

# Military Pistols and Revolvers

The handguns of the two World Wars

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# Introduction

This book is designed to provide a compact and easy to use guide to the principal pistols and revolvers used by military forces during the present century. Obviously practically any pistol could qualify, since soldiers have a habit of carrying non-regulation weapons into battle. but I have confined myself to the officially adopted weapons, with the addition of one unofficial but widely used (the Webley-Fosbery) and two pistols which were proposed for military use but not accepted (the Mars and the Savage). These three are of interest because of their design, and I think they are worthy of inclusion for sheer interest's sake.

Military authorities argued for many years about the relative merits and demerits of revolvers and self-loading pistols. It was accepted that revolvers were generally more robust, had simpler mechanisms, and were more safe in the hands of the average soldier since it was easy to see whether or not the weapon was loaded. Against this it was argued that self-loading pistols were generally lighter, carried more ammunition, and delivered more rapid fire. There were of course many more pros and cons than these, and anyone interested is recommended to study the *Textbook of Small Arms, 1929*, in which the whole argument is discussed at great length. However, self-loaders have improved in reliability over the years, and the revolver is now definitely obsolete as

a military weapon, its last stronghold, the British Army, having capitulated in 1957.

I have personally examined all the pistols shown in these pages, and have fired those for which ammunition is still obtainable. Dimensions and weights are taken from actual specimens (the weight quoted being that of the unloaded weapon), and any opinions given are mine, based upon my own observations and deductions over some twenty-odd years of pistol handling.

## Revolvers

The revolver is a single-barrel hand-held weapon, carrying a cylinder behind the barrel. This cylinder is divided into a number of chambers, usually six, which, when the weapon is operated, are revolved in succession into position behind the barrel. Each chamber contains a cartridge, and thus the act of rotating the cylinder locates a cartridge in prolongation of the barrel. Immediately behind the cylinder is the standing breech, which gives support to the base of the cartridge when fired. This breech is pierced to admit the passage of a firing pin to strike the percussion cap of the cartridge which is at that time aligned with the barrel. The

firing pin is attached to, or may be an integral part of, the hammer. The hammer is propelled by a mainspring and its action is controlled by a trigger.

Revolvers in which the hammer must be pulled back by the thumb and then released by the trigger (for each shot) are known as single action. Those in which the trigger is pulled to draw back and then release the hammer are known as double action. Most double-action revolvers can be operated single action, since this method of operation gives less disturbance of aim for precise shooting. Double-action firing is usually only employed for rapid self defence, and it is worthy of note that the few double-action-only revolvers have been almost always for purely military use.

In addition to the foregoing features, the trigger and hammer mechanism (sometimes called the lock-work) will also include devices for revolving the cylinder the correct amount to index a fresh cartridge, and for locking the cylinder securely in line behind the barrel while the shot is fired.

There are two basic types of revolver, the solid-frame and the hinged-frame (sometimes called the top-break pattern). In the solid-frame pattern the butt and frame are made from a single forging, with the barrel screwed into place. The cylinder is retained in place by an axis pin. Originally this type of revolver was provided with a loading gate on the right side, behind the cylinder, and an ejecting rod beneath the barrel. To load, the hammer would be pulled back

to a 'half-cock' position to disengage the cylinder lock, the gate would swing open, and the cartridges would be placed in the cylinder one by one, turning the cylinder during loading to present each chamber to the loading gate. After firing, the empty cases were ejected, also one by one, through the opened loading gate by the rod ejector. The most commonly known example of this, thanks mainly to films and TV, is the Colt Single Action Army or Frontier model of revolver.

