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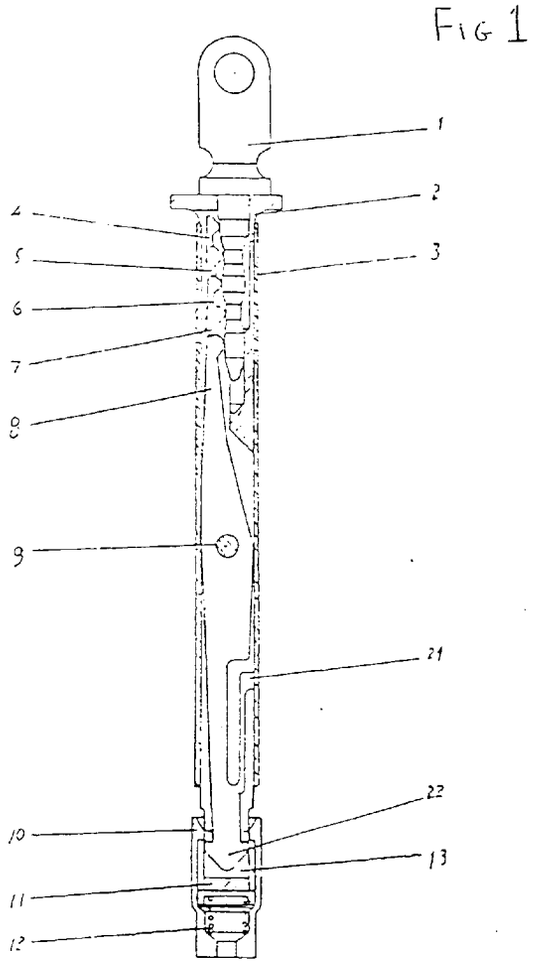
(54) Gun bore lock.

(57) This invention relates to a lock for special use, especially for handgun. It can overcome the problems of the chain lock conventionally used for locking the handgun bore, i.e. because the lock is exposed to the outside of the handgun it is easy to be discovered. Therefore, its safety is poor. In addition, it is difficult to put the locked handgun into the holster. The present invention is embodied by inserting the locking bar into the rifle of the barrel until the tip of the locking bar is clicked into the lock anchor catch pedestals of the lock housing hole which is located in the chamber so as to make the barrel locked. Because the lock is concealed in the barrel and only a coin-sized muzzle cover is exposed to the outside of the handgun, the lock may not be destroyed by hacksaw, file and other means, so the safety has been strengthened. The said lock can be made according to different standards and may meet the needs of various handguns.

FIG 1



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This invention relates to a lock for a special use, as it is especially designed for a gun.

It is known that trigger locks and chain locks can be used for locking the firing mechanism of guns. One problem with these types of locks is that their safety is poor. Because these locks are exposed on the outside of the gun after they have been locked, it is easy for someone to discover the lock. Consequently, it is easy to destroy the lock with a hacksaw, file or cutting pliers. In addition, in the case of a handgun it is difficult to put the handgun into a holster if it has an outside lock.

The present invention overcomes problems encountered in the conventional practice by providing a lock which is concealed in the barrel or bore of a gun. These problems have been solved because the only part of the lock that is exposed on the outside of the gun is a top cover which is about the size of a coin that covers the muzzle of the barrel or bore.

The object of the present invention has been accomplished in a preferred form in a device called a gun bore lock which basically has a lock housing, a locking bar and a lock key for locking the lock bar. The gun bore lock is used by inserting a cylindrical shaped lock housing into the cartridge or bullet chamber of a gun. The size and shape of the lock housing is similar to that of the cartridge or bullet chamber of the gun. The locking bar is then inserted into the barrel of the gun until the tip catches of the lock anchors on the locking bar are clicked into place on a projection on the interior of the lock housing. The locking bar has a locking bar casing, both of which are cylindrical in shape, with the outer diameter of the casing matching (but somewhat smaller) than the internal diameter of the bore of the gun. The top end of the locking bar has a top cover and the locking bar has a bottom end which is designed to be placed inside the lock housing. The lock anchors are affixed inside a hole in the locking bar for receiving the lock anchors. Each of the lock anchors includes a top part with a projection on the top, a lock shaft hole, a lock spring and tip catches. Projections or slots corresponding to the respective projections on the top of the lock anchors and set up on the lock key. The center of the keyhole of the locking bar is offset approximately 0.9mm from the center longitudinal line of the locking bar. The tip catches of the locking anchors are designed to click into a locked position on a projection on the interior of the lock housing. This projection is located on the top portion of the interior of the lock housing. The lock housing spring with a cap for the spring can be located in the bottom of the internal hole of the lock housing if desired. The gun bore lock of this invention is held in place in the barrel of the gun by the tip catches on the lock anchors being engaged with the projection on the interior of the lock housing when the locking bar with casing is inserted into the barrel or bore of the gun after the lock housing has been inserted into the cartridge chamber of the gun. The springs on the lock anchor force the tip catches into engagement with the projection on the interior of the lock housing. Only when the lock key has been inserted in proper orientation into the key hole in the locking bar are the tip catches of the lock anchors moved to the center of the hole in the locking bar can the locking bar and the its casing be pulled out of the barrel of the gun. It is then necessary to remove the lock housing from the cartridge chamber. Because none of the locking mechanism of the gun bore lock is exposed on the outside of the gun the safety of the lock gun has been greatly strengthened and the object of this invention achieved.

