COLLIER AND HIS REVOLVERS

By C. P. Bedford

CLAY BEDFORD

Since giving the "Collier and His Revolvers" story at the spring meeting of the American Society of Arms Collectors in Washington, D. C., a number of additional facts have come to light. These facts and photos are included in the text; and to that extent, the article herein printed will be different from that given at Washington, D. C.

The principal differences are, first, the inclusion of photos of the Collier in The Tower of London. These photos were held up by the British mail strike and were not received in time for the spring meeting. The second, and more important difference, is the discovery after the spring meeting that the Collier in the Charney collection in The Nebraska State Historical Society Museum in Lincoln, Nebraska, did conform to the patent drawings, the only example discovered to date.

Elisha Haydon Collier, a Boston engineer, has always been an enigma to me. He was an American, born in Boston. He emigrated to England in August, 1818, and on November 24, 1818, he was granted a patent (No. 4315) for a revolving gun and a revolver.

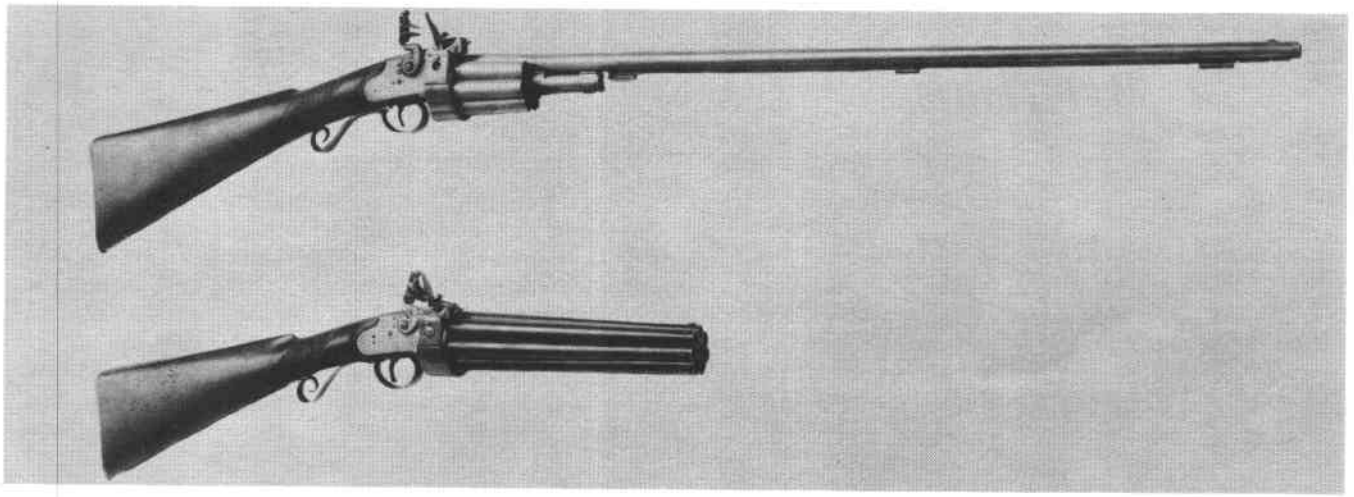


FIGURE 1. WHEELER GUNS

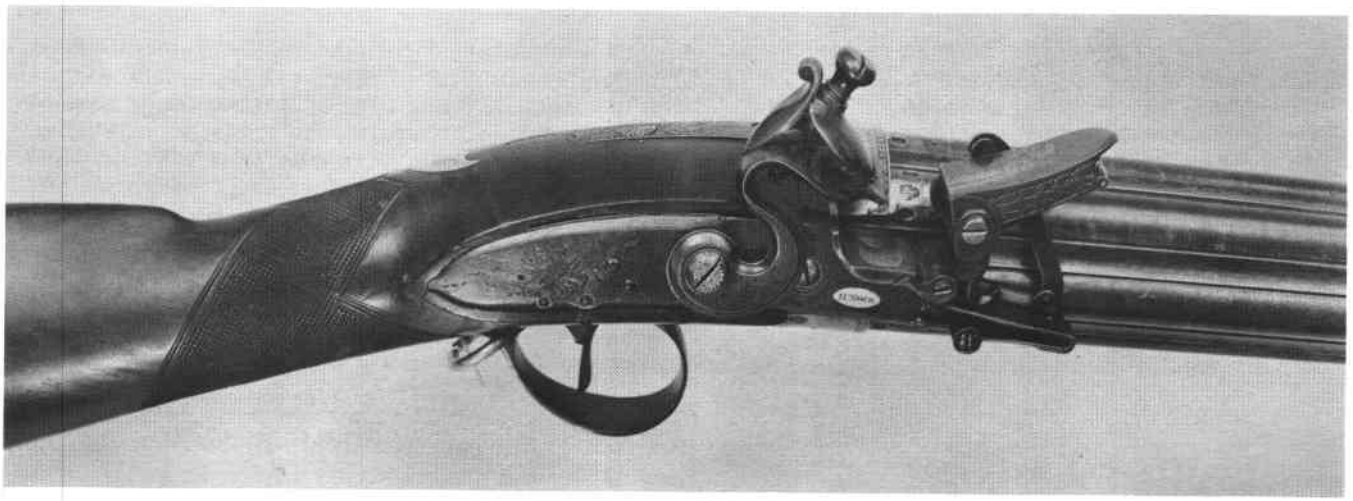


FIGURE 2. HENRY NOCK 6 SHOT REVOLVING BARRELS

FIGURE 3. LePAGE TUBELOCK REVOLVER, DATED 1835

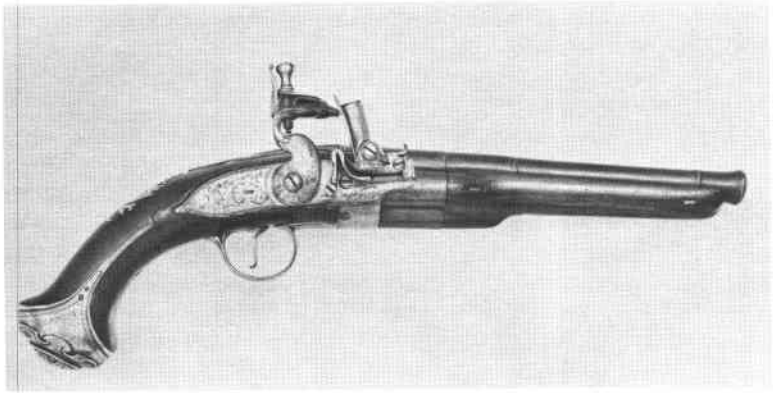


FIGURE 4. WILSON 4 SHOT REVOLVER FROM 1737

Collier had assisted a Captain Artemus Wheeler in experiments at Concord, Massachusetts, with a revolving gun and incorporated designs of the mechanical rotation of the cylinder attributed in Haw's references to another American, Cornelius Coolidge. Both Wheeler and Coolidge held a proprietary interest in Collier's English patent, as reported by Blackmore in "British Military Firearms." Cornelius Coolidge was a Boston merchant. Captain Artemus Wheeler of Concord, Massachusetts, produced the seven-shot hand-rotated design patented in the U. S. on June 10, 1818, and now in the Smithsonian collection.

The Wheeler guns (Fig. 1) do not have mechanical rotation or a device mating cylinder and barrel to prevent leakage at discharge. Thanks to Craddock Goins, of the Smithsonian, we have photographs of the two pieces.