While this system worked, it could hardly be called the acme of perfection: under perfect conditions it is rarely possible to empty and reload in much less than twenty seconds, and under combat conditions it could very easily be twice that much. In the early 1890s Colt produced a revolver which has served as the model for all solid-frame designs ever since. In this weapon, the cylinder was mounted on a crane or bracket which could be unlocked and swung out sideways, after which an ejector rod could be pressed to force out an ejector plate in the centre of the cylinder which would eject all six empty cases at once. The cylinder was then exposed to allow rapid reloading and could be swung back into the frame and locked ready for firing. The only disadvantage with this system is that the operation of the ejector is direct, and offers no mechanical advantage to unseat a tightly expanded empty case. Complaints were voiced during World War I that sometimes it

was necessary to give the ejector rod a slight assist from the heel of the boot to shift particularly stubborn cases - and hopping about stork-like on the Western Front with an empty pistol was an unpopular pastime. In all fairness, it should be said that this was probably due more to the mixed quality of war-time production ammunition than to any inherent defect in the design of pistol.

The hinged-frame revolver is the invention of an American, W. C. Dodge, who patented it in 1865. In this pattern the barrel and top strap are in one piece and are hinged about an axis pin on the frame. The cylinder is carried on the barrel assembly. By releasing some form of catch the barrel and cylinder can be swung down, and a cam mechanism forces up the built-in ejector to clear the chambers. Continued hinging forward allows the ejector to snap back into place, flush with the chambers, to allow reloading to take place. By the construction of the cam operating the ejector, this system confers considerable gain in leverage, and even the most stubborn empty case will be ejected from the weapon.

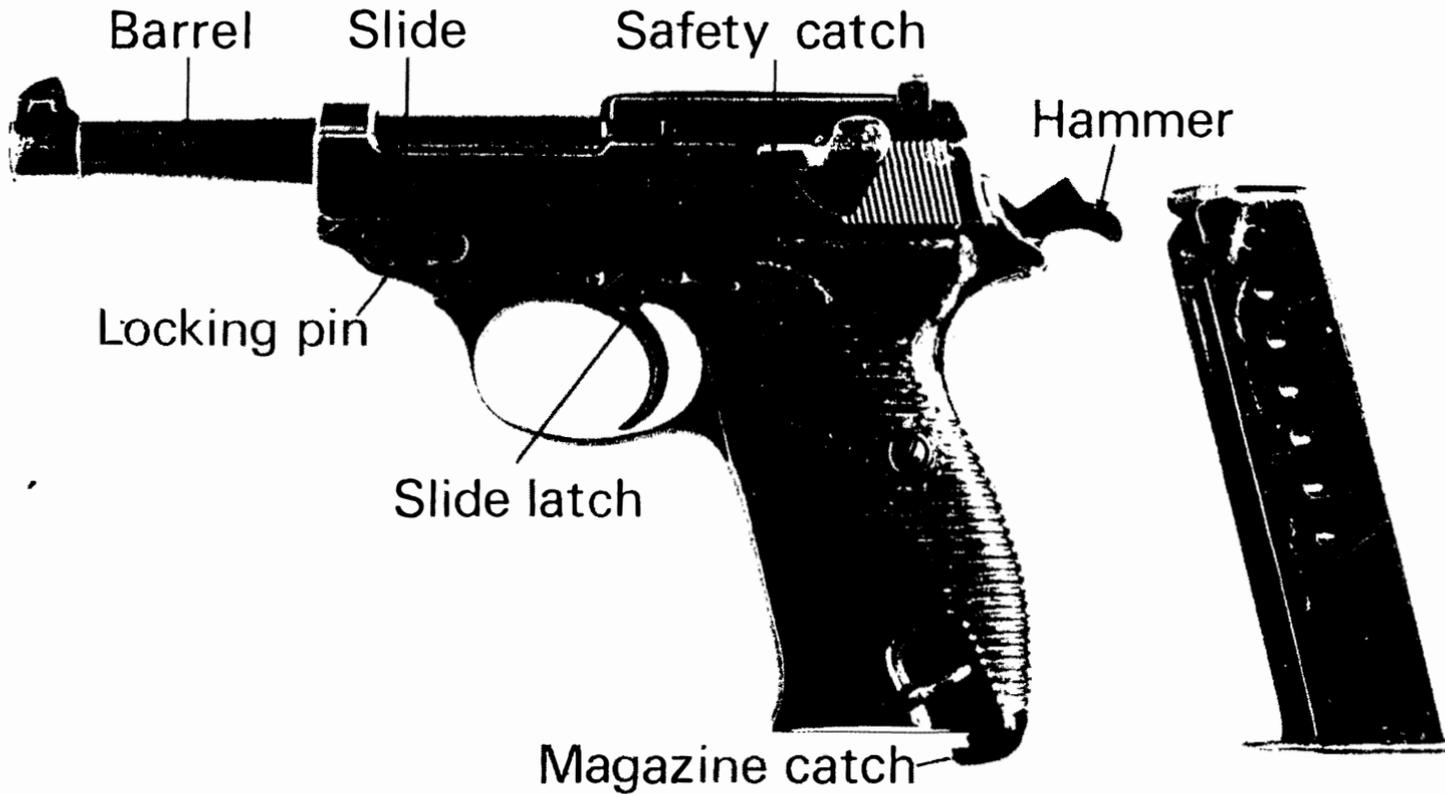
It is a curious point that the side-swinging cylinder, which most authorities agree in ascribing to a European inventor, should have become almost the monopoly of American revolvers, while the hinged-frame, invented in America, is almost entirely used in British and Continental designs.

