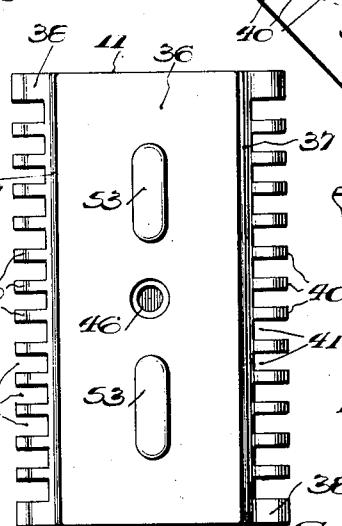
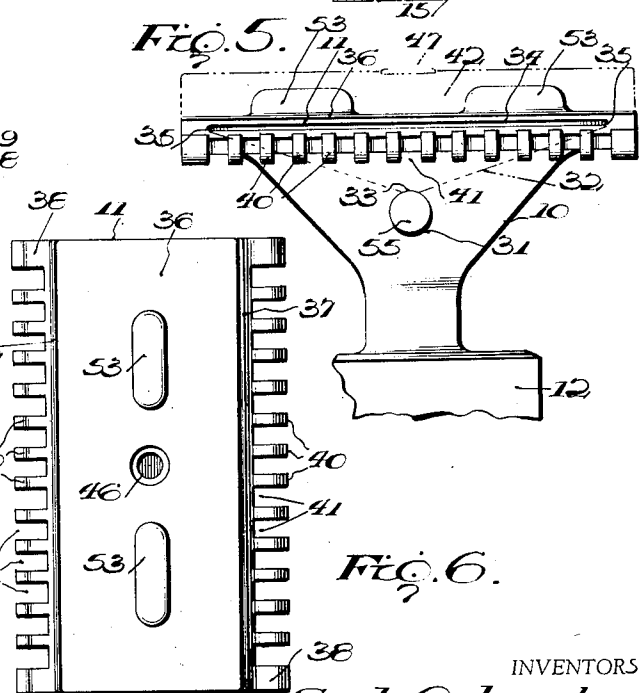
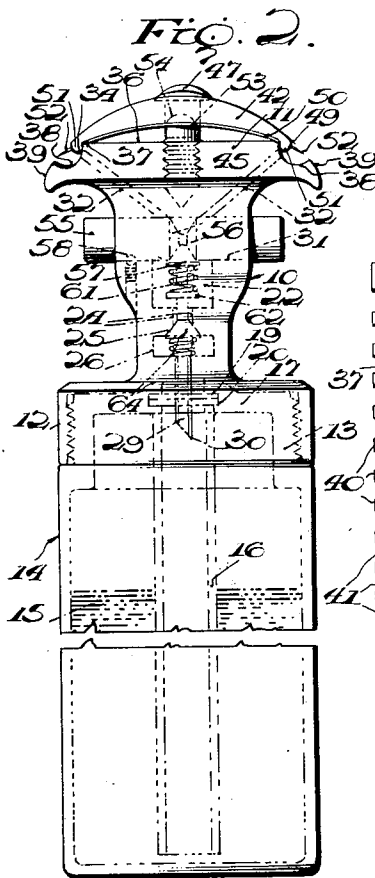
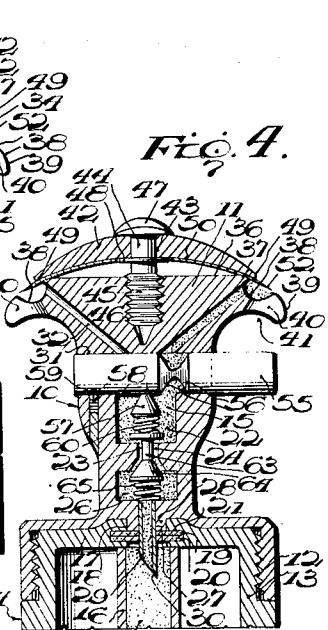
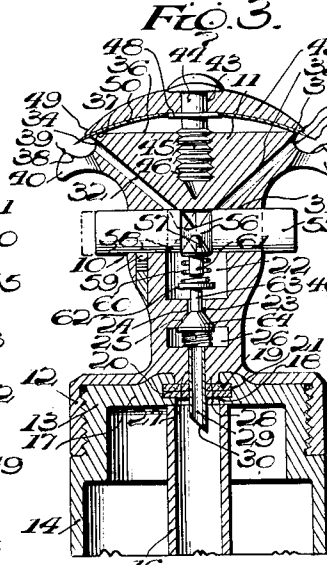
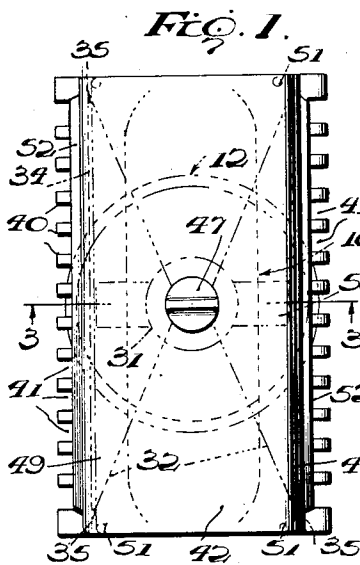


