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GRAVITY BALL CHECK DEVICE AND SELF CLEANING CONDENSER FOR SMOKER'S PIPES OR CIGARETTE HOLDERS

Filed March 23, 1940

Fig. 1

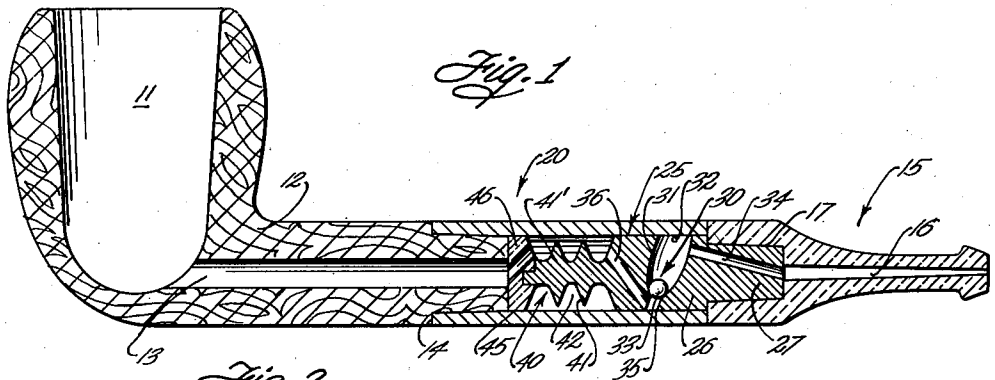


Fig. 2

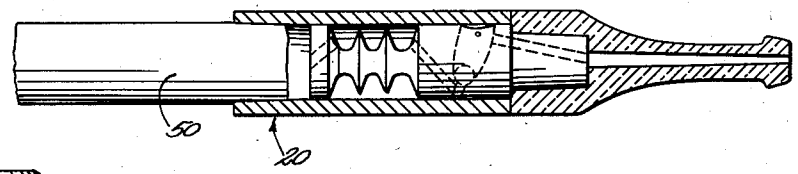


Fig. 3

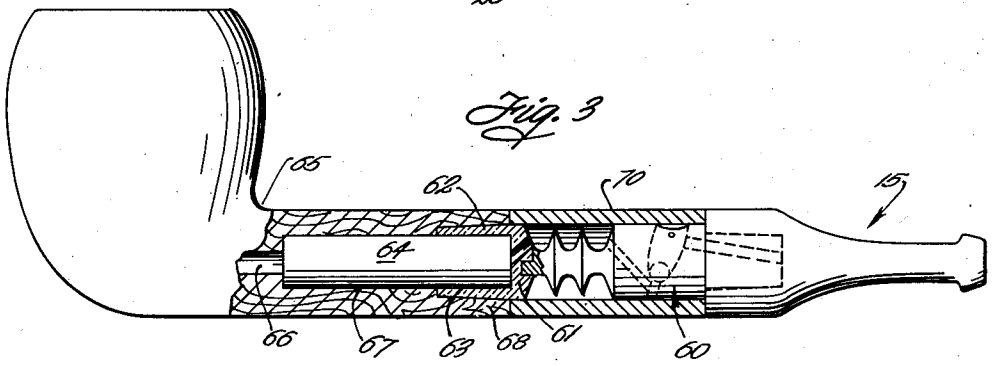
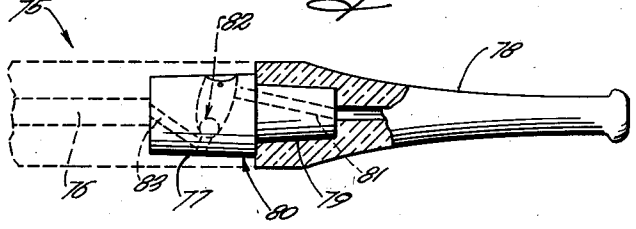


Fig. 4



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GRAVITY BALL CHECK DEVICE AND SELF-CLEANING CONDENSER FOR SMOKERS' PIPES OR CIGARETTE HOLDERS

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6 Claims. (Cl. 131—213)

