

SIX SHOOTERS SINCE SIXTEEN HUNDRED

By Merrill Lindsay
(author of 100 Great Guns)



MERRILL LINDSAY

There is no place in the world where the revolver is more appreciated, understood, or made better use of than in the United States. Nevertheless, when you ask the man in the street, or better yet, the man who owns one, "Who invented revolver?" the answer nine out of ten times is "Colt." And the tenth guy doesn't know. When you say that it wasn't, you get a "Would you believe" look and a tentative "Smith and Wesson."

Of course it's true that Colt and Smith and Wesson mass produced more revolvers in the century after Colt built his first Paterson in 1836 than the entire world had made by hand before. Actually working specimens survive, however, which predate Colt by more than two hundred years. And I mean a revolver in the modern sense, a gun with a cylinder containing several charges which revolves behind a single barrel. An even earlier version of the "revolver," one in which three barrels "revolved," much like the Allen and Thurber pepper-box, was built for and possibly by the Holy Roman Emperor, Charles V, around 1530! Even before that, as far back as the 14th century, there were "revolvers" in the sense that three or four barrels were strapped together and fired separately. The whole gun was rotated, or revolved, for each shot.

There is a three-shot revolving matchlock pepper-box in the Palazzo Ducale Museum in Venice which was made around 1500. Nobody knows who made it, but it wasn't Sam Colt. In 1475, Roberto Valturio published an updated version of an

old military text by Vegetius who was living in 392 A.D. The updating included illustrations of the modern arsenal of weapons, including an eight barrel revolving cannon, each barrel having a bore of what looks like about a foot, although this is hard to judge, as the scale is not exact.

The idea of having more than one shot for defense or hunting was a very early idea indeed. The need was great when one stops to think that a crossbowman could fire several deadly bolts while the primitive gunner was wrestling around trying to clean the bore and load a second shot in his hand cannon. The hand cannoner was even at a greater disadvantage when trying to compete with an Englishman with a longbow. The longbowman could even outshoot the crossbowman five to one, and he could put penetrating cloth yard arrows into a target, such as the gunner, at distances that were as great as the early guns could shoot. It is no wonder that the early guns were not very popular with the military. Nor is it a wonder that some quick moving thought of putting a bunch of barrels together in order to give himself a chance to fight back as a flight of arrows showered down on his head.

The most primitive of the so-called revolvers was, then, a hand cannon. This could be fired by turning the gun around with one hand while the other hand applied a burning match, a piece of smouldering bark, or a hot poker to the touchhole of succeeding barrels. In order to do this without having the powder spill out of the priming pan, the pans had to have covers. There is an example of an all-iron three barrel gun in Paris at the Musee de l'Armee made sometime before 1400 with three individual pan covers which were opened one at a time for the uppermost barrel. A German four barreled hand cannon is reported by Dr. Leonid Tarassuk in the Hermitage Collection in Leningrad. He dates it only as "before 1500." There is also a four barrel job with a wooden handle like a piece of broomstick in the Winchester Gun Museum which dates from around the same period. All Tom Hall, the curator there, knows is that it came as a gift to the Museum from an old lady in West Virginia. It looks, and it may even be, older than the gun in Paris. It has no provision for keeping powder in the little dish-like depressions over each touchhole, so the shooter not only had to rotate the gun, but he had to pour out a little powder into the exposed pan each time he wanted to shoot another of the four barrels. This particular gun may well be oriental, and it would certainly take all the skill of a Chinese acrobat to maintain any sort of rate of fire.

Under the circumstances, it's a wonder that infantrymen of the Middle Ages didn't give up guns entirely, or carry with him a trunk full of single shots. Of course, this was done occasionally, especially in a fortified place, where a loaded rampart gun would be laid in each gun port or window and fired successively by one guy running around with a lighted torch. You have seen this effect in movies of the battle of the Alamo. Sometimes the U.S. cavalry did not arrive in time.

