

"SOME UNUSUAL FIREARMS"

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A lecture delivered before

The American Society of Arms Collectors

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I. A HAMMERLASS DETONATOR PISTOL belonging to our President, Dr. William R. Funderburg.

This is a large rifled pistol of .646 cal. It is 50.4 cm. (19-13/16") over all; the barrel is 33.6 cm. (13-1/4") long. It weights 1744.3 g. (3 lbs. 13-1/2 oz.).

The stock is walnut, with a neatly checked grip having a steel bushing with a rectangular hole for attachment of a shoulder stock. The ramrod appears to be original; it has a solid splayed brass tip, and, on the other end, a ridged brass tip for use with round cleaning patches.

The barrel is octagonal Damascus twist and has unfortunately lost much of its original finish. It bears on its underside the only mark to be found anywhere on the piece. It has a blunt knife blade front sight, and a small notched bar rear sight.

Of the lock of this pistol little is visible on the exterior. Here (#1) is the pistol viewed as a whole from the left side. Observe the sliding thumb-piece on the side of the stock. Note also that behind the trigger-guard there is another apparent trigger. This is, however, in reality a cocking lever, which is made accessible by rotating the trigger-guard a quarter turn.

Now turning to the view from above (#2) we observe a trap door in the breech, just behind the rear sight, and to the right of it, a large round hole. The trap door is merely to give access to the lock mechanism for cleaning purposes; the pistol would function equally well (for a while at least) if it were not there at all. As a matter of fact it may be locked closed by slightly rotating the screwhead just behind the round hole.

Further back we see a triangular hole between two small round ones, and to the right of this a thumb-lever. The three holes are apparently for the reception of a detachable peep sight, in its absence they appear to serve no useful purpose. Still further back we see the rectangular hole for the detachable shoulder stock.

From the right side (#3) we see the thumb-lever on top of the grip, the cocking lever below it, but nothing new. (The label is merely the identifying number applied by the museum, and should have been removed before the picture was taken.)

Let us quickly run through some views of the stock after the barrel has been removed. (#4) This shows the left side. (#5) This shows the same side and the top as well.

If the parts of the lock mechanism also be removed, we find this simple wooden stock (#6) from above and (#7) from below. Then we turn to the barrel (#8) looked at from the underside, and to a closer view (#9) of its mark, which suggest the old London proof mark. Finally, here is the breech of the barrel, from above (#10) showing the large lug which projects rearward, and which bears in its

upper, rearward surface, a depression connected by a touch hole with the chamber and bore of the barrel.

Now let us look at the lock. Here (#11) it is shown removed from the pistol. At the left we see the hammer, with the firing pin consisting of a screw passing through the hammerhead. Behind the Y shaped hammer we see the mainspring and the cocking lever, one end of the latter extending down through the horizontal lockplate and protruding behind the trigger, the other extending up above the tail of the hammer. A roller on this upper limb of the cocking lever bears upon the rearward limb of the hammer, and allows it to operate with a minimum of friction.

Thus we now (#12) see the lock in the cocked position. The rearward branch of the Y-shaped hammer has been forced down by the cocking lever against the push of the mainspring and is held in that position by a sear which is formed by an extension of the trigger, not visible in the picture. The trigger guard has been replaced to show the relative position of the parts.

Now let us turn from the lock proper and examine the underside of the metal plate which we saw in the top views of the pistol (#13). We see a long arm, pivoted through the top plate and continuing above it as that mysterious thumb lever. The long arm is solid, but at its end is a bulbous enlargement which forms a small box. In the lower side of that box, facing us in this view, is a hole, and nearby another hole for a screw and a very small one for a spring. Here a part is missing, and must be supplied by conjecture, however, we have fairly good grounds for assuming that the missing part was a plate, pivoted on the screw and actuated by a spring. For when we assemble this portion of the mechanism to the breech portion of the barrel (#14) we see that as this arm - which I shall now call the pill charger - is moved by the thumb lever over the breech, it comes against the latter in such a way that the missing pivoted plate, if present, would have been pushed to one side, while the hole in the bottom of the box previously mentioned would come directly over the depression in the breech which actually forms a pan.

