becomes filled, the pressure exerted thereon by the plunger head 40 causes the pipe and the trough 42 to be rotated downwardly to a position wherein the edge of the bowl 41 descends below the bight portion of the loop 55, thus allowing the depending abutment element 51 to push the pipe forwardly, namely, to the right, as viewed in Figure 3, by the action of the coiled spring 52. The spring 52 thus causes the abutment member 50 to be moved forwardly, namely, to the right, as viewed in Figure 3, and therefore causes the loop 61 to rotate the switch lever 57 toward its initial position, namely, toward the position wherein the switch 56 is opened. This de-energizes the motor 27, terminating the operation of the device. The filled pipe thus remains in the forward portion of the trough 42 and may then be removed by the vehicle operator.

From the above it is apparent that the pipe may be filled by merely inserting same into the trough 42 and positioning the pipe bowl beneath the aperture 17 in the manner above described, the device automatically terminating its operation after the pipe has been filled and after the abutment member 50 has returned to its normal position.

While a specific embodiment of an improved automatic filler for smoking pipes has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. An automatic filler for tobacco smoking pipes comprising a housing having side walls and an apertured bottom wall, a discharge hopper mounted in said housing and communicating with the aperture in said bottom wall, a trough member pivoted to said housing below said bottom wall, means biasing said trough member to a position substantially parallel to said bottom wall below the aperture therein, whereby a smoking pipe may be supported on said trough member below said aperture, a plunger slidably mounted in said housing over said hopper, driving means on said hopper arranged to reciprocate said plunger, control means controlling said driving means and having a depending operating member and slidably supported from said bottom wall adjacent to said aperture and arranged to be operated by engagement with a smoking pipe placed beneath said aperture.

2. In an automatic filler for a smoking pipe, a support, a plunger slidably mounted on said support, a head on one end of said plunger, a tobacco hopper surrounding said head and having a discharge opening, a pipe supporting trough hinged on said support beneath said discharge opening to swing downwardly away from the hopper, means yieldably biasing said trough upwardly toward said hopper, a pipe bowl engaging element depending from said support above said trough, and driving means connected to said plunger for reciprocating said plunger in said hopper so as to move said head toward and away from said discharge opening.

3. In an automatic filler for a smoking pipe, a support, a plunger slidably mounted on said support, a head on one end of said plunger, a tobacco hopper surrounding said head and having a discharge opening, a pipe supporting trough hinged on said support beneath said discharge opening to swing downwardly away from the hopper, means yieldably biasing said trough upwardly toward said hopper, a pipe bowl engaging element depending from said support above said trough, and driving means connected to said plunger for reciprocating said plunger in said hopper so as to move said head toward and away from said discharge opening, control means mounted on said support above said trough and operatively connected to said driving means, said control means comprising a spring positioned member arranged to be displaced as a pipe bowl is engaged with said pipe bowl engaging element so as to operate said driving means.

4. In an automatic filler for a smoking pipe, a support, a plunger slidably mounted on said support, a head on one end of said plunger, a tobacco hopper surrounding said head and having a discharge opening, a pipe supporting trough hinged on said support beneath said discharge opening to swing downwardly away from said hopper, means yieldably biasing said trough upwardly toward said hopper, a pipe bowl engaging element depending from said support above said trough, and driving means connected to said plunger for reciprocating said plunger in said hopper so as to move said head toward and away from said discharge opening, control means mounted on said support above said trough and operatively connected to said driving means, said control means comprising a spring positioned member arranged to be displaced as a pipe bowl is engaged with said pipe bowl engaging element so as to operate said driving means, said driving means comprising an electric motor mounted

on said support, and said control means comprising an electric switch connected in circuit with said motor, said switch comprising an actuating member operatively connected to said spring-positioned member.

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