According to Goins, the short one has the spring and wheel

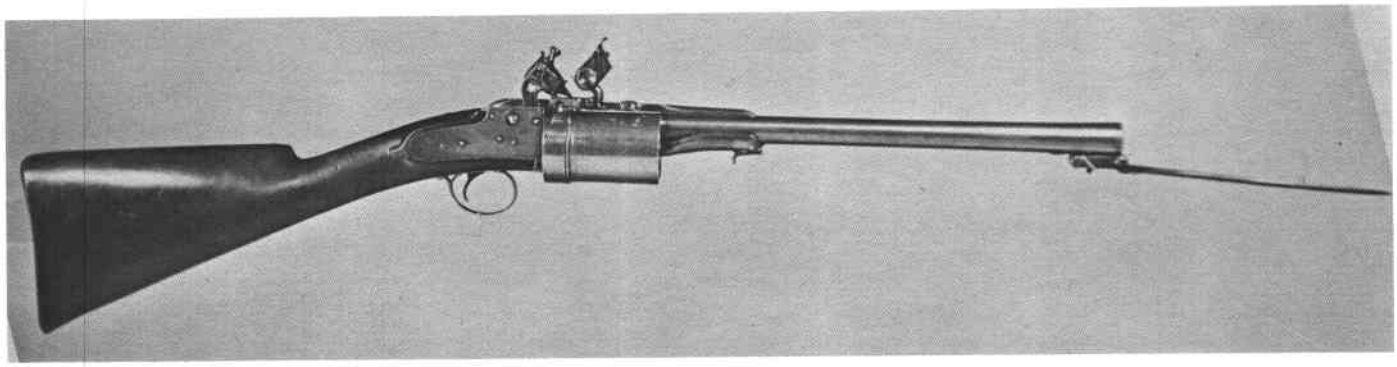


FIGURE 5. FIRST MODEL COLLIER REVOLVER BLUNDERBUS

FIGURE 6. FIRST MODEL COLLIER NO. 1

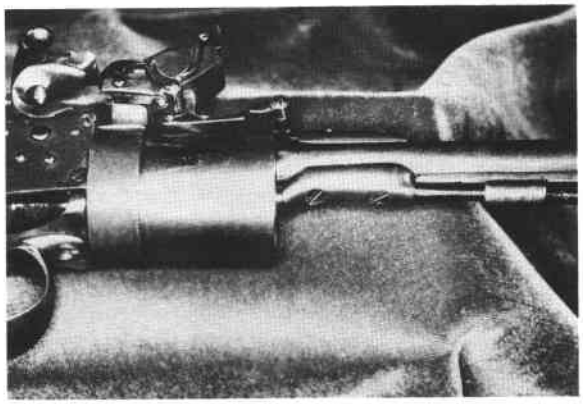


FIGURE 7. FIRST MODEL #23

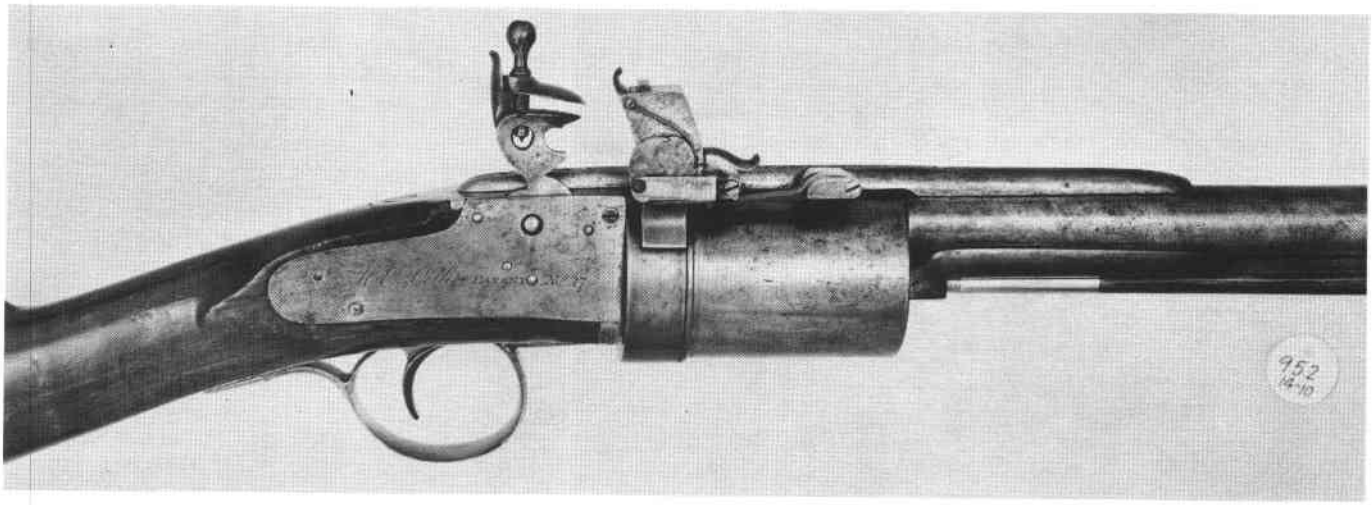


FIGURE 8. FIRST MODEL NO. 17

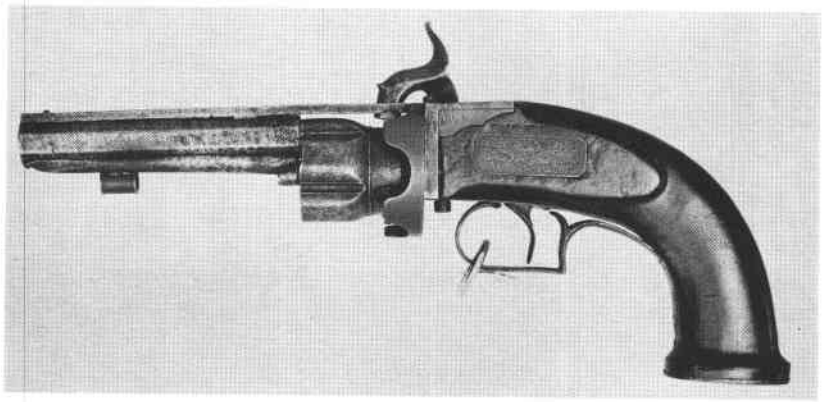


FIGURE 9. COLLIER ORIGINAL PERCUSSION BY EVANS

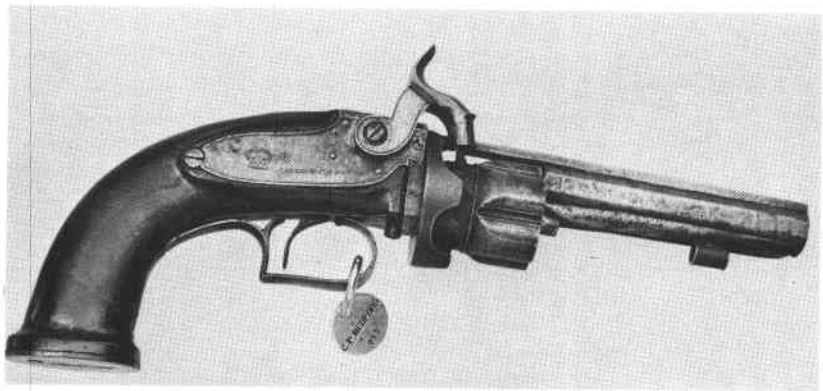


FIGURE 10. COLLIER ORIGINAL PERCUSSION BY EVANS

FIGURE 11. UNSIGNED COLLIER 3RD MODEL PISTOL CARBINE

which engages the notches on the cylinder, permitting it to be turned counterclockwise only, and only by hand. The long one is a cylinder rifle with a trigger guard release, permitting the cylinder to be turned by hand. Both of these guns have boxes from which each pan is filled as it passes beneath. The short one has about 12-inch barrels and is very similar to one in my collection by Henry Nock, made circa 1800, with 18-inch barrels (Fig. 2).