Turning now to the top side of the priming mechanism, we see through the opened trap door the pill charger in the same position it was shown in the previous view; it is directly above the pan, and if the box had contained a supply of detonating pills it would have deposited one of them in the pan. Here we see (#15) the same situation on the assembled firearm. And finally, by pushing the thumb lever to the left, we return the pill charger to its original position (#16). The hole in the top of the pill charger is directly beneath the large hole in the top plate, through which a supply of pills may be dropped into the pill charger, which thus forms a magazine of detonating pills. Through the open trap door, in the position where formerly we saw the pill charger, we now see the head of the hammer, which has descended to strike the pill in the pan and fire the piece. I should add that the little sliding thumb piece which we saw on the left side of the pistol serves only to uncover an opening through which a pill already deposited in the pan could be shaken out if, after loading and before firing, it were decided to unload the pistol.

So here we have an anonymous but ingenious attempt, at the beginning of the nineteenth century, to produce a firearm with a rapidly acting repeating primer, and with the convenience, good appearance, and fast-draw capability of a hammerless pistol. Is it possible that the Reverend Dr. Alexander Forsyth himself may have had made this unsigned piece as an experimental model in his long series of attempts to produce a satisfactory rapid-firing firearm based on his epoch-making discovery?

II. REPEATING FLINTLOCK GUN

Our next specimen is also the property of Dr. Funderburg. It is a repeating flintlock gun of a type apparently introduced by the Lorenzoni family of Florence, those ingenious and superlatively skillful gunsmiths of the late seventeenth and early eighteenth centuries who not only made some of the most beautiful firearms to be found anywhere, but also apparently invented, not only the repeating system to be shown here but also the far better known transverse cylinder system which was copied all over Europe by Wetschgi, Wilson, Mortimer, Brooke, Paris, Berselli, Fombuena, and even by John Cookson of Boston who in 1756 advertised such guns as though they had been his own invention, and who has until recently received the credit for them from most American collectors.

The present specimen (#17) is a smooth bore about .65" calibre. It is 4 feet 8-1/2 inches long, with a barrel length of 3 feet 2 ins. It weights just over 9 lbs.

Let us examine this gun in general and in detail. You perceive a not-too-unusually appearing flintlock gun, with a rather normal-looking lock, but with a curious arrangement of tubes and rods forming the forestock. The left side (#18) has a brass counter-lockplate and in front of it a brass section about an inch and a half long which, for convenience, I shall hereafter refer to as the receiver. Seen from above (#19) the gun is notable chiefly for a short lever projecting to the left at the breech of the barrel. From below (#20) we see that the forestock assembly includes a long tube with a brass cap extending rearwards from the muzzle, and terminating in a brass section carved in relief as a bearded man's face. This tube is the powder magazine; the bearded man is the powder measure. Below it, reaching to the receiver, are two parallel tubes. That on the right is the magazine for the balls; that on the left is merely an empty tube to convey the powder from the magazine to the receiver. (By keeping the magazine well away from the firing mechanism, separated by this empty tube, the danger was reduced of accidental explosion of the magazine.) A detail view of the top of the receiver and the breech of the barrel (#21) shows the skillful engraving of the former and the beautiful gold inlay decoration of the latter.

Let us look at the outside of the lock (#22). Here we see it in the position after firing: hammer forward, frizzen nearly horizontal, pan cover open. Notice a small lever projecting in front of the trigger guard. This is the latch which holds the parts of the gun fixed at the moment of firing. It must be pressed to the rear, like a trigger, before the loading cycle can commence. Now (#23) we have the safety position; pan cover closed, frizzen vertical, hammer at half cock. And now (#24) the lock is ready for firing; the hammer has been drawn back to full cock. A view from beneath (#25) shows the frizzen spring, concealed behind the pan-frizzen bridle.

