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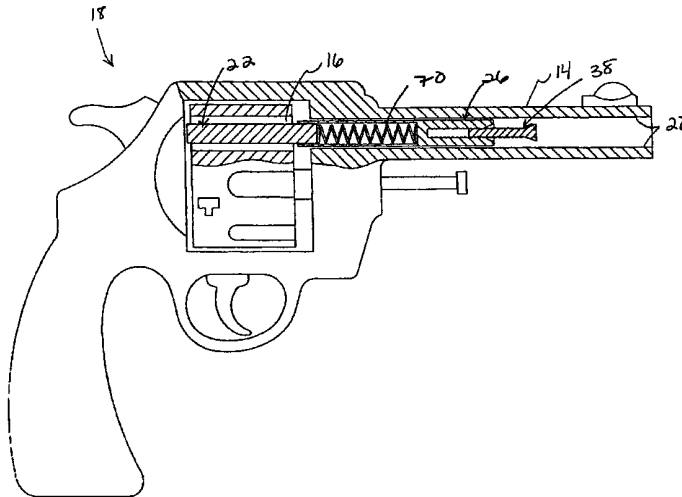
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- (71) Applicant and  
(72) Inventor: AUDINO, Allan, E. [US/US]; 11 Austin Avenue, Apt. C, Smithfield, RI 02828 (US).
- (74) Agents: McLANE, Jodi-Ann et al.; Salter & Michaelson, 321 South Main Street, Providence, RI 02903-7128 (US).
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(54) Title: SAFETY DEVICE FOR FIREARMS



(57) Abstract: A safety device (10) including a locking member (12) which is inserted and locked within the barrel (14) and firing chamber (16) of a firearm (18) to prevent firing of the same is provided. The locking member preferably includes a rod (22) having a leading or first end (24) which is at least partially insertable within the firing chamber of the weapon, and an outer sleeve (26) including a trailing or second end (28) which is expandable in a first direction to produce a tight frictional engagement between the sleeve and the inner wall of the barrel in order to secure the locking member within the firearm. The rod is at least partially insertable within a cavity (32) in a first end (30) of the sleeve (26) such that the overall length of the locking member is adjustable to fit different weapons, for example a revolver and an automatic pistol. The second end (28) of the sleeve (26) preferably includes a pair of slots (34a, b) dividing the sleeve into first and second sections which expand in the first direction within the barrel of the firearm upon insertion of an expansion member (38), such as a wedge or threaded screw, into an opening in the second end of the sleeve. A compression spring (70) is also preferably provided, the spring being disposed within the cavity of the sleeve, between the rod and the sleeve, such that the spring biases the rod longitudinally, i.e., outwardly and away from the sleeve in an uncompressed state. The spring

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allows the overall length of the locking member to be adjusted within the firearm, particularly for extending the length of the locking member into the firing chamber of an automatic pistol upon removal of the magazine. A locking key (46) is also provided for inserting the expansion member into the second end of the sleeve in order to expand the same. In one embodiment, the key is part of a key assembly which includes an engagement member (58) for holding the outer surface of the sleeve to prevent rotation. The engagement member may also be utilized to remove the locking member from within the firearm.

## SAFETY DEVICE FOR FIREARMS

### Description

#### 1. Technical Field

The invention relates generally to a safety device for temporarily disabling a firearm, and more particularly to a safety device which can be utilized with both a revolver and an automatic pistol to disable loading and firing of the same.

#### 2. Background of Related Art

Many people in today's society own firearms, such as handguns and rifles, and keep the firearms in their home. As the popularity of firearms has increased, so too has the number of injuries due to the use of such firearms. In many cases such injuries are caused by the accidental discharge of the firearm by a person not trained to operate the weapon, such as by a child. The need for devices to temporarily lock or secure the firearm so that they become inoperable to unauthorized persons has become an issue of increased importance in view of the number of accidental shootings each year. Numerous devices have been proposed in an attempt to prevent such accidents.

One such device is a firearm safe into which various types of firearms may be placed and locked. Although firearm safes can prevent access to the firearm by an unauthorized person, such devices may also prevent immediate access to the firearm by the firearm owner. For example, if there is a sudden need to obtain the firearm such as during a burglary, it may not be possible to reach the firearm safe in time to access the firearm. Other safety devices have been proposed which temporarily disable firing of the firearm. Such devices include trigger locks and gun locks which prevent firing of the firearm in any number of different ways. Trigger locks prevent access to the trigger to prevent firing of the firearm, but do not prevent loading of the weapon. Gun locks, on the other hand, may prevent both firing and loading of the

1 weapon. Gun locks take many forms, one form being a rod-shaped lock which is  
2 inserted into the barrel and/or firing chamber of the firearm. Examples of such gun  
3 locking devices may be found in U.S. Patent No. 2,478,098 to Hansen, U.S. Patent  
4 No. 3,154,874 to Stewart, U.S. Patent No. 3,360,880 to Finnegan, U.S. Patent No.  
5 5,048,211 to Hepp, U.S. Patent No. 5,138,785 to Paterson, and U.S. Patent No.  
6 5,171,924 to Honey et al., to name a few.

7 Although a number of attempts have been made to design effective locking  
8 devices for firearms, such as the devices described in the aforementioned patents,  
9 previous devices have not always met with success. To be successful a firearm  
10 locking device should prevent the firearm from being both loaded and fired, be easy  
11 for the gun owner to operate while difficult for an unauthorized person to disable, and  
12 should not damage the firearm. The device should also preferably be designed for use  
13 with various style and/or size guns. The safety device should also be inexpensive to  
14 produce and preferably provide an indication if the firearm still has a bullet disposed  
15 therein.

16 Accordingly, it is an object of the present invention to provide a firearm safety  
17 device which is inexpensive to manufacture, easy for the gun owner to operate,  
18 difficult for an unauthorized person (such as a child) to disable, which can be designed  
19 for use with various size and style guns, and which provides an indication if the  
20 firearm still has a bullet disposed in it.

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### Summary

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In accordance with the present invention, there is provided a safety device for temporarily disabling a firearm. The safety device includes a locking member which is inserted and locked within the barrel and firing chamber of a firearm to prevent firing of the same. The locking member preferably includes a rod having a leading or first end which is at least partially insertable within the firing chamber of the weapon, and an expandable outer sleeve including a trailing or second end which is expandable in a first, transverse direction. Expansion of the outer sleeve produces a tight

1 frictional engagement between the sleeve and an inner wall of the barrel in order to  
2 secure the locking member within the firearm. The rod is at least partially insertable  
3 within a first end of the sleeve such that the overall length of the locking member is  
4 adjustable to fit different weapons, for example a revolver and an automatic pistol.  
5 In one embodiment, the first end of the expandable sleeve has a cavity for receiving  
6 the rod therein, and the second end is substantially solid having a pair of elongated  
7 slots extending along a length thereof. The slots allow the second end of the sleeve  
8 to expand in the first direction within the barrel of the firearm upon insertion of an  
9 expansion member, such as a wedge or threaded screw, into an opening in the second  
10 end of the sleeve. A compression spring is also preferably provided, the spring being  
11 disposed within the cavity of the sleeve, between the rod and the sleeve, such that the  
12 spring biases the rod outwardly and away from the sleeve in an uncompressed state.  
13 The spring may be utilized to extend the locking member into the firing chamber of  
14 an automatic pistol upon removal of the magazine, as described in further detail herein  
15 below.

