

# Stealth & Folding Subguns

by Captain Monty Mendenhall

Utah Connor

*Readers who saw the movie Robocop II, may remember the stealth submachine gun that a juvenile drug dealer carried. It only appeared to be a harmless radio until he opened it and revealed the ultimate 'boom box'. The folding subgun that was used in the movie, predated Robocop II by several years. Though skillfully adapted to fire blanks, the movie subgun was real. It was not just a special effects gadget. Some who saw Robocop II (this R&I included), assumed that the movie subgun was a modified French M.A.T. M1949. Not so! The Robocop II gun was an original design.*

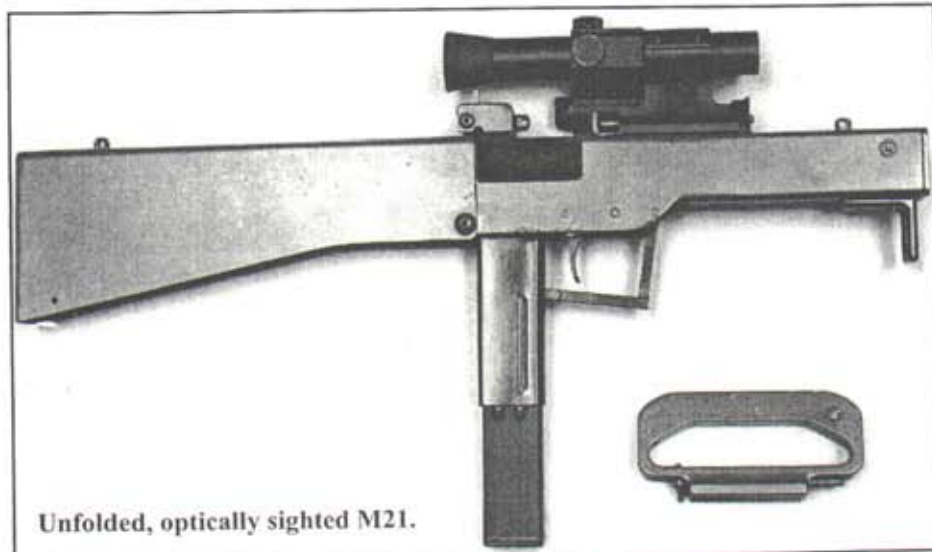
Utah Connor designed the Robocop II submachine gun. Connor called his new subgun a UC-9. Connor stated that "UC" stood for 'Under Cover', but coincidentally, "UC" are his initials as well.

In the mid 1970s, Utah Connor recognized the need for a hide-in-plain-sight submachine gun. He planned to market his UC-9 to police agencies. Connor expected that his UC-9 would be used primarily by police officers who were working deep undercover.

In a promotional video, Connor stated that the UC-9 was intended, "...for use by police or security personnel. This firearm permits a person to be well armed but maintain a low profile so as not to make the general public nervous. This firearm can be brought into action quite rapidly when necessary."

The movie subgun was further disguised by the addition of a telescoping radio antenna and an earphone jack. These items enhanced the stealth subgun's disguise as a 'boom box' radio.

Connor's stealth subgun could be disguised in many other ways as well. Painted red, and with the addition of a small hasp,



Unfolded, optically sighted M21.



lock and a Snap On™ tool sticker, it could just as easily pass for a miniature toolbox. If painted brown and with a suitcase style lock, it could pass as a salesman's sample case, a ladies purse or a makeup kit.

If disguised with locks, the hasp or the base of the suitcase lock could be attached with sticky-back Velcro(tm). The lock would discourage snoopers, yet, the Velcro(tm) would rip away to allow instant access by the subgun's authorized user.

There are many unexplored possibilities for disguising a UC-9. The UC-9's 'quick detachable' carrying handle hides a set of Colt M16-like sights. It is held in place by a spring-loaded plunger. After the carrying handle is removed, an Armalite AR-18 optical sight will snap on instead. A folded black or silver UC-9 with an optical sight and a fake lens would look remarkably like a video camera.

## Robocop II

The original and only UC-9 was a pre-production prototype. Tim Bixler watched Utah Connor demonstrate his UC-9 at a Las Vegas Soldier of Fortune show. Bixler recognized the stealth subgun's potential and introduced himself to Connor. They agreed to work together to produce and market the UC-9.

Tim Bixler contacted his friend Dave Boatman, a licensed Class Two manufacturer. Boatman liked the UC-9 too. He agreed to manufacture more of Connor's folding subguns in his shop.

The Connor/Bixler/Boatman UC-9 was the twenty-first type of Title Two weapon (short barreled rifle/shotgun, machine gun, suppressor, pengun, canegun, etc.) made in Dave Boatman's shop. The stealth folding subguns that were made in his shop were called "DEB M21s" (David E. Boatman Model 21).

Only nine M21s and the original UC-9 were made before May 19, 1986. That

day was the cut off date of the infamous Hughes Amendment to H.R. 4332. The Hughes Amendment ended the manufacturing of new, form 4 transferable, machine guns.

