

# Miniature Arms

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## A Michel Lefaivre Navy Luger



## Mini Underhammer Boot Pistols

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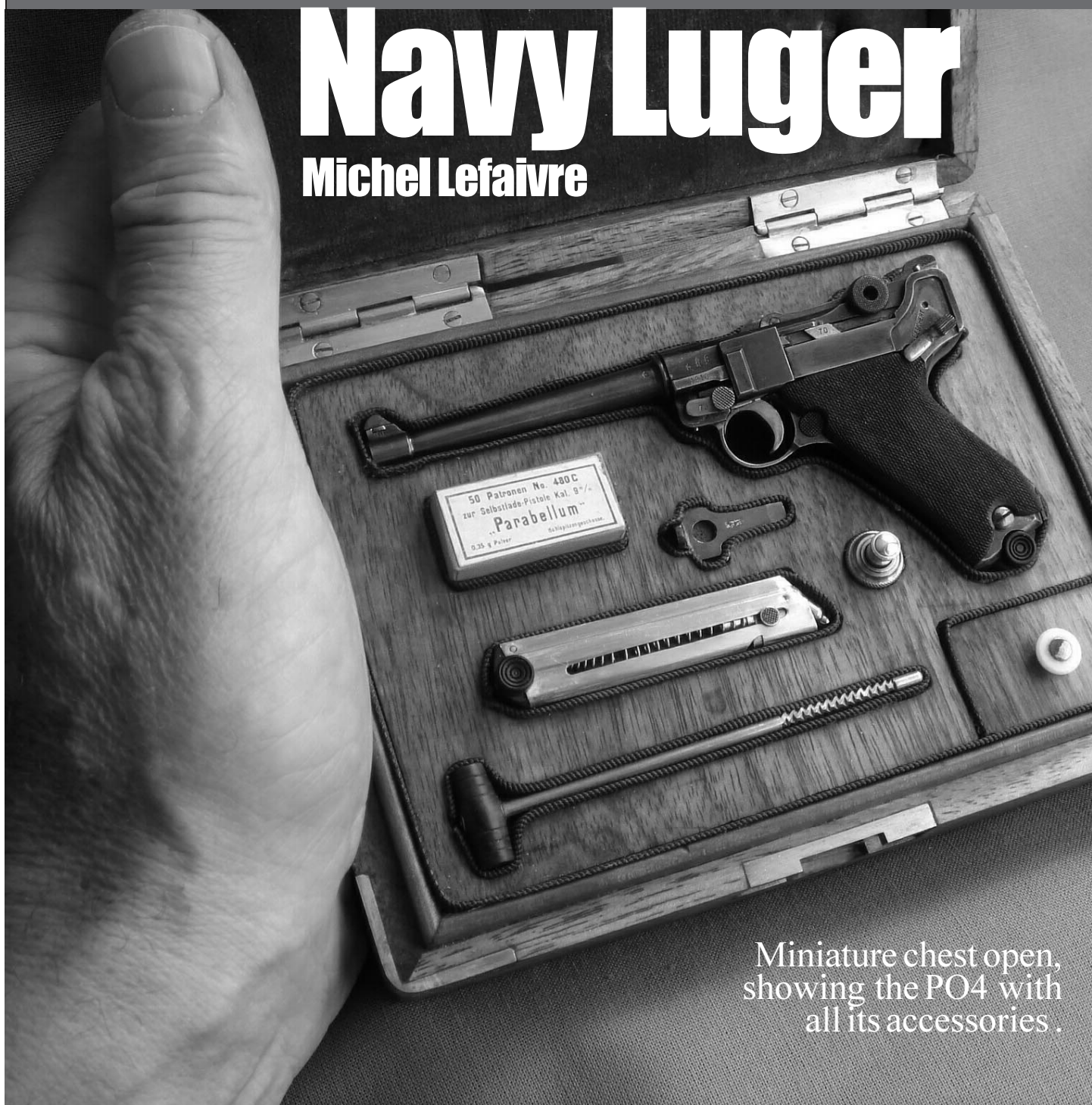
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A DeWalt  
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# Making a Miniature Navy Luger