Our invention relates to an improvement in tobacco smokers' appliances which may be used in connection with a smoker's pipe or cigarette or cigar holder. In the construction of such smokers' appliances attempts have been made to prevent or restrict the saliva from the smoker's mouth entering the bowl of the pipe or the immediate holder for a cigarette or cigar by the employment of check valves of a ball or other type. Such check valves are designed to open for the passage of smoke to the mouth but to close and remain closed by the action of the saliva flowing from the mouth towards the bowl of the pipe or by any condensed liquid in the mouthpiece. However, the check valves themselves due to the material used in the construction and the tortuous passage of smoke sometimes cause a condensation of the moisture from the tobacco carried by the smoke and thus a check valve becomes loaded with a somewhat tar-like deposit containing a considerable portion of nicotine. Such deposit renders the check valve inoperative and such condensed moisture from the tobacco caught in the check valve is sucked into the mouth giving a very disagreeable taste.

In other types of improvement in smokers' appliances various baffles or condenser assemblies have been utilized to trap or condense the moisture from the tobacco carried by the smoke. Most of these have a serious disadvantage in that while they cause a good deal of condensation, it is difficult to thoroughly clean the pipe on removal of the condenser or the baffle device.

An object and feature of our invention relates to a combinational construction of a ball type of check valve to prevent or restrict the passage of saliva towards the bowl of the pipe or towards a cigarette or cigar held in the holder used in conjunction with a condenser fitted in a sleeve. In our invention the condenser is provided with a head remote from the mouthpiece and from the check valve having a close sliding fit in a sleeve, therefore by removing the condenser with the check valve from the sleeve, the head wipes the inside of the sleeve clean of any condensate or the sticky deposit. In our invention we preferably form the condenser of aluminum as this conducts the heat of the smoke so rapidly that there is a quick condensation of the moisture carried by the smoke but to prevent condensation on the outside of a head towards the bowl or of the cigarette or cigar held in a holder the head of the condenser is of material which does not cause a quick or ready condensation, that is, it is a poor conductor of heat and hence by our construction the objectionable sticky liquids carried by the smoke are deposited by the condenser in the sleeve and therefore cannot enter the ball check valve and the saliva from the mouth is prevented from the check valve from entering the condenser.

In view of the fact that filters used in smokers' pipes and the like are popular and have the function of absorbing objectionable materials from the smoke, our invention also comprehends a type of smokers' appliance having a tubular filter connected to the head end of the condenser and utilized with our assembly of the check valve. Further detailed features are the special arrangement of the smoke passages preventing the condensates from the tobacco entering the check valve assembly or any possible moisture from the check valve assembly working through to the condenser and towards the bowl of the pipe. In view of the fact that many smokers desire to have a favorite pipe rendered with a suitable equipment to improve the same, our invention contemplates a check valve block which may be fitted in the mouthpiece and to the stem of pipes now in use and if desired the check valve assembly may be attached to the mouthpiece end and this substituted for the former mouthpiece of the pipe.

Our invention is illustrated in connection with the accompanying drawing, in which:

Fig. 1 is a vertical longitudinal section through one form of a combined condenser and valve block built into a smoker's pipe.

Fig. 2 is a similar longitudinal section with the bowl and the bowl stem of the pipe removed, our invention being utilized as a cigarette or cigar holder.

Fig. 3 is a side elevation broken away on a longitudinal section of a modified construction illustrating a tubular filter used in conjunction with the condenser head.

Fig. 4 is a side elevation partly broken away illustrating our check valve block used as a fitting for a pipe.

Referring first to the construction of Fig. 1, conventional features now used in pipes are indicated as the bowl **11**, the bowl stem **12** having the smoke duct **13** longitudinally through the center, the end terminating at a reduced neck section **14**, the mouthpiece **15** has a central smoke duct **16** that is provided with a recess **17**.

