United States Patent [19]

Anketell

[11] **3,756,467**

[45] **Sept. 4, 1973**

[54] **NIGHT STICK**

[76] Inventor: **John E. Anketell,** 62 Ash St., Winchendon, Mass. 01475

[22] Filed: **Dec. 13, 1971**

[21] Appl. No.: **207,332**

[52] **U.S. Cl.** **222/78,** 222/153, 273/84

[51] **Int. Cl.** **F41b 15/02**

[58] **Field of Search** 222/153, 162, 182, 222/183, 325, 402.11, 78, 79, 192, 402.12, 402.13, 402.15; 273/84; 251/95

[56] **References Cited**

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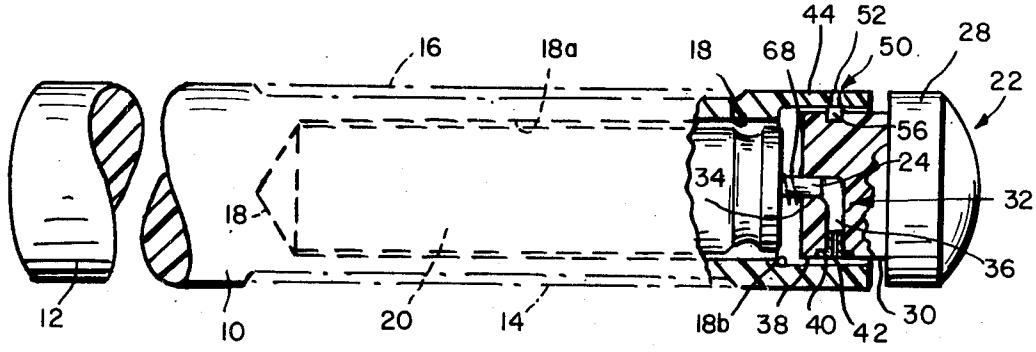
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Primary Examiner—Robert B. Reeves
Assistant Examiner—Larry Martin
Attorney—Robert T. Gammons et al.

[57] **ABSTRACT**

A club embodying a chamber at one end within which there is mounted a pressurized cartridge provided with a discharge tube, a cap mounted in the chamber for rotational and axial movement, said cap being movable to an inoperative position to prevent discharge, to a ready position to enable discharge and to a position to enable removal for replacement of the pressurized cartridge.

