

SIDELOCKS, BOXLOCKS AND OTHER LOCKS

RICHARD RAWLINGSON LOOKS AT THE DEVELOPMENT OF SHOTGUN LOCKS OVER THE YEARS



WHERE IT ALL
BEGAN... ALL EARLY
GUNS WERE
FLINTLOCKS LIKE THIS
PISTOL.

IN A PREVIOUS ISSUE I ANALYZED THE WAY DIFFERENT GUNMAKERS HAD SOLVED THE PROBLEM OF HOLDING A SHOTGUN'S BARREL AND ACTION TOGETHER. IN THIS SECOND PART I LOOK AT THE HEART OF THE GUN – THE TRIGGER AND LOCKWORK.

Those of you not versed in the arcane language of gunmaking are probably confused already – if we studied locking mechanisms last time how come it is locks this time round? It runs contrary to logic I know, but in gunmaker's terminology the word lock means quite different things when used as a verb or a noun. A 'lock' (noun) is the name given to the mechanism that translates the pulling of the trigger into the fall of the firing pin on the primer. It is quite separate from the mechanism that locks (verb) a break-action gun together.

In the beginning, of course, there was no confusion. All guns were muzzle loaders, so no locking



WHEN YOU LOOK AT A PLAIN ANSON AND DEELEY TYPE GUN IT IS NOT HARD TO SEE WHERE THE 'BOXLOCK' NAME CAME FROM.

mechanism was needed. The three main parts of the gun were neatly summed up in the phrase 'lock, stock and barrel'. If you had all three you had a complete gun. As the only one of the three that involves moving parts, the lock has always been the most complex. It has to store sufficient energy in its spring to ignite the powder charge, while being ready for instant use. It should be totally reliable and

predictable in use. Furthermore, because the lock is the direct link between the shooter's brain and the gun, its function directly affects the perception of how the gun performs.

In the beginning, when a shooting man talked of the lock, he meant a flintlock. On firing, the exposed hammer fell forward, striking a piece of flint. The spark of steel on stone ignited (he



Even after the development of percussion guns, the basic layout of external hammers, just like the early flintlocks, remained. All guns of this period were essentially sidelocks, that is, each barrel had its own separate lockwork, mounted on the side of the gun and with its own trigger. You will also hear the terms 'back action' and 'bar action' applied to sidelocks and I will mention the differences here for completeness. Back action locks have the whole

mechanism behind the hammer. Bar action locks have the main spring ahead of the hammer, let into the 'flat', or bar of the action.

The great change of the second half of the 19th century was the appearance and rapid development of the 'hammerless' gun that did away with external hammers to produce the style that stays with us today. In some ways it is surprising that it took so long for someone to realize that external hammers were not necessary on a

hoped) the gunpowder held in the pan, which in turn set off the main powder charge in the barrel. Guns of this era have given us many phrases that have stayed in the language although their original meaning has passed into obscurity. The hammer had two positions, half way back, or 'half cock', and all the way back and ready to fire ('full cock'), the first to allow priming of the pan with powder. 'Going off half cock' was the term for involuntary firing from this intermediate position, but passed into general usage to mean any enterprise that is under-prepared or poorly planned. Similarly, if the powder in the pan ignited without setting off the main charge it was described as a 'flash in the pan' – visually exciting, but totally ineffective!

Flintlocks were intrinsically unreliable and inconvenient, even from the best of makers and the development of percussion detonators was a huge leap forward in the early 19th century. This is the system we still use today; the early percussion caps correspond directly with the primer in a modern cartridge. Both contain a compound that explodes when struck with force – the blow from the hammer, or more likely on modern guns, from the hammer via the firing pin or striker.

ABOVE: A TYPICAL BACK ACTION SIDELOCK OF THE TYPE COMMON ON BREECHLOADING HAMMER GUNS OF THE 19TH CENTURY. NOTE THE MAINSPRING TO THE REAR OF THE LOCK. ...