Turning to the interior of the lock mechanism we see again the three positions (#26) after firing, hammer down. (#27) Safety position, hammer half cocked, and (#28) full cocked position, ready for firing. The lock is an entirely normal flintlock except for two things: there is a large spur projecting forward from the tumbler, and there is an inscription (#29) in some Indian or Asiatic script. I have endeavored to identify this script but so far unsuccessfully. It resembles Burmese, but I cannot make a satisfactory transliteration using that alphabet. What such an exotic inscription is doing on a characteristic Italian firearm is beyond my guess. I have written to experts in Indic epigraphy, and hope eventually to learn in what language the inscription is, what it means, and even, perhaps, how and why it got where it is.

Now let us attempt to follow the operating cycle of this ingenious firearm. We must assume that it is already loaded: the shooter has filled the powder magazine by first pulling off the brass cap near the muzzle of the gun, then pouring in a supply of powder and replacing the cap. He has loaded the bullet magazine - and we shall presently see exactly how he must do this. Now he wishes to charge the gun for another shot.

He pulls back on the latch in front of the trigger guard, at the same time turning the gun so that its butt is towards the ground and twisting the barrel and forestock assembly in a clockwise direction. As he does this the following things happen: The hammer is moved from the uncocked to the full cocked position. The pan cover is closed, and the frizzen brought into the vertical position, ready for the blow of the flint. A small charge of powder is placed in the pan as priming, and a full-sized charge is measured into the firing chamber in the brass receiver. A bullet is dropped into a cavity in the receiver, then, as the barrel is rotated into a position above this cavity, a spring snaps the bullet upward into the barrel. The shooter now reverses the position of the gun, pointing the muzzle down and rotating the barrel-forestock assembly back to its original position. This brings the barrel, now containing a bullet, in line with the firing chamber in the receiver, now containing a charge of powder.

Let us see the means whereby all this is effected. We study first the details of the receiver. (#30) In the middle of the left side is a trap door which is normally kept closed by turning the little latch below it. This door is not an essential part of the mechanism. It is opened (#31) to unload a ball from the barrel when it is decided not to fire a previously prepared shot, or to load a ball into the barrel by hand, either because the bullet magazine is already fully charged yet still one more shot is desired, or in case of malfunction of the bullet loading mechanism.

Just in front of this trap door we notice the projecting lever we saw awhile ago in the large view of the gun. This lever has two functions: a) it is a cut-off valve for the bullets in the bullet magazine. It must be lifted, against the pressure of its spring, as the bullets are loaded into the tube through the lower, openwork trap door. This picture (#32) shows more of the lever and its actuating spring; the lever is in normal pre-firing condition, and the bullet cut off is closed. As we turn the gun to show more of its underside (#33) we see the openwork cover of the bullet loading gate, the barrel release

latch in front of the trigger guard, and (#34) a safety port provided to drain off any stray grains of powder which might remain in the powder conducting tube after charging has been accomplished.

When the bullet gate is opened (#35) we see the groove through which the bullets are loaded into the bullet magazine, and, at the rear, the spring actuated plunger, now retracted, which, at the right moment, will flip the bullet into the barrel of the gun. (#36)