Brief Description of the Drawings of the Preferred Embodiment

For a better understanding of the present invention reference made is the following drawings of a preferred embodiment.

Fig. 1 is a side view, which is sectional in part, of the gun bore lock of this invention showing the lock key inserted into the key hole in the locking bar.

Fig. 2 is a side view of the key lock of this invention.

Fig. 3 is a cross sectional view of the locking bar shown in Fig. 1 taken near the middle of the locking bar.

Fig. 4 is a cross sectional view of Fig. 2 taken along line A-A.

Fig. 5 is a front view of a central lock anchor of this invention.

Fig. 6 is a side view of a central lock anchor of Fig. 5.

Fig. 7 is a front view of either the left or right side top lock anchor of this invention.

Fig. 8 is a side view of either the left or right side top lock anchor of Fig. 7.

Fig. 9 is a front view of either the right or left side bottom lock anchor of the present invention.

Fig. 10 is a side view of either the right or left side bottom lock anchor of Fig. 9.

Fig. 11 is a longitudinal view of the lock shaft of this invention.

Fig. 12 is a longitudinal cross sectional view of the lock housing of this invention.

Fig. 13 is a longitudinal schematic view showing the top and bottom portions of the lock housing spring of this invention.

Fig. 14 is a schematic sketch of the top view of the lock housing spring cap.

Fig. 15 is a cross sectional view of the lock housing spring cap of Fig. 14.

Fig. 16 is a longitudinal cross sectional view of the locking bar casing of this invention.

Fig. 17 is a front view with some parts shown in cross section of the locking bar of this invention.

Fig. 18 is a side cross sectional view of the locking bar of this invention without the lock anchors, key or lock shaft in place.

Fig. 19 is a cross sectional view of Fig. 18 taken along line B-B showing a guide in place to ensure the proper orientation of the key upon its insertion into the lock.

Detailed Description of the Preferred Embodiments

The following numbers in the drawings indicate the following parts of the gun bore lock:

1 lock key of the gun bore lock; **2** locking bar; **3** locking bar casing; **4** left side top lock anchor; **5** right side top lock anchor; **6** left side bottom lock anchor; **7** right side bottom lock anchor; **8** a central lock anchor; **9** lock shaft; **10** lock housing; **11** lock housing spring cap; **12** lock housing spring; **13** internal hole in the bottom end of the locking bar; **14** key projection for the left side top lock anchor; **15** key slot for the right side top lock anchor; **16** key projection for the left side bottom lock anchor; **17** key slot for the right side bottom lock anchor; **18** key slot for a central lock anchor; **19** projection on the top of a lock anchor; **20** lock shaft hole in a lock anchor; **21** spring on a lock anchor; **22** tip catches on a lock anchor; **23** projection on the interior of the lock housing for holding the tip catches of the lock anchors; **24** internal hole of a lock housing; **25** a lock housing receptacle for the lock housing spring; **26** key hole in the locking bar; **27** top cover for locking bar; **28** lock shaft hole in the locking bar; **29** locking bar hole for receiving lock anchors; **30** bottom end of locking bar.

As shown in the drawings, the gun bore lock consists of a lock housing **10**, a locking bar **2** and a lock key **1**. The gun bore or barrel is locked by first putting the cylindrical lock housing **10** into the bullet or cartridge chamber of the gun. The lock housing **10** is similar in size and shape to the bullet or cartridge chamber of the gun. Indeed it is preferred to make the lock housing very similar in size and shape to the cartridge or bullet for this gun.

