

[54] **FIREARM CHAMBER LUBRICATING AND CLEANING DEVICE**

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[22] Filed: **Jan. 19, 1973**

[21] Appl. No.: **325,219**

[52] U.S. Cl. **401/190**, 15/104.165, 401/207

[51] Int. Cl. **F41c 31/02**

[58] Field of Search 15/104.16, 104.165, 104.02, 15/104.05; 401/190, 170-172, 9, 10; 184/1

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[57] **ABSTRACT**

Chamber cleaning means for a shotgun is disclosed including a swab pivotally connected by a pivot pin to the end of a relatively short offset arm extending transversely from one end of a handle member so that the swab can be moved into the shell chamber for lubricating and cleaning purposes; another aspect of the invention resides in the provision of a hollow chamber in the offset arm containing a cartridge of cleaning/lubricating fluid under pressure with the cartridge having a ball valve at one end adjacent the swab, the swab is mounted on a swab supporting stud shaft movable into the end of the support arm for engaging the valve member to open the valve and permit lubricating fluid to flow along an axial passageway in the stub shaft and thence outwardly through radial openings into the swab; in another embodiment of the invention, the cleaning/lubricating liquid is sprayed outwardly against one end of the swab member.

13 Claims, 7 Drawing Figures

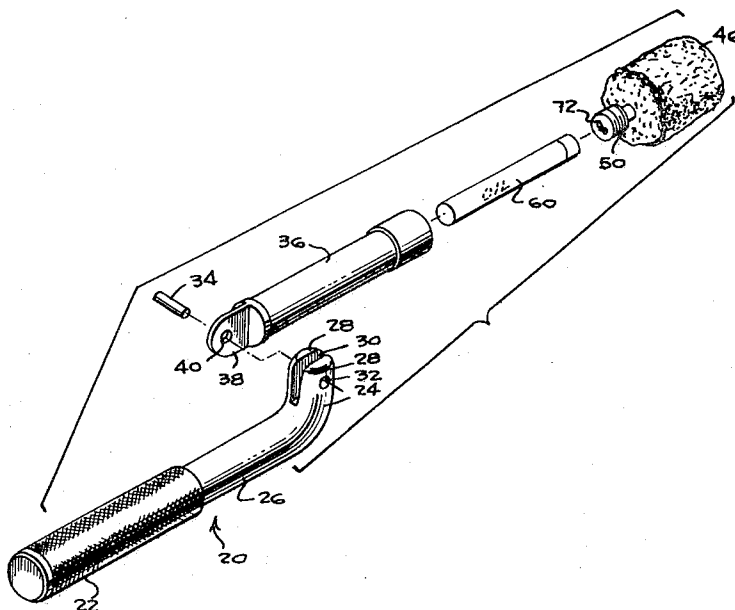


Fig-1

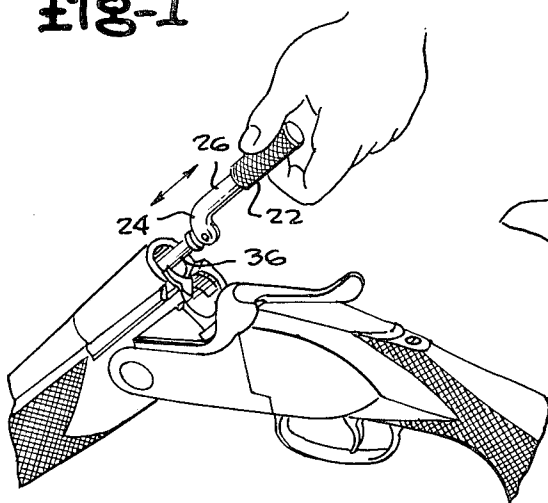


Fig-2

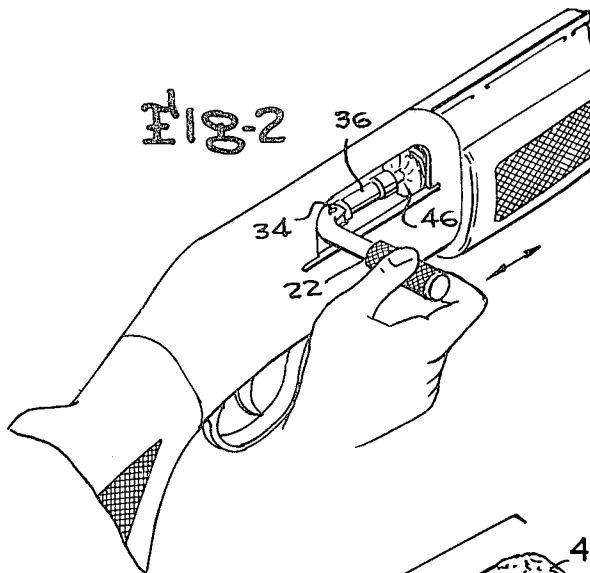


Fig-3

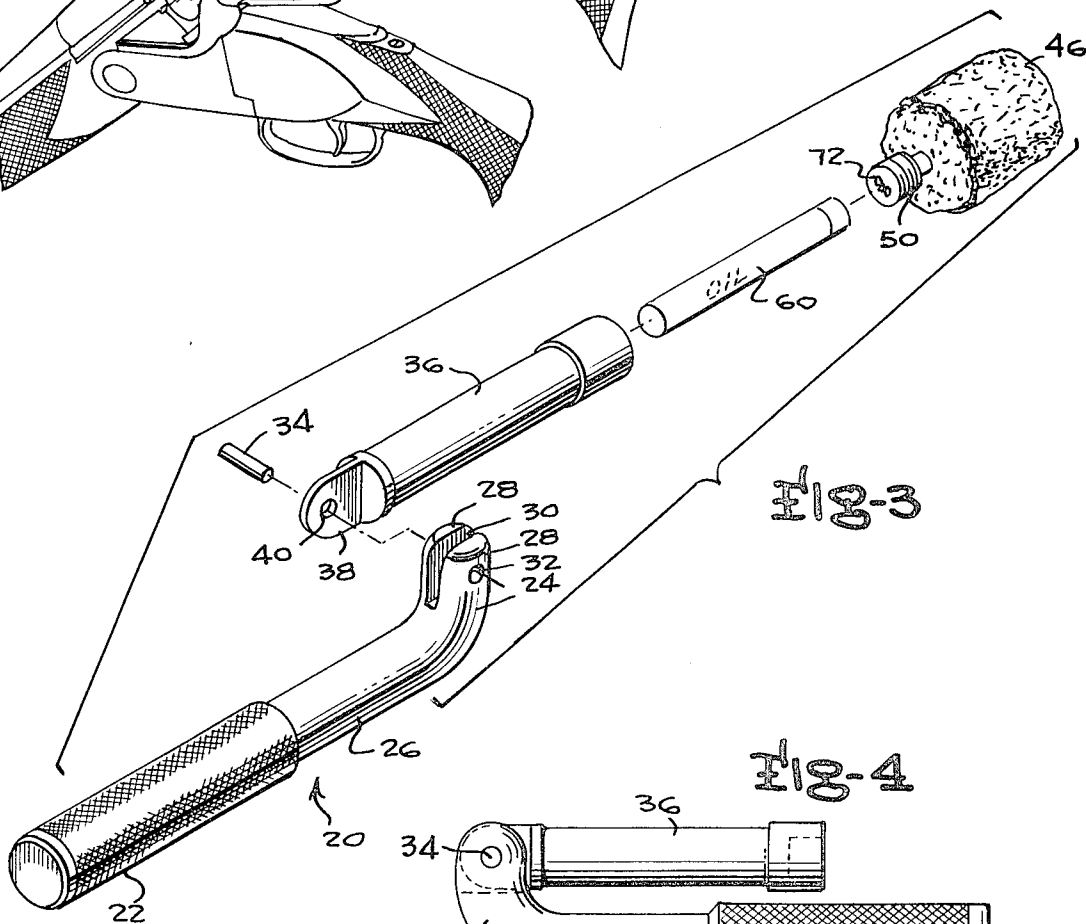
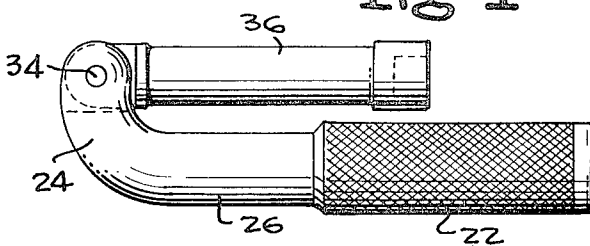
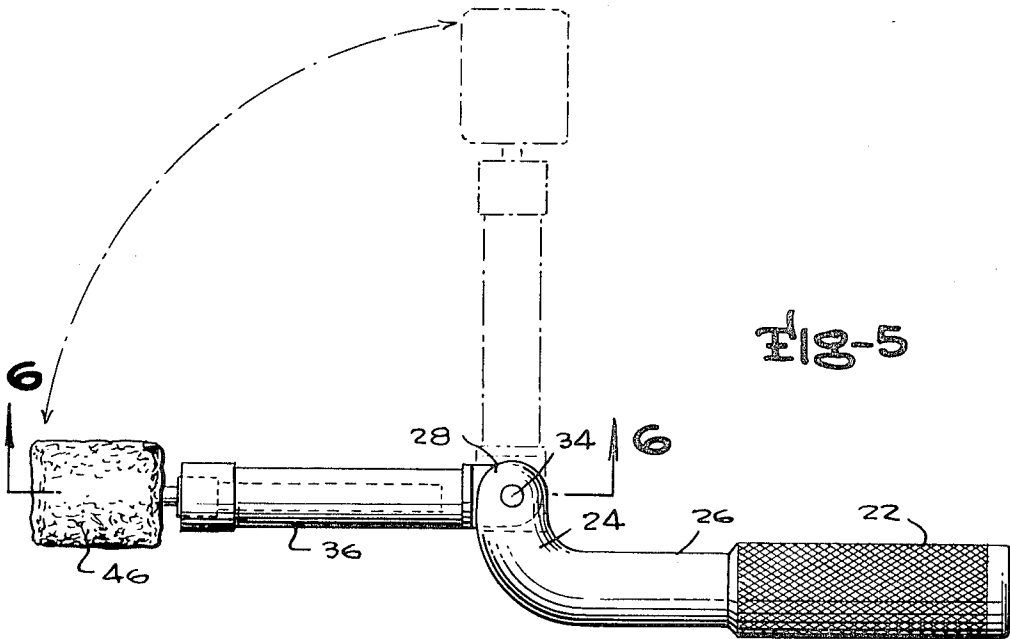
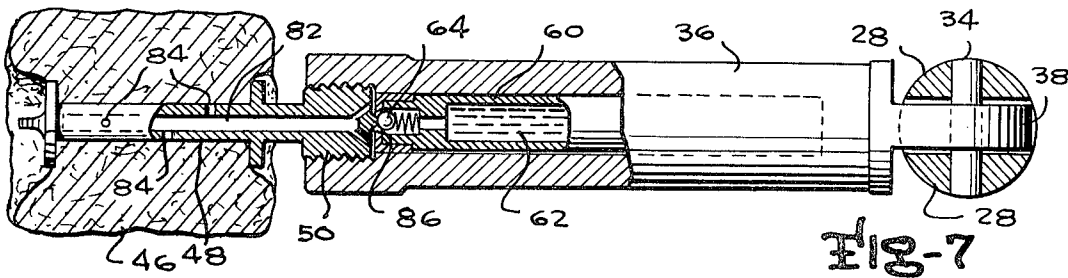
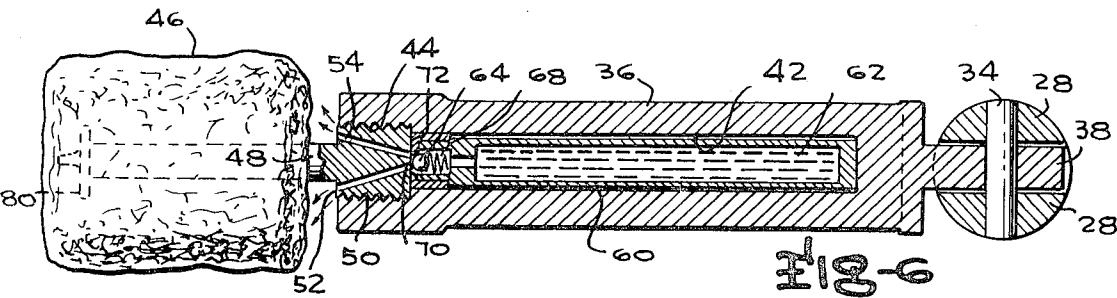