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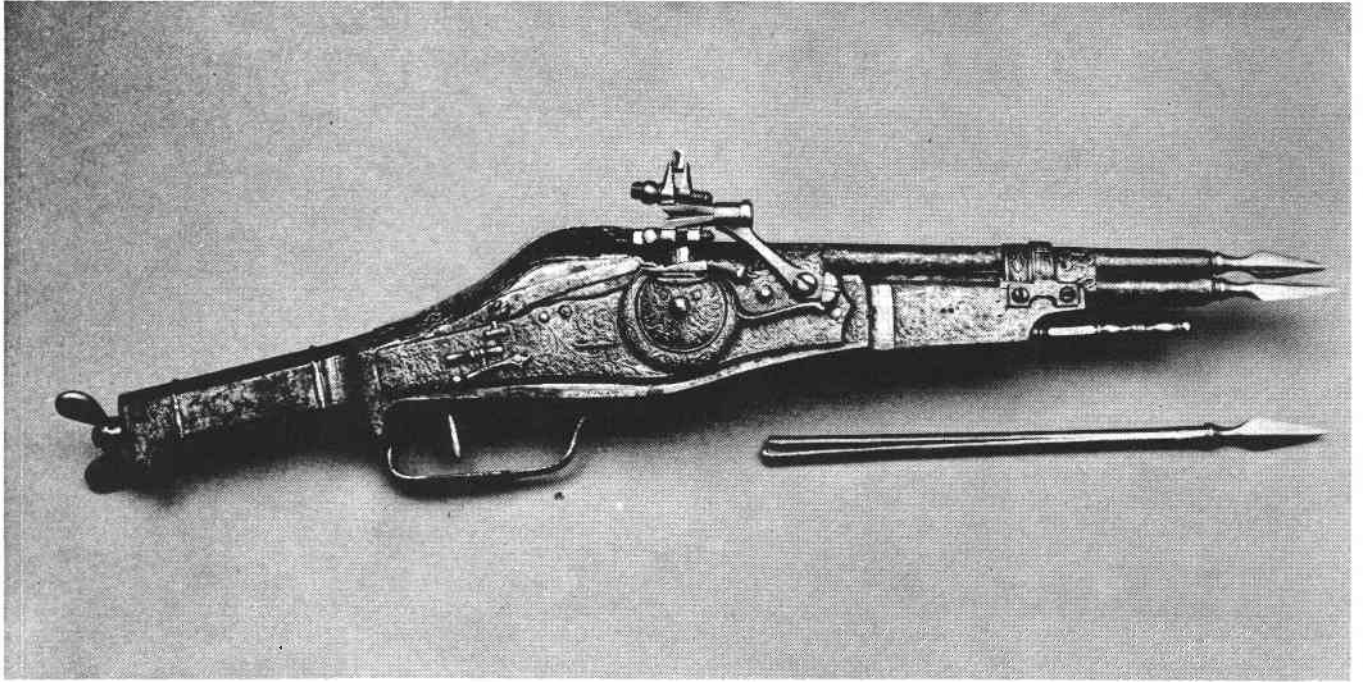
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Inasmuch as a revolver was desperately needed, and Sam Colt hadn't been born yet, some early mechanical genius invented the muzzle loading pepper-pot. The idea had a lot of merit. The barrels revolved by hand, of course, on a spindle which was stuck into the stock of the gun. They were relatively simple to make as no precision fitting was required for the cylinder to fit tight against the barrel. About this time, between 1400 and 1450, another invention helped the revolver idea along. This was the matchlock mechanism. With a lit match attached to a serpentine trigger, successive barrels would be lighted from the same match in much quicker time. As this was a much better idea than going around borrowing matches all the time, the idea caught on, and matchlock revolvers were made in India and Europe as recently as the early 18th century. As well as the three barrel matchlock in Venice, already mentioned, a matchlock revolving cannon, the Puckle gun, survives in the Tower of London and an Indian matchlock can be seen in the Wadsworth Atheneum in Hartford, Connecticut. This one belonged to Col. Colt, and was left by his widow to form a collection in honor of her inventor-husband. Both of these matchlocks have separate cylinders. An earlier French matchlock musket with an eight chambered revolving cylinder dating from the 1620's is in Leningrad. When the wheel lock was invented around 1490-1500, the world finally had a gun which could be shot without carrying around a torch. Still the wheel lock, at least the early ones, had to be primed with powder each time and wound up for the next shot. This was not a very promising mechanism to combine with the quick firing possibilities of the revolver system. Just the same, a few revolvers were built on the pepper-box principle and an outstanding example is in the Armeria Reale Museum in Turin, Italy. This is a most curious gun. In the first place, it shoots steel arrows instead of bullets. The arrows, each about seven inches long, are split half way down the shaft and spring a little bit. This provided enough pressure against the barrel to keep the arrows from sliding out when the muzzle was depressed or the pistol worn in the belt. The barrels, three of them, are held together by two sleeves, one at the breech, and one half way down the barrels. The barrels are rotated into top firing position by a wing nut which sticks out of the butt of the stock. This was a fine gun in its day as can be seen not only by the ingenious revolving system but by the engraving and a little bit of the gilt which still remains on the iron frame. The engraving not only helps date the gun, but tells who the owner was. There are Austrian Imperial eagles holding up the pillar of Hercules which was Charles V's coat of arms, and on successive pillars which become visible as the barrels are rotated appear the words PLUS and ULTRA which was Charles' motto. Now I am sure that some bright reader has figured out that with three barrels, there were probably three pillars. You're right. If you keep rotating the barrels, you read PLUS-ULTRA-PLUS, which was not Charles' motto, but what can you do with a three barrel gun?