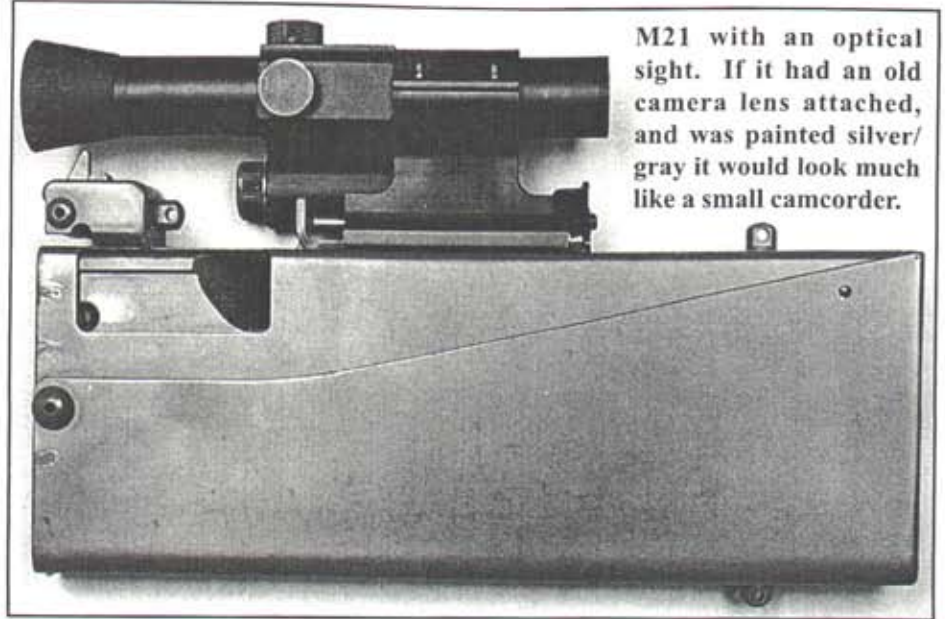
## Proof of Concept

The UC-9 was a 'proof of concept' prototype. Its purpose was to demonstrate the practicality of a stealth folding subgun. The UC-9 lacked some of the refinements of the Connor/Bixler/Boatman M21.

The UC-9 was made expeditiously using pins that are retained with 'c' clips. These pins protrude from the side of the UC-9 prototype. The M21's pins are flush fitting.

Utah Connor and Tim Bixler designed a more durable latching mechanism for the M21's magazine-well-pistol-grip and for its folding stock. They also designed an improved barrel retaining block. The M21's barrel is held more securely than the UC-9's. In theory at least, a M21 should be slightly more accurate than the UC-9.

M21 with an optical sight. If it had an old camera lens attached, and was painted silver/gray it would look much like a small camcorder.



Minute of angle accuracy is unnecessary for a subgun that is used in the role for which the UC-9 was intended. There is a trade-off for the M21's increased accuracy. The UC-9 can be disassembled without using any tools. The M21's improved barrel retaining block is attached to its receiver with Allen screws. An Allen wrench is needed to remove them for disassembly.

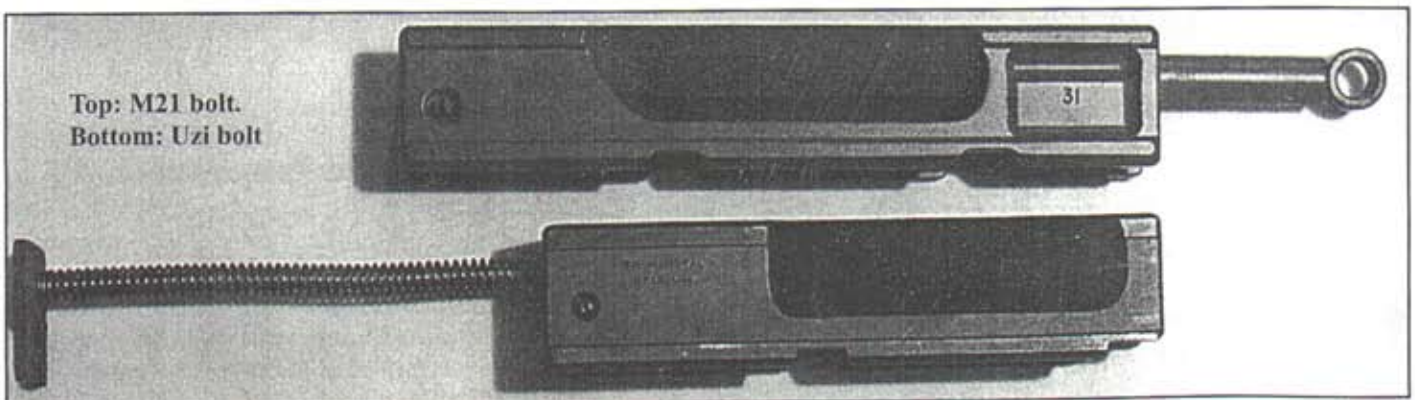
The stealth subgun's cocking handle is located on the bottom of its forward receiver. The cocking handle does not reciprocate as the subgun fires.

Connor and Bixler added a safety feature to the M21's cocking handle. Like an Uzi's cocking handle, the M21's 'ratchets'. A 'ratcheting' cocking handle prevents an accidental discharge if the user's hand slips from it as he cocks the subgun.

The cocking handle has a second purpose. If it is held properly, the cocking handle also serves as a 'finger-stop'. It is shaped and located in such a way as to help prevent the user's hand from accidentally slipping in front of the muzzle.

The UC-9's feed ramp is attached to

Top: M21 bolt.  
Bottom: Uzi bolt





its barrel. The M21's is simplified. It is permanently attached to the inside of the receiver.

Every M21 is coated with a self-lubricating Teflon(tm) paint. Two M21s are black. The other colors are: Red (Bixler's personal gun), dark blue, tan, yellow, green, brown and light blue (the Robocop II gun).

### An Old Idea

Though little known in the United States, the concept of folding subguns is not new. The first was made in Switzerland prior to World War Two. After the war, France and Czechoslovakia also made folding subguns.

The European folding subguns are not stealth subguns. They were not designed to be concealable or to hide the fact that they are firearms. Each is easily recognizable as a firearm when it is folded. Their folding features were incorporated to make them easier to carry and store.

### Swiss Folding Subguns

Schweizerische Industrie Gesellschaft (SIG) made the first subgun

with a folding magazine well. It was manufactured in Switzerland in 1933. The SIG MKMO looked more like a carbine than a submachine gun. This was especially true when its magazine was folded into the recess in its stock.

The MKMO's folding magazine did not decrease the subgun's length. It did, however, make the MKMO easier to carry when it was slung over a soldier's shoulder.

The manufacturing process of the SIG MKMO was complicated and expensive. The MKMO functioned on the principle of 'delayed blowback.' Many small, accurately machined, parts were needed to

hold its breech closed during the high-pressure portion of its firing cycle.

The SIG MKMO was definitely a first generation subgun. It was followed in 1937 by a simpler subgun, the MKMS. The MKMS used a heavy bolt and a 'straight blowback' action to contain the high pressure. Like its predecessor the MKMO, only the MKMS's magazine well folded.