Michel Lefaivre



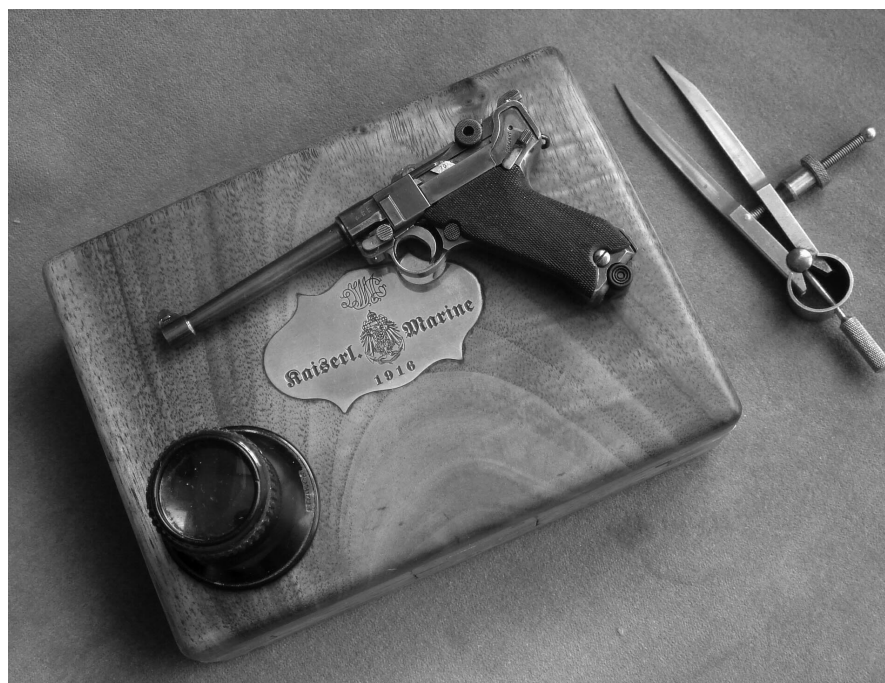
Miniature chest open,  
showing the PO4 with  
all its accessories.



For many years, I would say since the early sixties, I have had "Miniature-Luger-fever". I caught it, when, for the first time, I saw the quality of the ½ scale Lugers belonging to my friend Jo Kramer, which were made by the late Ray Hutchens of Indianapolis and Leon Crottet from Switzerland. The pieces made by Master David Kucer of Montreal also contributed to my strong desire to join these fine mini Luger makers. Although I've temporarily put on hold the making of miniature Boutet flintlocks in favour of Mr Hugo Luger, I'm still a lover of the Manufacture of Versailles. (See MAS bulletin spring 2004)

"Make your dream come true" was simply my motivation.

To my knowledge - as far as I can observe - in the past forty years there are only three master makers, as mentioned above, that have been able to make such outstanding treasures. Two of them have wonderfully made their models at ½ scale, the other at 2/5th scale. I personally consider a ½ scale reduction a scale



*Miniature on top of its walnut chest. A full scale pair of tracing compasses and a clockmaker /jeweller eye magnifier are shown for scale comparison.*

model rather than a miniature. To my opinion, the term "Miniature" should be used for a piece made below ½ scale". A reduction of 2/5, 1/3 or smaller makes the miniature more difficult to realize. We have already seen a marvellous set of Lugers at ¼

scale, (that won the 2001 MAS silver medal, if I remember right) but it was too small to show any engravings, knurlings and grips checkering. There is a scale limit, below which it becomes almost impossible to create the tiny details. The well documented Jo Kramer's book "Scale Model Firearms" clearly reflects and describes what perfection means.

It was also fascinating to recently discover 1/6 scale "Mini marvels" coming from Japan, but I have not yet seen a Luger at this scale! I am convinced that hidden somewhere in this world there are other miniature Luger makers that would also deserve to be known....