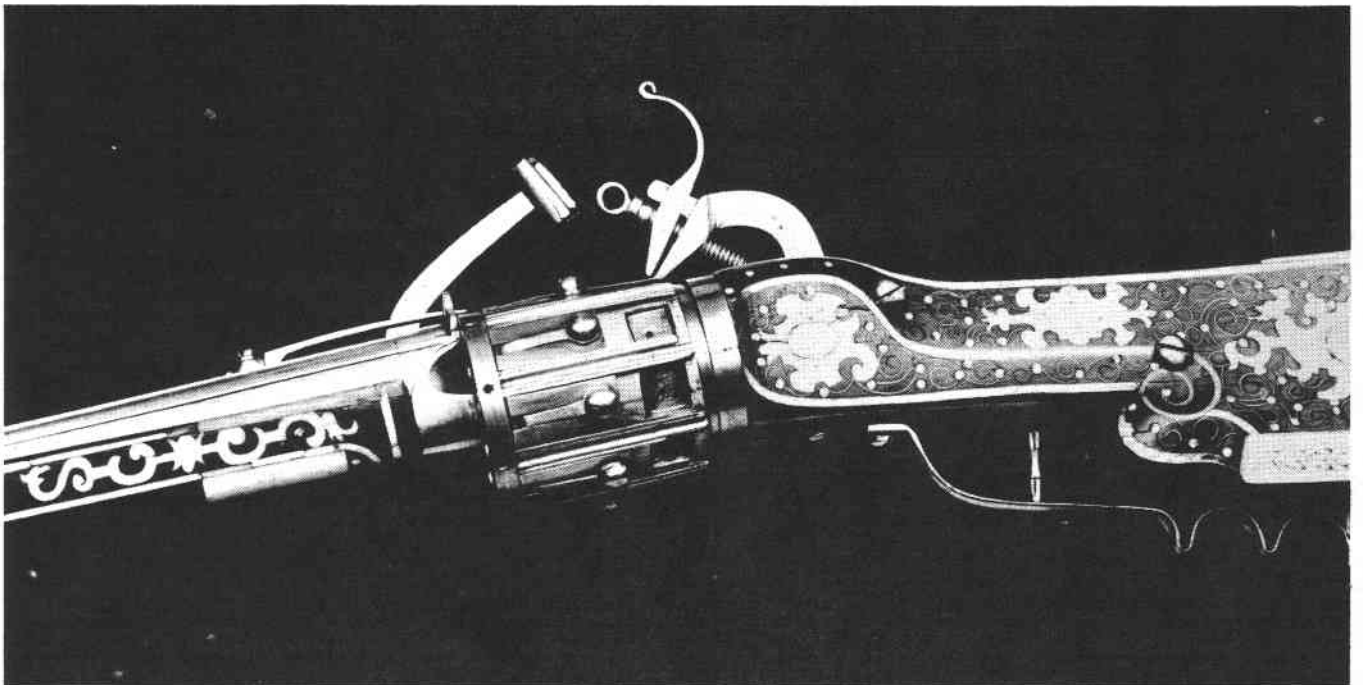
The wheel lock was a pretty complicated invention with a lot more parts than most modern guns. While the parts were all cut and fitted and tempered by hand, they had to fit exactly for the gun to function correctly. For the next hundred years after the wheel lock was invented, a craft developed of highly skilled mechanics in northern Italy, Austria, and southern Germany, who could do amazing things with steel, using only the most primitive hand tools. These are the mechanics who built the first tight fitting breech loaders. From being able to grind and polish two matching surfaces well enough to prevent the escape of violent gunpowder gasses at the breech, it was an easy step to make revolver cylinders which rotated smoothly, and were in pretty tight contact with the breech of the barrel. The two earliest wheel lock revolvers that I know about are in the Kunsthistorisches Museum in Vienna. They both belonged to the hunting cabinet of the royal family and have been in the same collection, now a museum, since they were made. There is little chance that they were faked or worked over. One is plain, but the fancier one which is illustrated here has a cut-out gold lattice decorative sleeve over the blued cylinder. The heraldic design, a two-tailed, crowned lion was the crest of the princes of Bohemia. The owner of the revolvers became King of Hungary in 1606 so that this insignia could not have been used after this, making the revolvers date somewhere circa 1600.

By 1600 there were other systems of firing guns. One of these, the snaphaunce, lent itself to a much more practical revolving firearm system. By using tiny sliding pan covers which were automatically pulled forward out of the way, as the cylinder was rotated, it was possible to fire the snaphaunce revolver with almost the speed of a modern cartridge gun. It wasn't perfect or fool-proof, and most of the surviving examples of this kind of mechanism have missing parts. Usually, what's missing is the delicate sliding arm which pushed the pans forward as the cylinder was rotated.