There have, of course, been many other systems put forward for opening revolvers to reload them, but none saw very much use and they cannot be discussed here.

## Self-loading Pistols

The self-loader is popularly called the automatic pistol, but to be exact an automatic weapon is one which continues to discharge bullets so long as the trigger is held pressed, or until the magazine is empty. Hence the term self-loading pistol is more accurate for the weapons considered here, since this class of gun is designed to fire but once for each pressure on the trigger. Its automatic action is confined to ejecting the empty case, recocking the action and reloading with a fresh cartridge. Pistols have been made fully automatic from time to time, but they are hopelessly impractical, since after the first shot the vibration is so great that the gun takes charge of events and scatters its shots in all places except the target.

A typical self-loading pistol consists of a barrel, a slide which also incorporates a breech-block and carries the extractor and firing pin, a recoil spring, and a frame carrying grips, magazine and hammer. To fire the weapon the magazine is filled with cartridges and is placed in the butt. The slide is pulled back by hand, against the pressure of the



Barrel

Slide

Safety catch

Hammer

Locking pin

Slide latch

Magazine catch

recoil spring, thus cocking the hammer. As the slide moves to the rear, so the breech-block rides over the top cartridge in the magazine, allowing the magazine spring to push this cartridge up slightly. Releasing the slide allows the recoil spring to force it back towards the barrel, which causes the front face of the breech-block to strike the edge of the top cartridge and force it out of the magazine lips and into the breech or chamber of the barrel. Pulling the trigger now allows the hammer to be driven forward by the mainspring, striking the firing pin. This transmits its blow to the cap of the cartridge and fires the round. The explosion of the charge drives the bullet out of the barrel and also exerts pressure on the base of the cartridge case. This rearward pressure forces the slide and breech-block back against the pressure of the recoil spring. As the slide moves back the extractor pulls the empty case from the chamber and the ejector throws it clear of the gun. The recoil spring then forces the slide back and the cycle repeats. One important item is the disconnecter which, as soon as the slide moves rearwards, disconnects the trigger from the hammer, and keeps it disconnected until such time as the trigger is released. Thus, even if the trigger is held pressed, there can be no automatic functioning. The trigger must be completely released and re-pressed to fire the next round.

This simple action is known as a 'blow-back' pistol, since basically, that is how it works: the firing of the cartridge

blows the slide back. This is quite satisfactory for weapons firing weak cartridges; the mass of the bullet is so small compared with the mass of the slide and breech-block that the bullet is well out of the barrel and the pressure inside has dropped to a safe level before the slide has a chance to move. But for the heavy bullet and powerful charge used in military pistols, this system would be unsafe, since the slide would be blown back very violently and could possibly be blown straight off the back of the pistol and injure the firer. For such heavy weapons there must be some locking device to ensure that the breech remains closed for a fraction of a second until the chamber pressure has dropped to safe limits.