So, making a fully functioning miniature Luger with all its details, whatever the model, in strict accordance with the original, without any compromise and that can even fire, is a real challenge in itself. This requires not only adequate tooling, especially a high precision milling machine, a good lathe, and a drill press, but also the skills of a good fitter and



*Miniature shown in Michel's palm hand.*

*Right: Top view showing the two positions (100 – 200 meters) rear sight on the toggle .*

*Below: Closeup showing details of markings on the mini: Note typical Imperial Navy stamps and proofs on the receiver side and barrel..*



*Left: Magazine is being pulled out of the pistol. Note the typical three concentric rings on knob of the plain-wood bottom.*



model 1904, dated 1916, short frame version, as originally ordered for the Imperial Kaiserliche Marine, and manufactured by the DWM (Deutch Waffen und Munitions) factory in Berlin. This Navy Luger has some typical features with a longer barrel (6" instead of 4" for regular models) and is also equipped with an adjustable two positions rear sight, located on the toggle, which give to this military pistol an outstanding and impressive look. For a long time this beautiful and rare gun, when in good conditions, has been a much sought after collectible.

To start the work, the quantity of raw material required was less than two pounds of 25CD4 Carbon steel (Chrome-Molybdenum). This is negligible compared to the enormous number of hours of labor spent at the work-bench: not less than ten months full time work to complete the miniature, including its case and accessories! The frame and receiver were milled out of a 3" diam. carbon steel bar, which was first sliced/sawn to the proper thickness, and then machined. A few small parts are made from a much harder steel. Coil springs are made on the lathe from piano wire of different diameter.

machinist. Not to mention a great quantity of small hand files, burrs, mills, taps, polishing discs, drills, of any size and shape. Everything starts by engineering work, establishing all the manufacturing drawings, with scale dimensions and tolerances, based on full size parts.

Among the few miniature Lugers that I have made so far (Only 3) I'm pleased to present here my last work, which is a 2/5 scale Navy Luger

*Left: The 2/5 scale Navy Luger magazine loaded with one 2.7mm Kolibri cartridge.*





*Above: All the 2/5 scale parts included in the gun are shown on a tray.*

Thermal treatment is applied once the coils are machined. Flat springs are taken out of small bars.

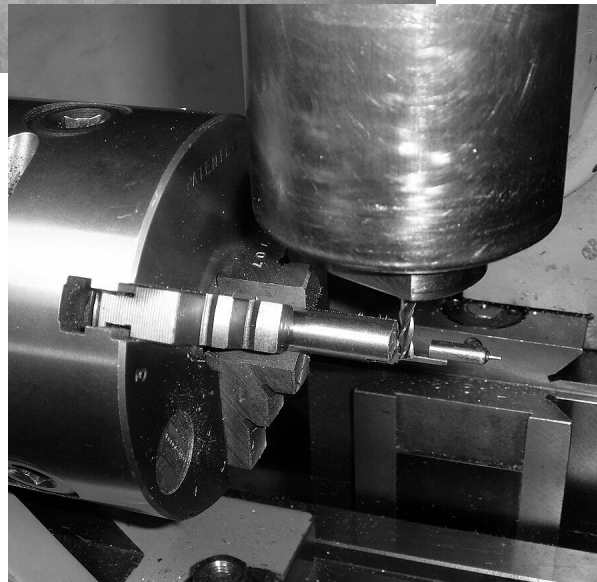
The last step was the hot deep blueing process off all the parts, before the final reassembling and testing for the smooth mechanical operation of the pistol.

A Luger includes many (more than 50) complicated, functioning parts. The majority of all internal parts require machining, then painstaking hand filing for final fitting, in order that the firing system operate smoothly.

The hardest parts to make were the frame and receiver, each having a quantity of difficult and precise milling operations, with tight tolerances. Abrasive stones are used on parts that have been previously hardened. Many parts were rejected, scraped and remade because their aspect, dimensions and/or tolerances were not perfect.