In our construction we employ a sleeve **20** which may be made of suitable material and has a snug and if desired permanent fit on the reduced portion **14** of the bowl stem. This sleeve is preferably cylindrical on the inside. Our valve block and condenser assembly **25** includes the

sleeve block end 26 which has an end plug 27 fitting in the recess 17 of the mouthpiece and preferably either having a tight fit or attached to the mouthpiece so that the assembly may be maintained attached to the mouthpiece and inserted in the sleeve 20 or removed therefrom. The check valve 30 employs a deep pocket 31 preferably sloping downwardly through the center from the upper side of the valve block. This is open at the top but has a crosswire 32 or the like preventing the ball 33 from falling out of the pocket. A smoke duct 34 communicates between the upper part of the pocket through the plug 27 to the smoke duct 16 of the mouthpiece. The valve seat is at the lower end of the pocket 31. From below the valve seat there is a downwardly directed duct 35 intersected by an upwardly inclined duct 36.

The condenser portion 40 has a central core 41' preferably formed integral with the valve block 26 and also formed integral with the core there are a series of fins 41 providing between the fins annular channels 42. These fins in diameter are less than the inside diameter of the sleeve 20 and the smoke duct 36 leads to the upper side of one of the annular channels. A head 45 is attached to the extreme end of the core and such head is preferably made of material having relatively poor heat conducting properties. For instance, the core and the fins are preferably formed of aluminum and the head may be constructed of hard rubber or equivalent material. A smoke duct 46 extends diagonally upwardly through the head leading from the center in alignment with the smoke duct 13 to one of the annular channels 42. This head thus restricts the condensation of moisture in the tobacco smoke in the smoke duct 13 of the bowl stem 12. The head 45 has a close sliding fit in the sleeve 20.

In the operation and use of the construction above described in Fig. 1, the ball check valve prevents and restricts saliva passing from the mouth through the mouthpiece from entering the condenser on the suction of smoke, the smoke from the burning tobacco is first carried upwardly in the duct 46 through the head 45 and comes in intimate contact with the fins and core of the condenser causing a quick condensation of the objectionable tarry materials and nicotine carried by the smoke. The dry smoke then flows downwardly through the inclined channel 36, the upwardly inclined duct 35, through the open check valve to the upper part of the pocket 31 and thence by the downwardly inclined duct 34 to the duct 16 of the mouthpiece 15. When it is desired to clean the pipe the mouthpiece with the check valve and condenser assembly is pulled outwardly relative to the bowl, the bowl stem and the sleeve 20, this latter remaining attached to the bowl stem. The condenser head in removal then cleans out the condensed material clinging to the inside of the sleeve and thus leaves this quite clean. The condenser and the valve assembly when thus removed from the sleeve may readily be cleaned in the usual manner. It will be noted that the various smoke ducts are in such a position that pipe cleaner wires with fibres attached thereto may be readily thrust through the ducts and they can be used to clean out the pocket 31 around the ball check valve. The fins and the annular spaces around the core of the condenser may readily be cleaned with soft paper or the like.

In using our invention above described in Fig. 1 as a cigarette holder, the bowl stem of the pipe is attached to the sleeve 20 so that such stem may be removed and thus a cigarette indicated at 50 may be fitted in the end of the sleeve 20 and thus the device may readily be used as a cigarette holder or if made in different sizes as a cigar holder. This may be cleaned in the same way by removing the mouthpiece with the unit assembly of the check valve and condenser from this sleeve.

In the construction of Fig. 3 the mouthpiece is preferably the same as above described and has the assembly of the check valve and condenser indicated at 60 attached thereto. In this case the general construction of the check valve and the condenser is similar to that shown in Fig. 1 except that the head 61 of the condenser is illustrated as having a collar 62 formed integral therewith forming a cylindrical recess 63 as to the inside and in this is fitted a tubular filter 64 of a type commonly in use. The bowl stem 65 has the smoke duct 66 of the usual type and an enlarged recess 67 to accommodate the filter 64. The end of the stem is shown as having an internal taper 68 having a snug fit on the collar portion 62 of the head 61. In this arrangement the sleeve 70 has a close fit on the block 60 and on the peripheral portion of the head 61 but is not attached to the bowl stem. Therefore to replace the filters the mouthpiece with the check valve and condenser assembly including the sleeve 70 may be disconnected from the bowl stem and the saturated filter removed and a replacement filter again fitted in the collar 62 and hence in the bowl of the stem. In this type of construction the mouthpiece with the condenser may be removed from the sleeve 70, the head of the condenser cleaning the interior of the sleeve as these parts are separated.