The magazine primer on the Nock gun has a link rotated shaft with a single powder slot. The rotation is 120°, priming the pan each time the magazine is lowered.

Cornelius Coolidge took the improved design by Collier to France and there patented it on August 5, 1819, and according to testimony in the Colt vs. Massachusetts arms case, achieved the production of mechanically rotated guns under that protection. No examples of the French version mechanically rotated have turned up in my investigation, so far. There is, however, in the writer's collection a pair of cased Colliers using tube lock ignition by LePage, but not mechanically rotated (Fig. 3).

These are dated 1835 and use the mating of cylinder and barrel. They also have a modified version of the cam cylinder lock which is spring loaded. Also, there is a second model gun

FIGURE 12. THIRD MODEL NO. 107, ONE OF A PAIR

FIGURE 13. SECOND MODEL NO. 48, CONVERTED TO PERCUSSION

FIGURE 14. THIRD MODEL NO. 197

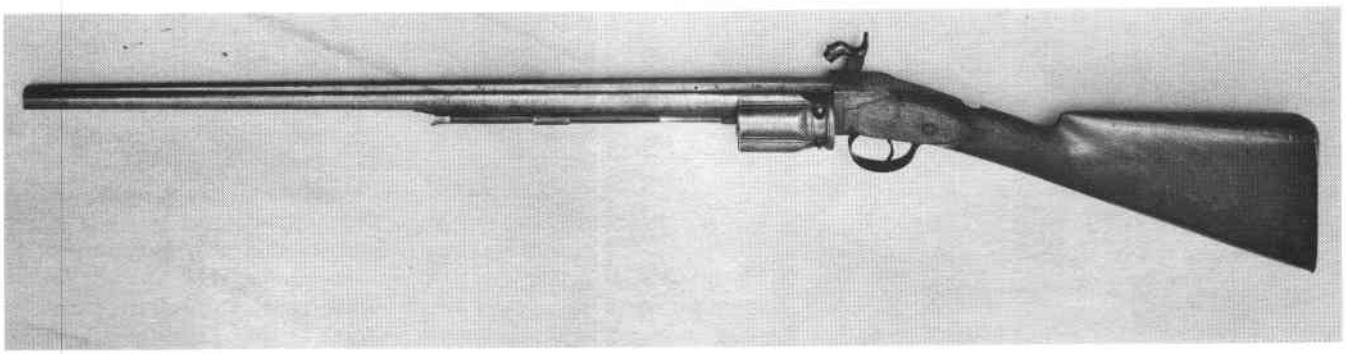


FIGURE 15. REVERSE SIDE OF FIGURE 14.

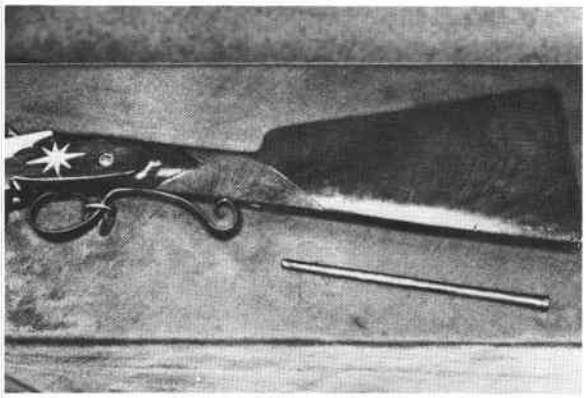


FIGURE 16. SECOND MODEL, SHOT GUN NO. 117

FIGURE 17. EXPLODED VIEW OF FIRST MODEL NO. 1

FIGURE 18. FIRST MODEL NO. 4, TOWER OF LONDON

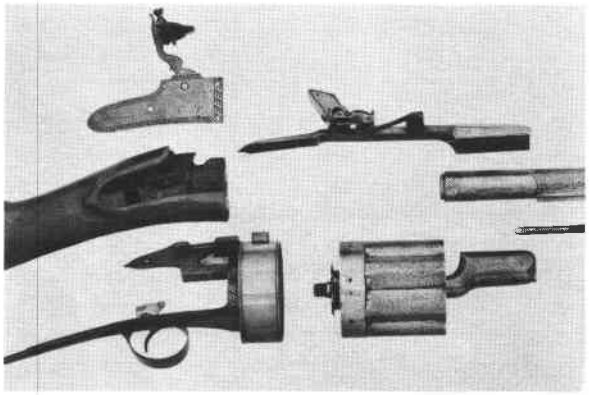


FIGURE 19. FIRST MODEL NO. 4

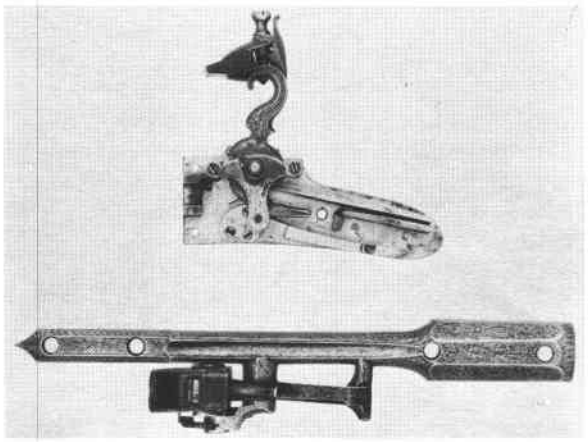


FIGURE 20. FIRST MODEL NO. 4

marked on top of the barrel, "E. H. Collier, London," and on the lock plate, "E. H. Collier, Patent," in the Musee de l'Armee, Paris. We have no details yet of the rotating mechanism of this piece.

There is in the writer's collection a flintlock pistol by R. Wilson using hand rotated cylinders, four shot (Fig. 4).

It is sterling silver mounted with the sterling silver date letter for 1737. This has a gear operated priming magazine, rotating 75°. The priming powder magazines for this pistol and the Nock gun both have flip tops for loading, as opposed to the sliding cover over the top of the first and second model Colliers magazines. The flip top was certainly a safer device in case the flash in the pan leaked into the magazine through the measuring shaft opening and set the whole priming magazine off. Here we should observe that the first model 120° rotation shaft Collier priming powder magazine operated by a pawl and ratchet was replaced by a link operated measuring shaft in the second model, rotating through almost 180° and return with only a single powder measuring slot. The terminology First Model, Second Model, and Third Model are my own. As used in this article, First Model refers to the flint lock with cock inside the lock plate, ratchet and pawl operated magazine primer, and without the cylinders being fluted. The Second Model refers to the original flint lock with link connected magazine primer, often numbered, outside cock and fluted cylinder. The Third Model refers to the original percussion with the fluted cylinder reduced at the breech end to better accommodate the nipples in the cylinder and reduce the distance from cap to powder charge.

Bill Funderburg has a blunderbuss first model Collier revolver No. 9 from the J. N. George collection. It is a six cylinder and otherwise very similar to Collier Pistol No. 1 in construction (Fig. 5). This blunderbuss was written up by Charter Harrison in "The Gun Collector," Issue 20, February, 1948.

The Collier addresses, we have recorded, are: Circa 1819 to 1824 — No. 6 Herberts Passage, Beaufort Building, Strand. 1825 (London Directory

for 1825) — Collier & Co., Gunmakers, 54 Strand. 1826 to 1829 (London Directory for 1828) — No. 3 N. Piazza, Royal Exchange, London.

Examples of Colliers of the First Model are exceptionally rare. I have a Collier flintlock pistol from the J. N. George collection engraved E. H. Collier Patent No. 1 (Fig. 6).

