

A thing of marvel and beauty

Gunmaking innovation is at the forefront of British gunmaker Boss & Co's new rising third bite locking mechanism for its side-lever shotguns

WRITTEN BY DONALD DALLAS

Boss & Co (London's oldest gunmaker, established in 1812) has recently introduced a remarkable innovation – a rising-bite locking mechanism to be fitted to its side-lever over-and-under guns. A rising bite is a third lock between the top of the barrel and the breech to provide extra security. It represents the pinnacle of the gunmaker's art as it is extremely difficult to build, which explains why it is found only on the best guns, and even then very rarely. This innovation has been showcased on a trio of 16-bore side-lever over-and-under guns built for a European customer. It is a continuation of the 1812 Edition family of new guns: over-and-under shotguns with two side-levers, one fitted for the left side of the action and one fitted for the right, to cater for right- or left-handed sportsmen.

RARITY

The Boss over-and-under gun was patented in 1909 by Boss' then-owner, John Robertson, a Scotsman from Haddington near Edinburgh. Originally, he termed it a 'Vertical Barrel Gun' and not only was it the first over-and-under gun patented in Great Britain, it is also reckoned to be the finest of all the British over-and-unders (and thus the world's). Immensely strong, yet light, elegant and a joy to use and behold, it was built in relatively small numbers and its combination of beauty, strength and rarity explains the very high prices these guns can achieve today.

The world's first side-lever rising third bite shotgun by Boss & Co, presented in a trio

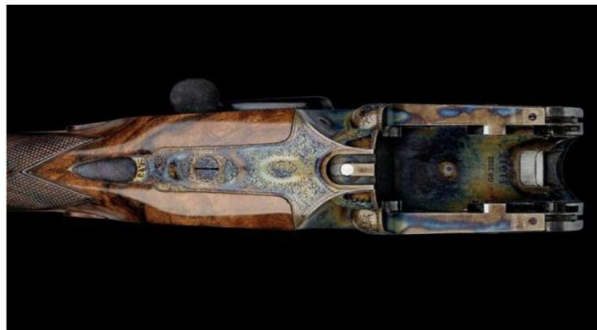
The Boss over-and-under was always fitted with a top-lever, but the current owner of Boss, Arthur DeMoulas, through regular use of a pair of Boss side-by-side side-levers and discovering their ease of use and practicality in the field, envisioned a whole new line of guns starting with Boss' beautiful over-and-under. During the hammergun era, Boss built more side-levers than other opening mechanisms, so this new development was paying tribute to its past heritage and to an innovative future. A side-lever makes the gun pleasant and easy to open, with the added benefit of a top strap devoid of top-lever, which offers an uninterrupted canvas for engraving. At the same time as planning the side-lever on the over-and-under, DeMoulas, a leftie himself, came up with the idea of having interchangeable side-levers that could be swapped over so that both left- and right-handed sportsmen could use the gun. This new gun with interchangeable side-levers, introduced in 2021, was named the 1812 Edition and was a major innovative step for Boss in developing its over-and-under gun, since little had changed since 1909.

In its quest for gunmaking innovation, Boss then contemplated fitting a third grip for extra security, a rising third bite, to its newly introduced side-lever over-and-under gun. At first this was deemed impossible, as it was so difficult to construct and fit, but after much thought and development, Boss overcame the conundrum and perfected the pinnacle of mechanical development in gunmaking – a rising third bite.

By far the majority of British side-by-side guns and rifles use the Purdey →



Bolt as their locking mechanism, a double bolt that slides within the action and locks the lumps under the barrels to securely lock the action. It was patented by James Purdey in 1863 and not only was it the first double bolt, but it was also by far the best, hence the proliferation of its usage on side-by-side guns since its inception. The Purdey Bolt is completely reliable and safe on standard guns. However, on rifles, big-bore guns and pigeon guns, where far higher pressures are encountered, gunmakers often added a third bolt for extra safety. A third bolt locked the barrels at the top of the breech. There were a great many designs of third bites, from the simple, inert Westley Richards doll's head extension to the barrels that slotted into the breech, to mechanically operated examples such as Greener's cross bolt and the Webley screw grip, but none of these were on over-and-under guns.



EXPERTISE

By far the cream of the third bolt was the rising third bite, a difficult device to construct and engineer. In a rising third bite, first introduced on a Boss .375 over-and-under double rifle in 1913 and reintroduced today on its new side-lever, a small rising pillar is pushed up through the action when the gun is closed, to mate underneath with a corresponding and precisely fitted concealed cut-out on an extension to the top of the barrel. Any movement at the top of the gun is impossible and the entire gun is not only locked securely at the bottom of the action, as in a conventional gun, but also firmly held at the top of the gun, thanks to the rising bite. Since the pillar of the rising bite has to move vertically through the action and mate precisely with the extension on the barrels, a rising bite is difficult to build. In addition to the mechanical expertise required to fit one, it is also a thing of marvel and beauty. The most famous of the 19th-century rising third bites was patented in 1879 by the London gunmaker John Rigby, along with one of his gunmakers, Thomas Bissell, for the company's side-by-side guns and rifles. It was only used on Rigby's Best guns and rifles and such was its complexity of manufacture that Rigby ceased building it after World War II, although it has reintroduced it today.