Fig-4





FIREARM CHAMBER LUBRICATING AND CLEANING DEVICE

This invention is in the field of hand tools and is specifically directed to a hand held cleaning device for enabling the cleaning and lubrication of a shotgun chamber. Even more specifically, the invention is directed to a cleaning and lubricating device capable of cleaning the chamber of all types of shotguns such as those having side shell ejection openings as exemplified by automatic and pump action shotguns as well as being capable of usage with breech opening shotguns such as single shot and double barrel guns.

The advent and ever increasing widespread usage of plastic shotgun shells has resulted in a much increased likelihood of chamber rusting, cavitation and other harmful chemical actions never previously encountered with the older type shells having a casing formed of wax impregnated paper or the like. While the plastic employed in the modern shells is not corrosive in and of itself, it does not provide a protective coating of the type provided by the wax from the older wax impregnated shell casings. However, the plastic shotgun shells are so much superior to the older wax impregnated paper shell constructions as to leave little doubt as to their overall advantages and the fact that they have permanently replaced wax impregnated shells to a large extent.

Consequently, there has been an increased need for cleaning apparatus capable of quickly cleaning and lubricating shotgun chambers. The wide variety of shotgun constructions such as automatic actuation, pump actuation, breech opening guns and bolt action guns make it highly desirable that any chamber cleaning device have the capability of easy and efficient usage with all types of shotgun constructions. However, the main problem remains the provision of providing an easy to use and efficient chamber cleaning device capable of usage in shotguns having side ejector openings in which the chambers are inherently difficult to reach such as in automatic and pump actuation shotguns. The side openings of the aforementioned gun constructions render the chamber inaccessible and difficult to reach since any cleaning instrument must extend inwardly into the gun housing and then extend forwardly into the chamber.

Prior chamber cleaning devices such as that disclosed in Brewer U.S. Pat. No. 3,536,160 have evolved for use in cleaning the chambers of shotguns having side openings. However, the device of the aforementioned patent, while an improvement over the prior known devices, suffers from a number of drawbacks. Specifically, the device of the patent includes a handle with a relatively long rigid metal member extending from one end of the handle and bent so as to extend into the chamber to enable a swab on the outer end of the member to clean and lubricate the chamber. The rigid nature of the overall construction of the Brewer device results in a construction of substantial length that is too long to be conveniently carried in the pocket of a user. Moreover, the employment of a rigid metal member between the handle and the swab member necessitates the additional employment of a protective plastic sleeve over the metal member for protecting the gun from scratching by the metal member. Additionally, the bent offset rigid construction connecting the handle and the swab member of the device of the Brewer pa-

tent results in a cleaning apparatus that is inconvenient to use in shotguns having breech openings such as double barrel guns since forward movement of the handle tends to pivot the swab in the gun chamber. It is practically impossible to provide for a direct actual forward force with devices of this type due to the geometry of the connection between the handle and the swab.

Another problem with the prior known chamber cleaning devices such as that of Brewer and others resides in the fact that such devices require a separate container for maintaining the cleaning/lubricating oil or the like used for cleaning the gun chamber. Consequently, the user of such devices must maintain a separate supply of cleaning/lubricating oil or the like which is somewhat disadvantageous, particularly in the field.