The locking bar casing **3** is placed over the locking bar **2** as both the locking bar **2** and the locking bar casing **3** are cylindrical in shape. The outer diameter of the locking bar casing matches, but is slightly smaller, the internal diameter of the barrel or bore of the gun. The top end of the locking bar has a locking bar cover **27** which is pushed against the end (i.e. muzzle) of the bore or barrel of the gun. The bottom end of the locking bar **30** is pushed into the lock housing **10**. In assembling the locking bar **2** the lock anchors are placed in the locking bar hole **29** for receiving the lock anchors. Each lock anchors includes a projection **19** on the top of the lock anchor, a lock shaft hole **20**, a spring lock anchor **21**, and tip catches **22** on the bottom

A lock shaft hole **20** is provided at corresponding locations in each lock anchor to correspond with lock shaft hole **28** in the locking bar **2**.

The center longitudinal line of key hole **26** is preferably offset about 0.9 mm from a center line of the locking bar **2** in order to interrelate directly with the locking mechanism of the gun bore lock. The projections **19** on the top of the lock anchors correspond with the respective projections **14**, **15**, **16**, **17**, and **18** of the key in such a way that the gun bore lock can be unlocked when the key is inserted properly into the key hole.

The projection **23** on the interior of the lock housing **10** is designed for holding the tip catches **22** of the lock anchors to lock the locking bar **2**. The projection **23** is preferably set up at the upper part of the internal hole **24** in the lock housing. The anchor tip catches **22** are designed to engage projection **23** when the locking bar **2** is locked.

In order to facilitate removing locking bar **2** when it is unlocked, a lock housing spring **12** and the lock housing spring cap **11** may be placed in the lower part of the internal hole **24** of the lock housing **10**. This feature is not essential for the gun bore lock to operate in a satisfactory fashion and may be omitted.

As shown in the drawings, the lock anchor mechanism consists of five anchors, namely a left side top lock anchor **4**, a right side top lock anchor **5**, a left side bottom lock anchor **6**, a right side bottom lock anchor **7**, and a central lock anchor **8**. Projections and slots are provided on the key **1** to match the projection **19** on the top of the respective lock anchor in order that the key may unlock the locking bar **2**. Key projection **14** is designed to match the left side top lock anchor **4**. Key slot **15** is designed to match the right side top lock anchor **5**. Key projection **16** is designed to match the left side bottom lock anchor 6. Key slot 17 is designed to match the right side bottom lock anchor 7. Key slot 18 is designed to match the central lock anchor 8.

Thus, the projections 19 on the lock anchors in the embodiment of the present invention have five different levels which match with the number of projections and slots of the lock key 1 of the locking bar 2. The safety of the lock made according to the present invention has been strengthened by having five different levels to the lock key as it is necessary to precisely match the respective slot or projection on the lock key with the projection 19 on the top of the appropriate lock anchor in order to unlock a lock bar. Obviously, fewer or more lock anchors could be used if desired.

The gun bore lock of this invention can be modified to be utilized by various types of guns, such as pistols, revolvers, rifles, shotguns and various types of automatic weapons. The size and configuration of the gun bore lock would have to be adapted for the particular type of gun that it is desired to lock.

While the present invention has been disclosed in preferred forms, it will be obvious to those skilled in the art that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

This invention relates to a lock for special use, especially for a handgun. It can overcome the problems of the chain lock conventionally used for locking the handgun bore, i.e. because the lock is exposed to the outside of the handgun it is easy to be discovered and therefore, its safety is poor. In addition, it is difficult to put the locked handgun into the holster. The present invention is embodied by inserting the locking bar into the rifle of the barrel until the tip of the locking bar is clicked into the lock anchor catch pedestals of the lock housing hole which is located in the chamber so as to make the barrel locked. Because the lock is concealed in the barrel and only a coin-sized muzzle cover is exposed to the outside of the handgun, the lock may not be destroyed by hacksaw, file and other means, so the safety has been strengthened. The said lock can be made according to different standards and may meet the needs of various handguns.