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C. ORLANDO ET AL
SELF-LUBRICATING SHAVER

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SELF-LUBRICATING SHAVER

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6 Claims. (Cl. 30—41)

(Granted under Title 35, U. S. Code (1952), sec. 266)

The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

Our invention relates to fountain razors.

An important object of the invention is to provide a fountain safety razor, in which a shaving cream or lubricant under pressure may be directed to either cutting edge of a double-edged safety razor blade, for lubricating the face in advance of the razor blade.

Another object of the invention is to provide a fountain razor having novel and simplified valve means for placing either cutting edge of the razor blade in communication with a source of shaving lubricant under pressure, at the will of the user.

A further object is to provide a fountain razor of the above mentioned character which utilizes standard commercial double-edged razor blades, without the necessity for altering or modifying the same.

Still another object is to provide a fountain razor in which the dispensing of the shaving lubricant to either cutting edge of the razor blade may be finely regulated by the user at all times during the shaving operation, by means of a simplified two-way push button valve actuator.

Another object is to provide a fountain razor including a body portion which is detachably connected with a throw-away container for shaving lubricant under pressure.

A still further object is to provide a fountain razor of the above mentioned character having means to assure that substantially all of the shaving lubricant will be properly dispensed adjacent the cutting edges of the razor blade as the pressure within the lubricant container decreases.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a plan view of a fountain razor in accordance with the invention on a somewhat enlarged scale,

Figure 2 is a side elevation of the same,

Figure 3 is a fragmentary central vertical section taken on line 3—3 of Figure 1,

Figure 4 is a similar section through the razor with the valve means adjusted to place one cutting edge of the razor blade in communication with the shaving lubricant,

Figure 5 is a fragmentary side elevation of the body portion of the razor with parts removed, and,

Figure 6 is a plan view of the body portion or head of the razor with parts removed.

In the drawings, wherein for the purposes of illustration is shown a preferred embodiment of the invention, the numeral 10 designates generally the body portion of the razor, provided at its top with a generally flat rec-

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tangular head 11, preferably formed integral therewith. An enlarged cylindrical internally screw-threaded sleeve 12 or adapter portion is integrally secured to the lower end of the razor body portion 10, as shown in the drawings, for detachable connection with the screw-threaded neck 13 of a container or receptacle 14 for a shaving lubricant or cream 15.

The shaving lubricant 15 in the container 14 is under pressure induced by a suitable gaseous medium in the container 14, above the level of the shaving lubricant. An outlet tube 16 for the shaving lubricant 15 is dependently secured to the top wall 17 of the container 14, and the tube 16 has its lower open end extending close to the bottom of the container 14, although spaced somewhat therefrom as shown in Figure 2. The top of the outlet tube 16 surrounds and communicates with an opening 18 in the top wall 17 of the container, and this opening is normally maintained closed or sealed by a rubber disk or gasket 19 and an uncured rubber disk 20, held in superposed contacting relation within a groove 21, formed in the top wall 17 near the longitudinal center of opening 18. Before attachment to the razor body portion 10, the container 14 for the shaving lubricant is a self-contained closed unit which may be purchased at a drug store or the like, and the shaving lubricant 15 under pressure within the container is held sealed therein by the imperforate rubber disks 19 and 20. It may be mentioned here that the container 14 is replaceable, and may constitute a throw-away part of the fountain razor, so that the razor body portion 10 may be used indefinitely by merely replacing the exhausted container 14 with a new container. This of course is done by merely separating the screw-threaded connection between the container 14 and razor body portion 10, afforded by the screw-threaded sleeve 12 and container neck 13.