The Swiss continued manufacturing submachine guns with folding magazine wells until at least 1958. The last two models, the MP48 and the MP310, had no regular safety. It was assumed that these subguns would be carried without snap-

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ping their magazines into battery. This was thought to be a sufficiently safe method of carry.

### A Czechoslovakian Folder

Shortly after World War Two, in an attempt to modernize their ZK 383 subgun, the Czech firm of Zbrojovka gave it a folding magazine well. The new variation was called a 'ZK 383H'. Externally, it is similar to the SIG MKMO and looks more like a carbine than a subgun. The ZK 383H's receiver is hinged just forward of its trigger guard. It opens much like a double barrel shotgun.

The ZK 383 and 383H both have an unusual bolt with a removable weight. When the weight is installed, the rate of fire is 500 rpm. Without the weight, the rate of fire increases to 700 rpm.

Like the Swiss folding subguns, when its magazine is folded, the Czechoslovakian ZK 383H is easily identifiable as a firearm.

### French Folding Subguns

The French were enamored with fold-

ing subguns. Between 1947 and 1954 the French arms industry produced six different designs. Three of them are entirely different.

The first French folding machine gun was made at Manufacture d'Armes Chatellerault (M.A.C.). Designated the M.A.C. M47-2, it was produced in 1947. To reduce its overall length, the French M47-2 had a very short bolt and a folding stock. With its magazine and stock folded, the M47-2's length was sixteen inches, less than half of the length of a Swiss MKMO. The M.A.C. M47-2 was an experimental prototype. It was only produced in small quantities. It was followed by the M.A.C. M48LS. Built in 1948, the M48LS was an improved version of the M47-2.

In 1947, a second French armory, Manufacture d'Armes de Saint-Entienne (M.A.S.) made the third French submachine with a folding magazine well. Called the M.A.S. C4, it was quite similar externally to the M.A.C. M48LS. Though not made in great numbers, the M.A.S. C4 saw limited service in the French Indochina War.

The most common French folding subgun was made in 1949 by Manufacture Na-

tional d'Armes de Tulle (M.A.T.). The M.A.T. 49 was made in large numbers and was still in production in 1963.

The M.A.T. 49 was visually quite similar to M47-2s and M48LSs, but it was quite different internally. The earlier French folding magazine well subguns, made by M.A.C. and M.A.S., were 'delayed blow back' guns. They used complicated mechanisms to retard the opening of their breeches during the firing cycle.

The M.A.T. 49 operated on the principle of unimpeded 'blow back'. This method is generally more reliable and reduces the manufacturing costs as well. The simpler M.A.T. 49 is probably less susceptible to stoppages due to fouling.

A fifth French folding submachine gun was made by Hotchkiss. It was called the "Universal." Except for its folding magazine housing, the Hotchkiss Universal shares little with the folding subguns made by M.A.C., M.A.S. and M.A.T.

The Universal has a unique feature. To make it more compact when folded, its barrel can be 'telescoped' into its receiver. When folded and telescoped, the Universal is only 6.5 inches longer than its barrel.

The French Universal was made almost entirely of machined parts. It was reported to be reliable. Unfortunately, it was very expensive to manufacture. Only small quantities were produced. It is reported that the Universal saw limited service in Indochina. Venezuela is also said to have purchased a number of the Hotchkiss Universals.

The last member of the French folding subgun family is the M.G.D., more often called the P.M. 9. An entire story should be written about its innovative breech mechanism.

When firing, every submachine gun's breech, except the P.M. 9's, reciprocates parallel to its barrel. The P.M. 9's breech is a spring-loaded, oscillating flywheel. It rotates on a center axis. A short bolt, inside of the flywheel, does reciprocate far enough to extract the fired round.

As it retracts, the bolt imparts a spin to the flywheel and the extracted cartridge is ejected from the top of the P.M. 9's receiver.

The P.M. 9's innovative (and expensive to manufacture) breech allows its length to be less than 14.5 inches when folded. With an easy modification, the P.M. 9 could be even shorter. When



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folded, its barrel extends past the folded magazine. If the P.M. 9's barrel were shortened to the length of its folded magazine, its overall folded length would be 12.5 inches.

The P.M. 9 had few sales. It was doomed by its high manufacturing costs. In 1955, it was priced at \$150. Applying the 'soft drink and candy bar' formula for inflation adjustment (each item cost .75 in 1998 and .05 each in 1955, a ratio of 15 to 1), a P.M. 9 would cost \$2250 1998 dollars.

### **Utah Connor's Stealth Subgun**

When folded to its minimum length, every European folding subgun is easily recognizable as a firearm. Utah Connor's UC-9 is not. It truly is a stealth subgun.

The UC-9 was designed primarily to be a weapon of self defense. Stealth, reliability and simplicity were Connor's goals. To this end, the UC-9 fires in full auto only. It does not have a semi auto selector. In a real world situation, if a UC-9 was ever used for self defense, it is unlikely that the user would choose semi auto, even if that were an option.

Since the UC-9 is an emergency weapon, it does not have a typical subgun safety. When deployed, it is instantly ready to fire. The UC-9 is similar to SIG MP48s and MP310s in this regard.

Each of these subguns can be rendered 'safe' when unfolded. If the user is not expecting immediate action, the magazine wells of all three may be unlatched. In this condition, their magazine wells naturally swing forward. The loaded magazine is pulled out of battery. In this condition, these folding subguns can not be fired. A quick pull on their magazine wells, locks

their magazines back into battery again, returning them to the 'ready to fire' condition. SIG and Utah Connor believed that a safety of this type was sufficient.

For an undercover officer, the UC-9's lack of a regular safety is probably an asset. This type of subgun would only be issued to a well-trained person who understood its operation and its potential danger.

If used in its intended role, Connor's folding subgun would never be opened unless the user's life was in immediate danger. The user would want the safety to be off when it is deployed, and it is. A conscious action on the shooter's part is required to render the UC-9/M21 'safe'.