16 A locking key is also preferably provided for inserting the wedge or threaded  
17 screw member into the second end of the sleeve in order to expand the same. In one  
18 embodiment, the key is part of a key assembly which includes an engagement member  
19 for holding the outer surface of the sleeve to prevent rotation, and a locking key for  
20 engaging and inserting the wedge or threaded screw member into the second end of  
21 the sleeve.

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#### **Brief Description of the Drawings**

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It should be understood that the drawings are provided for the purpose of illustration only and are not intended to define the limits of the invention. The foregoing and other objects and advantages of the embodiments described herein will become apparent with reference to the following detailed description when taken in conjunction with the accompanying drawings in which:

1 Fig. 1 is a perspective view of a safety device for temporarily disabling a  
2 firearm according to the present invention;

3 Fig. 2 is a perspective view of the safety device of Fig. 1 with the inner rod  
4 partially inserted within the outer, expandable sleeve;

5 Fig. 3 is a cross-sectional view of the safety device of Fig. 2, taken along lines  
6 3-3;

7 Fig. 4 is a cross sectional, side view of the device of Fig. 1 showing the inner  
8 rod inserted within the first end of the outer sleeve to compress the spring and the  
9 expansion screw partially inserted within the second of the outer sleeve;

10 Fig. 5 is a perspective view of a locking key assembly for use with the safety  
11 device of Fig. 1;

12 Fig. 6 is a perspective view of the locking key in use with the safety device of  
13 Fig. 1;

14 Fig. 7 is a cross-sectional side view of the safety device of Fig. 1 in an  
15 unlocked position within an unloaded revolver;

16 Fig. 8 is a partial cross-sectional side view of the safety device of Fig. 1 in a  
17 locked position within an unloaded revolver;

18 Fig. 9 is a cross-sectional side view of the safety device of Fig. 1 in a locked  
19 position within a loaded automatic pistol having a bullet disposed in the firing  
20 chamber; and

21 Fig. 10 is a cross-sectional side view of the safety device of Fig. 9 in a locked  
22 position within the automatic pistol after removal of the bullet from the firing chamber.

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#### 24 **Detailed Description of the Illustrative Embodiments**

25 A safety device **10** including a locking member **12** which is insertable within a  
26 barrel **14** and firing chamber **16** of a firearm **18** for temporarily disabling the firearm is  
27 illustrated in Figs. 1-10. The locking member **12** is expandable in a first direction so as  
28 to frictionally engage the inner wall **20** of the barrel in order to tightly secure the locking  
29 member within the barrel and firing chamber to prevent firing of the weapon. The

1 locking member preferably includes an inner rod **22** having a leading or first end **24**  
2 which is at least partially insertable within the firing chamber of the weapon, and an  
3 expandable outer sleeve **26** including a trailing or second end **28** which is expandable  
4 in the first, transverse direction ("A") to produce a tight frictional engagement between  
5 the sleeve and the inner wall of the barrel in order to secure the locking member within  
6 the firearm. The locking member is sized according to the caliper of the gun with which  
7 it is to be used. Therefore, the diameter of the locking member at its widest point should  
8 be slightly smaller than the caliper of the weapon for which it is to be used in order for  
9 the locking member to properly fit within the barrel of the firearm without having to be  
10 forced into the barrel, which could cause damage to the weapon. Likewise, the length  
11 of the locking member should be sufficient to allow the locking member to extend at  
12 least partially into both the firing chamber and barrel of the firearm. The locking  
13 member may preferably be fully inserted into the barrel and firing chamber such that it  
14 does not extend outside of the firearm so that an unauthorized person is less likely to be  
15 able to disable the locking member. The locking member is also preferably made of a  
16 non-marring material, or may have a mar resistant coating, so that the locking member  
17 will not scratch or otherwise mar the firearm. Such non-marring materials and mar  
18 resistant coatings are well known to those of skill in the art.

19 The inner rod **22** of the locking member is at least partially insertable within a  
20 first end **30** of the expandable sleeve such that the overall length, "L<sub>0</sub>" of the locking  
21 member is adjustable to fit different weapons, for example a revolver and an automatic  
22 pistol. In the present embodiment, the first end of the expandable sleeve has a cavity  
23 **32** for receiving the rod therein. The rod may be solid or hollow and may have varying  
24 lengths, but the outer diameter should be smaller than the diameter of the cavity of the  
25 sleeve so that the rod fits within sleeve. The second end **28** of the outer sleeve may  
26 preferably be substantially solid and includes a pair of elongated slots **34a, b** disposed  
27 through the sleeve on opposite sides thereof. The elongated slots extend along a portion  
28 of the length of the sleeve to divide the second end of the sleeve into first and second

1 sections **36a, b**. The sections **346, b** expand in the first direction within the barrel of the  
2 firearm upon insertion of an expansion member **38** (such as a wedge or threaded screw  
3 member) into an opening **44** in the second end, as described below. In the present  
4 embodiment, the expansion member **38** is a threaded screw member received within a  
5 corresponding threaded bore **42** disposed in the second end **28** of the sleeve and  
6 including a tapered or wedge-like head portion **40** which is received within a  
7 corresponding tapered opening **44**. Inserting the threaded end of the screw into the  
8 corresponding threaded bore and turning the screw until the head portion **40** enters the  
9 tapered opening forces the first and second sections **36a, b** of the second end of the  
10 sleeve apart until the sleeve frictionally engages the inner surface of the barrel to secure  
11 the locking member therein.

12 A locking key **46** is preferably provided for engaging the head portion **40** of the  
13 expansion member **38** and for inserting the same into the opening in the second end of  
14 the sleeve in order to expand the sleeve. In the present embodiment, the locking key  
15 includes a handle **48** for turning the key, a shaft **50** extending from the handle, and a pair  
16 of pins **52a, b** extending from a base **54** of the key. The pins are insertable into  
17 corresponding apertures **56a, b** formed in the head portion of the expansion member in  
18 order to turn the same. Other style keys and apertures may readily be utilized as would  
19 be known to one of skill in the art, although the key is preferably specially keyed so that  
20 only the locking key will work with the expansion member and not a screwdriver or  
21 other device. The locking key **46** may preferably be formed as part of a key assembly  
22 including an engagement member **58** for holding the outer surface of the sleeve to  
23 prevent rotation of the sleeve as the expansion member is inserted into the second end  
24 of the sleeve. As shown in Figs. 5-6, the engagement member **58** may include a first and  
25 a second leg **60a, b** connected by a bridge **62** which includes a hole **64** disposed therein  
26 for receipt of the shaft of the key therethrough. The legs **60a, b** are preferably sized to  
27 fit within elongated slots **34a, b** and may each include a protrusion **66a, b** extending  
28 from a first end thereof for insertion into a corresponding portion **68a, b** of the slots in



1 order to allow the engagement member to firmly grip the sleeve to prevent rotation  
2 thereof. The engagement member **58** may also be utilized when unlocking the device,  
3 and can be used to remove the locking member from within the firearm, as described  
4 below.

5 Referring now to Figs. 1-4, a compression spring **70** may also preferably be  
6 provided within the cavity **32** of the sleeve, between the rod and the sleeve, such that the  
7 spring biases the rod outwardly and away from the sleeve in an uncompressed state. The  
8 spring **70** allows the overall length of the locking member to be adjusted before or after  
9 insertion into the weapon. For example, the overall length of the locking member may  
10 be decreased by pushing the sleeve against the biasing force of the spring and then  
11 expanding the sleeve to lock the device in place within the weapon. This is  
12 advantageous as it allows the locking member to adjust to firearms having barrels of  
13 various lengths after insertion into the firearm. The spring may also extend the overall  
14 length of the locking member, for example by extending the locking member into the  
15 firing chamber of an automatic pistol upon removal of the magazine, as described in  
16 further detail herein below. Use of the safety device for temporarily disabling a firearm  
17 will now be described with reference to the figures.