15 Claims, 22 Drawing Figures



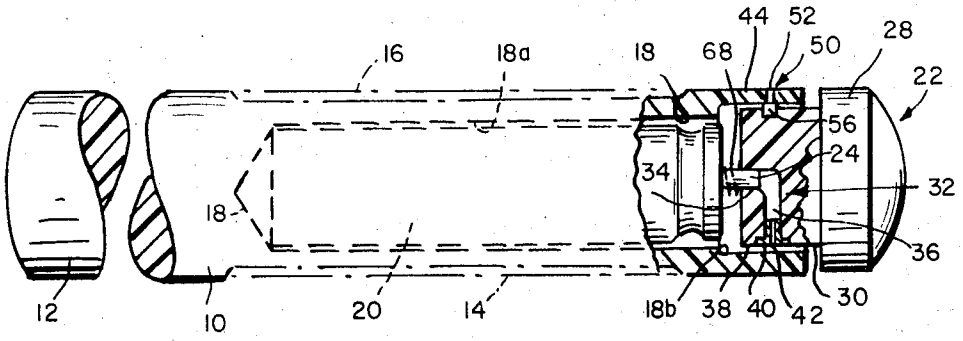


FIG. 1

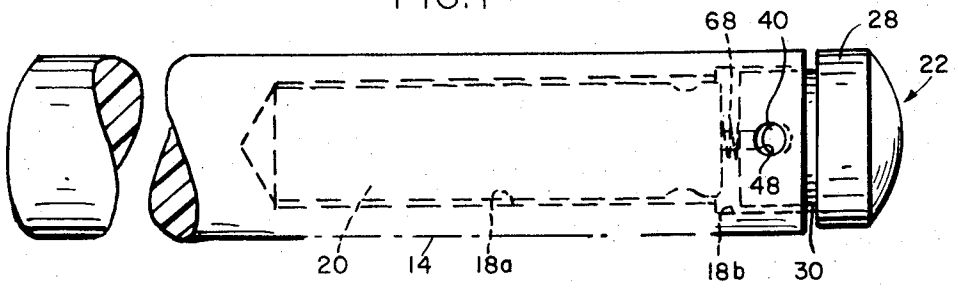


FIG. 2

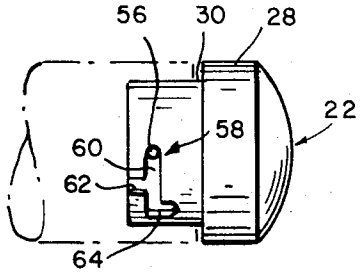


FIG. 3

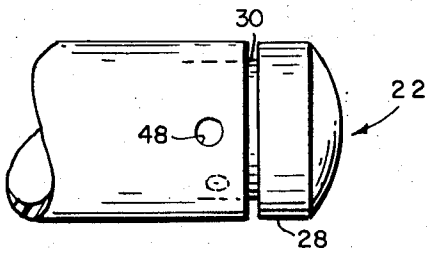


FIG. 3a

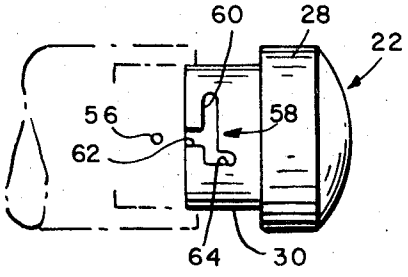


FIG. 4

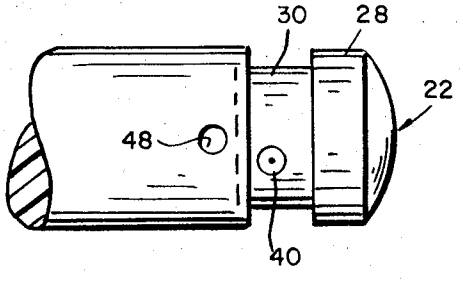


FIG. 4a

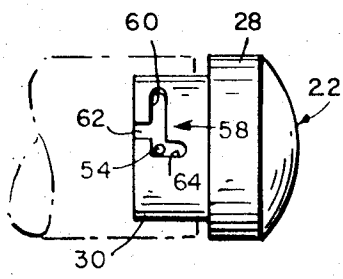


FIG.5

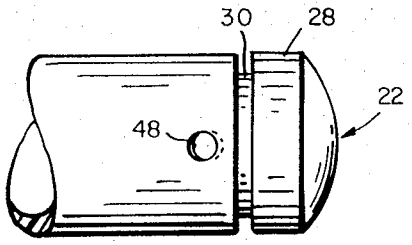


FIG.5a

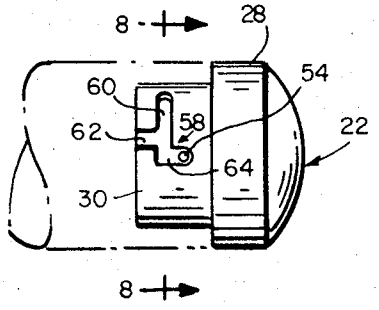


FIG.6

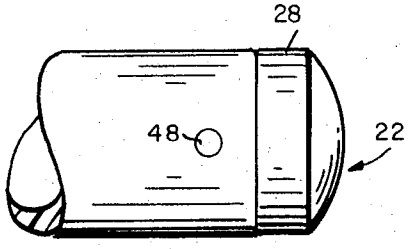


FIG.6a

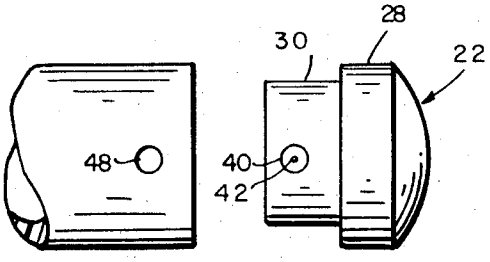


FIG.7

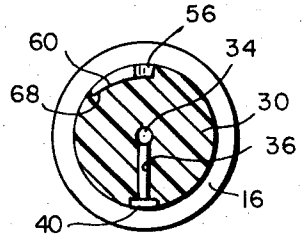


FIG.8

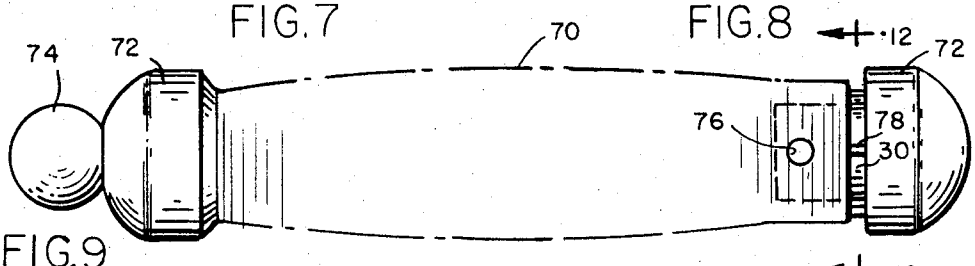


FIG.9

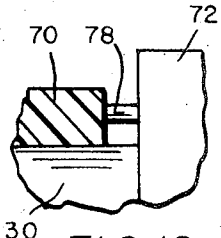


FIG.10

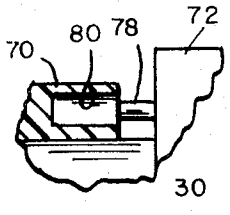


FIG.11

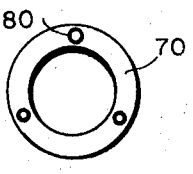


FIG.12