The body portion 10 of the razor is provided with a main or central internal recess or chamber 22, which may be cylindrical. The lower end of the chamber 22 leads into a reduced opening 23 of the razor body portion, having a pair or more of axial grooves 24 extending longitudinally thereof, for a purpose to be described. The reduced opening 23 and grooves 24 open downwardly into a conical recess or valve seat 25, in turn opening downwardly into an enlarged cylindrical spring chamber or recess 26, formed in the body portion 10. The bottom of the recess 26 communicates with a reduced central bore 27, which is in axial alignment with the bore 23, and opening through the lower end of a bottom reduced cylindrical projection 28 on the body portion 10. The projection 28 fits snugly into the top of the opening 18 in the top wall 17 of container 14, when the razor body portion 10 is connected with the container 14. A tubular needle 29 is rigidly secured within the bore 27, and has its lower pointed end 30 projecting below the bottom of the projection 28 for a substantial distance, so that the needle may penetrate or puncture through the rubber disks 19 and 20 in assembly, to place the bore of the outlet tube 16 in direct communication with the recess or chamber 26.

The body portion 10 is further provided at the top of the main recess 22 with a transverse cylindrical bore 31, extending therethrough, at right angles to the recess 22 and intersecting the same. Above the bore 31, the body portion 10 has a pair of downwardly converging narrow fan-shaped slots 32 formed therein and having their lower constricted ends opening into the top side of the bore 31, at 33, Figure 5, upon opposite sides of the center line through the recess 22 and bores 23 and 27, Figure 3. The outer broad ends of the slots 32 open through the rectangular head 11 of the shaver near the opposite longitudinal edges of the same, as indicated at

34. The mouths or openings 34 to the slots 32 are parallel to the opposite longitudinal sides of the head 11, and extend throughout substantially the entire length of the head, although terminating slightly inwardly of the ends of the head as shown at 35 in Figure 5.

The top face 36 of the head 11 is flat, as shown, and the head may be beveled slightly if desired at 37 just inwardly of and above the mouths 34 of slots 32. Just outwardly of the mouths or openings 34 of the fan-shaped slots 32, the head 11 is provided in its top with a pair of parallel longitudinal grooves or recesses 38, which may be arcuate in cross section, and preferably extending throughout the entire length of the rectangular head 11, as shown. These grooves 38 have their inner sides communicating directly with the mouths 34 of the slots 32, and the bottoms of the grooves 38 are preferably disposed somewhat below the mouths 34 of the slots. The grooves 38 open through the top and sides of the head 11, outwardly of the slots 32, and the marginal longitudinal portions of the head 11 are rounded and tapered downwardly and outwardly adjacent to and below the grooves 38, as indicated at 39. These rounded and tapered marginal longitudinal extensions 39 are notched at regular intervals throughout their lengths to form thereon comb teeth 40, as are usually provided upon conventional safety razors. The slots or notches 41 between adjacent pairs of the teeth 40 open through the bottoms of the grooves 38, as best shown in Figures 3 and 4. The teeth 40 are thus arranged outwardly of and below the mouths 34 of the slots 32.