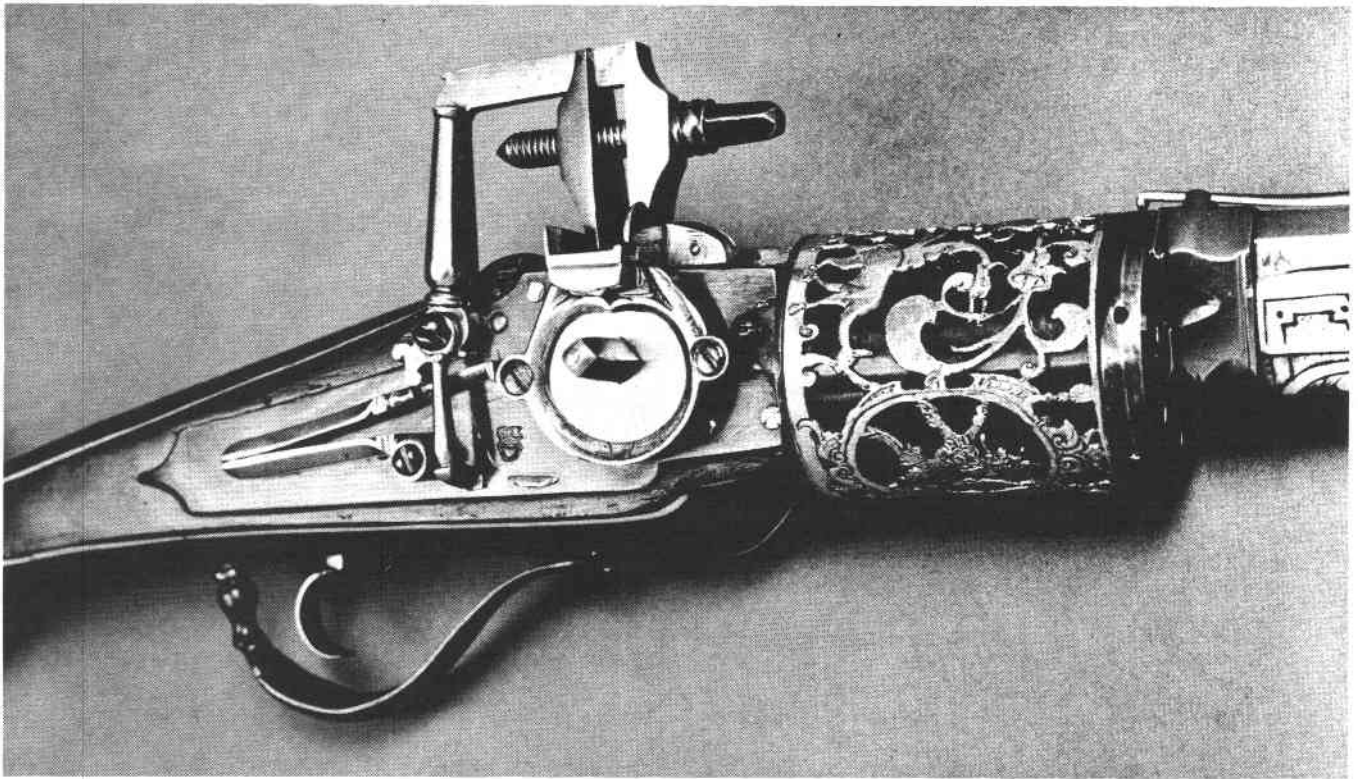
The snaphaunce, the earliest type of flintlock, has a steel or frizzen which is separate from the pan cover. In later models it also had an interior linkage which moved the pan cover forward when the hammer fell. This was the system which, borrowing somewhat from the wheel lock, was first applied to single shot guns and pistols in about 1550. The first dated snaphaunce revolver is in the Tojhus Museum in Copenhagen. It was made in Nuremberg in 1597. It is rifled and has an eight chambered cylinder. Another revolving snaphaunce rifle, which John Hayward discovered, is in the Porte de Hal fortress, turned museum. It is a large bore five shot piece dated 1634, and according to Hayward it may have been made by David Arnold in Liege. I am slightly dubious about this gun. I suspect that while parts of the gun are old, the cylinder may have been lost and replaced at a later date in order to make a more complete exhibit. The bore of the rifle is .77 caliber while the five holes in the cylinder are only .62 caliber! Another six-shot snaphaunce revolver from the 1590's is reported by Tarassuk. A Russian four barrel snaphaunce from the 1650's is reported in the English Journal of the Arms and Armour Society in March, 1959. The British built a small number of these snaphaunce revolvers, though at a later date than the ones on the Continent. I have seen two of these. One is in the Hartford Atheneum. It has the usual missing arm to open the pan covers; the cylinder is brass and so are the sliding covers. It is signed: "John Dafte, Londini." Dafte is listed as the Master of the Worshipful Company of gunmakers, London, in 1694. His career as a gunmaker must have started a number of years before that, in order for him to reach



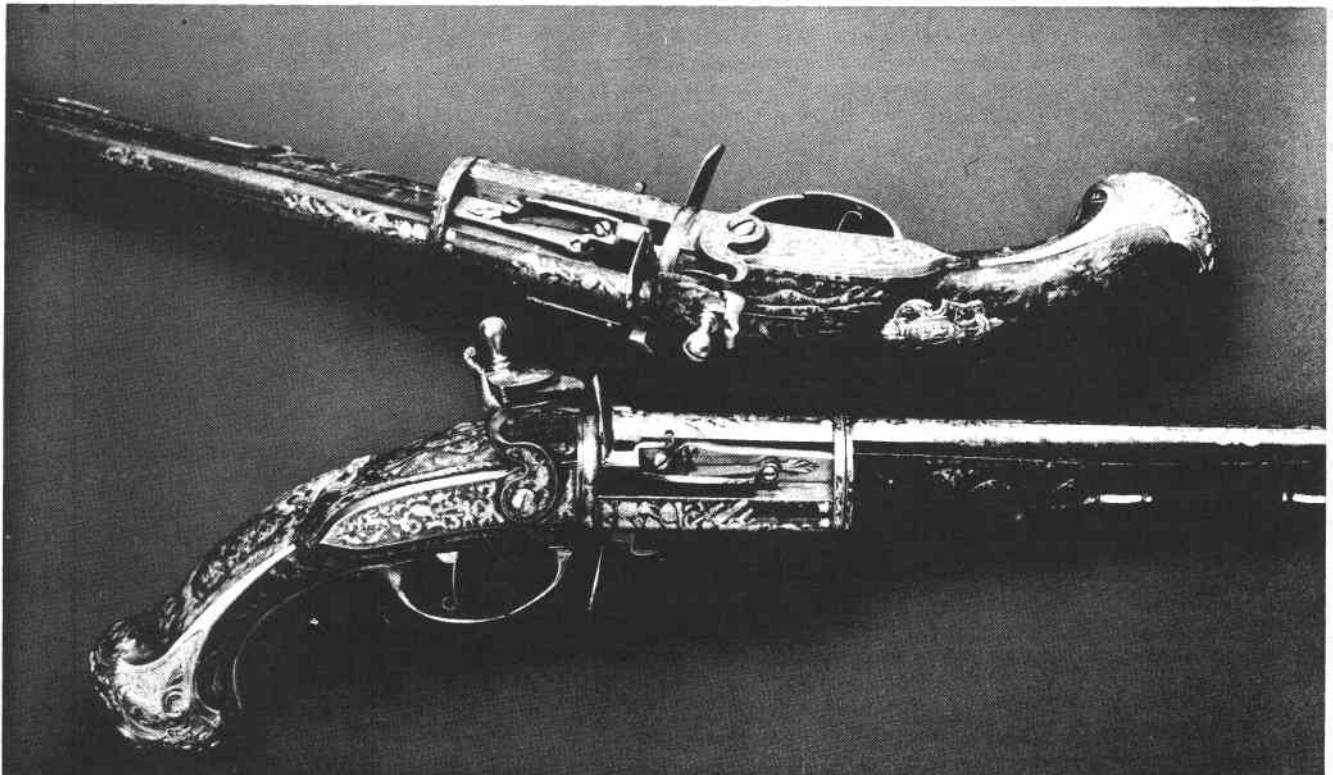
Three-barrel revolver which shoots darts. This pistol was made in Nuremberg around 1530 for Charles V. May have been worked on by Charles V. The barrels are rotated by turning a wing nut on the butt. The breech of the barrel cluster has the double eagles with the motto of Charles V, "Plus Ultra." loa. 16-1/4", bbls 8", cal. .29". The arrows or darts, split and slightly sprung at the back to keep them from sliding out of the barrel, are identical to the darts with the Porte de Hal museum pistol illustrated here. No. N/49, Armeria Reale, Turin.