An almost identical revolver is in The Tower of London, marked Patent No. 23. However, the writer made a trip to London and found that, while the design is almost identical, the Tower example is of crisp British workmanship, while that of No. 1 is surely American, even to the type of screw threads, excepting only the side nail. The side nail threads are 2BA (British). The top jaw screw is 1/4" #28 (American). The barrel screw is #8-32 (American).

Another enigma is the forward attachment to the underside of the barrel of the cylinder spindle. It is by machine screws which extend into the barrel, making it unlikely either pistol was ever fired (Fig. 7).

This corresponds to the patent drawing. Later examples use 2 rivets after which the barrel is bored out, eliminating any projection into the barrel. Here is should be noted that the First Model #23 is a later number than the Second Model #14 in The Tower of London collection. Also note that the flintlock pistol, Second Model, reported by George in the Royal United Service Museum, is No. 17. We have not been able to locate the present whereabouts of the Royal United Service Museum example. In the writer's collection is a rifle, First Model, flintlock, No. 17 with proofed cylinder (Fig. 8).

The signature is in script, but H. E. Collier instead of E. H. Collier. While the number on the lock plate is 17, there is also a number 5 on the barrel lug and cylinder, and the cylinder is proofed. Unless this marking is spurious — and it does not appear to be so — one must come to the conclusion that Collier used a different numbering system for the first and second models, and possibly a third numbering sequence for the percussion or Third Model, probably beginning with No. 100. I have not seen an original percussion (Third Model) numbered less than 100.

The question of how many pistols, rifles, carbines, and guns in total were made is one of the Collier enigmas. Probably around 400 total. No. 197 is in my collection, an original percussion shotgun. If we add the highest number First Model flint that is known, No. 23, and the highest number Second Model flintlock, No. 138, we would have a total of 161. If the Third Model started at No. 101 and the highest number is No. 197, we would add 97, or a total of 258. To this must be added 50 to 100 sent to India. Therefore, it is likely that not over 400 total were made, which allows for a few of each model with higher numbers.

Another enigma is who made the Collier guns and pistols? At least one of the No. 1 models was

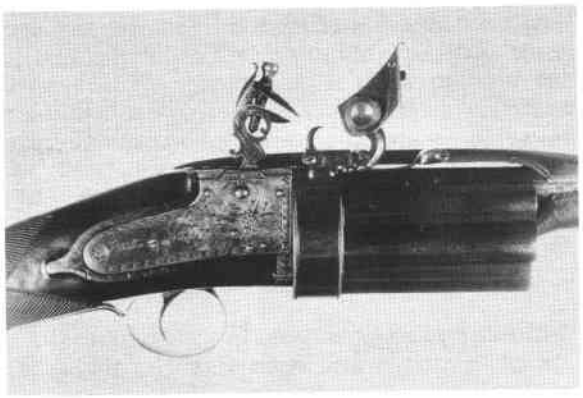


FIGURE 21. FIRST MODEL NO. 5, NEBRASKA STATE HISTORICAL SOCIETY

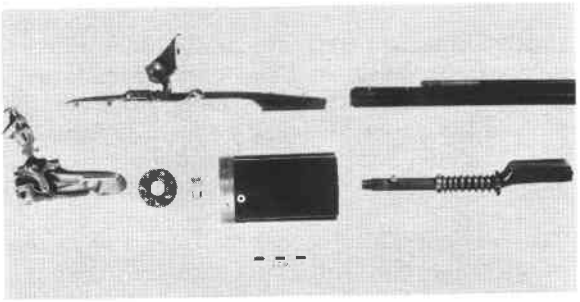


FIGURE 22. FIRST MODEL NO. 5

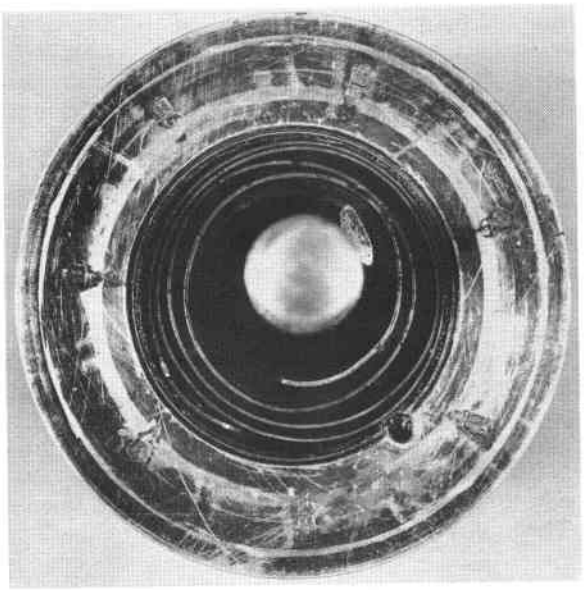


FIGURE 23. FIRST MODEL NO. 5, SHOWING CLOCK SPRING

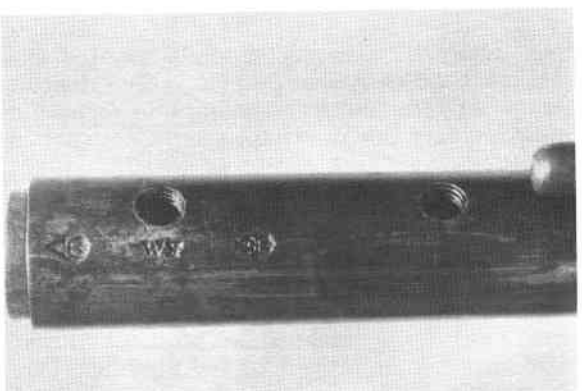


FIGURE 24. FIRST MODEL NO. 5, SHOWING PROOFS AND WM. FULLERD STAMP

probably made in America. Undoubtedly the #2 and #3 models were made in England. According to Basil Haw's article, his research indicated that while Collier gave his address and published his broad sheets as E. H. Collier, Manufacturer, and his trade labels as "Collier Cylinder Gun Manufacturer," that Collier did not maintain a gunmaking establishment. John Deane, in his "Manual of Firearms 1858" states that Evans, of 114 Wardour Street, Soho, manufactured the cylinders of the Collier arms. Evans, himself, on one occasion, stated that in 1822 he manufactured a number of flintlock revolving-chambered, breech firearms for Mr. E. H. Collier. Furthermore, the writer has a rather beaten-up original percussion Collier pistol signed by Evans and Collier (Fig. 9, 10).

This pistol, I believe, was the forerunner of the percussion model Collier and was the maker's sample to Collier. It carries no Collier number.

Collier products, in part, in the opinion of J. N. George, were made by Rigby. I can find no evidence of this except in quality and style of workmanship. Contrary to J. N. George's opinion, I believe that the production of flintlock and percussion Colliers proceeded alternately as they were ordered by customers. I think the explanation for there being so many fine condition flintlock Colliers remaining, as opposed to so few fine condition percussion Colliers, is that the percussion Colliers received much more wear than the flints, as, at the time of which we speak, flintlocks were rapidly going out of useage in England.

Collier obtained British patents for a boiler in 1830, and subsequent patents on pumping machinery in 1837, furnaces in 1843, and nail making machinery in 1839 and 1845. He returned to Boston in early 1850. From the foregoing, it can be assumed that his gunmaking was finished about 1830, approximately the expiration date of the patent (November 24, 1832). Some unsigned pieces have come to light, made similarly to the late Third Model examples. These were probably made after Collier gave up gunmaking by the assembly of parts. See CPB #792, a stocked pistol carbine (Fig. 11). Probably made after No. 197, (Fig. 14, and 15),

The earliest Third Model Colliers I have seen are the pair of original percussion pistols, Nos. 106 and 107, in my collection which are signed Collier & Co., 54 Strand, London, on the barrel and Collier & Co. Patent, (without a number) on the lock plate. (Fig. 12), The same marking is on No. 197, an original percussion shotgun (Fig. 14).