The first self-loading pistol to attain any commercial success was the 1893 Borchardt, a clumsy-looking though efficient weapon which needed almost as much space behind the butt to accommodate the automatic mechanism as in front to accommodate the barrel. It used a toggle-joint system of locking the breech which was later incorporated into the Luger, a more practical weapon. In this system the barrel is formed in a frame having two arms stretching behind and acting as guides to a separate breech-block. Behind the breech-block lies a toggle which can be likened to the human leg. The 'foot' is attached to the breech-block, the 'hip' is pivoted at the end of the frame, and the 'knee' is represented by a pivot half-way along. With the

'leg' lying in a straight line behind the breech-block, the rearward pressure developed by the explosion of the cartridge is resisted by what amounts to a solid strut, and barrel and breech-block, frame and toggle all recoil as one unit. In this short interval of time the bullet leaves the barrel and the chamber pressure drops to safe limits. As the assembly moves back, the toggle strikes a ramp shaped to force the 'knee' joint upwards; once this happens, the solid strut becomes a hinged two-piece member, and the breech-block is free to recoil in the frame. As the toggle folds, a recoil spring is tensioned; at the end of the stroke, the spring forces the breech-block back, picking up and chambering a new cartridge en route and returning barrel and frame to their original positions. The toggle-joint drops into place again, acting as a strut, and the gun is ready to fire once more.

The toggle-joint is a very sound system, but demands precise ballistics of the cartridge for perfect operation. It has been said that Borchardt's great contribution to arms design was not so much his pistol as his painstaking development of a suitable cartridge which would stand up to the rough and tumble of self-loading mechanisms and give consistent performance all the time. There is no doubt that once the cartridge was perfected, new designs of pistol to take advantage of it came thick and fast into the patent offices. The system also demands precise machining and

fitting of the mechanism, and for this reason is one of the few designs which have never been pirated or copied by any other maker.

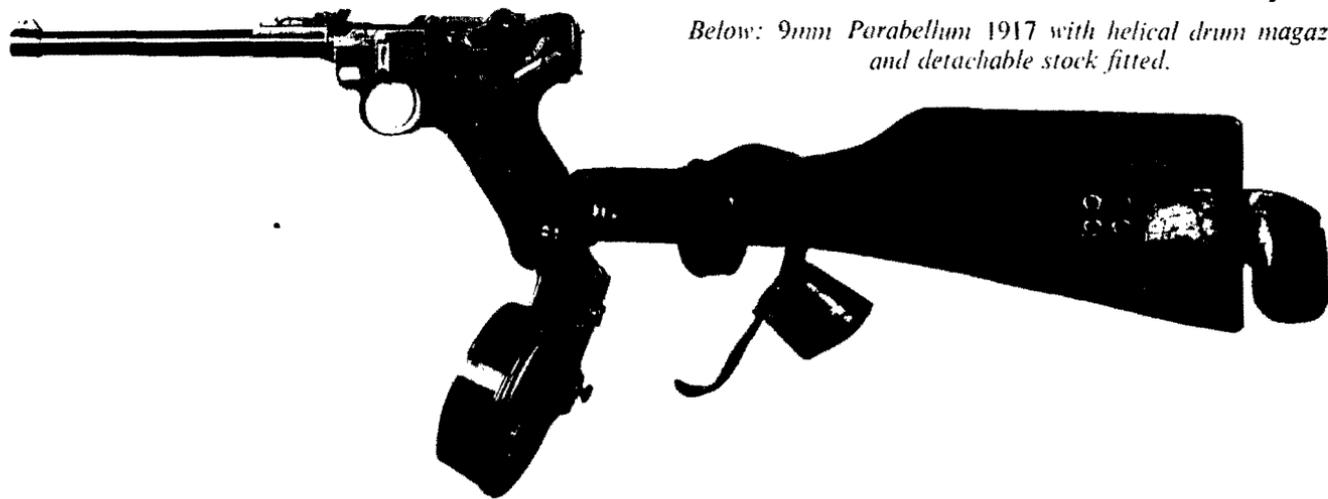
The next major step in self-loading design was the Mauser pistol of 1895. This used a similar barrel and frame to the Borchardt, but with a simple breech-block moving in the frame. The underside of the block had a notch engaging with a lock plate which connected breech-block and frame. Upon firing, after a short recoil of barrel and breech together, the lock plate was cammed out of engagement with the block and permitted it to recoil freely. When returned by the usual spring, the block pushed the barrel back into battery and this, acting through the frame, brought the lock back into engagement. In an attempt to improve the proportions of the pistol, Mauser built his magazine into a separate compartment ahead of the trigger, thus doing away with the long rearward overhang of the Borchardt. This position of the magazine, together with variations on Mauser's lock, is to be seen in several European designs of pistol of the late nineteenth and early twentieth centuries.