In a preferred form the handgun bore lock according to the invention consists of a lock housing 10, a locking bar 2 and the lock key is embodied by putting a cylinder type lock housing 10 into the chamber of the handgun, the size and appearance of which is similar to the cartridge shell of the handgun. The locking bar 2 together with its extension 3 is a cylinder, the outer diameter of which matches with the internal diameter of the rifle of the handgun. The outer end cover 27 and the internal end 30 could be put into the lock housing 10. In order to put the lock anchors, there is a lock anchor groove 29 on the said cylinder. Each lock anchor includes the top part of the lock anchor 19, a lock shaft hole 20, a lock spring 21 and the anchor tip 22. The pedestals corresponding to the top part of the lock anchor 19 are set up on the lock key 1, and the relevant lock shaft hole 20 is set up on the locking bar 2. The central line of the key hole 26 offsets the central line of the locking bar 2 by 0.9mm. The anchor tip 22 is set up at the upper part of the internal hole 24 of the lock housing 10, and the bottom spring 12 and its cap 11 are located at the lower part of the internal hole 24.

Further, the handgun bore lock may comprise lock anchors with left end lock anchor 4, right end lock anchor 5, left lock anchor 6, right lock anchor 7 and central lock anchor 8, as well as left end lock anchor pedestal 14, right end lock anchor pedestal 15, left lock anchor pedestal 16, right lock anchor pedestal 17, and central lock anchor pedestal 18 on the lock key 1.

Claims

1. A device for use with small firearms, particularly handguns, rifles, shotguns, and the like, for preventing firing of live rounds in the firearm, the firearm of the type having a barrel with an internal bore, with a firing chamber at one end of the barrel and a muzzle at an opposite end of the barrel, wherein the device includes a first part sized and configured to be inserted into the firing chamber, a second part sized and configured to be inserted into the muzzle, and a locking mechanism for releasably locking the first part to the second part.

2. A device according to Claim 1 further characterized in that the first part of the device is shaped like at least a portion of a live round of ammunition.

3. A device according to Claim 1 or 2 further characterized in that the first part is substantially cylindrical and has a diameter closely matching the bore of the barrel.

4. A device according to any preceding Claim wherein the locking mechanism is key-operated.

5. A device according to any preceding Claim further characterized in that the locking mechanism includes at least one anchor member extending from the second part to an interior portion of the first part.

6. A device according to any preceding Claim further characterized in that the locking mechanism is housed in the second part.

7. A device according to any preceding Claim further characterized in that the second part is elongated for extending along a substantial portion of the length of the barrel toward the first part with the second part and the first part mounted in the muzzle and firing chamber, respectively.