The pair of percussion pistols and percussion shotgun are numbered on the trigger guard tang, the cylinder, the cylinder backup plate, and the upper edge of the lock plate. The shotgun is viewed and proofed on the side of the barrel breech with the number 21 between the two. The reason for this number has not become apparent yet, but another example of this same marking exists in the Winchester Museum, Third Model No. 190, a shotgun

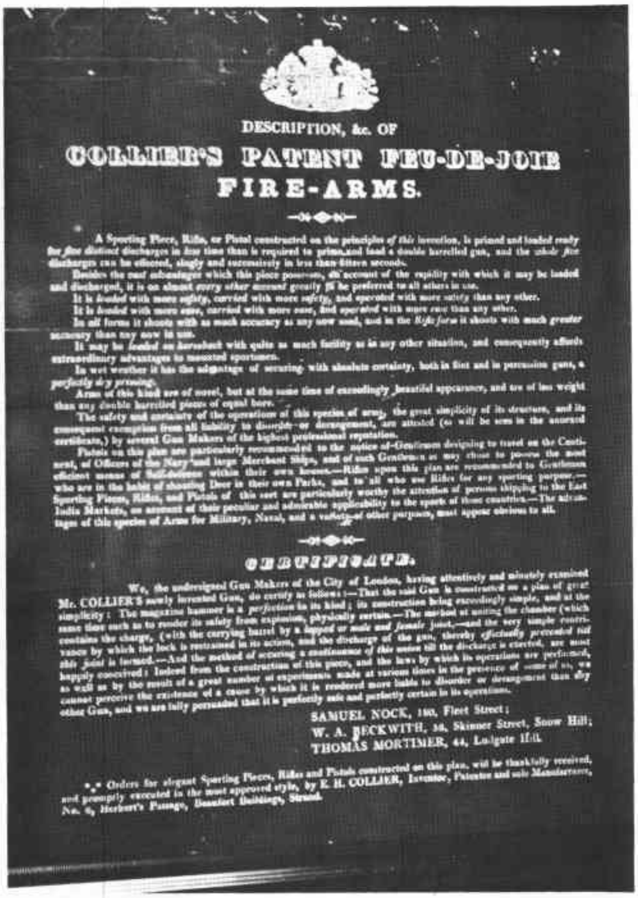
Figure 13 shows a second model pistol (Collier #48) converted to percussion by removing the shroud and screwing nipples into the cylinder touch holes, then replacing the flint with a percussion hammer and removing the priming magazine. The number is marked on spindle, cylinder plate, and upper edge of lock plate, as well as on the barrel and lock plate.

A comment on an observation by J. N. George to the effect that the silver star was not inlaid on the side plate side of his shotgun No. 197 (Fig. 15), and therefore, apparently they were not installed on shotguns. On the contrary, I have a flintlock shotgun, No. 117, with a silver star (Fig. 16), and a steel loading rod in the butt. Winchester Museum has a third model percussion shotgun, No. 190, without a star. One might suppose, therefore, that Collier did not put silver stars on his percussion arms, but the pair of pistols, Nos. 106 and 107, are original percussion and have silver stars. Therefore, I have come to the conclusion that it depended on when the arms were made. After some point in time, possibly percussion Third Model Pistol No. 107, he discontinued the star and loading ramrod in the butt of rifles and guns, probably for economy. These short steel loading ramrods in the butt are not in Nos. 190 and 197.

For those who wish to study Collier further, two addenda are printed at the end of this article. Addendum No. 1 is a bibliography of sources I found useful in studying Collier. Addendum No. 2 is a photo of the patent drawings and a description of the Collier patent. These are particularly interesting in comparison with the exploded view of the Charnley Collier (Fig. 22).

Not many of the mechanically rotated Collier arms were manufactured. Collier testified at the Colt vs. Massachusetts Arms Company trial that he had made ony between 50 and 100 of the mechanically rotated arms for the Indian market. I have never seen one from India, nor, have I heard of the existence of one. Just another Collier enigma.

I have a photograph here of the Collier No. 1 mechanism (Fig. 17). You will note that it does not have a mechanical rotating device as shown on the patent drawing. Note also that No. 4 (Fig. 18, 19), a shotgun in The Tower of London, is described by J. N. George in his book "English Guns and Rifles" as following the patent drawings except that the spring for revolving the cylinder, the stop of the escapement, and the hook, which automatically drew back the cylinder, have been removed to convert it to a simple hand rotated piece. The tooth escapement wheel attached to the base of the cylinder, the recess which once held the mainspring and the cam (attached to the tumbler of the lock) which set in motion the escapement action, remaining to prove that, in its original state, it was a self-revolving arm made to the patent drawings (Fig. 20).



DESCRIPTION, &c. OF

COLLIER'S PATENT FEU-DE-JOIE FIRE-ARMS.

A Sporting Piece, Rifle, or Pistol constructed on the principles *of this invention*, is primed and loaded *ready for five distinct discharges* in *less* time than is required to prime and load a double barrelled gun, and the *whole five* discharges can be effected, singly and successively in less than fifteen seconds.

Besides the vast advantages which this piece possesses, on account of the rapidity with which it may be loaded and discharged, it is on almost *every other account* greatly to be preferred to all others in use.

It is *loaded* with more *safety*, *carried* with more *safety*, and *operated* with more *safety* than any other.

It is *loaded* with more *ease*, *carried* with more *ease*, and *operated* with more *ease* than any other.

In *all forms* it shoots with as much accuracy as any now used, and in the *Rifle form* it shoots with *much greater* accuracy than any now in use.

It may be *loaded on horseback* with quite as much facility as in any other situation, and consequently affords extraordinary advantages to mounted sportsmen.

In wet weather it has the advantage of securing with absolute certainty, both in flint and in percussion guns, a *perfectly dry priming*.

Arms of this kind are of novel, but at the same time of exceedingly beautiful appearance, and are of less weight than any double barrelled pieces of equal bore.

The safety and certainty of the operations of this species of arms, the great simplicity of its structure, and its consequent exemption from all liability to disorder or derangement, are attested (as will be seen in the annexed certificate,) by several Gun Makers of the highest professional reputation.

Pistols on this plan are particularly recommended to the notice of Gentlemen designing to travel on the Continent, of Officers of the Navy and large Merchant Ships, and of such Gentlemen as may chuse to possess the most efficient means of Self-defence within their own houses.—Rifles upon this plan are recommended to Gentlemen who are in the habit of shooting Deer in their own Parks, and to all who use Rifles for any sporting purpose.—Sporting Pieces, Rifles, and Pistols of this sort are particularly worthy the attention of persons shipping to the East India Markets, on account of their peculiar and admirable applicability to the sports of those countries.—The advantages of this species of Arms for Military, Naval, and a variety of other purposes, must appear obvious to all.