The majority of Boss shotguns had a traditional action devoid of rising third bite, as it wasn't really required on

conventional game guns. However, on Boss rifles, large-bore guns and pigeon guns, some rising third bites had been fitted over the years, but these guns and rifles all utilised the conventional top-lever. If a rising third bite was to be fitted to the new 1812 Edition side-lever over-and-under, a whole new approach was required. In a conventional top-lever Boss gun, be it an over-and-under or side-by-side, the mechanism of a rising third bite was well understood. When the top-lever was pushed over to open the gun, an inclined plane on the lever pushed down the rising bite to clear it from the barrel extension, to allow the gun to open. Conversely, when the gun was closed, an inclined plane on the bottom bolt pushed up the rising third bite to lock the little bolt into position in the barrel extension.

However, on the newly introduced side-lever Boss over-and-under gun, the

Top: the underside showcases Boss' trademark rose and scroll engraving. Above: with barrels removed, the shape of the third bite is visible
Right: the trio embraces the elegant Boss aesthetic

Boss gunmakers, led by Jason Craddock, were faced with a problem. With no top-lever to push down the rising bolt, how was it going to be possible to do this? At first they deemed it too difficult a problem to surmount, but gunmakers relish a challenge and the Boss boys were no different.

One of the main challenges was that apart from having virtually no space within the action to fit some sort of mechanism, they did not want to cut away any wood or metal to house the rising bite as it might weaken the gun – the very opposite of what they were trying to do in strengthening the gun. One of the gunmakers' first design ideas was to fit a coil spring to push down the third bite on opening the gun, and to hold this in place with external screws and a cover plate, but they rejected this because they weren't prepared to compromise the look of the gun to achieve it. They went back →

“At first they deemed it too difficult, but gunmakers relish a challenge”





to the drawing board and the team then redesigned the mechanism utilising a single leaf spring in place of the coil spring, a simple solution that would fit under the top strap and provide the tension necessary without complex linkages. But the solution would be far from simple. The space inside the action is very cramped and any small changes could have a knock-on effect that could destroy the integrity and elegance of the Boss gun.

ELEGANCE

Incorporating the new spring without removing any of the stock meant that the spring had to be fitted into a recess cut out underneath the top strap. This cut-out was meticulously milled-out in an oblong section, which not only left the wood in the head of the stock unaffected, but also stopped the spring moving sideways, which could have compromised the function of the rising bite. In this way, the Boss gun retained its lines and also its strength. The design changes, apart from being beautifully engineered, are hidden from view to maintain the elegance of the Boss gun. When you peer into the action of the bite, you only see the top of the bite and not the spring itself. Now, after 3½ years of development, Boss has delivered another

gun, elegant in design, mechanically innovative and constructed to last through many generations, no matter whether a sportsman is right- or left-handed.

The rising third bite on the Boss over-and-under is unquestionably a thing of beauty. With the gun closed, the intricate mechanism of the third bite is completely concealed by the top barrel extension. (The barrel extension is called a 'knocksform

“When the rising bite pops up, it is satisfying to admire the craftsmanship”

breech', a corruption of Henry Nock's patent breech of 1787.) When the side-lever is pushed down to open the gun, it is a marvel to see the rising bite move down under the power of the spring when the gun is opened. When the gun closes and the rising bite pops up to lock into position, it is satisfying to admire the craftsmanship that has taken place to allow this operation.

With the gun open, the elegant side-lever rests perfectly parallel with the bottom of the gun

“Boss & Co's innovation has always been renowned for pushing the limits of gunmaking, whether it be the first reliable single trigger of 1894 or the first British over-and-under gun of 1909,” commented DeMoulas. “But while these innovations now sit over a century in the past, we still maintain that pioneering spirit at our London headquarters. With the reveal of this latest member of the 1812 Edition family, we have our third world-first innovation within two years. We have recaptured the spirit of our forefathers to advance the world of gunmaking in a way that is appropriate to Boss & Co – beauty, perfection and precision in every gun.”

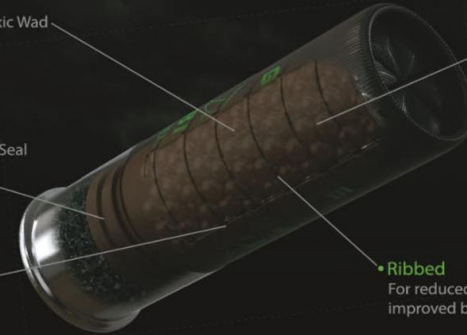
The 1812 Edition family consists of three members: the 12-bore side-lever over-and-unders, the 20-bore side-lever side-by-sides and now the 16-bore side-lever rising bite over-and-unders. The plan is for it to continue to grow as Boss develops further bores and configurations for customers all over the world. It is a rate of innovation rarely seen in the gunmaking world, even in the 210-year history of Boss & Co. ■

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