18 In use, the firearm is first unloaded by a user such that no bullets should remain  
19 in the weapon. Unloading of the weapon should be performed in accordance with the  
20 manufacturer's instructions for the particular weapon. Once unloaded, the user selects  
21 an appropriately sized locking member according to the caliper of the weapon. The  
22 user then inserts the locking member, including the rod, compression spring and  
23 expandable sleeve (as described above), into the barrel and firing chamber of the  
24 firearm. In a conventional revolver having a revolving, bullet-receiving cylinder  
25 containing a plurality of separate chambers (Figs. 7-8), the locking member should be  
26 of sufficient length to be inserted within the barrel **14** and into the empty firing chamber  
27 **16** aligned with the barrel of the gun. If there are any bullets in either the firing chamber  
28 or the barrel, the locking member will not properly extend into both the chamber and the  
29 barrel such that the device will not lock the firearm. Upon trying to insert the locking

1 member and discovering the presence of a bullet, the user would remove the locking  
2 member and bullet and then re-insert the locking member.

3 In a conventional automatic pistol having a magazine for automatically loading  
4 bullets into the firing chamber (Figs. 9-10), the locking member is likewise inserted into  
5 both the barrel and chamber of weapon. However, with an automatic, the locking  
6 member may be inserted into the barrel of the pistol while the pistol is loaded, i.e. when  
7 a magazine 71 is in place and a bullet 73 is in the firing chamber, the inner rod of the  
8 locking member being spring biased into the firing chamber upon removal of the bullet  
9 from the firing chamber. For example, the locking member may be inserted into the  
10 barrel of the automatic as shown in Fig. 9, with the rod being compressed against the  
11 force of the biasing spring by bullet 73 disposed in the firing chamber. The locking  
12 member is then secured within the weapon by inserting the expansion member into the  
13 second end of the sleeve in order to expand the same such that a tight frictional  
14 engagement is formed between the sleeve and the inner surface of the barrel, as  
15 described above. Upon removal of the magazine and bullet from within the firing  
16 chamber, the compression spring will bias the rod in the direction of arrow "B" in order  
17 to move the same into the empty firing chamber as shown in Fig. 10. If a magazine is  
18 now inserted into the weapon, the bullets will be prevented from entering the firing  
19 chamber by the extended rod, thus preventing loading of the weapon.

20 In either a revolver or an automatic pistol, the locking member is secured within  
21 the weapon by inserting and securing the expansion member into the opening in the  
22 second end with the key assembly . As shown in Figs. 6 and 8, the first and second legs  
23 of the engagement member are inserted within the elongated slots of the sleeve (either  
24 before or after insertion into the barrel of the weapon) in order to firmly grip the sleeve  
25 and prevent rotation thereof. The elongated key is then inserted into the barrel of the  
26 firearm until the specially keyed portion, i.e. prongs in the present embodiment, engage  
27 the corresponding openings in the expansion member. The user then grasps the handle  
28 of the key and turns the same (for example in a clockwise direction) in order to mate the  
29 threaded portion of the expansion member with the threaded bore of the sleeve. Upon

1 continued turning of the key the wedge-shaped head portion of the expansion member  
2 is received within the corresponding tapered opening of the sleeve. Inserting the  
3 threaded end of the screw into the corresponding threaded bore and turning the screw  
4 until the head portion enters the tapered opening forces the first and second sections of  
5 the second end of the sleeve apart until the sleeve frictionally engages the inner surface  
6 of the barrel to secure the locking member therein. Once secured within the firearm, the  
7 locking member temporarily disables the firearm, preventing both firing and loading of  
8 the weapon.

9 In order to remove the locking member, the user may re-insert the first and  
10 second legs of the engagement member within the corresponding slots in the sleeve,  
11 although only the key need be inserted to unlock the device. The user then inserts the  
12 prongs of the key into the corresponding openings in the expansion member and turns  
13 the key in an opposite direction (for example counter clock wise) in order to remove the  
14 head portion from within the tapered opening. Once the head portion is removed from  
15 within the tapered opening, the force applied to the second end of the sleeve by the  
16 expansion member is relieved, thus allowing the first and second sections of the sleeve  
17 to return to their initial, unexpanded configuration. The locking member may now be  
18 readily removed from the firearm. The user can grasp the engagement member in order  
19 to remove the locking member from within the firearm or the user can simply tip the  
20 weapon so that the locking member slides out from within the firearm.

21 It will be understood that various modifications may be made to the embodiment  
22 disclosed herein. For example, the device may be made from a variety of materials and  
23 in varying dimensions, depending upon the style and caliper of the firearm. In addition,  
24 the device may find use in other style firearms other than revolvers and automatic  
25 pistols as described above. Also, the outer sleeve may be expandable in alternate ways,  
26 other than by the provisions of slots and an expanding member. Finally, the key utilized  
27 to lock the device may take other forms other than having a pair of pins. Therefore, the  
28 above description should not be construed as limiting, but merely as exemplifications

1 of a preferred embodiment. Those skilled in the art will envision other modifications  
2 within the scope spirit of the invention.

CLAIMS

- 1        1.        A safety device for temporarily disabling a firearm comprising:  
2                a locking member configured and dimensioned to fit within a barrel and firing  
3 chamber of the firearm, the locking member having an adjustable length and including  
4                a) an outer sleeve configured and dimensioned to be at least partially  
5 insertable within the barrel of the firearm and including a first end having a cavity  
6 formed therein and a second end expandable in a first direction and including an  
7 opening therein;  
8                b) an inner rod having a first end configured and dimensioned to be at  
9 least partially insertable within the firing chamber and a second end configured and  
10 dimensioned to be at least partially insertable within the cavity of the outer sleeve;  
11                c) a spring configured and dimensioned to be at least partially insertable  
12 within the cavity of the outer sleeve, between the second end of the inner rod and the  
13 outer sleeve so as to bias the inner rod in an outward direction;  
14                d) an expansion member configured and dimensioned to be received  
15 within the opening in the second end of the sleeve; and  
16                wherein the length of the locking member can be adjusted by moving the rod and  
17 sleeve relative to each other against the biasing force of the spring and wherein insertion  
18 of the expansion member within the opening in the sleeve expands the second end of the  
19 sleeve in a first direction until the sleeve frictionally engages an inner surface of the  
20 barrel so as to secure the locking member therein such that the firearm cannot be loaded  
21 or fired.
- 1        2.        The safety device of claim 1, wherein the locking member further comprises at  
2 least a pair of longitudinally extending slots disposed in the second end of the outer  
3 sleeve, the slots dividing the second end of the sleeve into a first section and a second  
4 section, the first and second sections being expandable in the first direction transverse

5 to the longitudinally extending slots upon insertion of the expansion member into the  
6 opening in the second end of the sleeve.

1 3. The safety device of claim 2, further comprising a locking key including a handle  
2 portion, a shaft extending from the handle, and a base including a specially keyed  
3 member configured and arranged to be inserted into a corresponding aperture in the  
4 expansion member in order to turn the same.

1 4. The safety device of claim 3, wherein the specially keyed member includes at  
2 least one pin insertable into the corresponding aperture formed in a head portion of the  
3 expansion member.

1 5. The safety device of claim 3, further comprising an engagement member  
2 configured and arranged to engage the sleeve so as to grip the sleeve and prevent  
3 rotation thereof as the expansion member is inserted into the opening in the second end  
4 of the sleeve.