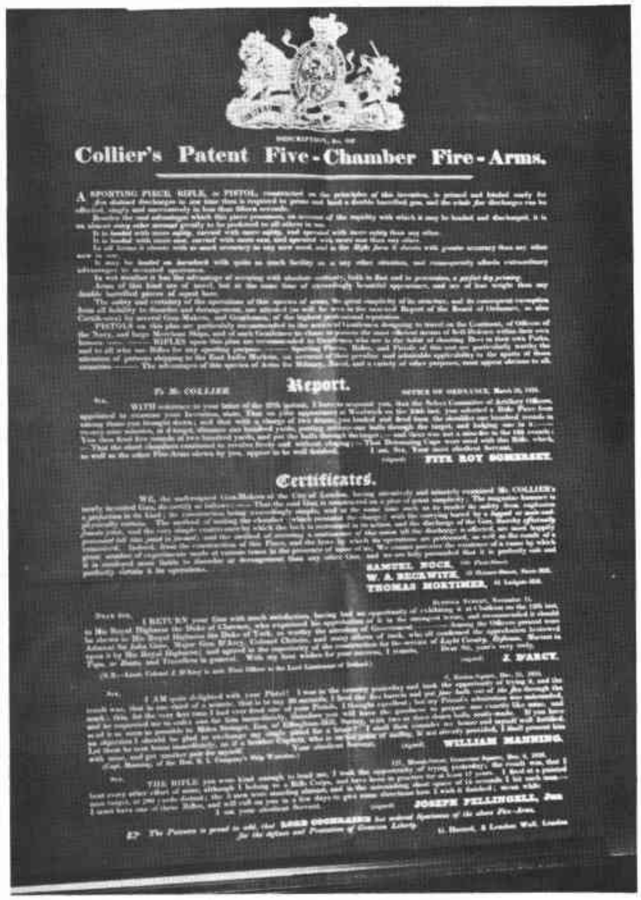
CERTIFICATE.

We, the undersigned Gun Makers of the City of London, having attentively and minutely examined Mr. COLLIER'S newly invented Gun, do certify as follows:—That the said Gun is constructed on a plan of great simplicity: The magazine hammer is a *perfection* in its kind; its construction being exceedingly simple, and at the same time such as to render its safety from explosion, physically certain.—The method of uniting the chamber (which contains the charge,) with the carrying barrel by a *lapped or male and female* joint,—and the very simple contrivance by which the lock is restrained in its action, and the discharge of the gun, thereby *effectually prevented* till this *joint* is formed.—And the method of securing a *continuance of this union* till the discharge is effected, are most happily conceived: Indeed from the construction of this piece, and the laws by which its operations are performed, as well as by the result of a great number of experiments made at various times in the presence of some of us, we cannot perceive the existence of a cause by which it is rendered more liable to disorder or derangement than any other Gun, and we are fully persuaded that it is perfectly safe and perfectly certain in its operations.

SAMUEL NOCK, 180, Fleet Street;
W. A. BECKWITH, 58, Skinner Street, Snow Hill;
THOMAS MORTIMER, 44, Ludgate Hill.

*** Orders for elegant Sporting Pieces, Rifles and Pistols constructed on this plan, will be thankfully received, and promptly executed in the most approved style, by E. H. COLLIER, Inventor, Patentee and sole Manufacturer, No. 6, Herbert's Passage, Beaufort Buildings, Strand.

FIGURE 25. COLLIER BROADSHEET



DESCRIPTION, &c. OF

Collier's Patent Five-Chamber Fire-Arms.

A SPORTING PIECE, RIFLE, or PISTOL, constructed on the principles of this invention, is primed and loaded ready for five distinct discharges ...

Report.

To Mr. COLLIER. OFFICE OF ORDNANCE ...

I am, Sir, Your most obedient Servant,
(signed) FITZ ROY SOMERSET.

Certificates.

SAMUEL NOCK,
W. A. BECKWITH,
THOMAS MORTIMER,

(signed) J. D'ARCY.

(signed) WILLIAM MANNING.

(signed) JOSEPH PELLINGELL, Jun.

FIGURE 26. COLLIER BROADSHEET

FIGURE 27. CYLINDER FROM COLLIER NO. 117, SHOWING PROOFS AND NO. 84

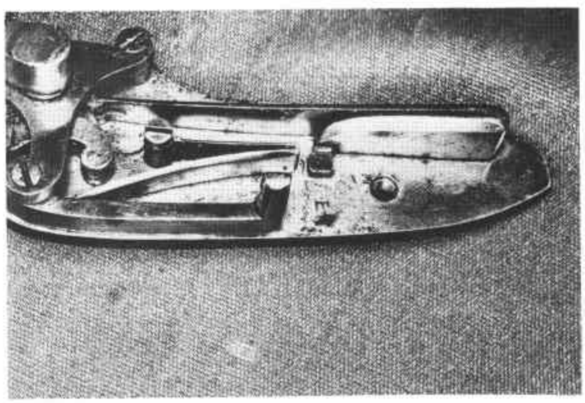


FIGURE 28. INSIDE LOCK OF NO. 197 TO SHOW E

FIGURE 30. CASED COLLIER NO. 57

FIGURE 29. CASED COLLIER NO. 57

It is seven-chambered and of excellent workmanship. Photo Nos. 18, 19, and 20 are British Crown Copyright and are reproduced here by permission of the Clerk of Stationery.

I have no good explanation as to why No. 4 followed the patent drawings and No. 1 does not. Also note that No. 1 has a barrel, cylinder and frame marked No. 2. Furthermore, No. 1 has a viewed and proofed cylinder. Note also that all first model cylinders are cylindrical, and second and third model cylinders are fluted.

As mentioned in the foreword, subsequent to the Washington, D. C., meetings of the American Society of Arms Collectors, I had an opportunity to visit the Nebraska State Historical Society Museum in Lincoln, Nebraska. Robert Pettit, Curator, was kind enough to permit me to dismount both Colliers in their possession from the Charnley collection.

One is a second model pistol numbered 11 on lock plate exterior and edge and on the cylinder and cylinder shield, and on the top of the barrel. The barrel length is 6-1/4 inches, smooth bore, .48 caliber.

The other was a first model, 7 cylinder revolving shotgun, .56 bore, 26-inch barrel, complete except flash shield was missing. No loading rod was provided for in butt. The barrel is stamped W. F. (Wm. Fullerd) and viewed and proofed. The lock plate is inscribed E. H. Collier Patent No. 5 in one line in script. Cylinder is viewed and proofed. The barrel is marked with a small 4 just ahead of the breech. This fowling piece is shown in Fig. 21, 22, 23, and 24.

A comparison with the patent drawing (Fig. 32) shows this Collier example to be complete with indexing wheel escapement mechanism and (Fig. 23) with wind-up spring still intact. Note in Fig. 22 the ratchet (Fig. 25 of the patent drawing) and cam (Fig. 19 of the patent drawing). This is the first Collier example I have seen or read of that completely followed the patent drawings.

The broad sheets issued by Collier (Fig. 25, 26) indicate support by Samuel Nock, 180 Fleet St., W. A. Beckwith, 58 Skinner St., and Thos. Mortimer, 44 Ludgate Hall. Certainly, it is reasonable to suppose that these gunmakers made some, if not all, of the parts of the Collier guns and pistols. W. Keith Neal could find no record of Evans as a gunmaker at the Proof House, and no record of Collier having guns proofed. Therefore, someone else must have obtained the proofs and probably made the parts, as we have at least four examples of cylinders being proofed. Number 117, second model shotgun; No. 17, first model rifle; No. 1, first model pistol; and one unnumbered first model rifle; also, No. 190 and No. 197, third model guns, have the barrels proofed. You will note in Collier guns and pistols that numbers of the parts are not uniform in many cases, indicating that assemblies may have come from more than one source.

FIGURE 31. TRADE LABEL FROM CASED COLLIER NO. 57

Note Cylinder No. 84 on Shotgun #117 (Fig. 27).

We have lock plates on late examples of a third model without signature and on #197, with an E stamped on the inside of the lock plate (Fig. 28). So far, I have been unable to locate an E on a firearm by any other maker.

Cased Colliers are exceptionally rare. I know of only five. One of our members has been kind enough to furnish me with photographs of a cased Collir second model pistol (Fig. 29).

The next photo is the contents, (Fig. 30), and the last photo (Fig. 31) is of the trade label. Nte there is no address.

There is no priming magazine charger in this cased set. Ray Riling shows one in his powder flask book, Page 78, which is now in my collection.