Both the UC-9 and the M21 use a modified Uzi bolt. The M21's cyclic rate is faster than an Uzi's. The M21's cyclic rate is adjustable too.

A M21 was tested with Winchester 'white box' 9mm ammo, IMI 9mm carbine ammo and Hirtenberger ++P++ 'machine gun only' ammo. By varying the number of Viton(tm) O-ring buffer pads (part number AS-568-05, available from Apple Brothers at 716-684-2560) and the type of ammo, the M21's cyclic rate was variable between 690 and 895 rounds per minute. For comparison, an Uzi's rate of fire averages 650 rpm.

The M21 is robustly made. Tim Bixler tested every M21 with hot IMI 'Black Tip' 9X19mm carbine ammo. Due to its rarity and collector value though, a prudent owner should probably avoid the extensive use of high-pressure ammo in his M21. Like many third generation telescoping bolt subguns, the M21 is very controllable. RKI Sam Fischer is enthusiastic about his. He stated, "The M21 makes the others (Uzi and even the P12s) seem uncontrollable

by comparison. (Yes, I know that Uzis and P12s are very controllable but the M21, to me, whips butt even on them.)"

The UC-9 and the M21 use unmodified Uzi magazines. Both subguns can be folded into their 'stealth' condition when a loaded 32 round magazine is inserted into their magazine wells. This method of carry is perfectly safe. Neither subgun can be folded unless the bolt is in the forward, uncocked, safe position. Even though the ammo is readily available when the magazine well is folded, it is far removed from the barrel and bolt. A folded UC-9/M21 subgun is essentially unloaded.

Many of the earlier folding subguns were first generation types. These were very expensive to manufacture. Second generation folding subguns were less expensive to produce, but lacked the UC-9/M21's third generation, ergonomic magazine-well-pistol-grip.

The M21 has standard attach points for quick disconnect sling swivels. In his promotional video, Utah Connor demonstrated several ways to carry and deploy his 'stealth' subgun. He can proceed from the folded and slung position to the first aimed shot in less than three seconds.

### **Unfolding**

Though there is more than one accepted way to unfold Connor's subgun. The following is a description of one method that a right-handed shooter might use. Much more time is required to describe the steps than is needed to accomplish them.

Grasp the M21's receiver with the left hand. Grasp the folding stock with the right hand. Pull and rotate it 180 degrees. The folding subgun's receiver end cap will



automatically 'pop' off.

If the M21 has been disguised as a radio, and the antenna is extended while unfolding it, the antenna will be damaged. In a life-or-death situation, a damaged antenna is of little consequence. If the antenna is damaged, it can be replaced with a new one from Radio Shack™ (part number 274-251).

After rotating the stock 180 degrees, it will lock into the 'open' position. While still holding the M21 firmly with the left hand, grasp the magazine-well-pistol-grip (containing a loaded magazine) with the right hand. Pull it down and rearward. The magazine well and magazine will lock into place.

Now hold the M21's pistol grip with the right hand. Grasp the cocking-handle/finger-guard with the left hand. Cock the subgun.

Place the left hand around the M21's forward receiver. Make certain that the fingers are wrapped around the frame and behind the finger-guard. If held properly, cocking-handle/finger-guard will prevent the shooter's hand from slipping in front of the muzzle. The M21 is now ready to fire.

### Refolding

The M21 can not be refolded when its bolt is cocked. The first step of folding a

M21, is to remove the magazine. After making absolutely certain that the magazine has been removed and that there is no round in the chamber, pull the trigger to release the bolt. The shooter should hold the cocking handle rearward before pulling the trigger. The M21's bolt may then be gently eased forward with the cocking handle. Avoid pulling the trigger and letting the bolt slam closed on an empty chamber.

After closing the bolt, reinsert the

**M21 Rate of Fire Table (9X19mm)**

	Winchester White Box	Hirtenberger Lot # L7A1	IMI/TZZ Lot # 113-88
One "O" Ring	690	810	855
Two "O" Rings	700	850	895

magazine and release the magazine well latch. It is located behind the trigger guard. The magazine-well/pistol-grip can then be folded forward.

Next, release the latch that holds the stock open. It is located on top of the receiver, just behind the sight. Fold the stock to its closed position. The stock is automatically latched into the closed position by two spring-loaded ball bearings. Finally, 'snap' the receiver end cap into position.

SAR readers who have internet access can see a moving picture of a M21 being deployed. Visit Sam (AKA Mongo) Fischer's website at <http://www.flash.net/>

~scfische/. Plan to spend some time there. Sam's web site contains trouble shooting information and general information about several machine guns. There are also links to other firearm related websites.

### Francis J. Warin's Stealth Machine gun

An old proverb states, "Great minds think alike" (and the writer's mother once told him, "Fools seldom differ," but that is another story).