Oldest dated revolving firearm. Snaphaunce revolver was made in Nuremberg in 1597. The gun is rifled and has an 8-chambered cylinder loa. 41-1/4", bbl. 27.7", cal. 42". Illustrated gun is one of a pair; No. 294-295. Tojhus Museet, Copenhagen.



Oldest wheel lock revolver. The two-tailed crowned lion in the gold lattice work on the cylinder is Bohemian. The six-shot smoothbore revolver probably belonged to Matthias before 1606 when he became King of Hungary. Barrel has a mark of a kettle with a handle and the initials "C-K." loa. 29-1/2", cal. .40". No. # A-1145, Kunsthistorisches Museum, Vienna.



King Christian IV of Denmark owned these 1740 Carlsbad 3-shot flintlock revolvers. The cylinders are hand rotated. loa. 21-1/4", bbl 13-3/8", cal. .52", s.b. No. B 1387 Tojus Museet, Copenhagen.

such an exalted position, so that it is possible to date the Hartford gun somewhere in the 1680's. The other snaphaunce revolver is in the Tower of London. As it is unsigned and undated it could either date from the same period as the Dafte pistol or it could have been made by a country gunmaker some years later. This is the theory of William Keith Neal, the outstanding English collector and Master of the Gunmaker's Company in 1953.

During the first hundred years of revolver making, the rule is, that most of the revolvers produced were hand rotated. There was no mechanical device to rotate the cylinder automatically when the hammer was cocked. Instead, the cylinder was manually rotated to the next firing position after disengaging an indexing pin. These pins with their spring usually on the top or bottom of the barrel dropped into holes drilled into the edge of the cylinder to align each chamber. The pin, while in position, kept the cylinder from rotating out of alignment while the shot was being fired.

That is, all but the snaphaunce revolver, just mentioned, in the Tower of London. It has a cylinder which revolves automatically when the gun is cocked. This feature may make it later than the date first assigned to it. If it is contemporary with the signed Dafte pistol, it is perhaps the inventor's model of the first revolver, with a cylinder which rotated through the action of a pawl or hand attached to the foot of the cock. (As the cock was pulled back with the thumb, the foot of the cock below the axis moved forward, pushing the attached hand forward against a ratchet cut in the base of the cylinder causing it to rotate).

Here we come on a blank page in the evolution of the revolver. Fine hand rotated revolvers were made in Spain in 1650. An example of a six-shot miquelet revolver and a sword is in the Metropolitan Museum of Art in New York. A three-barrel French flintlock pepper box with sheet silver and wire inlays after the designer Berain is in the Tower of London. It is circa 1670.

In the Victoria and Albert Museum in London there is another three-barrel pepper box "revolver" which belonged to Cosimo di Medici. The gun was made in Florence, Italy, by Lorenzoni, who is credited with the invention of a repeating breech loader system. This Italian "revolver" was made between 1695 and 1733. The Hermitage Museum has a hand-rotated cylinder revolver made in the Tula Workshops by I. Polin in the late 18th century. Three Kalesnikov revolvers are in western collections; a carbine in Munich and a pair of gold mounted pistols are in Russ Aitken's collection in the U.S. These were made in the 1770's to 1780's. The fact that the Russians were well acquainted with revolvers is borne out by a set of four miniatures, the longest is about 22 inches overall. All are six shot revolvers. One is a long gun, one a carbine, and the other two are a pair of handguns. They were made in 1782 by a jeweller, gunsmith named Makarishchev for the fifth birthday of the Grand Duke Alexander.

As skilled gunsmiths in every European country were well acquainted with the principle of the revolver, there is no telling which one came up with the important invention of the mechanically rotated cylinder. If it wasn't Dafte, we will have to keep our eyes open for another 18th century revolver with a mechanical system for rotating the cylinder. I don't know of any, and am forced to jump a good hundred years 'till the beginning of the 19th century and the invention of the Collier flintlock revolver in 1820. The Collier revolver had a system for rotating the cylinder although some of the surviving Colliers do not employ it. A further study of a number of Collier revolvers in Clay Bedford's collection on the West Coast should show whether the hand rotated models preceded the mechanically rotated ones or whether the mechanism was too complicated and was eliminated in later models. One of the features of the Collier was a steel with a priming magazine built in behind the striking surface. This primed the single pan automatically each time the steel was dropped. The self-primer was not, however, a Collier invention. It first appeared on wheel locks and the magazine repeaters of the Kalthoffs', and can be seen on the Kalesnikov revolving carbine made 40 years before Collier's patent was issued.