One of the most prolific arms designers was John M. Browning, and the system of locking which he developed is of classic simplicity. In this pattern the barrel is a loose fit within an overall receiver or cover, forming the slide and breech-block. The under-surface of this slide carries a number of machined slots. The top surface of the barrel is machined

to match. Below the barrel is a link, hinged to the barrel and pinned to the frame of the pistol. When fired, the barrel and slide recoil together, locked by the engagement of the barrel's ribs with the slide's slots, movement of the barrel being permitted by the link. But as the barrel moves, the link turns the rearward motion into a downward swing, pulling the barrel slots free from the grooves in the receiver, and thus allowing the receiver-slide and breech-block to move rearwards against a recoil spring. As the slide returns and feeds a round into the chamber, so the barrel is forced forwards, the link again turning the movement into an upwards

swing, locking barrel to slide ready for the next shot to be fired.

There are a number of other practical methods of locking, and any number of impractical ones too. There are also many variations on the basic layouts which I have described above; for example, some pistols do not use hammers but have internal strikers released by a sear connected to the trigger, much the same style as bolt-action rifles. Such variations in layout and locking systems will be covered in greater detail under specific pistols in the subsequent pages.



*Below: 9mm Parabellum 1917 with helical drum magazine and detachable stock fitted.*

## .455in Smith & Wesson New Century

Properly known as the Hand Ejector (New Century) Model, this revolver was originally made commercially in .44in S & W Special calibre in 1907. It was also known popularly as the 'Gold Seal' (from the gold S & W medallions on the grips) and the 'Triple Lock Model', due to the inclusion of a third locking lug to hold the cylinder in the firing position. S & W revolvers usually lock at two points, behind the cylinder into the standing breech, and at the end of the ejector rod into a lug formed on the barrel. The third lock was added in the yoke, just ahead of the cylinder, and made a most rigid assembly.

After the start of World War I in 1914 Britain ordered a supply of these revolvers in .455in calibre. Five thousand were manufactured in 1914 and 1915, but the triple lock (*right*), with its large enclosing shroud under the barrel, was found to accumulate mud and dirt under front-line conditions, making it difficult to close the cylinder. The design was abandoned in favour of the two-lock system, as seen in the Model 1917 for example. After the War it was reintroduced on their commercial revolvers in the heavier calibres.

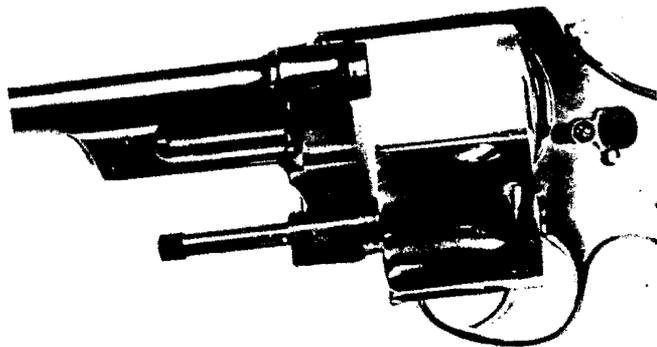
These revolvers represent the peak of American workmanship, and are superb weapons of great accuracy and precision. Although chambered for the .455in British service cartridge, in emergency they can be used with normal

.45in revolver ammunition, though with an increase in flash and smoke due to the poor fit of the bullet, and without the usual standards of accuracy.