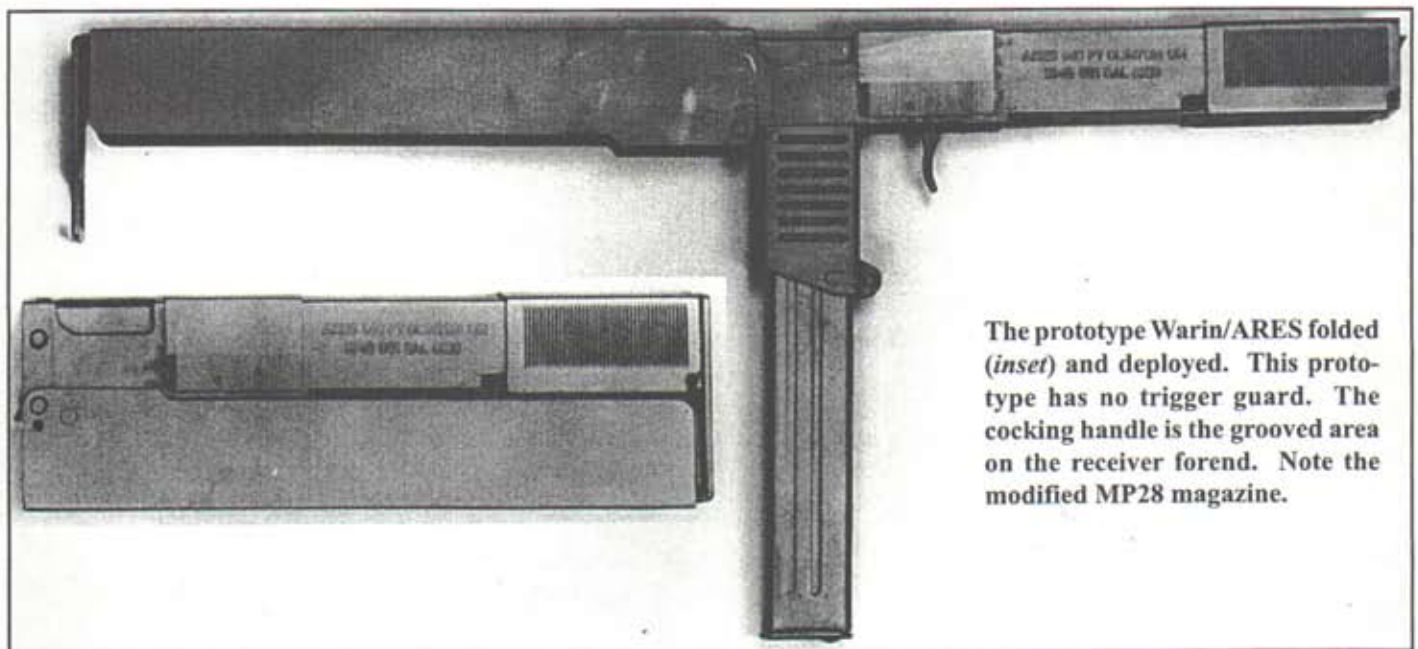
In the 1970s, Francis J. Warin also recognized the need for a stealth subgun. He and Utah Connor worked independently on their designs. Neither knew of

the other's work until after both inventors had completed their prototypes.

The ARES corporation patented Warin's stealth subgun. The following statements are quoted from the ARES patent application. Though written in 'lawyeresque', and a little verbose, the following quote outlines Warin's reasoning and goals for designing his stealth subgun. They closely parallel those of Utah Connor.

### The Patent

From the patent abstract, "A foldable gun, useful in mob control and police un-



The prototype Warin/ARES folded (inset) and deployed. This prototype has no trigger guard. The cocking handle is the grooved area on the receiver forend. Note the modified MP28 magazine.



dercover work because of small size and unassuming appearance when it is in a folded configuration, includes a magazine housing and stock pivotally mounted to a receiver assembly... Pivotal mounting of the stock enables the stock to fold to an underside of the receiver assembly. A U-shaped configuration of the stock enables it to both contain and conceal the magazine housing and magazine when the gun is in the folded configuration. In this manner, an extremely compact folded gun is achieved, and further, the gun, when folded, does not resemble a weapon."

"The foldable machine gun, which when folded, does not resemble or suggest an appearance of being any type of weapon. In both mob control and undercover work, the presence of a machine gun may not be desirable. Psychologically, a machine gun may increase tensions between the crowd and uniformed officers." "In these situations, it is desirable for the peace officers to carry the weapons concealed on their persons, or in their hands, and this weapon should not resemble a weapon, or more particularly, a machine gun. It is also necessary, in order to be useful, that when in the folded condition, ... (it) be quickly and easily unfolded in an operative configuration so as to be immediately operable by the peace officers."

"Although many foldable weapons have been developed in the past, the majority of these weapons were developed for reasons such as reducing the overall size of the weapon for storage and transportation. In most cases, the folded gun remains distinguishable as a folded gun and hence has no advantage in police undercover work because they are so recognizable."

"In fact, the majority of these weapons are not foldable or collapsible, to a size which would permit their concealment on the body of an undercover agent. Furthermore, the majority of these weapons are not foldable while containing a magazine holding ammunition. It should be apparent that, such a weapon... should contain sufficient ammunition... to be useful for its intended purpose after it is rapidly unfolded for use."

The patent for the Warin/ARES stealth subgun was applied for on April 2, 1984. It was granted on December 2, 1986. The last Connor/Bixler/Boatman M21 was finished on April 19, 1986, well before the Warin/ARES patent was granted.

Since "Great minds think alike," it is

## United States Patent [19]

Warin

[11] Patent Number: 4,625,621

[45] Date of Patent: Dec. 2, 1986

### [54] COMPACT FOLDABLE GUN

[75] Inventor: Francis J. Warin, Oak Harbor, Ohio

[73] Assignee: ARES, Inc., Port Clinton, Ohio

[21] Appl. No.: 596,048

[22] Filed: Apr. 2, 1984

[51] Int. Cl.<sup>4</sup> F41C 9/02

[52] U.S. Cl. 89/197; 42/1.09; 42/71.01; 89/1.4; 89/33.1; 89/132; 89/198

[58] Field of Search 89/33.1, 196, 197, 199; 42/1 J, 6, 7, 1 R, 72, 73; D22/1, 6

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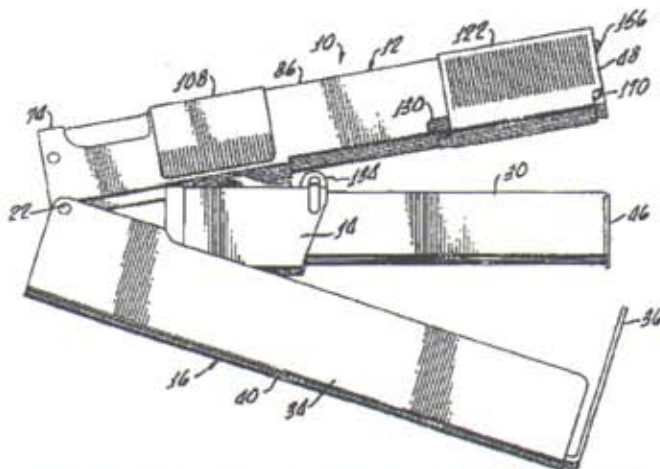
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Primary Examiner—Stephen C. Bentley  
Attorney, Agent, or Firm—Allan R. Fowler

### [57] ABSTRACT

A foldable gun, useful in mob control and police undercover work because of small size and unassuming appearance when it is in folded configuration, includes a magazine housing and stock pivotally mounted to a receiver assembly in a manner in which the magazine housing may be pivoted to a parallel position adjacent a receiver assembly underside while containing a magazine. Pivotal mounting of the stock enables the stock to fold to an underside of the receiver assembly. A U-shaped configuration of the stock enables it to both contain and conceal the magazine housing and magazine when the gun is in the folded configuration. In this manner, an extremely compact folded gun is achieved, and further, the gun, when folded, does not resemble a weapon.