An arcuate rectangular razor blade clamping cap or holder 42 is provided above the head 11, and this cap 42 has a central opening 43 extending therethrough and receiving the smooth shank portion 44 of a suitable clamp screw 45, which has screw-threaded engagement within a screw-threaded opening 46, formed centrally in the flat surface 36 of head 11. The screw 45 is freely rotatable relative to the cap 42, and is held captive thereon by the head 47 of the clamp screw and by a collar or washer 48, integral with the screw 45 and arranged adjacent the bottom of the arcuate cap 42. The cap 42 is of equal length with the head 11, and tapers in opposite directions transversely of the head 11 to provide slender longitudinal marginal portions 49 which slightly overlap the grooves 38 in assembly. A conventional double-edged razor blade 50 is held clamped to the head 11 by the cap 42, when the clamp screw 45 is suitably tightened. The razor blade 50 will assume the arched or arcuate form shown in Figures 3 and 4, and will engage the bottom surface of the cap 42 in assembly. This condition will occur, because the cap 42 is provided at its four corners and upon its lower side with small depending lugs 51, integral therewith, which engage through cooperating notches near the four corners of the conventional razor blade 50, as is well known. The razor blade 50 is applied to the bottom arcuate surface of the cap 42 and presses upwardly into arched engagement with the cap so that the lugs 51 will enter the notches near the corners of the razor blade and hold the same in the arched condition. The cap 42 and razor blade are then applied to the head 11 and the clamp screw 45 is tightened. The razor blade 50 is now clamped near and inwardly of its cutting edges 52 between the cap portions 49 and beveled portions 37 of the head 11. The arrangement forms substantially fluid-tight seals between the underside of the razor blade 50 and the beveled portions 37, so that the shaving lubricant in the grooves 38 cannot enter the space between the flat surface 36 of the head and the razor blade 50, inwardly of the beveled portions 37. The cutting edges 52 of the razor blade 50 extend beyond the tapered portions 49 of the cap 42 and overlie the longitudinal grooves 38, as shown. The extremities of the cutting edges terminate near and above the tops of the rounded teeth 39, as is usual with safety razors. The

teeth 39 serve to protect the face against cutting by the razor blade, and also aid in smoothing or combing the beard and spreading the shaving lubricant over the face in advance of the cutting edges 52. The cutting edges 52, however, do not entirely cover or close the grooves 38, and the outer portions of these grooves remain open, as shown, so that the shaving cream or lubricant may pass to the face directly in advance of the cutting edges 52. The razor blade 50 is further anchored with respect to the head 11 by a pair of longitudinally spaced upstanding projections 53 on the head 11, which project through slots in the conventional razor blade and into companion recesses 54 in the underside of the cap 42. As shown in the drawings, the mouth 34 of the slots 32 are substantially coextensive with the cutting edges 52 of the razor blade 50, so that the shaving lubricant will be dispensed in advance of the cutting edges 52 throughout their entire lengths.

Means are provided for controlling the dispensing of the shaving cream or lubricant 15 to either cutting edge 52 of the razor blade 50, through either fan-shaped slot 32. This means comprises a cylindrical plunger 55, mounted for reciprocation within the bore 31 and adapted to project beyond the ends of this bore when the plunger is in a centered or neutral position, Figure 2. The plunger 55 is provided at its longitudinal center with conical undercut portions 56 forming cam parts for cooperation with an upwardly tapered conical cam follower 57, disposed within the chamber 22. The undercut portions 56 of the plunger 55 form an annular passage about the plunger at its longitudinal center, constantly in communication with the main chamber 22, and adapted to alternately register with the bottom ends 33 of the fan-shaped slots 32, as shown. The plunger 55 is shiftable axially with the finger or thumb in either direction for placing either slot 32 in direct communication with the main chamber 22, and simultaneously for sealing off or blocking the other slot 32 from communication with the chamber 22. When the plunger 55 is centered with respect to the slots 32, the lower ends 33 of both slots are sealed off or closed by the cylindrical parts of the plunger, and the annular groove or passage formed by the portions 56 is then arranged between the slots 32 and out of communication therewith. If desired, the plunger 55 may be provided with three longitudinally spaced spherical recesses 58, for cooperation with a spring loaded bore detent 59, mounted within a small opening in the body portion 10 leading to the lower side of the transverse bore 31 as shown in Figure 3. With this arrangement, the plunger 55 may be releasably locked in the centered or neutral position or in positions placing the chamber 22 in communication with either slot 32, by the bore detent 59. If desired, the bore detent 59 and recesses 58 may be omitted entirely.