8. A gun bore lock adapted to be housed inside a gun.

9. A lock according to any preceding claim adapted to be substantially concealed in the barrel or bore of a gun.

FIG 1

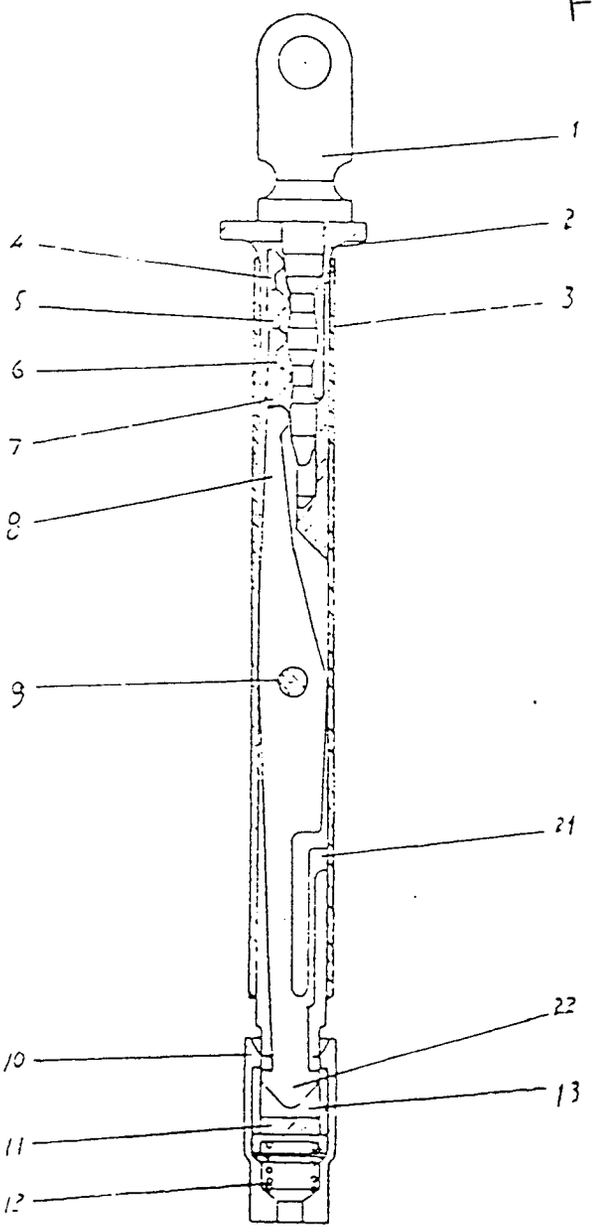


FIG 2

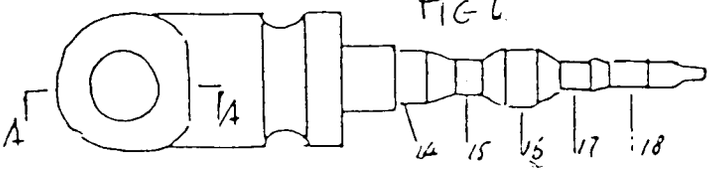
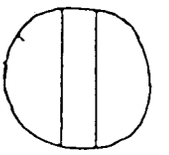