10 Claims, 5 Drawing Figures



not surprising that Utah Connor's and Francis Warin's folding subguns are similar. Both inventors had the same goal. Each sought to design a concealable, quickly deployable, subgun that that did not reveal its true nature when folded. The inventors' results, though externally similar, are very different internally. These internal differences are evidence of the two stealth subguns independent development.

### Refinements

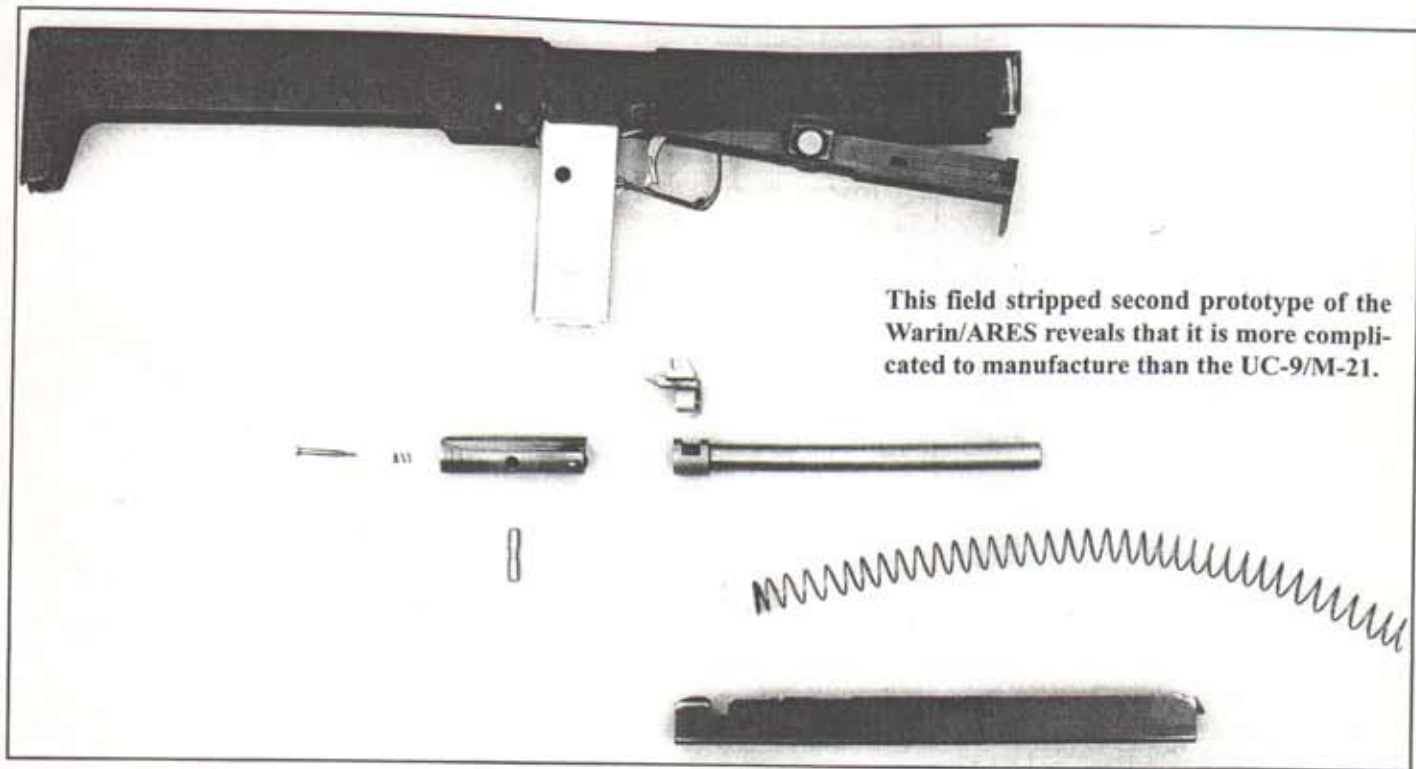
The Warin stealth subgun has a few refinements that are lacking in the M21. Unlike the UC-9/M21, it has a conventional safety. The second Warin/ARES prototype also has a three round burst control. Some may applaud these features.

Other RKIs may feel that they are unnecessary.

Only two ARES folding subguns were made. Each differed in its internal details. A well-respected Class Three dealer now owns both Warin prototypes (not ARES). The first prototype of the Warin/ARES subgun used a German MP28 magazine. An unmodified MP28 magazine holds 32 rounds of 9X19mm ammo. It is too long to fit inside of a folded Warin/ARES subgun. In order to allow his first prototype subgun to be folded with a loaded magazine inserted, Warin shortened the MP28 magazine and reduced its capacity 28 rounds. Once unfolded though, the Warin/ARES subgun can use standard length MP28 magazines.

The second Warin/ARES prototype





This field stripped second prototype of the Warin/ARES reveals that it is more complicated to manufacture than the UC-9/M-21.

used a 32 round Uzi magazine. Uzi magazines are shorter than MP28 magazines. The second Warin/ARES prototype can be folded with an unmodified, full-length thirty-two round Uzi magazine inserted into its magazine well.

The bolt of the Warin/ARES subgun is made in two parts. An Uzi bolt is simpler and less expensive to manufacture. It is made from a single machined casting.