The conical cam follower 57 within the chamber 22 is biased upwardly into contact with the plunger 55 by a suitable coil spring 60, surrounding a reduced depending extension or shank 61 of the cam follower 57 and held centered thereby. The lower end of the spring 60 bears upon a flat disk or washer 62, preferably formed integrally with the top of a reduced cylindrical stem 63 of an upwardly tapered conical valve element 64, disposed within the chamber 26 and adapted to engage and cover the conical valve seat 25 and slots 24. The valve stem 63 is longitudinally shiftable within the bore 23, and the disk or washer 62 is disposed above the top of the bore 23 and within the main chamber 22. The valve element 64 is biased upwardly toward its seated or closed position by a second coil spring 65, arranged within the recess 26 having its top end engaging the bottom of the conical valve element 64 and its bottom end engaging the bottom of the chamber 26. When the valve element 64 is unseated or lowered, Figure 4, the chambers 26 and 22 are placed in direct communication through the

slots 24, and the shaving lubricant 15 can then pass upwardly through the tube 16 and tubular needle 29, to the lower chamber 26, and thence through the slots 24 to the main chamber 22. Depending upon the direction in which the plunger 55 is adjusted, the shaving lubricant may then pass through one of the slots 32 to one of the cutting edges 52 of the razor blade.

The spring 60 serves a dual purpose in the razor, and its first purpose is to urge the cam follower 57 upwardly into engagement with the plunger 55. The spring 60 also serves to equalize or render uniform the flow of the shaving lubricant 15 to the cutting edges of the razor blade with the lowering or exhausting of the gas pressure above the shaving lubricant in the container 14, as the level of the shaving lubricant decreases. As the shaving lubricant 15 is consumed, the gas pressure in the container 14 is naturally lowered, and the force or pressure against the bottom of the valve 64 is also decreased. Therefore, the spring 60, which acts against the spring 65 and valve element 64 causes the valve element 64 to open further when the plunger 55 is shifted in either direction, as the gas pressure in the container 14 decreases. This further opening or unseating of the valve element 64 renders the flow of the shaving lubricant over the valve seat 25 less restricted, and the tendency of the spring 60 is therefore to maintain a constant flow of the shaving lubricant to the cutting edges of the razor blade as the gas pressure in the container decreases. When the gas pressure is at a maximum, and the container 14 is nearly filled with the shaving lubricant, shifting of the plunger 55 to the right or to the left will effect a smaller or lesser opening of the valve element 64, but when the level of the shaving lubricant 15 in the container decreases, and the gas pressure decreases, the same shifting of the plunger 55 to the right or to the left will effect an increased opening of the valve element 64 with respect to the seat 25.

In the use of the shaver, the plunger 55 may be shifted in either direction for placing either slot 32 in direct communication with the main chamber 22 and opening the valve element 64. When this occurs, the pressurized shaving lubricant 15 will be forced through the particular fan-shaped slot 32 and into the particular groove 38 of the head 11 in advance of the adjacent cutting edge 52. The shaving lubricant will lubricate the beard in advance of the cutting edge of the razor blade, and shaving may be performed in an efficient manner and without using an excessive amount of the shaving lubricant or cream. The user of the shaver has positive control over the dispensing of the shaving cream at all times during shaving, and may regulate the amount of shaving cream dispensed at will. When it is desired to shift to the other cutting edge 52 during shaving, it is necessary to shift the plunger 55 in the opposite direction, for placing the other slot 32 in communication with the annular passage of the plunger 55 and the main chamber 22. When the shaving lubricant 15 in the container 14 is exhausted, the container is merely detached from the body portion 10 and discarded, and a new container may be readily substituted for the old one.

When using the device, the plunger 55 may be shifted to the right or to the left sufficiently far to allow the cam follower 57 to ride upon the cylindrical portions of the plunger 55, as shown in Figure 4. This may be done whether or not the ball detent 59 is employed in the assembly. When this mode of operation is followed, the plunger 55 will not return automatically to its centered position, but the particular slot 32 will remain in communication with the chamber 22 until the plunger is shifted manually to its centered position or to the opposite position for uncovering the other slot 32. If, however, the plunger 55 is not shifted in either direction sufficiently far to cause the conical cam follower 57 to ride up onto the cylindrical parts of the plunger, and the cam follower 57 remains partially within the annular groove formed

by the tapered parts 56 at all times, the plunger 55 will return automatically to its centered position when released by the user, due to the action of the springs and the tapered relation between the cam follower 57 and cam faces 56. When this mode of operation is used, a lesser movement of the plunger 55 in either direction will still be effective to place either slot 32 in communication with the main chamber 22, through the annular groove or passage of the plunger. This second mode of operation is illustrated in broken lines in Figure 3.