It is surprising to me that Henry Nock, who made flintlock pepper boxes in great profusion in London from 1775 on, did not concern himself with a mechanically rotated cylinder. However, the fact is that no such Nock revolvers exist. Perhaps one will turn up in a private collection. It might be signed by Twigg, Probin or Ketland or by other English gunmakers of the period, as Nock seems to have made pepper boxes for the gun trade, and they do not all carry his name.

John Nigel George in his book entitled "English Pistols and Revolvers" says that it is a pity that the Collier invention came when it did. And as a matter of fact, it was a fine revolver, but it was invented too late. Forsyth had already made all flintlocks obsolete thirteen years before by his application of percussion powders to the firing of guns. A few years later, the Forsyth guns had magazine primers and a few years after that, in 1816, still before the invention of the Collier, the percussion cap had been invented by Joshua Shaw. The fate of the Collier flintlock revolvers was to be converted to percussion. Other Collier designed revolvers were made originally to use percussion caps. These were made in France by LePage.

Colt was not the only American to apply the new percussion caps to the revolver idea. But he was one of the first, and far and away the most successful. Billingham in Rochester and Cochran from Enfield, New Hampshire and Porter in Memphis, built percussion revolvers before the 1850's were over. Eli Whitney and Remington began the manufacture of the Beal's patent percussion revolver in 1854 and 1856 respectively and the Massachusetts Arms Company, commencing in 1849, manufactured revolvers until they were restrained by Colt for patent infringement just before Colt's patent expired.

Both Colt and Cochran were born in the same year, 1814. In his recollections at the time of the Mass. Arms Company trial, Colt tried to prove that he had invented the patentable feature in his revolver, the hand and the ratchet, when he was a teen-aged cabin boy in the 1820's. He introduced in court a wooden model which he said he had whittled at that time, as proof of the priority of his claim. Whether this model is as authentic as Colt claimed it was, it is a fact that Colt had a patent drawing of his revolver in 1835 and was busy making percussion revolvers in Paterson, New Jersey in 1836. Colt was then only 22.

The history of Colt's ups and downs is well known. How he built the Walker pistol for use in the Mexican War is history. By the time that his patents had expired, Colt had had more ups than downs. He was established with his own factory on Pearl Street in Hartford by 1847 and was producing military and civilian arms by the hundreds of thousands in the 1850's and 1860's. After the Paterson and the Walker pistols, the Dragoons, the 1851 Navy, a variety of old and new model pocket pistols, and the 1861 Colt Army and Navy percussion pistols, in .44 and .36 caliber poured out of Colt's factories in Hartford and London in such profusion, that the name Colt became generic. It was applied to all revolvers, no matter who made them.

Colt was so busy and successful that he overlooked an important development that was taking place in his own factory in Hartford. Rollin White, sensing or knowing the importance that fixed or cartridge ammunition would have on the efficiency of revolvers, took his idea of a bored through cylinder to Colt officials. They didn't realize that this was as much of a breakthrough as had been Colt's original application of the percussion cap to the revolver cylinder, and dismissed the idea. White then took his idea to Smith and Wesson, who had been experimenting with cartridges, and they snapped him up. They not only bought the rights to manufacture under the patent, but they agreed in writing to defend the patent in court and pay all the expenses of defending it.

This is just what they had to do, but fortunately for them the patent was upheld and Smith and Wesson were in the same favorable position that Colt had enjoyed twenty years before. While the life of the Smith and Wesson patents ran, they were able to keep competition pretty much at a standstill. There were, however, a number of ingenious attempts to get around the patent including Colt's own Thuer patent revolver. It had a cylinder with a removable rear end and, get it!, was not bored all the way through. For a time the courts were full of patent infringement suits, but Smith and Wesson kept the lead that their foresightedness had given them. By the time their patents had expired, every pistol manufacturer worth his salt got into the cartridge revolver manufacturing business.

I have only touched lightly on the many ramifications of Colt and Smith and Wesson guns. For scholars and collectors of these valuable early weapons, the different models and the minor variations of marking of a given model can be very important, and in valuing a given gun, this knowledge can be worth thousands of dollars. The best books on Colt are Haven and Belden's "A History of the Colt Revolver;" John E. Parson's "The Peacemaker and its Rivals;" James E. Serven's "Colt Firearms 1836-1960;" Larry Wilson's and John DuMont's "Samuel Colt Presents." There are two important books on Smith and Wesson. One is John Parsons' "Smith and Wesson Revolvers." The other is Robert Neal's and Roy Jinks' "Smith and Wesson - 1857-1945." Charles and Carroll Karr have written a classic "Remington Handguns" which has been reprinted many times, and lots of other books have been written on individual makers of the 19th century. The British point of view is covered in a new book: A. S. F. Taylerson's "Revolving Arms." Taylerson covers the 19th century, especially those English-made revolvers that were the direct result of Colt's attempt to win their market by building his London factory.

The British did make solid contributions to revolver design. While they had made a few percussion revolvers prior to Colt landing on their shore, the English shooting public had not taken any notice of them. When the British gun industry was threatened by Colt who brashly exhibited his guns at the trade fair which opened the Crystal Palace, their gunsmiths came up with a real contribution to revolver design. It was the first double-action revolver built by the firm of Adams and Tranter and it made its debut the same year the Crystal Palace opened, 1851. There were many famous names among English revolver manufacturers in the 19th century. Daw, Deane, Tranter and Webley being among the best known. Today only the Webley is in use.