After the subgun is folded, the rear portion of the Warin/ARES bolt can be removed. This feature allows the barrel to

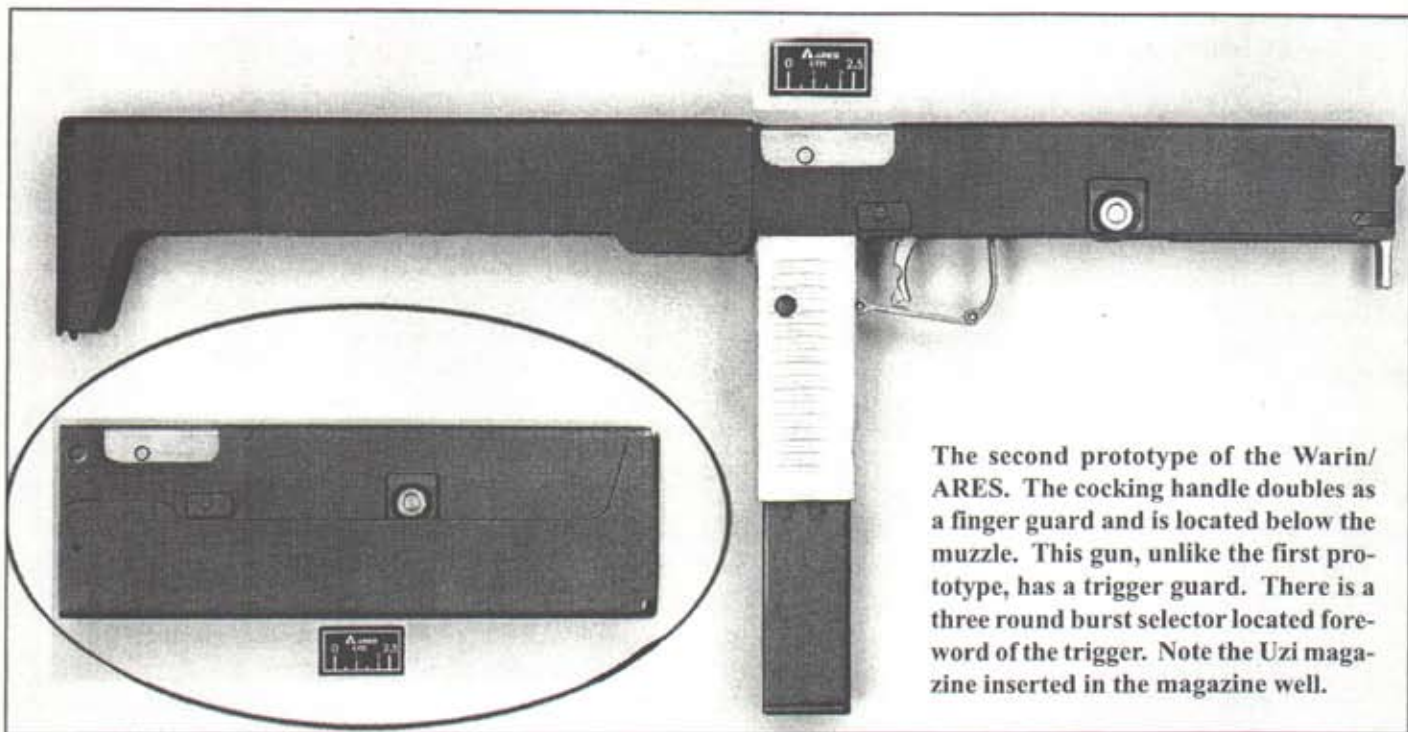
be examined or cleaned without further disassembly.

The operating springs of both Warin/ARES prototypes surround their barrels. The barrel acts as a guide rod for the operating spring. Locating the spring in this manner simplified Warin's design. A UC-9/M21 is more complicated in this regard. It requires a separate operating spring guide rod.

The cocking handle of the first Warin/ARES prototype is on top of its receiver. It serves a dual function. The cocking

handle both unlocks the folding stock and cocks the bolt after the stealth subgun is unfolded. Though unobtrusive, the cocking handle is visible when the Warin/ARES subgun is folded.

The folding pistol-grip/magazine-well of the Warin/ARES subgun is spring loaded to the deployed position. When the cocking handle unlatches the stock, the loaded magazine and pistol grip snap into place. A Warin/ARES subgun can be made ready for firing marginally faster than a M21.



The second prototype of the Warin/ARES. The cocking handle doubles as a finger guard and is located below the muzzle. This gun, unlike the first prototype, has a trigger guard. There is a three round burst selector located forward of the trigger. Note the Uzi magazine inserted in the magazine well.



Francis Warin demonstrated the first prototype of his folding subgun to a government group. They expressed interest, but said that his subgun would be more useful to them if it had a three round burst control. This was during the same time period that the government began buying M16s with three-round burst selectors. Warin's second prototype stealth subgun incorporated the desired three-round burst feature.

The first prototype of the Warin/ARES subgun has no finger-guard to assist in preventing the shooter's hand from slipping in front of the muzzle. The second Warin/ARES prototype corrects this shortcoming. Like the Connor/Bixler/Boatman M21, the cocking handle is located under the barrel serves as a finger-guard.

Francis Warin was not completely pleased with the three-round burst device. In an interview, he stated that the three-round feature was unnecessary and that it occasionally contributed to malfunctions.

The designs of both the Warin/ARES and the UC-9/M21 are fairly simple. They are much less complicated than most European folding subguns. Both designs are third generation. Both operate on the principle of a heavy bolt and 'blow back'.

A UC-9/M21 uses a standard Uzi extractor. Since this part is readily available, a UC-9/M21 would be simpler to maintain than a Warin/ARES.

The Warin/ARES's two-piece bolt is more complicated than the UC9/M21's. When very dirty, due to its simplicity, a UC-9/M21 may be more reliable than a Warin/ARES. Since the Warin/ARES stealth subgun was never produced for sale, its full potential may never be known.

The ARES Corporation, which still holds a valid patent, has no plans to produce more Warin stealth subguns. If ARES



did however, the new stealth subguns would be post '86 machine guns. None could be transferred to individuals.