*Weight:* 2lb 6oz.

*Barrel:* 6½in

*Magazine:* Anti-clockwise, 6 shots, double or single action





## **.455in Webley Revolver No 1 Mk 6**

One of the strongest, most reliable and most powerful revolvers ever made, this is the last of a long line of Webley revolvers used by the British Army since 1887. The choice of calibre was based on experience in native wars, where a charging warrior was not likely to be discommoded with anything much less than a .455in bullet. In those days the black powder propellant meant relatively low velocities, and hence a heavy slug was needed to deliver the demanded 'stopping power'; not until the advent of smokeless powder, enabling higher velocities to be achieved from the small capacity of a revolver cartridge, was it possible to reduce the calibre and still to obtain a reasonable man-stopping effect.

The Mark 6 was introduced in 1915 and survived until replaced by the .38in Enfield in 1936. As well as being military issue, it was widely sold commercially and was provided for police and military forces throughout the British Empire.

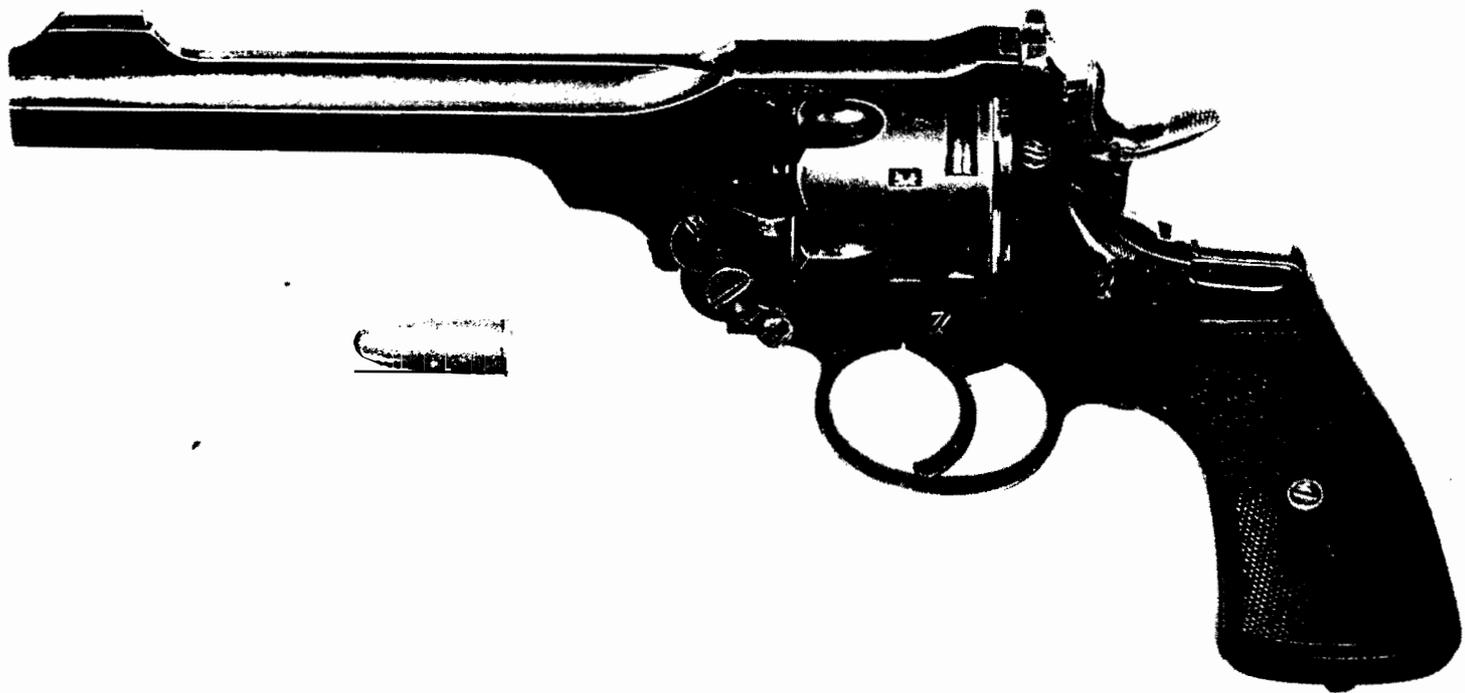
It is of standard Webley hinged-frame pattern, with the usual stirrup lock holding the action closed. A feature of the stirrup lock is the inherent safety; unless the action is properly closed and the stirrup lock fully in place, it will foul the top of the hammer and prevent the firing pin from striking the cartridge.