FIG 3



A-A

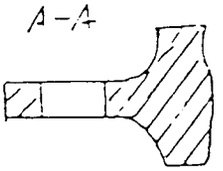


FIG 4

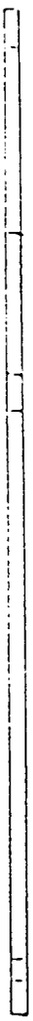


FIG 5

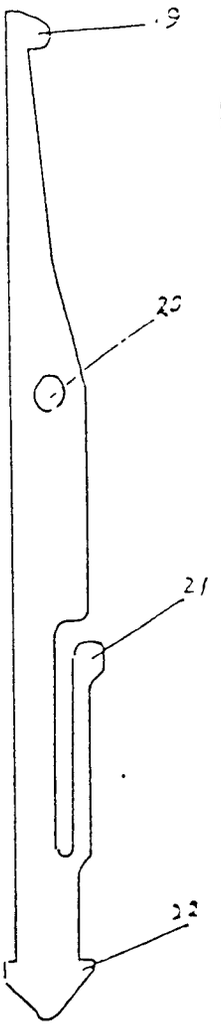


FIG 6

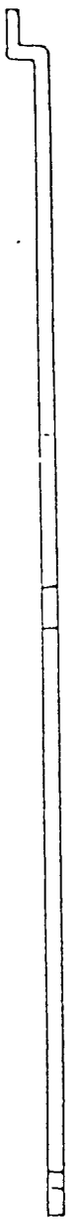


FIG 7

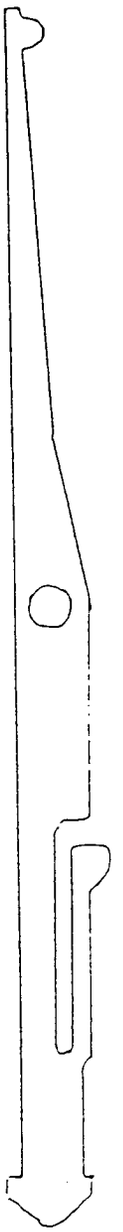


FIG 8

FIG 9

FIG 10

FIG 11

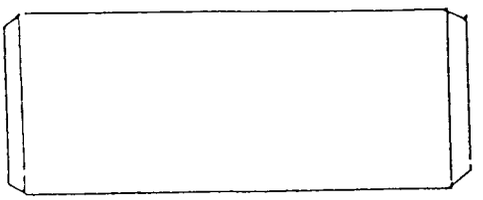


FIG 12

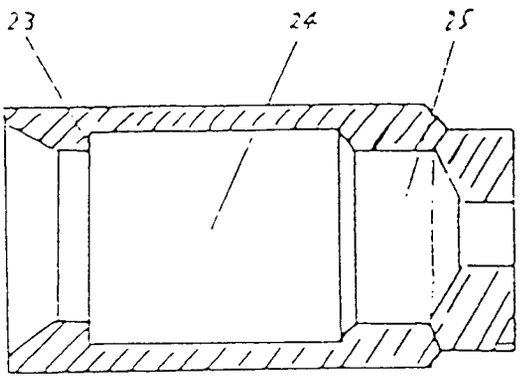


FIG 13

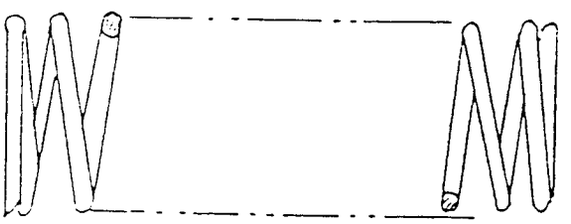


FIG 14

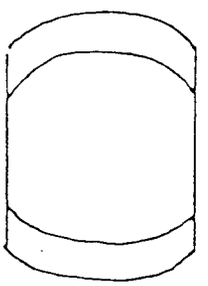


FIG 15

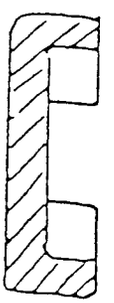


FIG 16

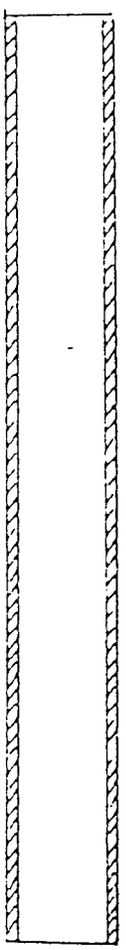


FIG 17

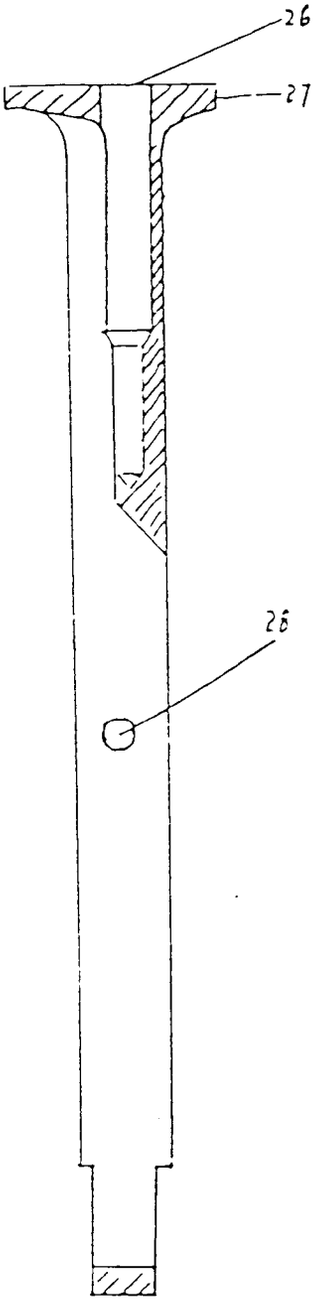
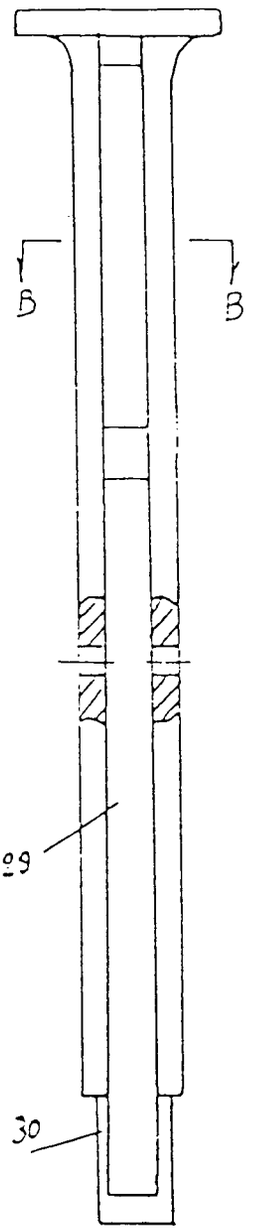


FIG 18



B-B

FIG 19

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 30 5444

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 398 366 (WERNICKI) * column 2, line 29 - column 4, line 32; claims; figures *	1-9	F41A17/44
X	US-A-2 327 334 (PARKER) * the whole document *	1-9	
X	US-A-4 783 924 (THURBER) * column 2, line 41 - column 5, line 54; claims; figures *	1-9	
X	FR-A-2 635 581 (SCHNEIDER) * the whole document *	1-9	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F41A

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 SEPTEMBER 1993	DOUSKAS K.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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