1 6. The safety device of claim 5, wherein the engagement member includes a first  
2 leg and a second leg configured and dimensioned to fit within the first and second  
3 elongated slots, the first and second legs being connected by a bridge having an opening  
4 disposed therein for receipt of the shaft of the key therethrough.

1 7. The safety device of claim 1, wherein the expansion member includes a wedge-  
2 shaped head portion and wherein the opening in the second end of the sleeve is tapered  
3 for receipt of the wedge-shaped head portion.

1 8. The safety device of claim 7, wherein the expansion member is a screw  
2 including a threaded portion and wherein the second end of the sleeve further includes  
3 a threaded bore disposed therein.

1 9. The safety device of claim 1, in combination with a revolver having a revolving,  
2 bullet-receiving cylinder containing a plurality of separate chambers, the locking  
3 member being insertable within a chamber aligned with the barrel of the gun.

1 10. The safety device of claim 1, in combination with an automatic pistol having a  
2 magazine for automatically loading bullets into the firing chamber, the locking member  
3 being insertable into the pistol when a bullet is in the firing chamber such that the inner  
4 rod contacts the bullet, the inner rod of the locking member being biased by the spring  
5 into the firing chamber upon removal of the bullet from the firing chamber.

1 11. A method for temporarily disabling a firearm comprising:  
2 inserting a locking member including an outer sleeve having a first end with a  
3 cavity formed therein, a second end expandable in a first direction, and an opening in  
4 the second end; an inner rod having a second end at least partially disposed within the  
5 cavity of the outer sleeve; and a compression spring disposed within the cavity of the  
6 outer sleeve between the second end of the inner rod and the outer sleeve into the barrel  
7 of a firearm;  
8 adjusting the length of the locking member by moving the rod and sleeve relative  
9 to each other against a biasing force of the spring; and  
10 inserting an expansion member within the opening in the second end of the  
11 sleeve so as to expand the second end of the sleeve in a first direction until the sleeve  
12 frictionally engages an inner surface of the barrel to secure the locking member therein  
13 such that the firearm cannot be loaded or fired.

1 12. The method of claim 11, further comprising the step of inserting a keyed  
2 member into a corresponding aperture in the expansion member in order to turn the  
3 same.

1 13. The method of claim 12, further comprising the step of gripping the sleeve with  
2 an engagement member to prevent rotation of the sleeve as the expansion member is  
3 inserted into the opening in the second end of the sleeve.

1 14. The method of claim 11, further comprising the step of inserting the locking  
2 member into the barrel of an automatic pistol when a bullet is in the firing chamber such  
3 that the inner rod contacts one end of the bullet and is biased against the force of the  
4 compression spring.

1 15. The method of claim 14, further comprising the step of removing the bullet from  
2 within the firing chamber, wherein the inner rod of the locking member is biased by the  
3 spring into the firing chamber upon removal of the bullet from the firing chamber.

1 16. The method of claim 11, further comprising the step of inserting a first end of  
2 the rod into a firing chamber of the firearm.

1 17. The method of claim 11, further comprising the step removing the expansion  
2 member from within the second end of the sleeve, thus allowing the second end of the  
3 sleeve to return to an unexpanded configuration for removal of the locking member  
4 from the firearm.

1 18. A safety device for temporarily disabling a firearm comprising:  
2 a locking member configured and dimensioned to fit within a barrel and firing  
3 chamber of the firearm, the locking member having an adjustable length and including  
4 a) an outer sleeve configured and dimensioned to be at least partially  
5 insertable within the barrel of the firearm and including a first end having a cavity  
6 formed therein, and a second end including a tapered opening therein and having a pair  
7 of longitudinally extending slots dividing the second end of the sleeve into a first section  
8 and a second section which are expandable in a first, transverse direction;



9                   b) an inner rod having a first end configured and dimensioned to be at  
10 least partially insertable within the firing chamber and a second end configured and  
11 dimensioned to be at least partially insertable within the cavity of the outer sleeve;

12                   c) a spring configured and dimensioned to be at least partially insertable  
13 within the cavity of the outer sleeve, between the second end of the inner rod and the  
14 outer sleeve, so as to bias the inner rod in an outward direction;

15                   d) an expansion member having a wedge-shaped head portion  
16 configured and dimensioned to be received within the tapered opening in the second end  
17 of the sleeve and having an aperture formed therein; and

18                   a locking key including a handle portion, a shaft extending from the handle, and  
19 a base including a specially keyed member configured and arranged to be inserted into  
20 the corresponding aperture in the expansion member in order to turn the same; and

21                   wherein the length of the locking member can be adjusted by moving the rod and  
22 sleeve relative to each other against the biasing force of the spring and wherein insertion  
23 of the expansion member within the opening in the sleeve expands the first and second  
24 sections of the sleeve in the first direction until the sleeve frictionally engages an inner  
25 surface of the barrel so as to secure the locking member therein such that the firearm  
26 cannot be loaded or fired.

1     19.     The safety device of claim 18, further comprising an engagement member  
2 configured and arranged to engage the sleeve so as to grip the sleeve and prevent  
3 rotation thereof as the expansion member is inserted into the opening in the second end  
4 of the sleeve.

1     20.     The safety device of claim 19, wherein the engagement member includes a first  
2 leg and a second leg configured and dimensioned to fit within the first and second  
3 elongated slots, the first and second legs being connected by a bridge having an opening  
4 disposed therein for receipt of the shaft of the key therethrough.