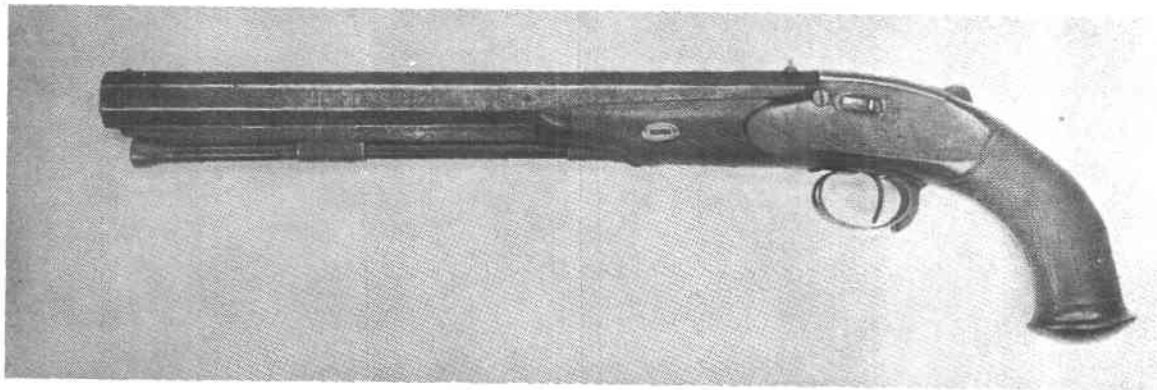
This has a rather complicated mechanism, so we had better look at it from another angle, disassembling the gun into its main components. Here (#37) we see the barrel and receiver assemblies minus the stock, lock and trigger mechanisms. The bullet gate is open, and the whole length of the plunger is visible. At its rear end we see an operating arm, which in turn is actuated by a cam on the end of the barrel assembly and by a spring attached to the upper part of the rear of the receiver. When the barrel is rotated to the firing position the cam retracts the plunger, against the pressure of the spring. When the barrel is rotated to the charging position the cam moves out of engagement with the operating arm, and the spring is free to move the plunger forward. However if, as is normally the case before charging is completed, a bullet lies in the groove, the plunger will press against it until the barrel comes into line, when it will snap the bullet forward into the barrel.

At this point let me show a few other details of the mechanism. Here (#38) is the rear end of the barrel assembly, showing the shaft which projects through the receiver and carries on the square rearward portion the cam which operates the bullet seating plunger and two other cams to be described. Here (#39) we see the front of the receiver after the barrel assembly has been removed. In the middle is the hole for the barrel shaft, at the top we see the large hole which is the mouth of the combustion chamber. Next to this, clockwise, is the end of the clean-out door. Then the bullet groove with the end of the plunger projecting. Next to this is the opening previously mentioned to allow fall-out of unused powder from the powder conducting tube. Note the bar across the opening to prevent bullets from falling out as the bullet magazine rotates past this opening. Next is a wide notch for the end of the lockplate, and above this is an opening to permit entrance of powder to the pan. This view of the receiver from the rear (#40) is not too clear but you can see the hole for the barrel shaft and the closed end of the clean-out trap. From that we shift to a view of the right hand side of the receiver (#41) and here we see at the left the operating arm of the bullet seating plunger and its actuating spring at the right we see the pan, with its touch hole into the barrel, and below it a pivoted valve which forms the forward end of the pan at the moment of firing, and prevents a spurt of fire forward in the direction of the powder magazine.

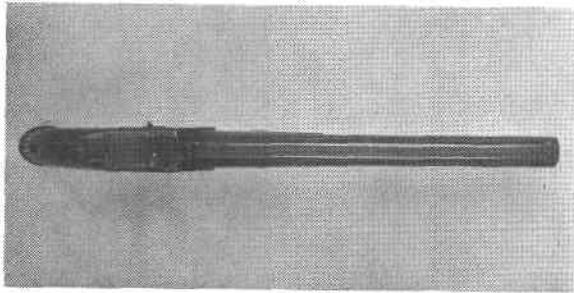
Let us reassemble the gun with the exception of the lock. Here (#42) we see again the right hand side of the receiver with the pan gate I have just described. Just behind the receiver we see, through an opening in the wood of the stock, two more cams, - I mentioned them awhile ago - which we mounted on the squared portion of the barrel shaft. The forward one is quite thin - about 3/32 of an inch. If you look closely - and if this lantern is good enough - you can see the upper lip of this cam pressing on the tail of the pan gate valve, and holding the nose of this valve high just in front of the touch hole.