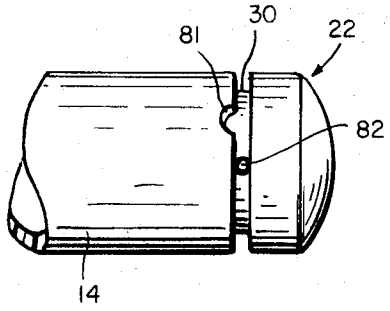


FIG. 13

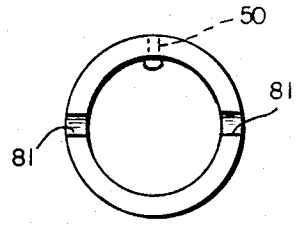


FIG. 14

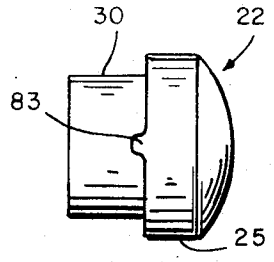


FIG. 15

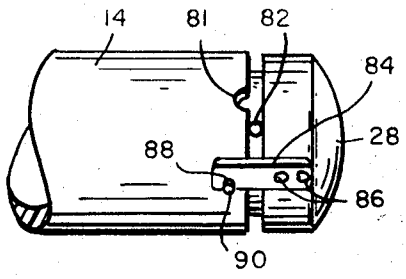


FIG. 16

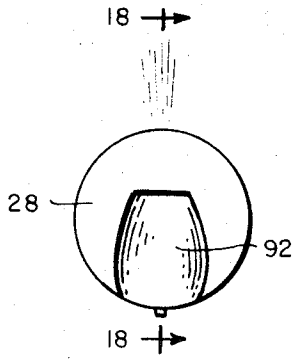


FIG. 17

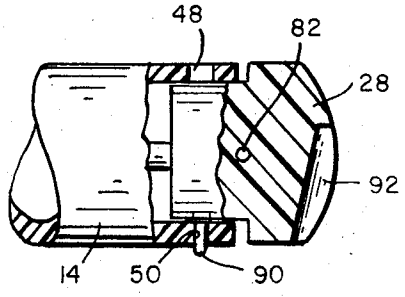


FIG. 18

NIGHT STICK

BACKGROUND OF THE INVENTION

The night stick comprising the subject matter of this invention constitutes an improvement on that disclosed in my U.S. Pat. No. 3,635,374, dated Jan. 18, 1972 and upon such U.S. Pat. as Voll, No. 3,432,077 and Meshberg, No. 2,914,222, in that its construction provides for easier manipulation and hence more effective use; better control of the discharge; minimizes accidental discharge and/or unauthorized discharge by persons other than the one carrying the stick; prevents internal leakage; and simplifies manufacture.