The miniature is presented inside a walnut chest, with all its accessories: a spare magazine, oiler, clean-

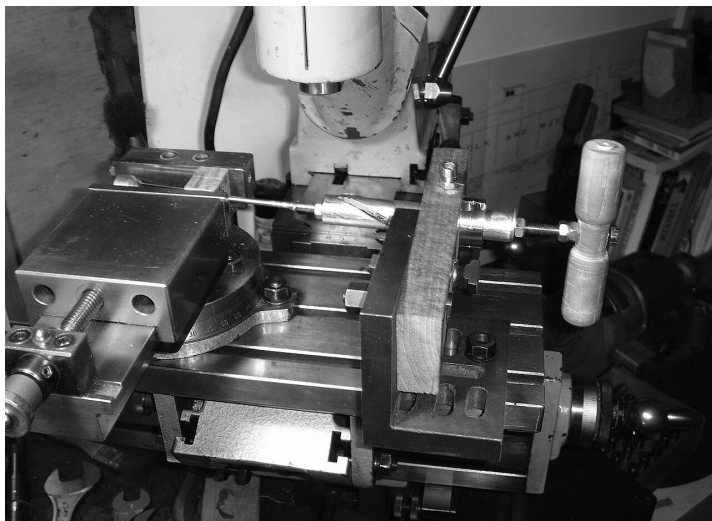
ing rod, take-down tool, box of ammunitions, inner case for spare cartridges. On the lid of the chest is inserted a brass plate showing engraved the DWM logo, 1916, the year of the pistols manufacture, and Kaiserliche Marine in gothic letters with, in the middle, the historical Imperial Navy blazon. The Kaiserliche Marine, created by Kaiser Wilhelm II, was formed in 1871 and ended after the treaty of Versailles, in 1919 after the WWI. After that period, the German Navy was formed and called "Kriegsmarine".



*Left: Mill cutting (parting) the completed firing pin from a raw carbon steel bar.*



*Below: Machining operation on the frame mounted on a special jig. ( 2 were required )*



*Left: Riffling the barrel with a special hand riffling banc installed on the milling machine..*

This fully functional, mini Navy Luger will feed, shoot and eject 2.7 mm Kolibri cartridges. The barrel was riffling, with six grooves at the right twist, using a specially designed hand riffling banc, with a master spiral cylinder, index guide, and adjustable HSS steel cutting tool.

Once completed, it was superbly engraved by Master Engraver Yves Sampo of Paris. The unit is dated 1916 above the chamber, on the frame rail, and on the front sight base. Like the original, all parts bear the same serial number either in full or with the two last digits. The term "Gesichert" (Locked) appears when the safety lever is on. The beautiful DWM logo is engraved on the toggle connecting link. The typical Imperial Kaiserliche Navy stamps and proofs are engraved on the upper frame side. Tiniest striking detail: when the pistol is loaded with a Kolibri cartridge in its firing chamber, the extractor seizing the shell, is then protruding from the breech-block, showing on its side "Geladen" (loaded). These details are so small that they can hardly be seen without a magnifier, unless you are a Luger specialist and have real good sight!!.

All the accessories such as safety catch, takedown lever, magazine release button, and toggle knobs are



*Below: Michel performing a precision milling operation on the main frame.*

nicely surface machined and knurled at scale, like their full size counterparts, as well as straw colored whenever required.

The magazines took me a very long time to reproduce, as their shapes are complex and are made in two parts. Special dies were designed and machined to press the steel sheets of the external body into the correct shape. Then, like on the original, the two parts were press-crimped together. Tight tolerances were necessary to get the Kolibri cartridges to feed correctly into the pistol. Without the tremendous help and advice from "Ace of Aces" David Kucer, I would not have obtained such good results. The plain wood-bottom magazines are numbered to the gun with their handling knobs having three concentric rings, another pecu-

liarity for all these Navy models.

Checkering: a very fine checkering of the walnut grips was done by Master James Corpe, at 2/5 scale. At this scale, this means 60 lines per inch ! Believe me, this is very small and besides making the right tool, this operation requires great skills and experience as well.

Should anyone of you desiring to undertake such work, I will be happy to give guidelines, tips, or recommendations to avoid many disappointments and save precious time. At the end of all the time spent on this difficult work, I can guaranty that there will be tremendous personal satisfaction and pride to have realized, in miniature, the most complicated and mythical of pistols.

**M.L.**