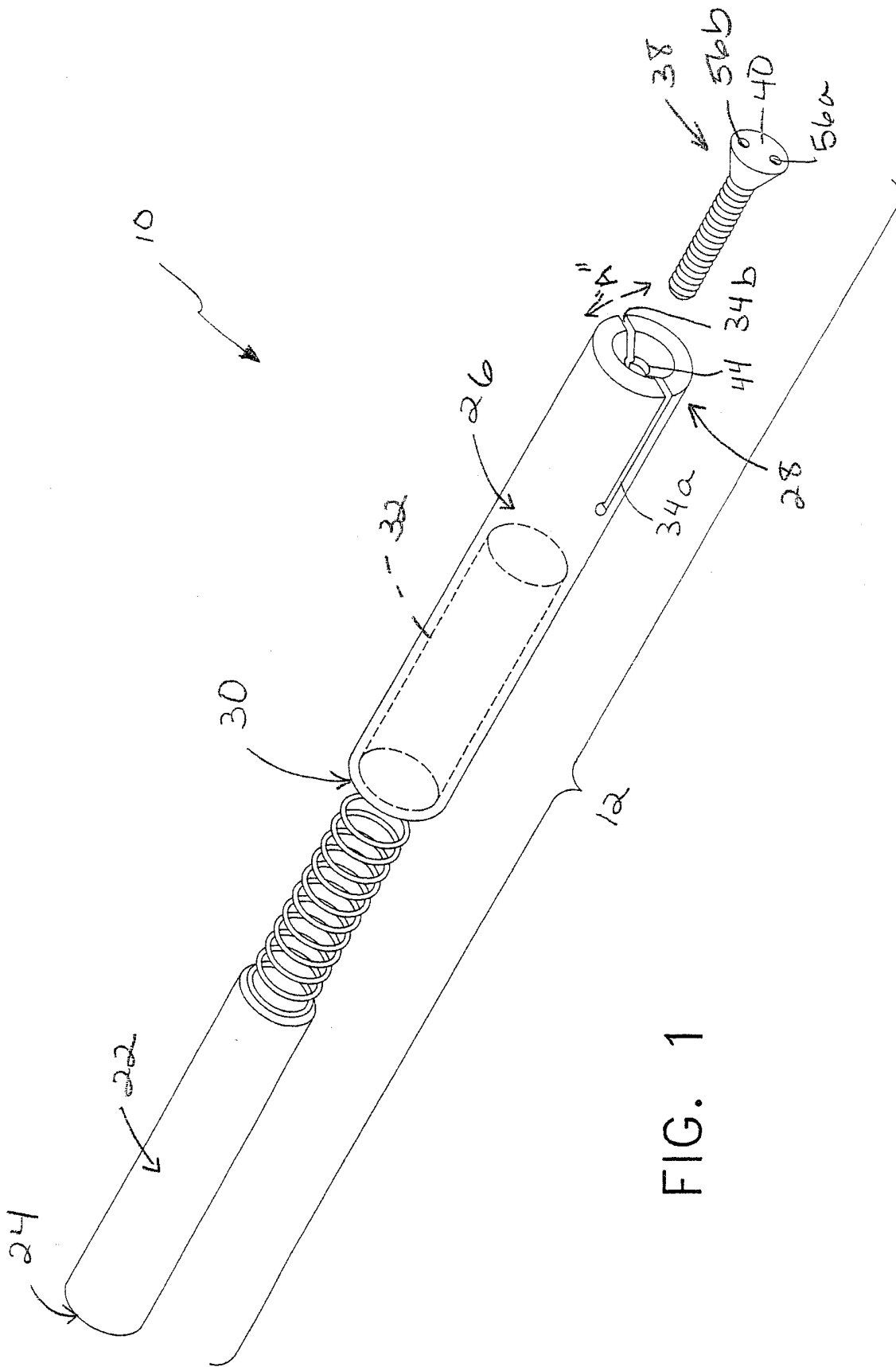


FIG. 1

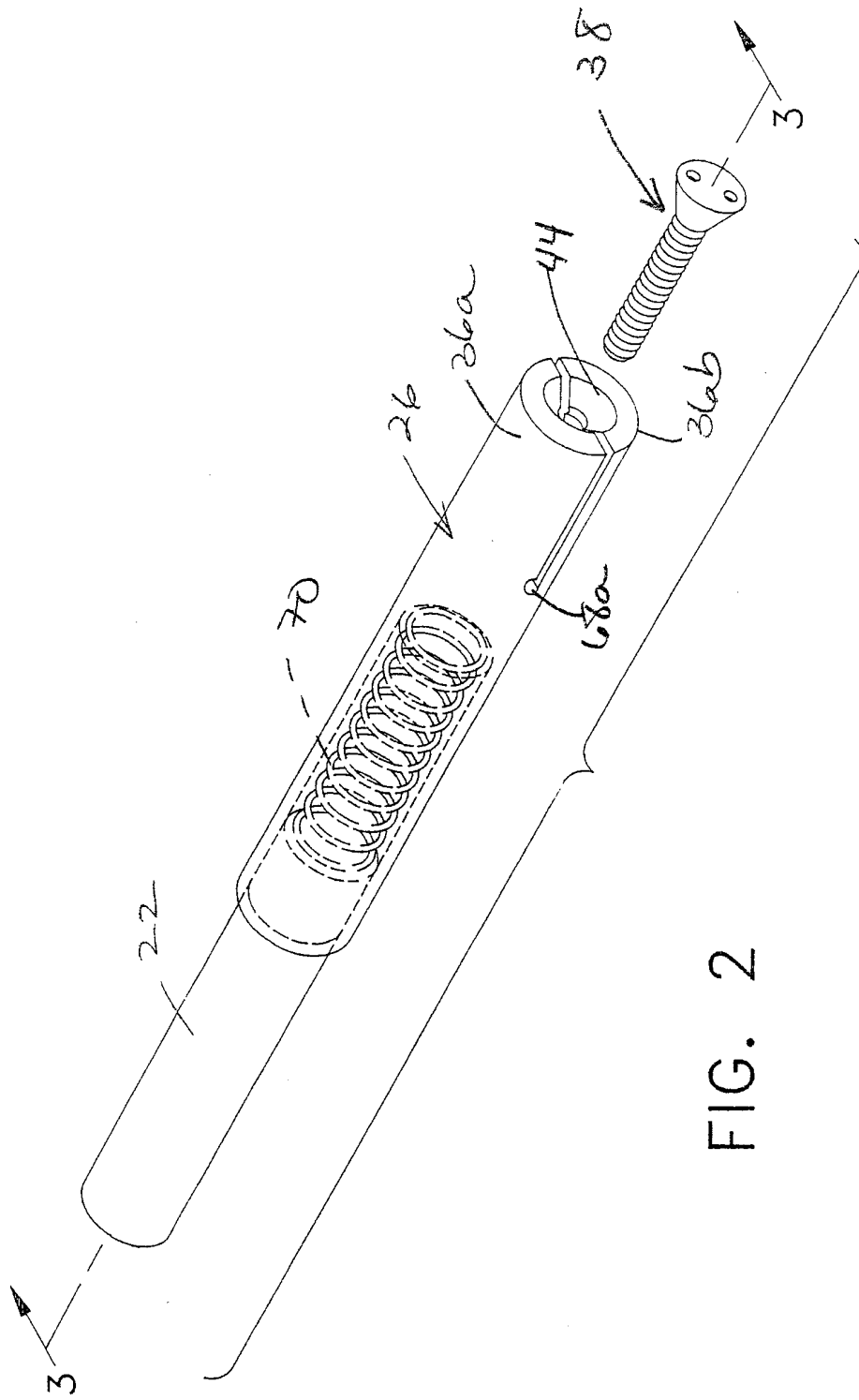


FIG. 2