SUMMARY

A night stick comprising an elongate club provided with a handle at one end within which there is an axial chamber having a closed end within the handle and an open end at the end of the handle. The chamber is adapted to receive a cartridge of pressurized material provided with a discharge tube operable, by axial displacement relative to the cartridge, to release the pressurized material and a cap is mounted in the open end of the chamber in a position to effect discharge. The cap has a head and neck, said neck being dimensioned to slidably and rotatably fit into the open end of the chamber and contains a passage, one end of which is situated in the base of the neck in coaxial alignment with the discharge tube within which a portion of the discharge tube extends and the other end of which is situated in the side of the neck. The wall of the chamber contains a discharge hole with which the end of the passage in the side of the neck is adapted to be aligned and a pin fixed therein with an end extending radially into the chamber into a multi-limb recess in the neck. The recess has a portion cooperable with the pin by rotation and axial movement of the cap which permits removing the cap axially from the open end of the chamber while at the same time holding the cap in a position during such withdrawal that the passage in the side of the neck is out of alignment with the discharge hole, a portion cooperable with the pin by rotation of the cap which enables locking the cap against axial movement with the passage in the neck out of alignment with the discharge hole, and a portion cooperable with the pin by rotation and axial movement of the cap which enables moving the cap axially toward the discharge tube to effect discharge. Spacers may be provided between the head of the cap and the end of the chamber to prevent depression of the cap except when it is turned to its discharge position and a latch bar may be provided to prevent accidental rotation of the cap to the discharge position.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 is an elevation, partly in section and partly broken away, of a night stick embodying the invention;

FIG. 2 is an elevation, broken away in part, taken at right angles to FIG. 1;

FIG. 3 is a fragmentary view with the cap in elevation showing the position of the cap when locked to prevent either discharge or removal of the cap;

FIG. 3*a* is a view showing the position of the discharge hole with respect to the discharge orifice when the cap is locked as shown in FIG. 3;

FIG. 4 is a fragmentary elevation showing the position of the cap for removal;

FIG. 4*a* shows the relation of the discharge hole to the discharge orifice when the cap is in the position for removal;

FIG. 5 is a fragmentary view showing the position of the cap in readiness for discharge;

FIG. 5*a* shows the relation of the discharge hole to the discharge orifice when the cap is in a position ready for discharge;

FIG. 6 is a fragmentary view showing the position of the cap during discharge;

FIG. 6*a* is a fragmentary view showing the alignment of the discharge hole and the discharge orifice during discharge;

FIG. 7 is a fragmentary elevation showing the cap completely removed from the stick;

FIG. 8 is a section taken on the line 8—8 of FIG. 6;

FIG. 9 is an elevation of a yawawa embodying the invention;

FIG. 10 is a fragmentary view, partly in elevation and partly in section, showing the spacer pins employed to hold the cap away from the end of the body portion of the yawawa;

FIG. 11 is a view similar to FIG. 10 showing the cap rotated to a position such that the spacer pins can enter axial holes to allow depression of the cap;

FIG. 12 is a section taken on the line 12—12 of FIG. 9;

FIG. 13 is a fragmentary view, partly in elevation and partly in section, showing alternative spacing means for holding the cap away from the end of the club;

FIG. 14 is an end view of the club showing the notches for receiving the spacing means to permit depressing the cap to effect discharge;

FIG. 15 is a fragmentary view, partly in elevation, of still another form of spacing means;

FIG. 16 is a fragmentary view in elevation showing an alternative form of locking means for preventing accidental rotation of the cap to the discharge position;

FIG. 17 is an end view of the cap showing the disposition of a thumb print in the end of the head which facilitates orientation of the cap for discharge; and

FIG. 18 is a diametrical section through the cap, longitudinally of the thumb print, showing it aligned with the nozzle orifice.

Referring to the drawings, the night stick embodying the invention comprises an elongate cylindrical club **10**, the major portion of which has a smooth cylindrical outer surface **12** and at one end of which there is a handle **14** provided with a knurled grip surface **16**. The club is suspended from the belt or a harness worn by the person carrying it by means of a thong encircling the club at the base of the grip so that the handle portion of the club is uppermost and in a position to be readily grasped for use. In accordance with this invention and in contrast to that of my pending application a pressurized capsule is mounted within that portion of the club comprising the handle in such fashion as to enable discharge of a disabling material quickly and accurately into the face of an attacker with the least amount of manipulation of the club and/or change of position from that in which it was suspended, that is, with the handle uppermost.