Therefore, it is the primary object of this invention to provide a new and improved shotgun chamber cleaning device.

A further object of this invention is the provision of a new and improved shotgun chamber cleaning device capable of usage with all types of shotgun constructions.

Achievement of the objects of this invention is enabled by the preferred embodiment through the provision of an elongated hand-held member having a knurled handle surface on one end easily held within the hand of a user and terminating on an opposite end in a transversely extending offset arm connected to the handle portion by a curved connecting segment. A swab support arm is pivotally connected to the outer end of the offset arm and is provided with a stem threadably received in a threaded aperture in its outer end with a swab member being affixed to the stem member. Lubricating and/or cleaning liquid is stored on the interior of the swab support arm in a pressurized cartridge in an axial chamber extending along a substantial portion of the length of the arm with the cartridge including a ball valve at one end for dispensing liquid from within the cartridge by virtue of the internal cartridge pressure.

The stem member supporting the swab includes an end portion that is threaded to be received in the threaded aperture in the end of the pivotal support arm with an abutment on the innermost end of the threaded portion engaging the valve of the cartridge to open the valve upon movement of the stem to its innermost position. Opening of the valve member in the cartridge serves to permit the discharge of fluid from the cartridge into conduits extending in the end portion so as to discharge fluid onto the swab member per se. In a second embodiment, the cleaning/lubricating liquid discharged from the cartridge is conveyed through an axial passageway extending along the length of the stem member from which it flows outwardly through radial openings into the interior of the swab.

A better understanding of the manner in which the preferred embodiments of the invention achieve the foregoing objects will be enabled when the following written description is read in conjunction with the appended drawings in which:

FIG. 1 is a perspective view of the usage of the invention in conjunction with an open breech loading shotgun;

FIG. 2 is a perspective view of the usage of the invention for cleaning the chamber of a shotgun having a side shell ejecting window;

FIG. 3 is an exploded perspective view of the preferred embodiment of the invention;

FIG. 4 is a side elevational view illustrating the invention folded into a compact configuration for carrying or storing with the swab portion removed;

FIG. 5 is a side elevational view of the preferred embodiment illustrating the manner in which the swab can be moved between different positions for use in conjunction with the cleaning of the chambers of different type shotguns;

FIG. 6 is a sectional view taken along lines 6—6 of FIG. 5; and

FIG. 7 is a sectional view similar to FIG. 6, but illustrating a second embodiment of the invention.

Turning initially to FIG. 3, it is to be noted that the preferred embodiment includes a hand-held portion generally designated 20 which is in the form of an L-shaped member including a handle 22 having a knurled outer surface for enhancing the friction characteristics thereof in order that the device may be firmly held in the hand of a user with the other end of the portion 20 comprising an offset arm in the form of an arcuate rounded portion 24 curving outward from a linear body portion 26 and terminating in an outer end of rounded configuration as shown in FIG. 4. The outer end of the offset arm is defined by a pair of spaced side shoulders 28 between which a slot 30 is defined. The shoulders 28 each include an aperture 32 through which a pivot pin 34 extends.

Pin 34 provides a pivotal connection between the outer end of the offset arm and a swab support arm 36. The pivotal connection between the swab support arm 36 and the offset arm is enabled by means of a centrally oriented flat tongue member 38 of rectangular cross-sectional configuration extending through the axis of the member 36 diametrically across the middle of the swab support arm and including an aperture 40 alignable with the apertures 32 in the respective side shoulders 28. Pin 34 passes through apertures 32 and 40 and is fixedly retained in the side shoulders 32 by any conventional means so that the swab support arm 36 is pivotal with respect to the hand held member 20.

Turning now to FIG. 6 of the drawings, it will be noted that the internal construction of the swab support arm 36 includes an axial chamber 42 of cylindrical configuration extending over a substantial portion of the length of the member 36. The outer end of the swab support arm 36 is provided with a threaded aperture 44 the purpose of which will become apparent hereinafter.