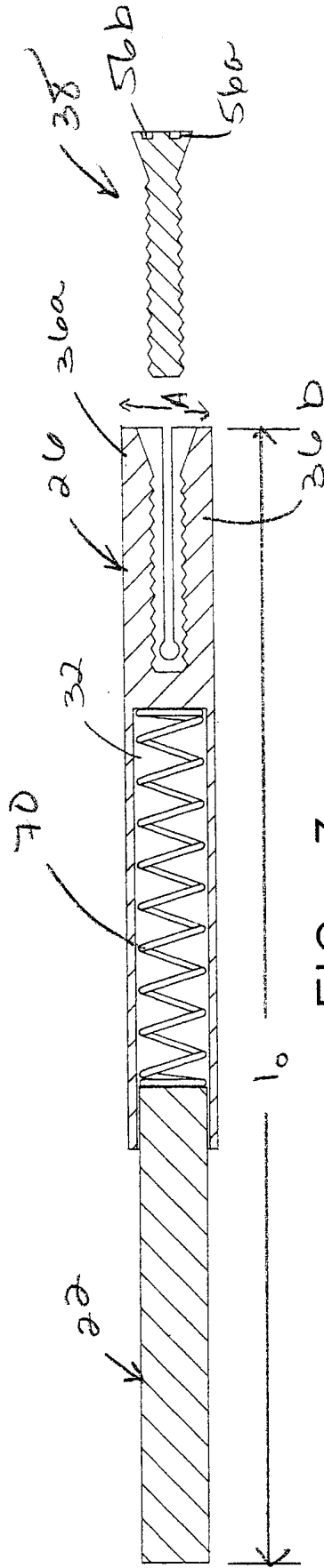


FIG. 3

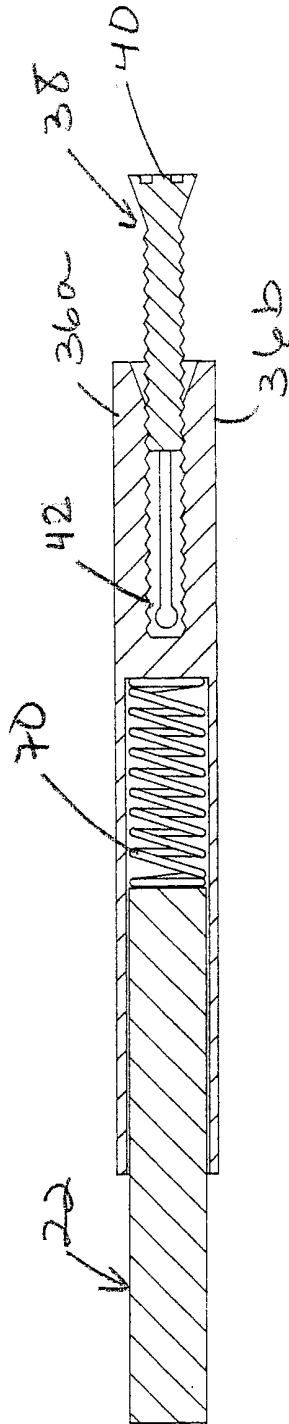


FIG. 4

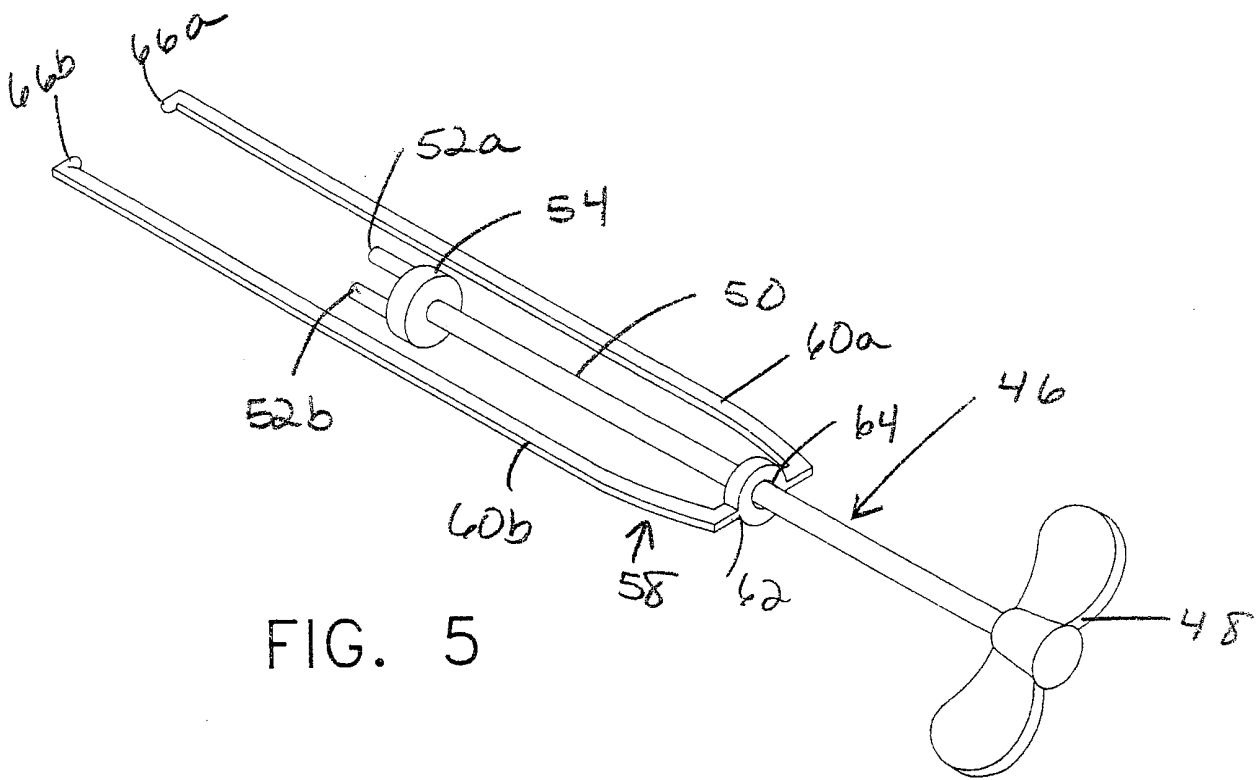