Referring to FIGS. 1 and 2 the handle **14** is provided with an axially extending hole **18** of two diameters, providing within the handle a chamber **18***a* of a length and diameter to receive a pressurized cartridge **20** and a chamber **18***b* for receiving a cap **22**. The cartridge **20**

is of conventional construction comprising a metal or plastic receptacle containing a pressurized material which is adapted, when discharged, to temporarily incapacitate an assailant and is provided with a discharge tube **24** at one end which is adapted, when displaced axially, to permit discharge from the cartridge. The cartridge is held in place and discharge is effected by the cap **22** which has a head **28** corresponding in diameter to the diameter of the handle and a neck **30** corresponding substantially in diameter to the inside diameter of the chamber **18***b* so as to be rotatable therein and movable axially therein. The axial length of the chamber **18***b* is at least as great as the axial length of the neck **30.**

The neck **30** (FIGS. **1** and **8**) contains a passage **32** comprising a centrally located, axially extending portion **34** situated in alignment with the discharge tube **24** and of such size as to receive a portion of the end of the discharge tube **24** and a radially disposed portion **36** which opens through the side of the neck. An enlarged circular recess **38** is provided at the open end of the passage **36** and an orifice plate **40** is mounted in this recess, the plate containing a discharge orifice **42** of relatively small diameter.

The wall of the chamber **18***b* contains a discharge hole **48** of larger diameter than the discharge orifice which is adapted, at times, to be aligned with the discharge orifice and at other times to be displaced relative thereto for the purpose, on the one hand, of effecting discharge and, on the other hand, to prevent discharge. The cap **22** is supported within the open end of the chamber for manipulation to effect discharge or to prevent discharge and also to enable removal for replacement of an empty cartridge by the mutual interengagement of a pin **50** fixed in the wall of the chamber and a multi-limb recess **58** in the neck of the cap. The pin **50** is pressed into the wall of the chamber and has at its inner end a part **56** which extends into the multi-limb groove **58.** A shoulder **52** prevents displacement of the pin outwardly. The groove is shown in FIGS. **3, 4, 5** and **6** as having an elongate, peripherally disposed portion **60,** an axially disposed portion **62** at right angles to the portion **60** and situated substantially intermediate its ends, said portion extending from the portion **60** through the base of the neck, and an axially extending portion **64** at one end spaced from the axially extending portion **62,** said portion extending toward the head.

The part **56** of the pin **50** is adapted to be aligned within the respective portions **60, 62** and **64** by rotation of the cap and axial movement thereof, — FIGS. **3** to **6***a* inclusive showing the various possible positions. Referring to FIGS. **3** and **3***a* the part **56** is engaged within the portion **60** at the end remote from the portion **64,** in which position the cap is held fixed and cannot be moved axially either to effect discharge or to remove the cap. In this position the discharge orifice **42** is displaced relative to the discharge hole **48** so that there can be no accidental leakage through the discharge orifice in the event that the pressurized cartridge is leaking. FIGS. **4** and **4***a* show the position of the cap with reference to the part **56** which enables removing the cap and correspondingly the position of the discharge orifice **42** relative to the discharge hole **48.** FIGS. **5** and **5***a* show the ready position of the club with the part **54** situated in the portion **60** opposite the portion **64.** In this position the cap is locked against axial removal and the discharge orifice is partially displaced with respect to the discharge hole so that leakage will not take place while in the ready position. FIGS. **6** and **6***a* show the position of the cap during discharge with the part **54** of the pin displaced into the portion **64** by axial movement of the cap toward the pressurized cartridge and displacement of the discharge tube **24** of the pressurized container. In this position the discharge orifice **42** is aligned with the hole **48.**

The bottom of the portion **60** of the recess remote from the portion **64** is inclined, as shown at **68** (FIG. **8**), to provide for a wedging action between the bottom of the recess and the part **56** of the pin so that it is possible to jam the cap in its inoperative position sufficiently to prevent accidental or malicious rotation of the cap to the discharge position.

As previously related, the discharge orifice **42** is provided for by an orifice plate **40** set into the neck at the end of the radial portion **36** of the passage **32** rather than in the wall of the chamber **18***b.* This has the advantage that it provides for a greater control and more accurate direction of the jet since the jet is propelled through the orifice and through the hole **48** without the latter in any way interfering with free flow through it and so without retarding the flow. Additionally, the passage **32** between the end of the discharge tube **24** and the orifice plate **40** is of sufficient size to allow expansion of any residual pressure therein after the cap is released thus eliminating to a large extent any possibility of leakage between the neck and the inside of the chamber.