Behind the first cam is a second one much wider and much more easily visible here. This has two functions: a notch in its lower surface engages the catch operated by the small lever in front of the trigger guard, and a curved projection engages the lug which we saw projecting from the hammer tumbler on the interior view of the lock. Here (#43) we see the situation as the charging cycle commences: the cams are rotating; the front one has released its pressure on the pan gate valve, and only friction holds its nose raised. The rear cam is coming into position to press on the hammer tumbler lug and so cock the hammer. Next (#44) the rotation has continued further. The cocking cam has done its work; the hammer is cocked and the cam has moved on, in its under surface we can see the deep notch in which engages the catch which locks the barrel assembly in the firing position. In the next slide (#45) the rotation is almost complete. The rear cam presents a smooth surface. On the front one the lower lip is just coming into position to force open the pan gate valve. And finally (#46) we find the rotation of the barrel assembly completed; the lower lip of the forward cam has pressed up on the rear of the pan gate valve, lowering the nose of the gate so that powder from the conducting tube can enter and fill the pan. After this the barrel assembly will be rotated back to its original position, and the gun will be ready to fire again.

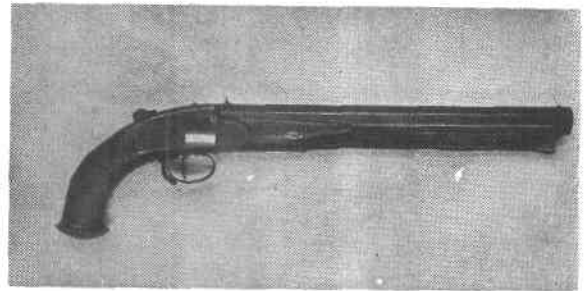
The maker of this firearm was indeed a master mechanic, far ahead of his time. But he was also an artist, for in those early days the man who could build a fine machine did not feel obliged to divest it of every trace of decoration, to trust its beauty only to a severe functionality. So when he made the little brass cell which was to convey the accurately measured charge of gunpowder from the magazine to the powder conveyor tube and thence to the combustion chamber in the receiver, he made it like this (#47). Is this strange, enigmatic face merely a conventionalized ornament? Or is it, possibly, a self portrait of the craftsman who created this fantastic weapon? It is improbable that we shall ever know. But such guns were more than mere experimental models, for there are too many of them, scattered through the museums and private collections of the world. They must have been used - this one shows definite indications of considerable use, and they must have worked, though probably not as well as the far more numerous type with the transverse cylinder. At any rate the repeating flintlocks of this type which have survived are surely among the most interesting of the antique arms which give so much pleasure to us and to all the arms collectors of the world.