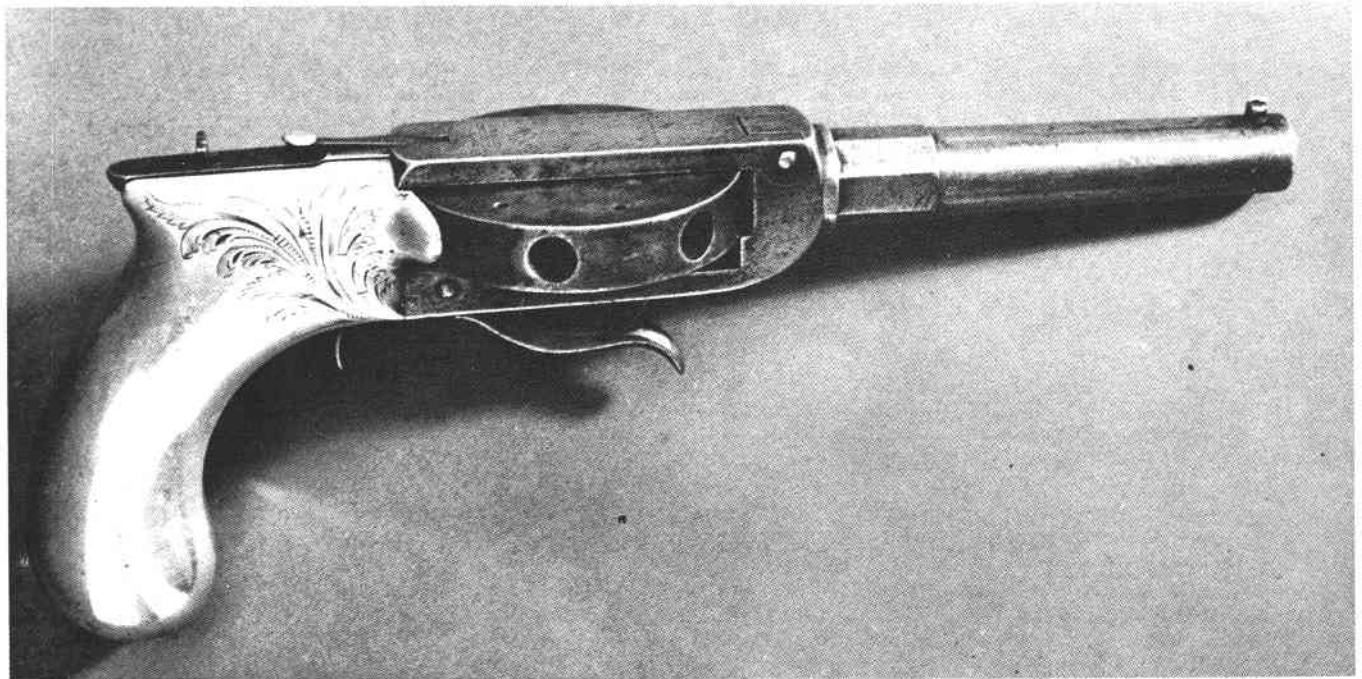
In France, far and away the best known of the revolver manufacturers was Lefauchaux. The Lefauchaux factory produced a large quantity of pin-fire revolvers. Although the Frenchman Flobert was the inventor of the modern rim fire cartridge, it was the Americans, B. Tyler Henry at Winchester and Smith and Wesson who improved the cartridge and exploited it.

Center fire cartridges were the inventions of Boxer in England and Berdan in the U. S. The adaptation from rim to center fire required modification of the location of the point of impact of the hammer, and rimless center fire cartridges which came later presented extraction problems which were overcome.

The basic revolver has remained surprisingly unchanged from the late 19th century. It was a working serviceable tool which took a lot of punishment and still functioned. It was not a subtle weapon, and because of its bulging cylinder could not as easily be concealed as an automatic. It is still the safest of the hand weapons. With the hammer down, a modern revolver is safe. With the hammer up, the gun is ready to shoot. There is no safety to worry about or concern for whether an unseen cartridge is in the chamber or jammed in the clip.



Elisha Collier's revolver. Flintlock with primer magazine made c. 1820. Frizzen engraved "E. H. Collier/71 Patent." loa. 13-7/8", bbl 6-7/16, 5 shots, cal. .46". Wadsworth Atheneum, Hartford, Conn.



Cochran six-shot, .38 cal. turret revolver. c. 1837-8. Serial No. 62. Winchester Gun Museum, New Haven, Conn.



Cased percussion pepperbox. This mint gun is signed "J. Collins, London." It is ivory stocked with silver nails decorating the ivory. Hinged butt plate holds caps. Collins was the successor to Wilson. Russell Aitken Collection.