The discharge tube **24** at the end of the cartridge **20** is returned to its extended position after depression by spring means built into the cartridge and this in turn extends the cap when the latter is released. However, if it is desirable to supplement the action of this spring an additional coil spring **68** may be mounted about the tube **24** between the end of the cartridge and the end of the base of the neck so that the cap will be more positively returned to its inoperative position following depression rather than to rely solely upon the spring return tube for returning the cap to its inoperative position.

The club as thus constructed, as previously indicated, provides the advantage that the discharge of the material for defensive purposes is located in the grip, — that portion of the club which is closest to the hand of the person carrying the club and in the portion of the club which is most easily presented to the opponent without manipulation or turning in any manner and which may be operated effectively while firmly gripped in one hand with the thumb. As thus located pointing of the club toward the person which would enable the opponent to grasp the club and wrench it away is not required and so its use for protective measures is considerably enhanced. Pointing while held in the vertical position is possible without exposing the club to the opponent's grasp.

The construction enables positively locking the cap so that it cannot be inadvertently or maliciously manipulated and yet can be placed in a ready position easily and quickly and the simplicity of the construction enables relatively simple manufacture.

While the invention is illustrated above as embodied in the handle of a night stick it may be embodied in a yawara stick also known as a judo stick such as shown in FIG. **9** which is a device comprising a grip **70** having

heads 72—72 at its opposite ends and a steel ball 74 fixed to one head. This device is adapted to be held in the hand and may be provided with an axial hole, such as shown in FIGS. 1 and 2, to receive a pressurized cartridge and with a discharge hole 76 at one end through which the material in the cartridge may be discharged in exactly the same fashion as described above.

In using the yawara 70 a blow is inflicted by striking the assailant with the head at one end or the other and it has been found that the use of the single pin, such as the pin 54 shown above, may easily shear off if a sharp blow is struck. Accordingly, the head of the cap is desirably provided with three equally spaced spacing pins 78 fixed to the head peripherally of the neck, the pins being of such length that by engagement with the end of the wall will prevent displacement of the head when subjected to a relatively high impact. The pins are so located that they will have engagement with the end of the chamber when the head is in the locking position, as shown in FIG. 10. To permit displacement of the cap there are three correspondingly spaced, axially disposed holes 80 in the end of the wall for receiving the pins, the holes being so located that at the discharge position the pins will enter the holes, allowing the cap to be displaced.

Alternatively, a pin 82 may be mounted diametrically of the neck 30 (FIG. 13) with its ends extending therefrom at opposite sides for holding the head spaced from the end of the chamber when the cap is in the locked position, a distance corresponding to the diameter of the pin. Notches 81—81 are provided in the wall of the chamber at diametrically disposed positions, as shown in FIG. 14, for receiving the ends of the pin 82 when the cap is rotated to its operative position. Instead of a pin set through the neck diametrically disposed nubs 83—83 may be formed at the intersection of the neck and head as shown in FIG. 15.

As related above, the part 56 of the pin 50 is operable by jamming engagement with the inclined portion 64 at the bottom of the multi-limb groove 58 to prevent the cap from being accidentally or maliciously turned to its discharge position. An alternative device for this purpose is shown in FIG. 16 comprising a latch bar 84 secured to the head of the cap by screws 86 so that when the cap is in its inoperative position the lower end of the latch bar, which contains a notch 88, engages an extension 90 of the pin 50. Rotation of the cap in a clockwise direction will disengage the notch 88 from the extension 90 and allow the ends of the pin 82 to be depressed into the notches 81—81. The latch bar may be used in addition to the inclined ramp at the bottom of the multi-limb groove 58 or as a sole means for locking the cap.

As an aid to correctly aiming the device and to rotating the cap to its operative position, for example, at night when manipulation must be effected mostly by feel, the head of the cap is provided with a well-defined rather deep thumb print 92, as shown in FIGS. 17 and 18, the longitudinal axis of which coincides with the line extending from the pin 50 through the nozzle orifice.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents falling within the scope of the appended claims.