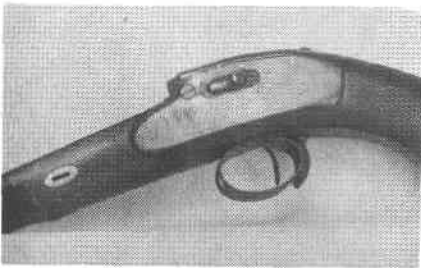
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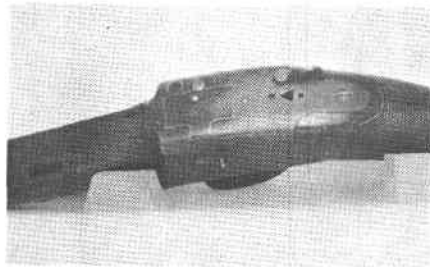
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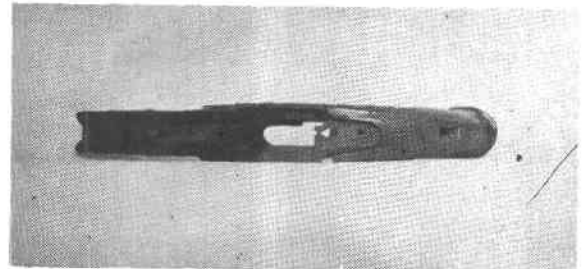
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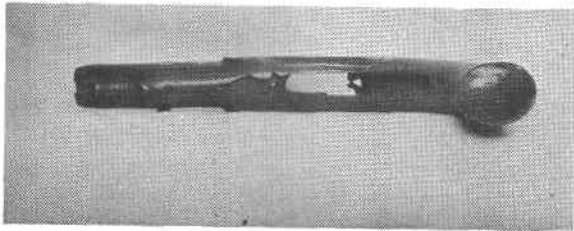
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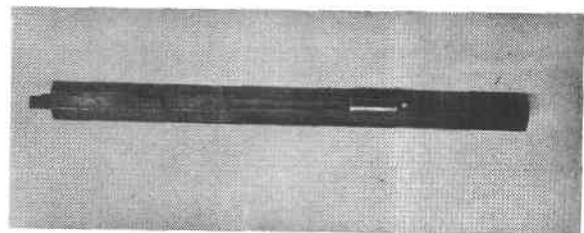
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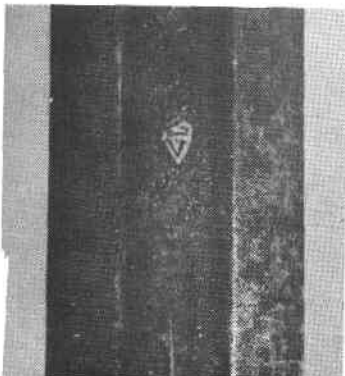
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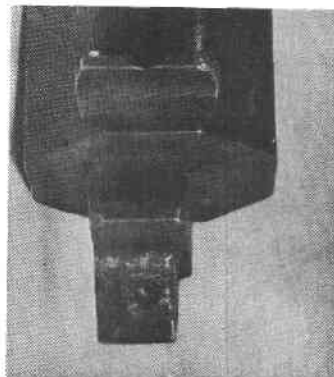
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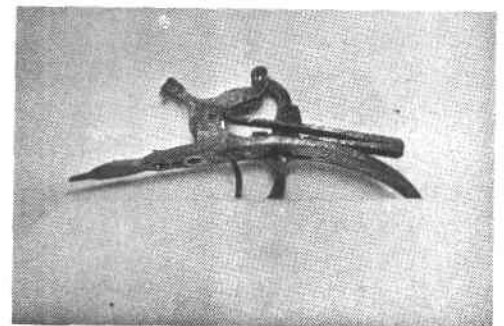
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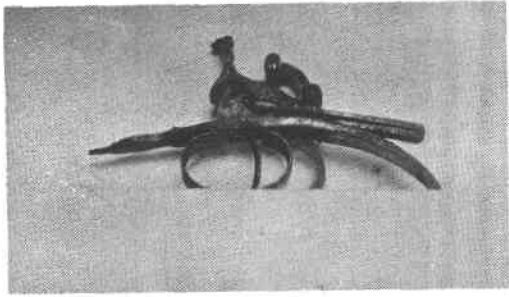
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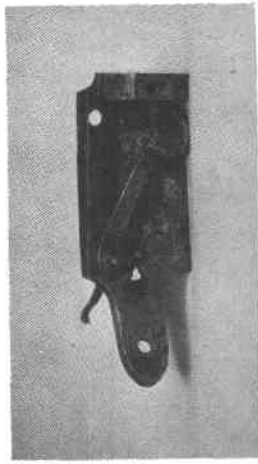
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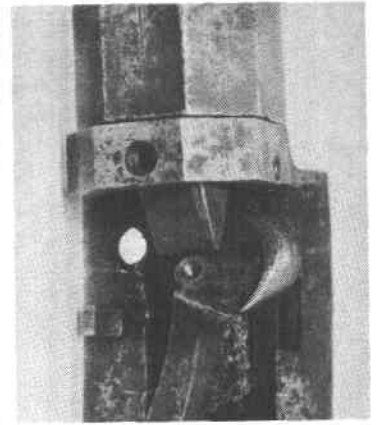