BELOW: ...CONTRAST THIS WITH THE BAR ACTION LOCK FOUND ON VIRTUALLY ALL HAMMERLESS SIDELOCKS. THE SPRING IN THIS CASE LIES TO THE FRONT IN THE ACTION 'BAR'.

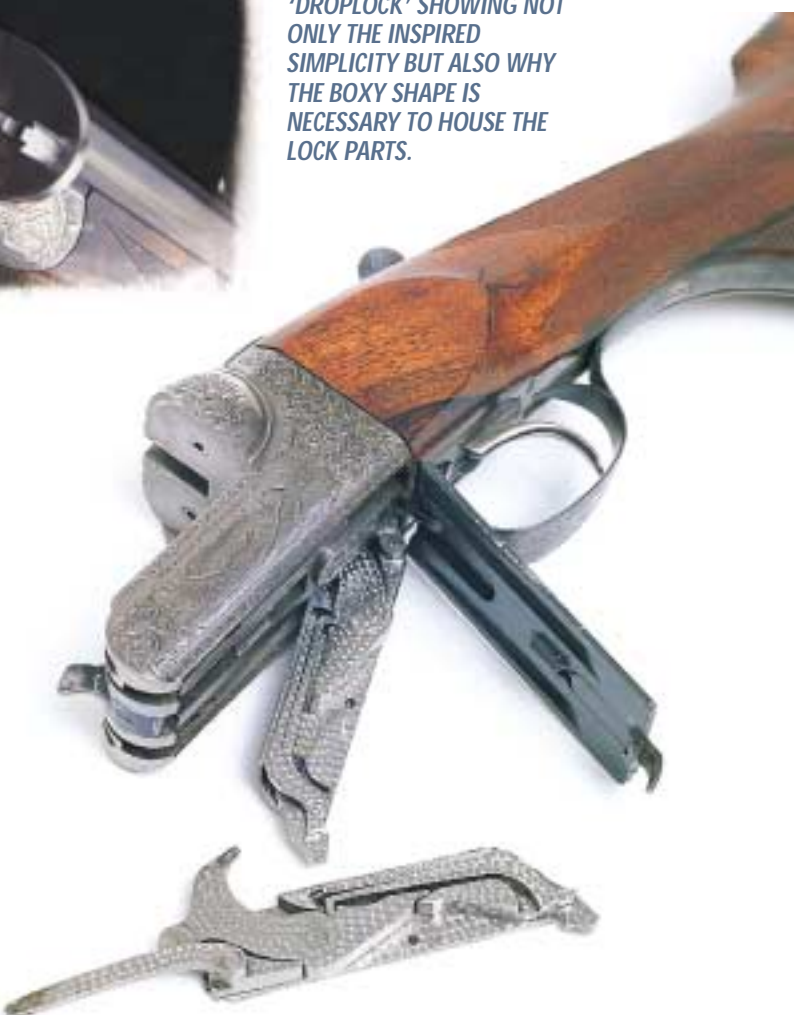


SIDELOCKS ARE INTRINSICALLY COSTLY TO BUILD. THEY NEED EXTENSIVE FINISHING AND FITTING OF THE COMPONENT PARTS AND EACH LOCK HAS TO BE CAREFULLY LET IN TO THE HEAD OF THE STOCK. THEY DO NOT ADAPT WELL TO MASS PRODUCTION.



◀ *SIDELOCK PERFECTION? THE BESPOKE ITALIAN TRADE STILL MAKES EXQUISITE SIDELOCK OVER-AND-UNDERS, AND NONE BETTER THAN BERTUZZI'S FAMOUS 'GULL WING' GUN WITH THE TRADEMARK OPENING SIDEPLATES.*

▼ *A RARE AND DESIRABLE WESTLEY RICHARDS 'DROPLOCK' SHOWING NOT ONLY THE INSPIRED SIMPLICITY BUT ALSO WHY THE BOXY SHAPE IS NECESSARY TO HOUSE THE LOCK PARTS.*



percussion gun, but it was not until 1871 that Theophilus Murcott of London produced the first hammerless gun to, initially at least, a mixed reception. 'Spaniels without ears' was one famous and damning description of the new-fangled weapons. The traditionalists, however, were fighting a losing battle.