### A Russian Stealth Subgun

A Russian manufacturer, Design Bureau For Instrument Engineering (DBFIE), made a folding stealth subgun that is much like the Warin/ARES. DBFIE called their stealth subgun a PP-90.

The similarities between the Russian PP-90 and the Warin/ARES are striking. They are similar enough to suggest that DBFIE produced their PP-90 after obtaining a copy of the Warin/ARES patent. Unlike some foreign patent offices, most US patents are available to anyone for the cost of copying them. The Warin/ARES patent can be viewed on the internet. It can be copied easily. ([http://www.patents.ibm.com/details?patent\\_number=4625621](http://www.patents.ibm.com/details?patent_number=4625621))

The Russians hoped to earn hard currency by selling their PP-90 in foreign markets. Its price in 1990 was \$280 US dollars.

A Russian PP-90 could not be obtained for evaluation. Only a Russian PP-90 sales brochure was available. The Small Arms Review reproduction of the Russian PP-90 sales brochure is the first general revelation of the PP-90 in the United States.

The PP-90's folding stock is very similar to the stock pictured in the Warin/ARES patent drawing. Both stocks have the same type of extended lower butt-plate.

Nelson Wall, the CEO of ARES Inc., and Francis Warin generously loaned SAR a full-scale set of blueprints for their stealth subgun. Measurements that were taken from the ARES blueprints and from the actual Warin/ARES prototypes were compared to the dimensions that are listed in the Russian PP-90 sales brochure. The folded dimensions of the Warin/ARES and

the PP-90 are identical. If the Russian folding stealth subgun was developed independently of the Warin/ARES, that is quite a coincidence.

There appear to be a few errors in the PP-90's sales brochure. The Russian brochure states that the PP-90's unfolded length is 19.3 inches. This is

## Specifications

	UC-9/M21	Warin/ARES	PP-90
<b>Caliber</b>	9mm Parabellum	9mm Parabellum	9mm Makarov
<b>Magazine Capacity</b>	32 Rounds	32 Rounds	30 Rounds
<b>Barrel Length</b>	7.75 Inches	6.75 inches	???
<b>Unfolded Length</b>	20.5 Inches	20.6 inches	19.3 In. (claimed)
<b>Folded Dimensions</b>	10.5 X 4.5 X 1.5 In.	10.6 X 3.5 X 1.25 In.	10.6 X 3.5 X 1.25 In.
<b>Empty Weight</b>	6.25 lbs.	4.0 lbs.	3.6 lbs.
<b>Loaded Weight</b>	7.5 lbs.	5.25 lbs.	4.9 lbs.
<b>Operation</b>	Full Auto Only	Semi, 3 Rnd & Full Auto	???
<b>Rate of Fire</b>	690 - 895 rpm	650 rpm	600/700 rpm (claimed)



1.6 inches less than the length of an unfolded Warin/ARES. A shorter unfolded length seems unlikely, given the fact that the folded dimensions of both subguns are identical.

The Russian brochure states that the PP-90's loaded weight is 4.9 pounds. This claim may be in error too, given that the loaded weight of a M21 is fifty percent greater.

Neither of the Warin/ARES subgun prototypes have sights. None are depicted on the patent drawings. The PP-90 has a set of 'flip up' sights. The Russian brochure, written in both Cyrillic and English, states that the sights are regulated for one hundred meters. Experience suggests that a 100 meter 'battle sight' sight is ideal for a subgun. Between the muzzle and 120 meters, the bullet will never be more than five inches above or below the line of sight. The Russian PP-90's cocking handle is simpler than the Warin/ARES's. It has a hook-like protrusion at the rear of its bolt. In the Russian brochure, the model grasps the PP-90's cocking hook with his thumb to cock the subgun.

The PP-90 fires subsonic 9X18mm Makarov ammo. Its magazine capacity is thirty rounds. The Warin/ARES is chambered for the more common and more pow-

erful 9X19mm Parabellum ammo.

The DPFIE claims that their PP-90 is very controllable. The brochure states that when firing a PP-90 from the shoulder, at a target placed twenty-five meters distant, it is possible to fire a continuous burst of thirty rounds and to place every bullet inside of an eighteen inch diameter circle. After testing a similar subgun, the M21, the Russian claim is quite believable.

### Conclusions

Each of the three folding stealth subguns meets its designers' criteria for stealth and quick deployment. The three stealth subguns are similar but each has some improved feature that the other two lack. If a fourth stealth subgun was manufactured today, it might include the following features.

The new stealth subgun would be of the general configuration of the UC-9/M21, the Warin/ARES and the PP-90. It would have the simple one-piece bolt of the UC-9/M21. Its operating spring would surround the barrel, like the Warin/ARES's operating spring. The deployment of its magazine well would be spring-assisted like the Warin/ARES's. Its cocking handle would be a hook on the rear of its bolt,

like a PP-90's. It would have a stationary finger-guard below its muzzle.

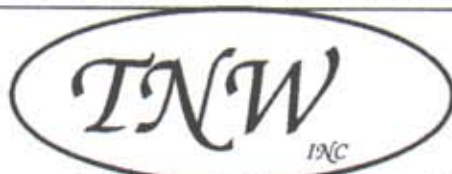
Finally, like the UC-9/M21, the new stealth subgun would be full auto only and would have no conventional safety. It would have a quick-detach base for a removable carrying handle. There would be a large selection of differently styled carrying handles and sights available, including 'flip-up' sights.

It is unlikely that any more stealth subguns will ever be made. Even if there are though, unless the infamous Hughes Amendment to the 1986 US Gun Control Law is overturned, no new subguns can be transferred to ordinary citizens. The owners of the one UC-9, the nine M21s and the two ARESs subguns should consider themselves to be most fortunate indeed.

Special thanks must be given to Tim Bixler, Utah Connor, Francis Warin and Nelson Wall. Each of them agreed to be interviewed for this article and each reviewed the final draft and made corrections as necessary.

Sam Fischer must be commended as well. He provided SAR with his original Russian PP-90 sales brochure and a personal evaluation of his M21.

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