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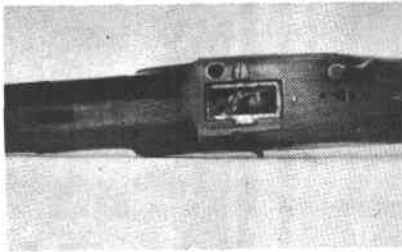
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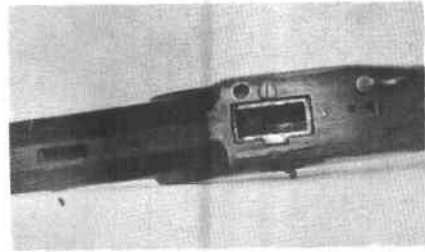
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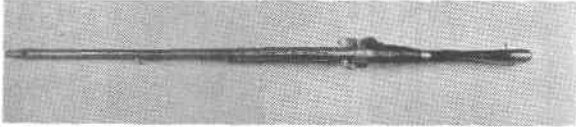
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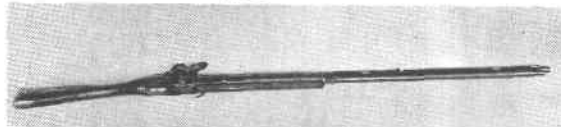
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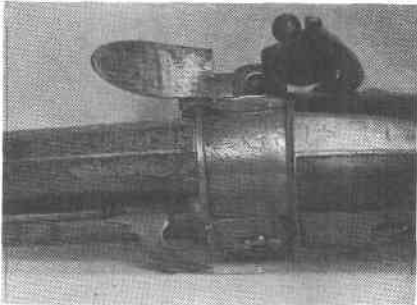
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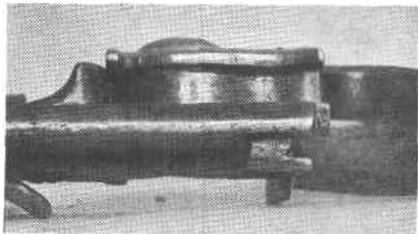
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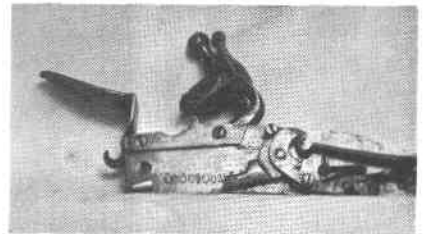
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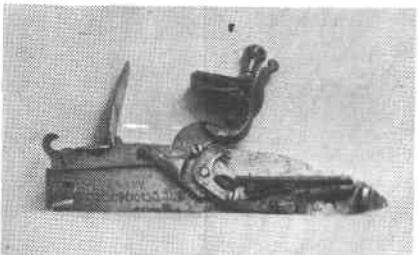
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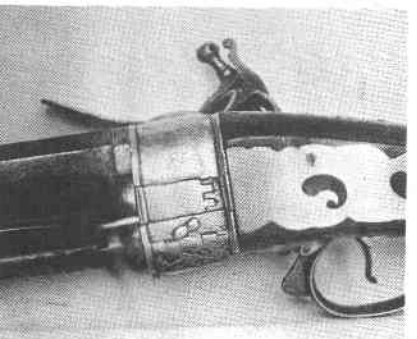
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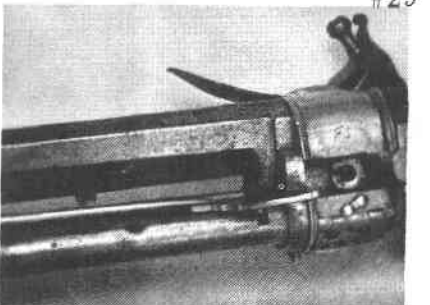