From the viewpoint of shooting as an affordable sport for everyone, I would venture that the most significant invention of the early hammerless period arrived in 1875, when the Birmingham firm of Westley Richards lodged a patent in the names of the firm's managing director, John Deeley and the foreman of the machine shop, William Anson. Their gun, soon known everywhere as the Anson and Deeley boxlock, is one of the landmarks of shotgun design and variations on this basic theme continue to be made in millions around the world.

Sidelocks are intrinsically costly to build. They need extensive finishing and fitting of the component parts and each lock has to be carefully let in to the

head of the stock. They do not adapt well to mass production. The boxlock, like many great ideas, is both effective and simple. Essentially it reduced the lockwork to three main parts, the cocking lever, mainspring and tumbler (the part which corresponds to the hammer on earlier guns). What is more, these three parts could be made by machines with much less need for skilled fitting. The term 'boxlock' came from the rather square boxy shape imposed on the gun by the design. With no lockwork to house at the rear, the action body could be squared off, again greatly reducing manufacturing costs.

And there you have the roots of the sidelock versus boxlock snobbery that persists to this day. Purists consider the boxlock plain and cheap, the sidelock on the other hand embodies hand built craftsmanship and elegance. You will hear that the trigger pulls on a sidelock are superior to a boxlock, but that is a generalization that does not hold up under close scrutiny. There are good and bad examples of each and the best boxlock triggers match, in my view

...THE BOXLOCK PRINCIPLE WORKS VERY WELL IN OVER-AND-UNDER GUNS, TO THE EXTENT THAT VIRTUALLY ALL CURRENT PRODUCTION IN THE LOW TO MIDDLE SECTORS OF THE MARKET FALLS INTO THE BOXLOCK CATEGORY...



THAT SAME SIMPLICITY IS EVIDENT IN TODAY'S BOXLOCK OVER-AND-UNDERS AND CONTRIBUTES ENORMOUSLY TO KEEPING MANUFACTURING COSTS DOWN.

at least, all but the very finest sidelocks and for 99% of us the argument is largely academic. Sidelocks will always be more expensive and in a world dominated by marketing hype and 'labels', there will always be those who see 'expensive' as a synonym for better. Which is not to say that a good sidelock gun will not be a very fine thing, but in terms of function it is hard to justify the price premium it will command over the humble boxlock.

In terms of competition guns, there are very few sidelocks currently available. The most common will certainly be the Beretta SO series guns which have enjoyed great success, particularly in the Olympic disciplines. Merkel of Germany have also built many top quality sidelock guns but few are used on the competition scene. The bespoke Italian trade also makes fine competition models in very small numbers at very high prices. The guns of Ivo Fabbri