The swab member 46 is mounted on a swab support shaft comprising a stem portion 48 and an enlarged threaded end portion 50 with the threaded end portion 50 having a radially extending face 52 extending radially outwardly from its juncture with the stem portion 48. The threaded end portion 50 is received in the threaded aperture 44 and includes at least two conduits 54 extending along its length with the conduits having outer openings in the radial face 52 as shown in FIG. 6.

The axially oriented chamber 42 provides an enclosure for a cartridge 60 containing a quantity of conventional cleaning/lubricating fluid 62 such as oil or the like that is under substantial pressure. Cartridge 60 is preferably pressurized and includes a closure valve on its end nearest swab 46 with the valve comprising a ball member 64 urged into a closed condition by a spring 66

for normally preventing the loss of the cleaning/lubricating fluid 62. However, the ball member 64 can be moved inwardly to an open condition by engagement with an abutment 70 on the outer face 72 of the threaded end portion 50. The stem portion 48 is provided with a radially extending flange or lug 80 which can be manually grasped to rotate the elements 50, 72 etc. inwardly to engage the valve and consequently result in a discharge of cleaning/lubricating fluid caused by internal pressure in the cartridge via the conduits 54 onto the swab member 46 in an obvious manner as illustrated in FIG. 6. Cartridge 60 could also employ gravity discharge of fluid if desired.

FIG. 7 illustrates a second embodiment of the invention that is identical to the first embodiment of the invention with the exception that the stem member 48 is provided with a hollow axial passageway 82 extending coaxially along its length with a plurality of radial apertures 84 communicating with the hollow passageway 82. In this embodiment, the passageway 82 communicates with the valve member 64 with an abutment 86 being movable inwardly to open the valve member and consequently discharge the cleaning/lubricating fluid 62 into the passageway 82. The cleaning/lubricating liquid 62 passes outwardly from the conduit 82 through the radial openings 84 as shown in FIG. 7 so as to be internally absorbed by the swab member 46.

Turning now to FIG. 2, it will be seen that the invention, in either embodiment, can easily be employed for use in cleaning the chamber of a shotgun having a side shell ejecting opening by virtue of the fact that the handle portion 20 can be bent to extend outwardly through the shell discharge opening as shown. The swab 46 can then be moved into the chamber for backward and forward movement in an obvious manner. Brush means can be used in place of swab 46 if desired.

Similarly, the instant invention can also be employed for cleaning a breech loading gun such as that illustrated in FIG. 1 when the parts are held in the position as shown.

FIG. 4 illustrates the manner in which the handle portion and the swab support arm can be folded for compact storing either with the swab removed, or with the swab in retained position if such should be desired. Normally, the swab could be stored in a separate plastic bag or the like in order to retain the cleaning/lubricating liquid in the swab and to prevent the swab from picking up abrasive particles or other undesirable material.

While the preferred embodiment of the invention has been disclosed, it should be understood that the spirit and scope of the invention should be interpreted solely in light of the appended claims.

I claim:

1. A firearm chamber cleaner comprising an elongated rigid handle member, a rigid offset arm extending rigidly with respect to said handle member transversely from one end of said handle member, said rigid offset arm terminating in an outer end transversely spaced from the axis of said handle member, an elongated swab support arm having first and second ends, a swab mounted on said first end of said swab support arm and pivotal connector means connecting the second end of said swab support arm to said outer end of said rigid offset arm.

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2. The invention of claim 1 additionally including cleaning fluid supply means mounted internally of said swab support arm.

3. The invention of claim 1 additionally including cleaning fluid supply means comprising a pressurized cartridge containing cleaning fluid mounted in an axial chamber in said swab support arm.

4. The invention of claim 1 additionally including cleaning fluid supply means comprising a pressurized cartridge containing cleaning fluid mounted in an axial chamber in said swab support arm, selectively operable valve means in the end of said cartridge nearest said swab, valve actuator means operable for opening said selectively operable valve means and conduit means for receiving cleaning fluid from said selectively operable valve when said selectively operable valve means is opened for carrying cleaning fluid to a discharge point at which said fluid is discharged from said conduit means to be received by said swab means.