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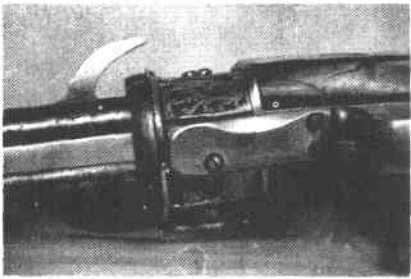
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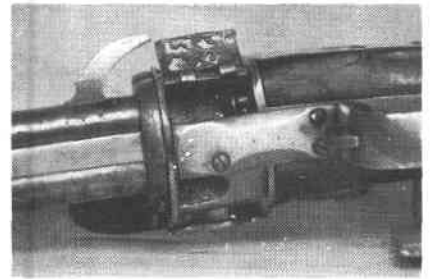
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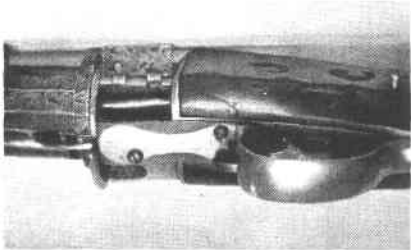
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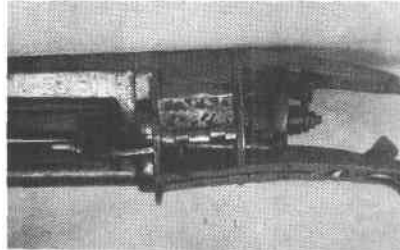
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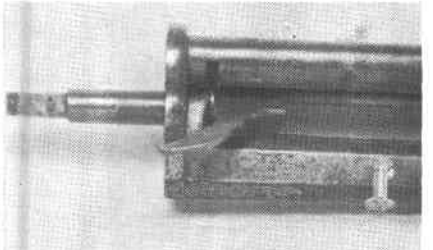
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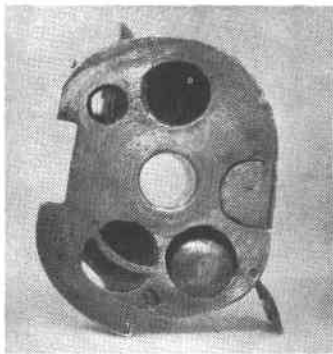
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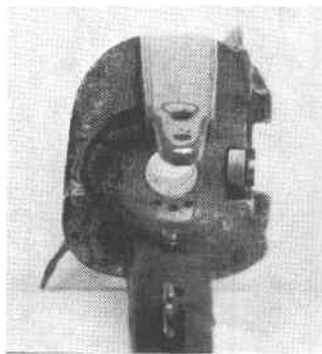
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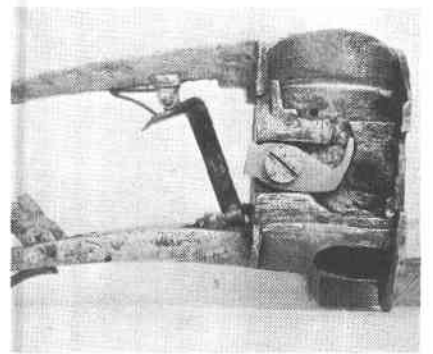
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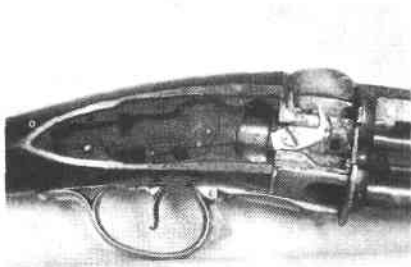
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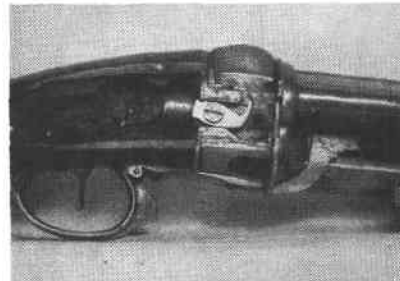
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