FIG. 5

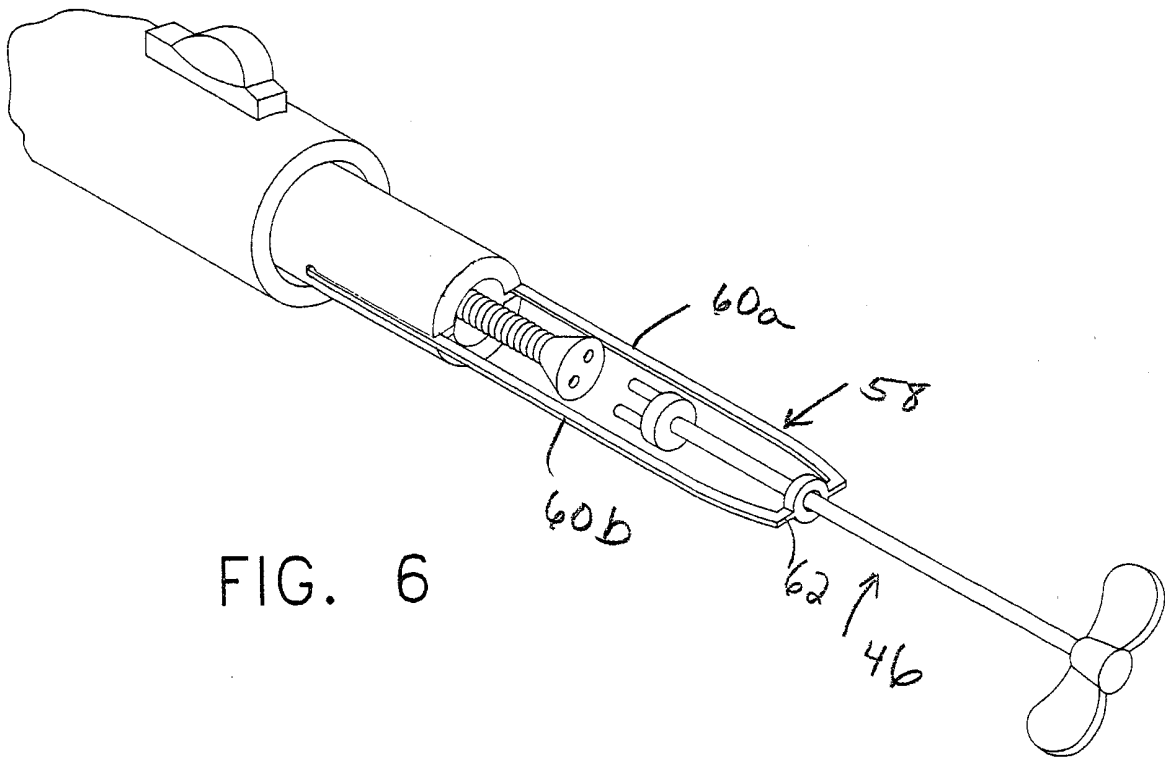
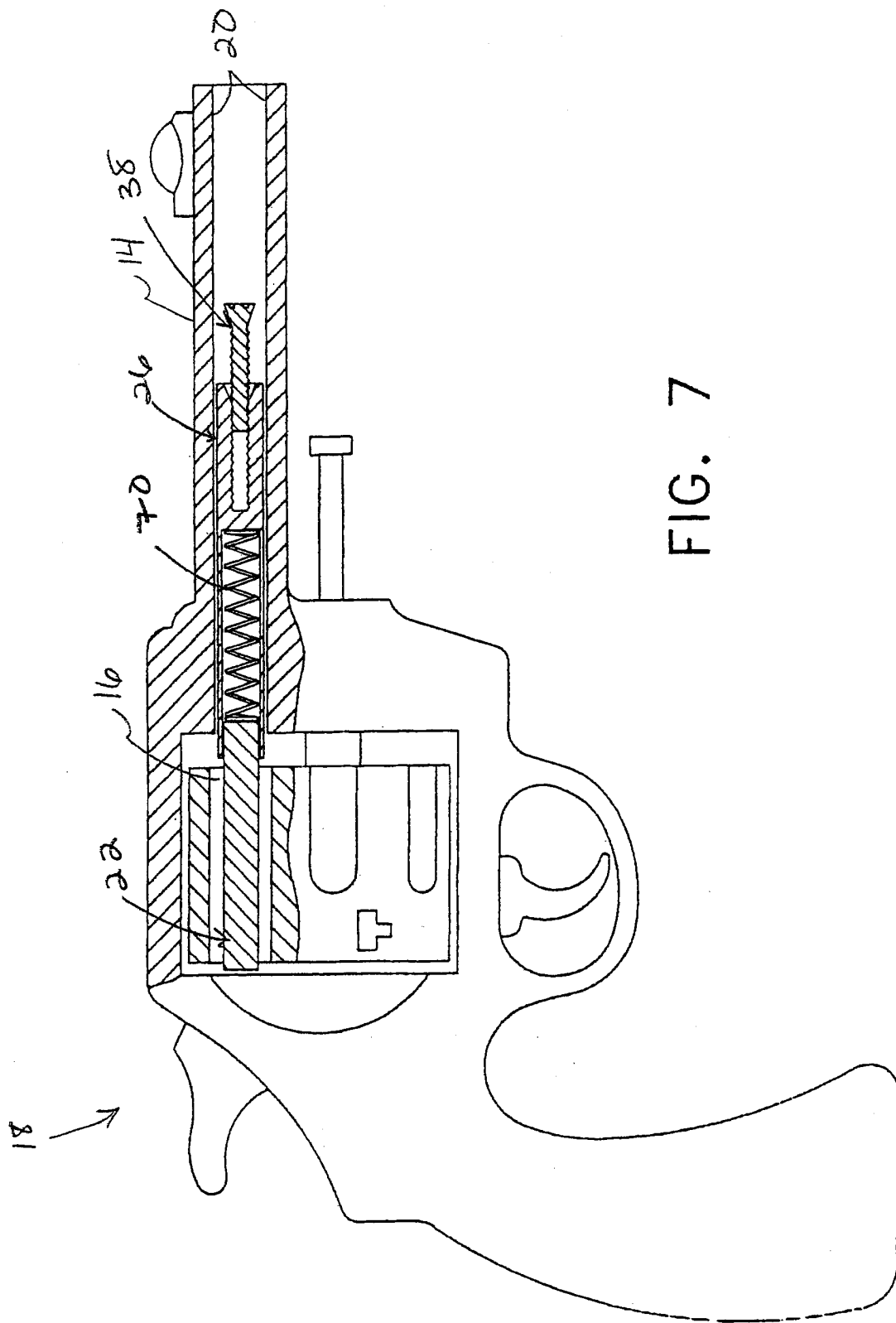