5. The invention of claim 1 additionally including cleaning fluid supply means comprising a pressurized cartridge containing cleaning fluid mounted in an axial chamber in said swab support arm, selectively operable valve means in the end of said cartridge nearest said swab, valve actuator means operable for opening said selectively operable valve means, and conduit means for receiving cleaning fluid from said selectively operable valve means when said selectively operable valve means is opened for carrying cleaning fluid to a discharge point at which said fluid is discharged from said conduit means to be received by said swab means, a swab supporting stub shaft having a stem portion on which said swab is attached and a hollow threaded end portion received in a threaded aperture in the first end of said swab support arm, a hollow axial passageway along the length of said stem and said end portion, said valve actuator comprising an abutment at the end of said passageway engageable with said valve means for opening said valve upon movement of said threaded end portion to an inward position by rotation of said swab supporting stub shaft and a plurality of radial openings in said swab stem portion communicating with said axial passageway whereby cleaning fluid discharged into said axial passageway passes outwardly through said radial openings into said swab supported on said stem portion.

6. The invention of claim 1 additionally including cleaning fluid supply means comprising a pressurized cartridge containing cleaning fluid mounted in an axial chamber in said swab support arm, selectively operable valve means in the end of said cartridge nearest said swab, a threaded aperture in the end of said swab support arm axially outward from said valve means, a swab supporting stub shaft comprising a stem on which said swab is mounted and an externally threaded cylindrical end portion of larger diameter than said stem having a radial face extending outwardly from its juncture with said stem and being receivable in said threaded aperture of said swab support arm for movement axially inwardly to a position adjacent said valve means, abut-

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ment means on the end of said cylindrical lug engageable with said valve means and comprising said means for operating said valve means, said abutment means being operable upon movement of said cylindrical lug inwardly to its innermost position in said threaded aperture, conduit means comprising a plurality of conduits extending from adjacent said abutment means through said cylindrical lug and terminating in said radial face of said cylindrical lug portion for discharging cleaning fluid onto the end of said swab upon the opening of said valve means.

7. The invention of claim 6 wherein said pivotal connector means comprises a flat tongue centrally positioned extending across the axis of said pivotal swab support arm on the end of said swab support arm opposite said threaded aperture, a slot in the end of said rigid offset arm defined by first and second spaced side shoulders, aligned apertures in said spaced side shoulders and in said tongue and a pin extending through said aligned apertures.

8. The invention of claim 7 wherein the end of said handle member opposite said rigid offset arm is of enlarged diameter and includes a knurled friction enhancing surface.

9. The invention of claim 8 wherein said stem portion includes radially extending lugs extending outwardly into said swab but which can be manually grasped by a user for rotating said stem portion to move said cylindrical end portion inwardly or outwardly in said threaded aperture in the end of said support arm to open and close said valve means.

10. The invention of claim 5 wherein said pivotal connector means comprises a flat tongue centrally positioned extending across the axis of said pivotal swab support arm on the end of said swab support arm opposite said threaded aperture, a slot in the end of said rigid offset arm defined by first and second spaced side shoulders, aligned apertures in said spaced side shoulders and in said tongue and a pin extending through said aligned apertures.

11. The invention of claim 10 wherein the end of said handle member opposite said rigid offset arm is of enlarged diameter and includes a knurled friction enhancing surface.

12. The invention of claim 11 wherein said stem portion includes radially extending lugs extending outwardly into said swab but which can be manually grasped by a user for rotating said stem portion to move said cylindrical end portion inwardly or outwardly in said threaded aperture in the end of said support arm to open and close said valve means.

13. The invention of claim 1 wherein said offset arm and said rigid handle member are unitarily formed and said offset arm includes an intermediate arcuate portion curving outwardly from the end of a linear portion, said linear portion extending from said handle member and wherein said offset arm terminates in a rounded outer surface end termination.

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