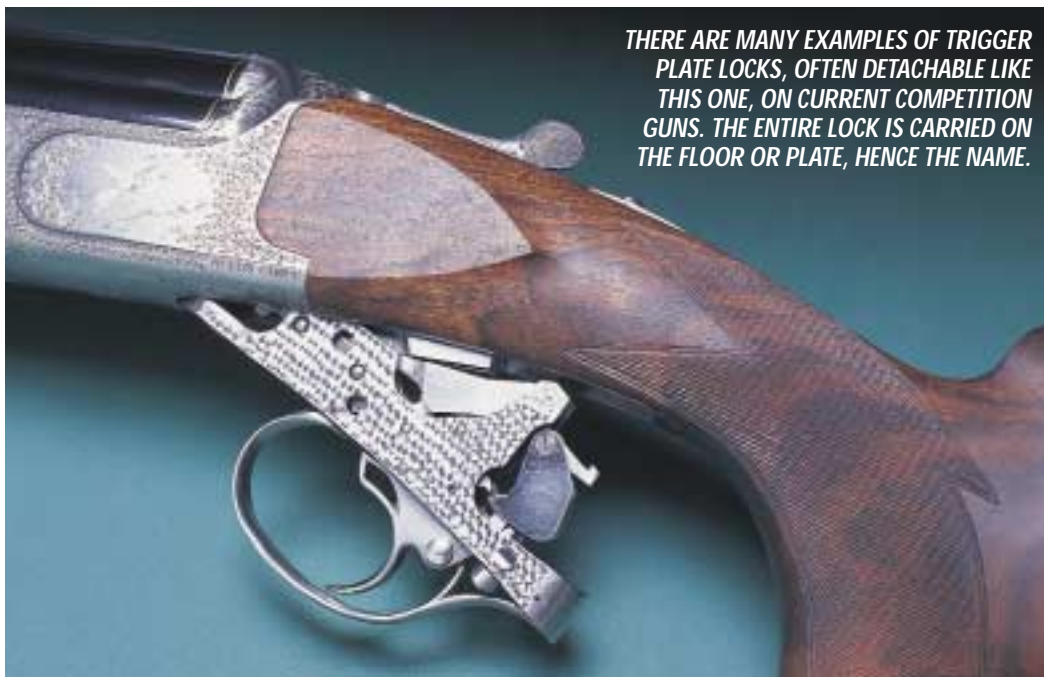
would be considered by many to be the ultimate for those with very deep pockets.

Luckily for the rest of us, the boxlock principle works very well in over-and-under guns, to the extent that virtually all current production in the low to middle sectors of the market falls into the boxlock category, using the fall of the barrels on opening to cock the mechanism ready for the next shot. Although there have been many variations on the theme, as gunmakers have added their own refinements to the basic design, Anson and Deeley's basic principles remain. Strip away the additional parts for safety catches and single trigger mechanisms from a modern gun and you will see an essentially simple concept of very few moving parts. We should all be very grateful to those two gentleman, for without them shooting might still be a rich man's sport.

There is, however, one other distinctive style of lock making, of particular importance in terms of current guns, that does not fit neatly into either category. A number of today's most

influential competition guns feature a detachable trigger mechanism, including many Perazzi models, Gamba and Kemen. On such guns the whole unit, including trigger blade and guard, can be dropped out of the underside of the action, leaving the lockwork clearly visible and accessible for cleaning and maintenance. The concept is not new – Westley Richards produced a 'droplock' version of the Anson and Deeley action over 100 years ago – but in construction, the lockwork owes much more to the 'trigger plate' actions pioneered by MacNaughton of Edinburgh in 1879. Imagine the trigger plate (the flat surface from which the trigger itself hangs and which gives the style its name) as the foundation stone, with the lock built upwards from this base giving a very compact unit. Although largely irrelevant on a competition gun, this neat construction does allow the maker to produce an especially elegant profile, epitomized by another Scottish firm, Dickson, and their classic 'round action' that is still made today.

Whatever style of lock is fitted, what is indisputable is that the gun trade has, over two centuries, brought their design to an exceptionally high level of refinement and reliability. Failures and problems are remarkably rare given the vast numbers of shots fired at clay targets each year. Those that do occur are normally minor, entailing the replacement of simple parts such as springs or firing pins. We even take for granted reliable single trigger operation, a concept that had many of the finest brains in the trade baffled for many years. And yet this reliability does not carry a hefty price tag, for we expect it (and get it) on even the most basic gun. In fact you could say that for most of the time, it all runs like lockwork! ■



THERE ARE MANY EXAMPLES OF TRIGGER PLATE LOCKS, OFTEN DETACHABLE LIKE THIS ONE, ON CURRENT COMPETITION GUNS. THE ENTIRE LOCK IS CARRIED ON THE FLOOR OR PLATE, HENCE THE NAME.