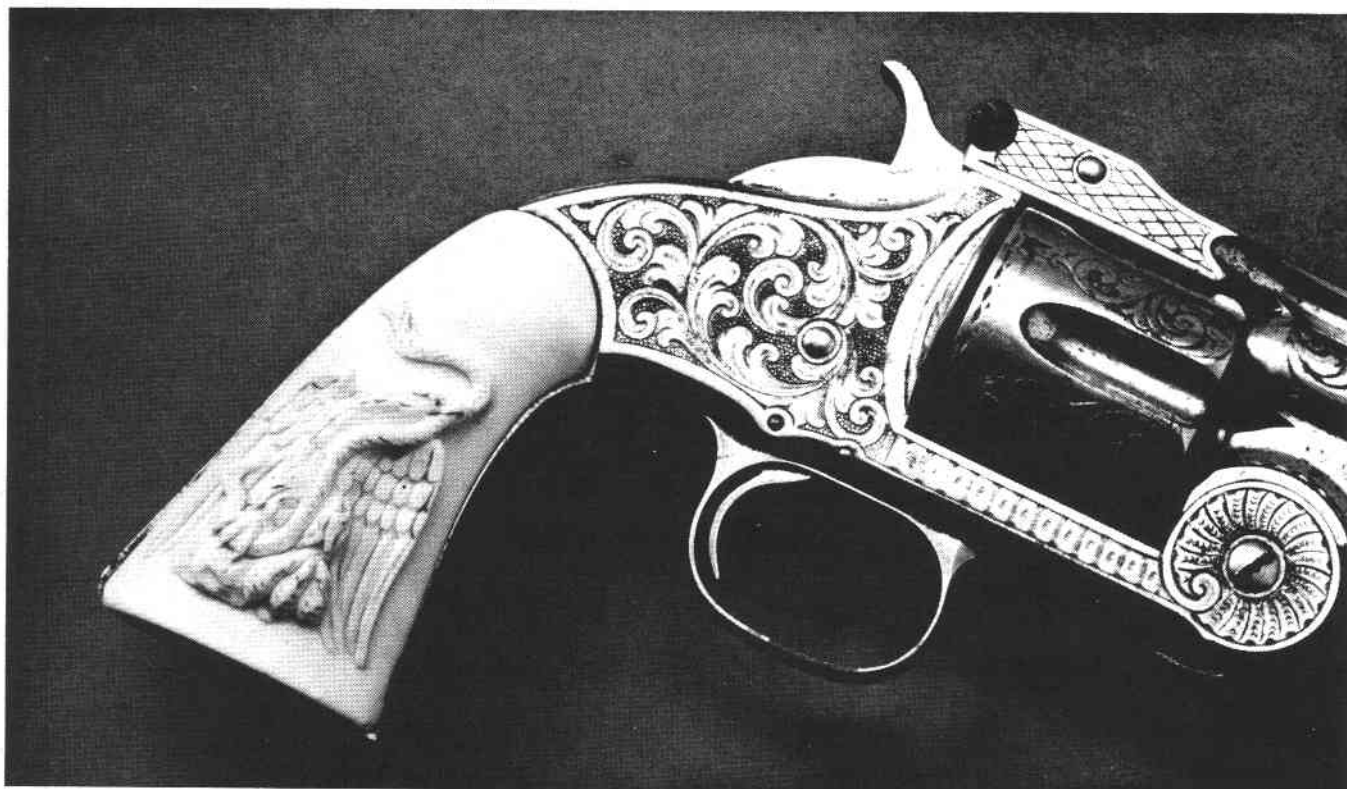


Captain Walker's own Walker pistol made at the Whitney factory for Sam Colt. Wadsworth Atheneum, Hartford, Conn.

Anyway, the revolver is a most American weapon. In the early days of the percussion revolver, European shooters stuck to their boxed pairs of pistols. They just never did get the hang of a revolver in a holster or on the belt. There was good reason for this, as the average European did not have to go around armed during peace time. Outside of the colonials, who learned to respect and use them, the average European had absolutely no need for one.

Later on when the 19th century, and an era of frontier life was dying out, Paul Mauser, Georg Luger and John Browning each perfected his own breed of automatic. These guns were an instant success with the military not only in Europe but all over the world, and our .45 Colt invented by Browning has been as American as apple pie since its introduction in 1911. Nevertheless, the revolver not only is a favorite side arm of hunters, many target shooters, the police, but even in certain special uses, by the armed forces. The popularity of the revolver today can be judged by two facts. The single action Colt, which was considered so old fashioned by the Colt factory itself that they discontinued making it in the 1930's, was revived by Sturm Ruger with such success that Colt had to retool and start making them all over again. Both companies are still making single actions which a galloping horse couldn't tell from their granddaddy, the model of 1873 --- which was the original "New Army" or "Peacemaker." The other interesting phenomena, is the Hi-Standard Sentinel. When Harry Sefried designed this little potting gun, it was of interest because it utilized new methods of manufacture and new materials. No one, least of all Harry, dreamed that this gun would outsell all of the guns in total that old Col. Colt produced in his lifetime.

Probably the principle of the revolver will go on forever. Revolving cannon are being made today. The Vulcan and the Mini gun employ the multibarrel revolver principle with such a cyclic rate that a single barrel machine gun barrel would burn up instantly. They are a valuable part of the armament of our current military aircraft. Not even in production yet, is Fred Steven's pepper-box, an underwater revolver made of stainless steel. This gun of the future shoots cartridges in the shape of darts. The unfired cartridges are about the same in appearance and in length as the projectile arrows which were used in the wheel lock pistol of Charles V, made so many hundreds of years ago.



Pancho Villa's .44'' cal. Smith and Wesson. Engraved and ivory stock carved by L. D. Nimschke in New York. Nickel plated, serial No. 2569, cal. .44 Henry. Harry Sefried Collection.



Fred Stevens underwater pistol 6 shot, stainless steel, .38 cal. dart shooting pistol. Currently in experimental production.