In Fig. 4 we illustrate a simplified form of our invention to be used with the smoker's own pipe in which only part of the pipe stem is indicated dotted and designated 75. This has a smoke duct 76 and a recess 77. The replacement construction may include a mouthpiece 78 with an internal recess 79 and to the mouthpiece is attached a check valve block 80. This has a plug 81 having a snug fit in the recess 79. The check valve assembly 82 is similar to that illustrated in Fig. 1, the inclined smoke duct 83 however communicates directly with the duct 76 of the bowl stem. By the use of this construction and omitting the condenser, a simple and compact device is provided which may be readily fitted to most pipes, the smoker still retaining his bowl and bowl stem and if desired merely acquiring the new mouthpiece as a replacement with the check valve assembly attached thereto. It will however be understood that the check valve block may be fitted to the present mouthpiece of most pipes.

Various changes may be made in the details of the construction without departing from the spirit or scope of the invention as defined by the appended claims.

We claim:

1. In a smoking appliance the combination of a sleeve, a block-like structure fitted therein and having transverse smoke passages interconnecting at opposite sides of the block and on the inside of the sleeve, a condenser structure having peripheral condensing means connected to the block and provided with a head with a sliding fit in the sleeve, there being a smoke passage through the said head, one end of the block being

adapted for attachment to a mouthpiece, and the head of the block with one end of the sleeve being adapted for attachment of a smoking device.

2. In a smoking appliance the combination of a sleeve, a block-like structure fitted therein and having transverse smoke passages interconnecting at opposite sides of the block and on the inside of the sleeve, a condenser structure having peripheral condensing means connected to the block and provided with a head with a sliding fit in the sleeve, there being a smoke passage through the said head, one end of the block being adapted for attachment to a mouthpiece, and the head of the block with one end of the sleeve being adapted for attachment of a smoke device, one of the smoke passages having an enlarged recess with a ball check valve fitted therein, the ball being adapted to drop by gravity to contact a valve seat.

3. A smoking appliance including a mouthpiece with a first smoke duct, a block secured to the mouthpiece, a sleeve surrounding the block, a condenser attached to the block and forming with the sleeve an annular space, the block having a smoke passage communicating from said space to said first smoke duct, a terminal head attached to said condenser and having a scraping fit in the sleeve, said sleeve extending beyond said head, a bowl having a pipe stem fitted in the extended part of the sleeve, said head having a smoke duct from said pipe stem to said annular space.

4. In a smoking appliance the combination of a sleeve, a block-like structure fitted therein and having transverse smoke passages intersecting at opposite sides of the block and on the inside of the sleeve, a condenser structure connected to the block and provided with a head having a sliding fit in the sleeve, there being a smoke passage through said head, the sleeve extending beyond the head, one end of the block being adapted for attachment to a mouthpiece and the extended end of the sleeve being adapted for attachment of a pipe stem with a bowl, a smoke duct in the stem connecting with the smoke passage through the head.

5. In a smoking appliance the combination of a sleeve, a block-like structure fitted therein and having transverse smoke passages interconnecting at opposite sides of the block and on the inside of the sleeve, a condenser structure connected to the block and provided with a head having a sliding fit in the sleeve, there being a smoke passage through the said head, the sleeve extending beyond the head, one end of the block being adapted for attachment to a mouthpiece and the extended sleeve being adapted to receive a cigarette.

6. In a smoking appliance the combination of a sleeve, a block-like structure fitted therein and having transverse smoke passages interconnecting at opposite sides of the block and on the inside of the sleeve, a condenser connected to the block provided with a head with a sliding fit in the sleeve, there being a smoke passage through said head, the head having a collar connected thereto adapted to retain a filter aligning with the end of the said smoke passage, one end of the block being adapted for attachment of a pipe stem having a bowl with a smoke duct through the stem leading to the collar.

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