One next to last word. Colliers were made and signed by other makers in England. The percussion pistol by Evans in only one. Recently one was available by Mills. Taylerson records one by Edwards. Others have been reported.

Now, the last word. If you have any information leading to the solving of any of these enigmas, adding to them, or, challenging the information presented, please drop me a line.

My many thanks go to Jim Serven, Bill Funderburg, Keith Neal, Tom Hall, John Williams, Steve Grancsay, John MacMurray, Henry Stewart, Sam Smith, Howard Blackmore, Bob Abels, Jack Strassman, and many others who have aided the writer from time to time in the research conducted so far.

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ADDENDUM NO. 1

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THE COLLIER REVOLVER

THE COLLIER REVOLVING BLUNDERBUSS

THE REVOLVER (1819), by S. B. Haw, Part 1

THE REVOLVER (1819), by S. B. Haw, Part 2

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ADDENDUM NO. 2

COLLIER PATENT DESCRIPTION

A. D. 1818. . . . . No. 4315

Fig. 1, is the side view of a pistol formed upon this construction; Fig. 2, and end view of the same; and Fig. 3, a section through the middle of it, viewed on the opposite side to Fig. 1. Fig. 4, is another section similar to Fig. 3, excepting that the situations of several parts of the movements are changed, as will be described hereafter. Figs. 5, and 6, are also introduced to shew the different situations of particular parts of the lock in performing their several offices. Other figures, from Fig. 7 to Fig. 26 inclusive, are also added to explain the detail of the several parts. A, Figs. 1, and 2, is the wooden stock of the pistol. B, a metal plate forming one side of a frame or case to contain the parts of the lock and other movements, to be particularized hereafter. C, is another metal plate with straps forming the top end, and bottom of this frame, which is firmly secured to the stock. A, by screws. Into the end of the frame C, is screwed the axis D, at the other end of which is an elevated off-set having a hollow made in its upper part, into which one end of the long barrel E, which is open at both ends, is received and secured by a screw. To the top of the frame C, is secured the elevated brace F, having also at its other end a hollow to fit the end of the long barrel E, and to which it is also joined by a screw; and thus the long barrel E, is firmly united to the frame C. Upon the axis D, revolves a number of short barrels or chambers G, arranged in a circular manner, and at equal distances around the axis. One end of each of these short barrels is closed, and they are of sufficient capacity to contain the charges of gunpowder, shot, or ball intended to be used. These short barrels may either be made of iron, or of any other fit metal or composition of metals, in separate tubes, and afterwards firmly united together, or they may be made out of one solid mass of metal properly bored and shaped into form. A cylindrical hole is made through the centre of this set of short barrels, into the fore end of which is

screwed a nut H, having a cylindrical hole in its centre, through which the axis D passes, and into the opposite end of it another nut I, is screwed, with a cylindrical hole also in its centre, fitted to the axis. This nut I, is prevented from becoming unscrewed by means of a steady pin screwed into the joint between the male and the female screw. To the nut I, is screwed a plate or wheel K, having a number of teeth equidistant around it, corresponding to the number of short barrels used, the use of which teeth will be described hereafter. On the axis is fastened one end of a spiral spring L, similar to the main spring of a clock or watch, the other end of which is secured to the inner part of the cylindrical hole within the set of short barrels, and which spring, when wound up, has a tendency to cause the barrels to revolve in a circular direction. A boss or ring M, is also fixed upon the axis D, by means of a pin passed through it, against which boss one end of an helical spring N, placed upon the axis D, presses, the other end of it pressing against the nut H, in the fore end of the set of short barrel G, and thus gives it a tendency to thrust or push outwardly, so as to cause a recess made in the end of each short barrel to fit upon a shoulder made upon the end of the long barrel as they pass it in succession, and thereby to make a close joint with it ready to be discharged. In order to prevent the short barrel from recoiling during the discharge, a bolt O is thrust against it by the action of a tooth P, formed upon the axis of the lock-tumbler, shewn in Fig. 3; that part of the axis opposite to the tooth P, being also supported by a bracket Q, firmly screwed to the top plate of the frame C, and rivetted to the end plate thereof. Another tooth, R fitted upon the square part of the axis of the tumbler, operates upon one end of a lever S, turning upon its fulcrum at T, to the other end of which is jointed the catch bolt U, so as to cause it to advance and recede alternately, and when advanced to catch or lay hold of that tooth of the wheel K, which may happen to be opposite to it, and being withdrawn to bring the set of short barrels along with it, until that one which was engaged in or jointed with the long barrel becomes sufficiently separated from it to allow the spiral spring L, to cause it to revolve far enough for the next short barrel in succession to take its place, which it does by the pressure exerted by the helical spring N, against the set of short barrels, and by the catch bolt U, slipping off the tooth of the wheel K, in consequence of the circular motion of the barrels, and thereby permitting the recess in the approaching short barrel to slip upon the shoulder on the end of the long barrel.

Fig. 1, represents the pistol as just discharged, with the catch bolt U, hooked upon one of the teeth of the wheel K.

Fig. 3, is a section of the pistol in this situation, to shew the tooth R, lying ready to act upon the lever S, and pull back the catch bolt U.

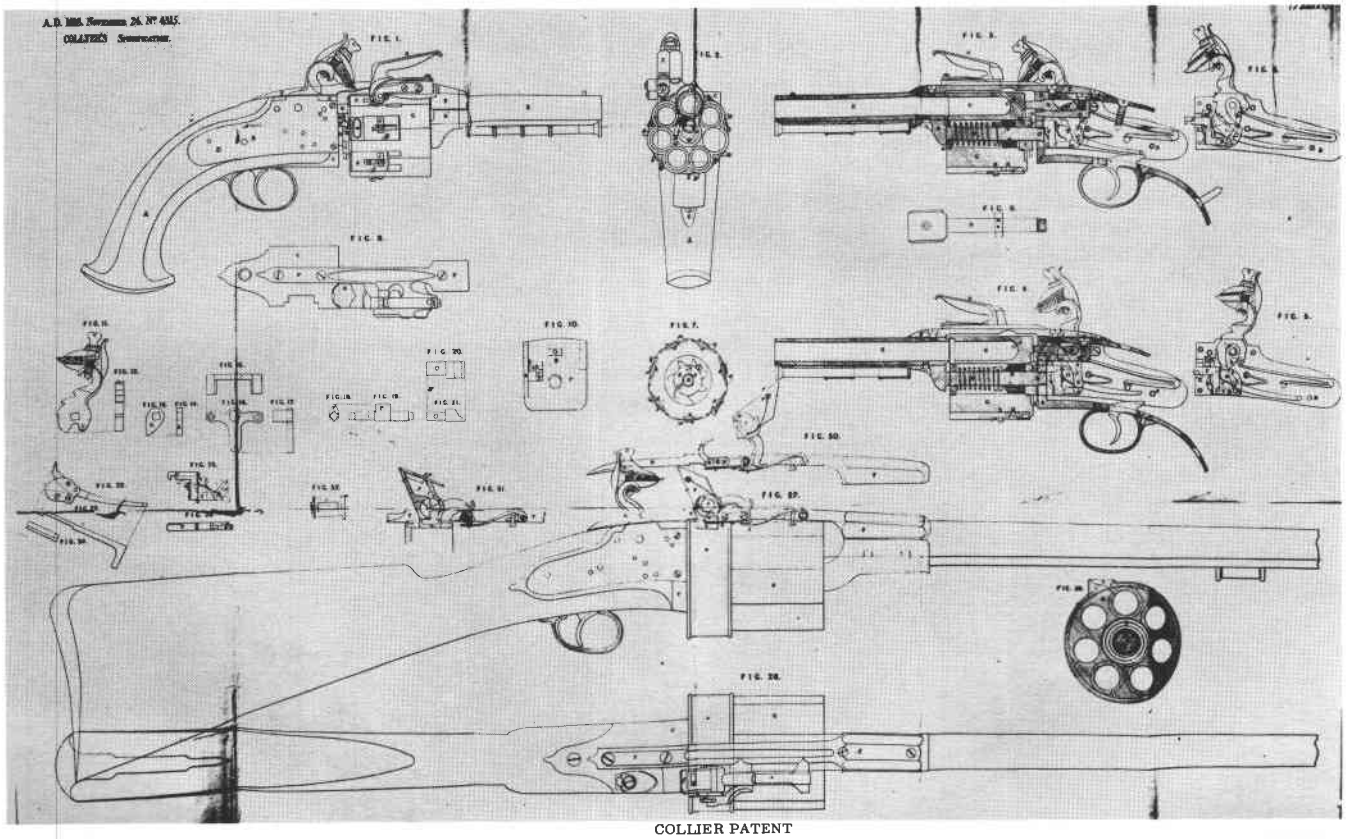
Fig. 4., shews the cock a little raised, the tooth R, being engaged in pushing forwards the end of the lever S, and thereby drawing back the catch bolt U, and the set of short barrels, until that which was united with the long barrel has become disengaged from it. The tooth of the wheel K disengages itself from the catch bolt U, by the action of the spiral spring, and the cock will then be at liberty to be brought to the half cock, and the catch bolt withdrawn so far as to let the next tooth of the wheel R pass by it, and the next short barrel will then be at liberty to engage itself with the long barrel by the action of the helical spring N.