I claim:

1. An implement comprising a rigid elongate, cylindrical member provided with a grip portion by means of which it may be wielded to deliver a blow and containing an axial chamber open at one end defined by a thick wall capable of sustaining a blow, said chamber being of a size such as to be capable of receiving a cartridge of pressurized material, a cartridge of pressurized material disposed in said chamber, said cartridge having a discharge tube operable by axial displacement relative to the cartridge to release the pressurized material and being disposed with the discharge tube at the open end of the chamber, a cap mounted in the open end of the chamber, said cap comprising a head and neck, said neck containing a passage, one end of which is situated in the base of the neck in coaxial alignment with the discharge tube and within which a portion of the discharge tube extends and the other end of which is situated in the side of the neck, the wall of said chamber containing a discharge hole with which said other end of said passage is adapted to be aligned, a pin fixed in the wall of the chamber with an end extending radially into the chamber, and a multilimb recess in the side of the neck within which the inwardly projecting pin is engaged, said recess having a first axial portion arcuately spaced from said end of the passage which, when aligned with the pin, enables rotating the cap to lock the cap against axial movement with said end of the passage out of alignment with the discharge hole, a peripheral portion which, when aligned with the pin, enables rotating the cap to lock the cap against axial movement with said end of the passage out of alignment with the discharge hole, and a second axial portion which, when aligned with the pin, enables pressing the cap axially toward the discharge tube to align said end of the passage with the discharge hole and to effect discharge.

2. An implement according to claim 1, wherein said peripheral portion is situated at such a distance from the base of the neck that when the pin is engaged therein the base of the neck is held retracted with respect to the discharge tube, wherein the second axial portion is at one end of the peripheral portion and extends therefrom a distance such that when the pin is engaged with said second axial portion the base of the neck is displaceable a distance toward the discharge tube sufficient to effect discharge and wherein said first axial portion is intermediate the ends of the peripheral portion and opens through the base such that when the pin is engaged with said latter portion the cap may be removed axially from the chamber.

3. An implement according to claim 1, wherein said portions of the recess are interconnected so that the cap may be manipulated from one position to the other by rotational and axial movement.

4. An implement according to claim 1, wherein the end of the passage in the side of the neck has set into it an orifice plate adapted to discharge the pressurized material in a fine stream.

5. An implement according to claim 1, wherein the discharge hole is of larger size than the jet orifice to permit the jet to pass freely through it without deviation.

6. An implement according to claim 2, wherein the other end of the peripheral portion has an upwardly sloping bottom such as to effect jamming of the pin against the bottom when the cap is rotated to said locking position.

7. An implement according to claim 1, wherein spacing pins are fixed to the head of the cap peripherally of the neck of a length such that when engaged with the end of the wall the cap is held against axial displacement in a direction to effect discharge, said wall containing openings so located that when the cap is situated in the position for discharge said spacing pins are aligned with said holes.

8. An implement according to claim 7, wherein there are three such pins and a corresponding number of holes.

9. An implement according to claim 1, wherein a coil spring is disposed about the discharge tube with its ends engaged, respectively, with the top of the cartridge and the base of the neck.

10. An implement according to claim 1, comprising a plurality of axially disposed spacers and openings between the cap and the adjacent end of the chamber operable in one position of the cap to prevent axial movement thereof and in another position to permit such axial movement.

11. An implement according to claim 18, comprising a spacer pin disposed diametrically of the neck at its junction with the head, the opposite ends of which protrude from the neck between the head and the end of the club, and wherein there are notches in the open end of the chamber for receiving said protruding ends of the pin when the cap is turned to its operative position to permit depressing the cap to effect discharge.

12. An implement according to claim 1, wherein there is a latch bar secured to the head with an end arranged to overlap the end of the club in which the cap is rotatably mounted, said end containing a notch, and wherein said pin has an extension protruding from the wall of the chamber for engagement with said notch to assist in holding the cap in its locked position.

13. A club according to claim 12, wherein the interengagement of the notch in the latch bar with the pin prevents accidental rotation of the cap.

14. An implement according to claim 1, wherein the head of the cap contains a depressed thumb print disposed diametrically in alignment with a diameter passing through said pin and through said nozzle orifice.

15. An implement according to claim 14, wherein the thumb print depression enters the head of the cap from the side opposite the nozzle orifice.

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