It is to be understood that the form of the invention, herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or the scope of the subjoined claims.

We claim:

1. A self-lubricating shaver comprising a body portion including a head, means for clamping a double-edged safety razor blade against said head, the body portion having a pair of diverging fan-shaped slots formed therein and opening through the head adjacent to the cutting edges of the razor blade throughout substantially the entire lengths of the cutting edges, the body portion having opening means communicating with said slots, a container for shaving lubricant under pressure connected with the body portion and communicating with the opening means of the body portion, a valve element associated with the opening means for regulating the passage of the shaving lubricant through the opening means to the slots, and an element connected with the body portion and shiftable in opposite directions and connected with the valve element to unseat the same and having recess means shiftable into registration with either of said slots for selectively placing the slots in communication with said opening means of the body portion.

2. A fountain razor comprising a body portion including a head, means for clamping a double-edged safety razor blade to the head, the head having a pair of grooves formed therein adjacent to the cutting edges of the razor blade, the body portion having a pair of outwardly flared slots opening into said grooves and having mouths extending longitudinally of the grooves and cutting edges throughout substantially their entire lengths, the body portion having opening means communicating with said slots, manually operable valve means associated with the opening means for selectively placing the slots in communication with the opening means, and means connected with the body portion for supplying a shaving lubricant under pressure to said opening means of the body portion.

3. A fountain shaver comprising a body portion adapted to hold a razor blade, said body portion having passage means leading to a cutting edge of the razor blade, valve means connected with the body portion for regulating the flow of a shaving lubricant through said passage means, a container for shaving lubricant under pressure connected with said body portion, normally closed sealing means for the container for preventing the escape of the shaving lubricant under pressure from the container, and a tubular element secured to the body portion and communicating with said passage means and adapted to puncture the sealing means of the container when the container is connected with the body portion so that the interior of the container will then be in communication with said passage means.

4. A fountain shaver comprising a body portion adapted to carry a safety razor blade and having passage means opening through the body portion near a cutting edge of the razor blade, a container for shaving lubricant under pressure connected with the body portion and having a frangible sealing part, a tubular needle carried by the body portion and communicating with the passage means and adapted to pierce said frangible sealing part when the body portion is connected with the container, whereby the tubular needle places the interior of the container and said passage means in communication, a movable valve element arranged within said passage means and adapted

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to obstruct the flow of the shaving lubricant therethrough when seated, and a plunger mounted upon the body portion for reciprocation and connected with said valve element for unseating the same.

5. A fountain shaver comprising a body portion adapted to carry a double-edged razor blade, said body portion having openings formed therein near the cutting edges of the razor blade and a main chamber communicating with said openings, said body portion having a bore intersecting said openings and main chamber, valve means associated with the main chamber for controlling the flow of shaving lubricant therethrough, resilient means connected with the valve means to maintain the valve means seated, a plunger mounted within the bore for reciprocation and having a recess for selective registration with either of said openings to place either opening in communication with the main chamber, said recess of the plunger engaging the valve means for unseating the same whenever the recess of the plunger is shifted into registration with one of said openings, and a container for shaving lubricant under pressure connected with the body portion and communicating with said main chamber.

6. In a fountain shaver, a body portion adapted to

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hold a double-edged razor blade and adapted for connection with a container of shaving lubricant under pressure, said body portion having openings adjacent the cutting edges of the razor blade and recess means communication with said openings, said recess means forming a valve seat within the body portion, a valve element to engage the valve seat, a first spring connected with the valve element to seat the same, a movable element separate from the valve element, a reciprocatory part connected with the body portion and having a cam part engaging said movable element to shift it toward the valve element, and a second spring forming a resilient connection between the movable element and valve element and urging the movable element into contact with said reciprocatory part.

References Cited in the file of this patent

UNITED STATES PATENTS

1,556,269	Warming	Oct. 6, 1925
1,899,841	Acken	Feb. 28, 1933
1,991,404	Merriman	Feb. 19, 1935
2,131,498	Chandler	Sept. 27, 1938
2,686,361	Resnick et al.	Aug. 17, 1954