FIG. 6



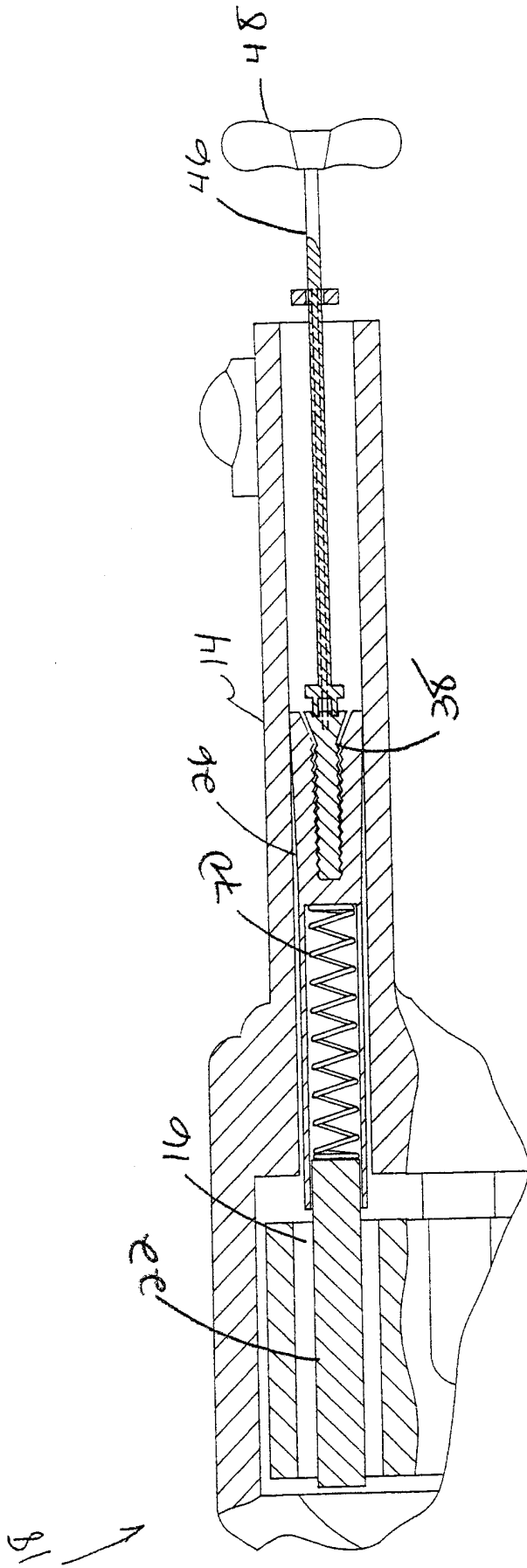


FIG. 8

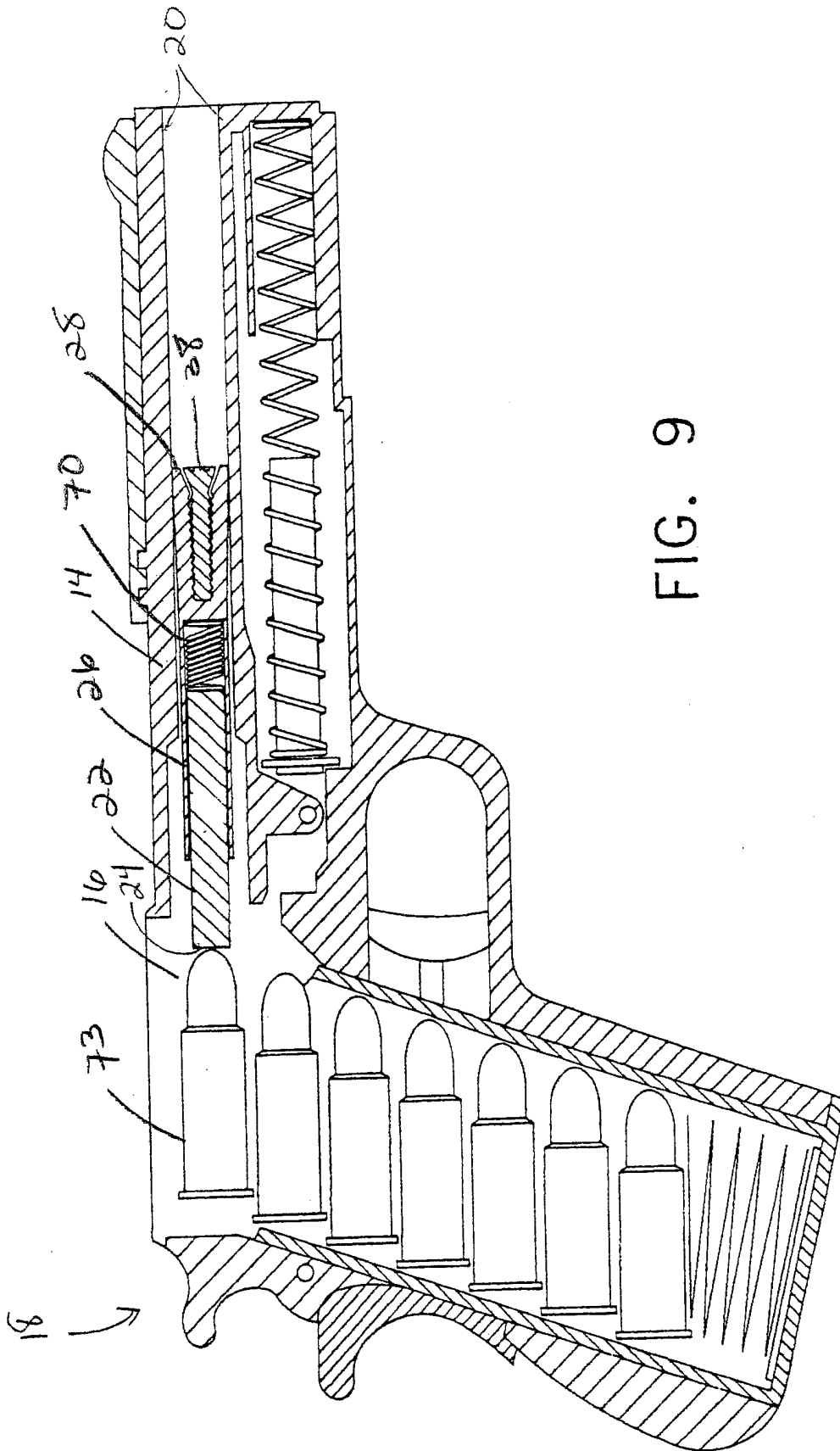


FIG. 9



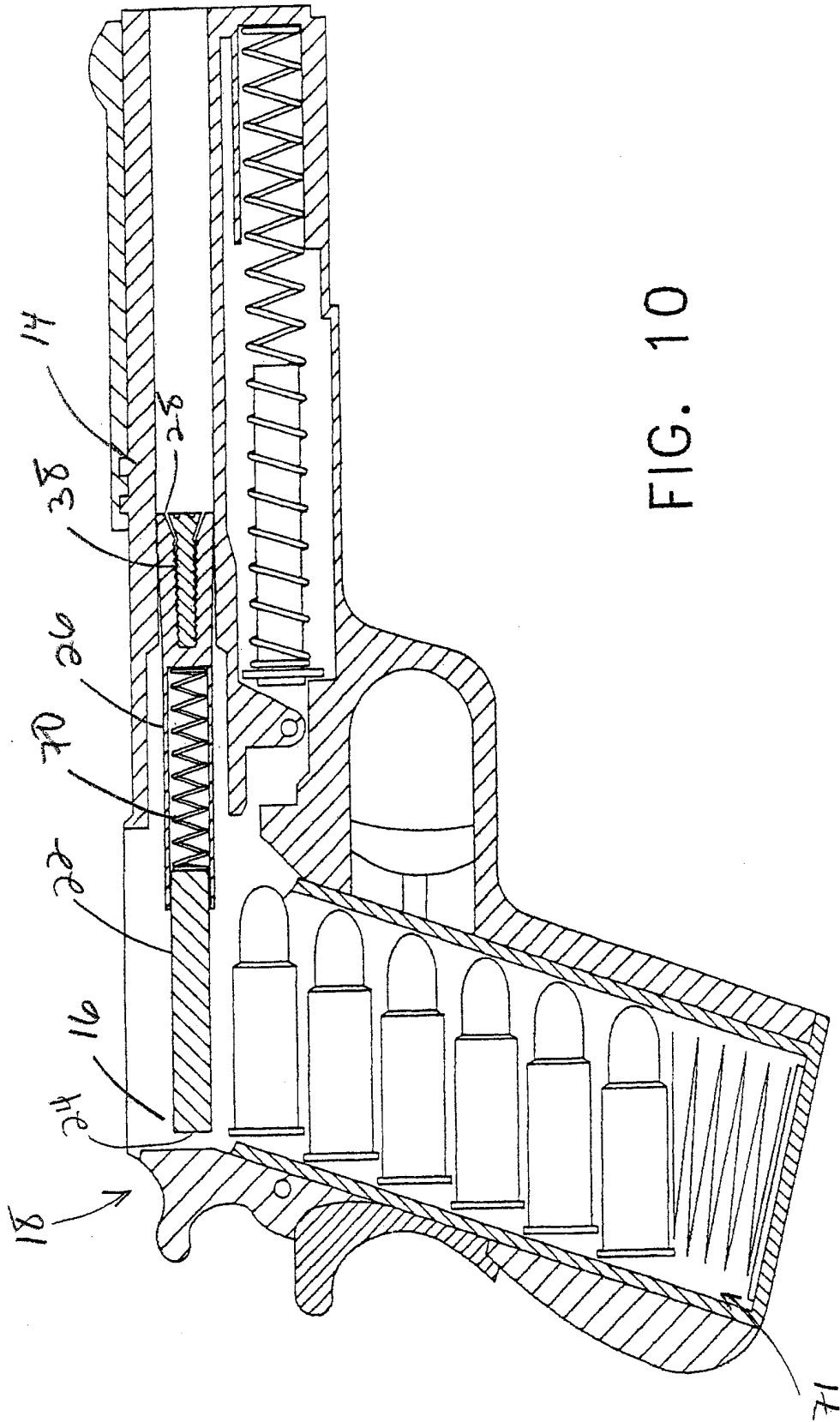


FIG. 10

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/14377

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC(7) : F 41 A 17/00  
 US CL : 42/70.11  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**  
 Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 42/70.11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 42/94

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 EAST

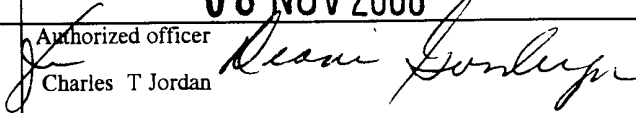
**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5664358 A (HABER ET AL.) 09 September 1997(09.09.1997), Figure 1	1,2,7,10,11,14,16,17
X	US 5171924 A (HONEY ET AL.) 15 December 1992 (15.12.1992), Figure 1,2,8a, and 8b	1,2,7,9-11,15,-17
X	US 3154874 A (STEWART) 3 November 1964 (03.11.1964), Figure 7	1-5, 7, 10-14, 16-19
Y	US 2836918 A ( PULA ET AL.) 03 June 1958 (03.06.1958)	8

Further documents are listed in the continuation of Box C.       See patent family annex.

* Special categories of cited documents:	Symbol
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 09 August 2000 (09.08.2000)	Date of mailing of the international search report <b>08 NOV 2000</b>
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer  Charles T Jordan Telephone No. 703-306-4180
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