In bringing the cock from the half cock to the full cock, the tooth R depresses the lever S, until it can pass over it, at the same time compressing the spring V, which is attached to the catch bolt U; but when brought to full cock, as shewn in Fig. 5, the tooth R will have passed over the lever S, and by the reaction of the spring V the lever will be raised, so as to be acted upon by the tooth R, in the opposite direction when the cock is discharged. By the time it has arrived at the situation of half cock the tooth R will have pushed back the lever S, and moved the catch bolt U, forwards, until the spring W (also fixed to the catch bolt) acts against the stud X, and as the cock moves further down the lever S is still more depressed, so that the tooth R, is just ready to pass over it; and when in this situation, the end of the spring W, being pressed against the stud X, which is above the fulcrum T, upon which the lever S moves, it causes the catch bolt U to rise up to the upper side of the cap or cavity through which it passes, at the same time receiving the spring Y, which acts on the top of it, as shewn in Fig. 6; the catch bolt is thus lifted up sufficiently high to pass over the before-mentioned tooth of the wheel K. When the cock has descended a little more the tooth R will have passed the end of the lever S, and by the reaction of the spring W, the lever S will be raised to its first situation, as shewn in Fig. 3, and at the same time, by the reaction of the spring Y, the catch bolt U, will be depressed and hooked upon the tooth of the wheel K, ready to again bring forwards the short barrels, as before described. When the cock is quite down, as shewn in Fig. 3, and the discharge may be taking place, it will be observed that the point of the tooth P is depressed below the centre of the axise of the tumbler: and the greater is the effort made by the discharge of the piece against the bolt O, to cause it to recede, so much the more does it prevent the tooth P from rising out of the recess in the end of the bolt O, which is below the centre of the axis of the tooth, the bolt itself being supported upon the brackett Q. When the cock is raised the tooth P is lifted out of the recess in the end of the bolt O, and permits it to slide back by the pressure of the short barrels against it, as shewn in Fig. 4 the sear and other parts of the lock not described, being common to other locks, need not be particularized here; I can apply either the usual hammer or one of the magazine hammers (to be herein-after described) to this lock. The hammer Z, is united to the elevated brace F, (instead of to the lock plate as usual) as shewn in Fig. 1, and 8. Each short barrel has a separate pan a, and a sliding cover b, fitted to it, moving in dovetailed grooves, and regulated by the spring c, so as to move freely, but not too easily, so as to be affected by the recoil in firing the piece. Each sliding cover has also a tooth or stud d, upon it, against which the toe e, of the hammer acts on shutting the pan, so as to cause the cover to slide back, the hammer itself then covering

the priming ready to receive the fire from the flint. In order to use this weapon the short barrels or chambers must each receive a charge of gunpowder, and either shot or ball, as may be required. The pans also must be filled with prime, and the sliding covers shut upon it. All the short barrels but one may be loaded, and that one, namely, that which is engaged in the long barrel, will be disengaged from it on winding up the spring L, by turning the short barrels round in the contrary direction to that in which they move when fired, the remaining short barrel may then be loaded and primed, and the piece is ready to fire off each charge in succession by mrerly cocking the lock, shutting the hammer, and discharging the piece.

Fig. 27, is a side view, and Fig. 28, a top view of a gun, fitted up with a lock and its appendages of the construction before described as applied to the pistol, but with a magazine hammer and one pan only, which serves all the short barrels as they resolve. This magazine hammer f, has a chamber g, Fig. 31, made at the back of it, to hold a sufficient quantity of gunpowder to fire off the number of barrels required. At the lower part of the chamber is fitted a cylinder i, shewn separately at Figure 32, having a number of equidistant cavities j, j, j, aroung it, and each sufficiently large to receive a supply of gunpowder for a priming. This cylinder communicates with the chamber by the opening l, at the bottom of it; and underneath it is another opening m, which delivers the gunpowder it has received into the pan n; a sliding cover o, with a study and regulating spring in the inside of the chamber, closes it. On one end of the cylinder is fitted a ratchet wheel p, Figs. 27, and 30, having teeth corresponding to the number of cavities in the cylinder, and a spring q, to retain it in the required situation. This ratched wheel meets a click r, jointed to the elevated brace f, having a spring s, acting upon it, and which click causes the cylinder to turn on shutting the pan until the next cavity in succession is brought over the pan, as shewn in Fig. 31, and delivers its priming into the pan, whilst at the sam time another cavity is receiving another priming from the chamber, as is likewise shewn in Fig. 31. The toe of the hammer is acted upon by the spring t, in the manner represented in Figs. 27, and 30. The pan n, is attached to a metal hoop or cylinder a, at the end of which is a plate with a hole in the middle of it to permit the axis and bolts to pass through; this plate is firmly secured to the end plate of the frame c, by means of screws. Within the hoop u, the set of short barrels revolves, the interstices between them at that end being filled up or left solid, so as to form a cylindrical surface nearly filling the hoop, so as not to permit the gunpowder to pass out of the barrels through the touch holes, nor the flame to communicate from one barrel to another. Within this hoop the short barrels are capable of moving in all the various directions, the same as if it was not there.

Fig. 29, represents the set of short barrels G, within the hoop u, and the situation of the pan n, upon it communicating with one of the touchholes. Fig. 7, is the set of short barrels viewed from the opposite end in Fig. 9, shews the axis D, separate. Fig. 10, is the end of the lock frame C. Fig. 11, is a side view of the cock; and Fig. 12, shews its thickness. Fig. 13, is the tooth R, of which Fig. 14, shews the thickness. Fig. 15, 16, & 17, are different views of the bridle of the tumbler, which is situated when in use near the middle of it, between the teeth P, and R. Figs. 18, and 19, are an end and front view of the axis of the tumbler and tooth P. Figs. 20 and 21, are a top and side view of the bolt O. Fig. 22, is a side view of the sear and sear bridle. Fig. 23, is an edge view of the sear. Fig. 24, an edge view of the sear bridle; and Fig. 25, is a side of the lever S, and catch bolt U, with its springs W and V, the dotted lines shewing other situations of the different parts, as already described. Fig. 26, is an edge view of Fig. 25.



COLLIER PATENT