*Weight:* 2lb 6oz

*Barrel:* 6in

*Magazine:* Clockwise, 6 shots, single or double action





## ·455in Webley-Fosbery Revolver

The Webley-Fosbery is a unique weapon, being one of the very few self-cocking revolvers ever produced. Although never an issue weapon, it was used in quite large numbers prior to and during World War I, since in those days the officers of the British Army were allowed to purchase any revolver they chose provided it fired the issue .455in ammunition.

It is basically a Webley revolver of the usual hinged-frame type, but with the cylinder and barrel mounted as a unit and free to move along the top of the butt and frame. The cylinder has a zig-zag series of grooves cut into its surface which engage with a stud fixed to the frame. Once loaded, the hammer is cocked in single-action fashion and revolver fired. The recoil then drives the barrel and cylinder unit back along the frame to recock the hammer ready for the next shot. This movement causes the zig-zag groove to be pulled across the stud, imparting rotation to the cylinder and turning it through one-twelfth of a revolution. The rearward movement compresses a recoil spring, and this spring now drives the barrel and cylinder unit back to the forward position, causing the zig-zag to make another one-twelfth revolution, completing the movement necessary to bring the next cartridge in front of the hammer. The only real drawback to the system is the fact that one needs to hold

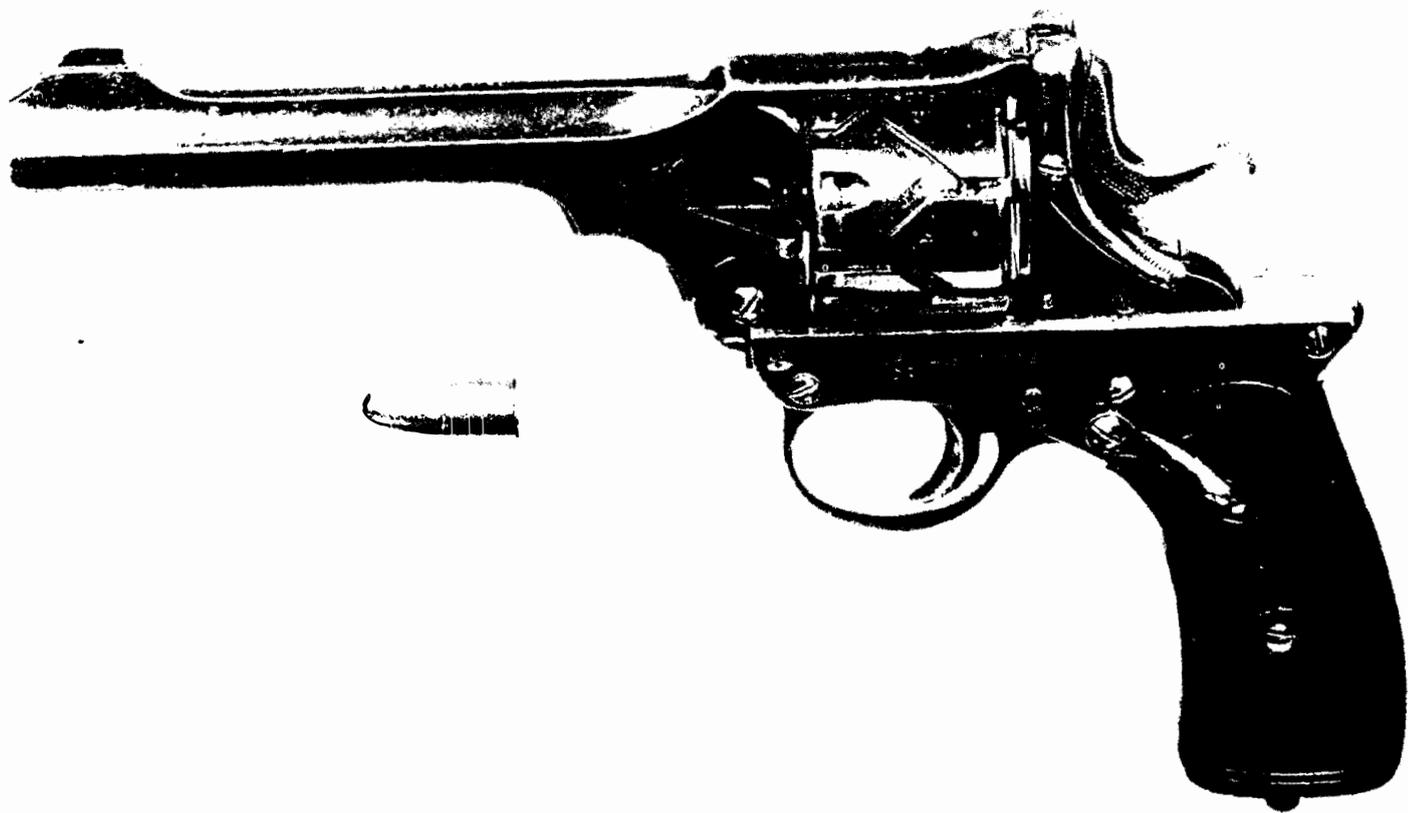
the firing arm quite rigid, otherwise the recoil is absorbed by the firer's wrist instead of recocking the action. The mechanism tended to collect dirt in the muddy conditions of front-line warfare, which caused the design to be abandoned for service use. A notable feature is the fitting of a safety catch, rarely found on military revolvers. This is needed because of the absence of double action; thus, if one is to be ready for action it becomes necessary to carry the pistol with the hammer cocked, and in such a case the safety catch is desirable. Operation of the catch moves the recoiling portion back slightly, disconnecting the trigger, and also locks the recoiling parts and frame securely together.

The self-cocking feature made for a fast-firing revolver, and Webley also introduced a special six-round reloading clip which held the cartridges in spring fingers. Breaking open the action caused the empty cases to be ejected, and one quick thrust sufficed to reload all six chambers at once. It is on record that a Webley marksman could attain a rate of fire of no less than seventy shots per minute with this weapon, aided by a supply of ready-charged clips.

*Weight:* 2lb 12oz

*Barrel:* 6in

*Magazine:* Clockwise, 6 shots, single action, self-cocking

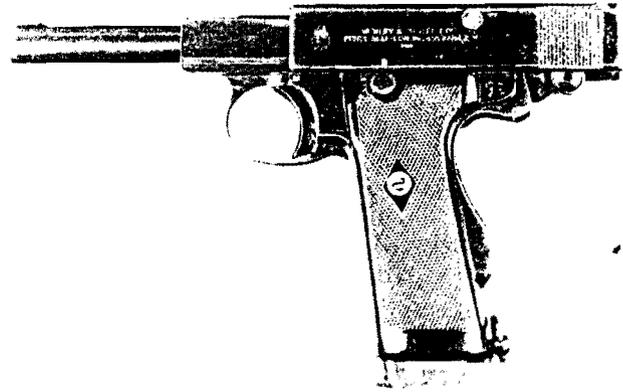


## .455in Webley & Scott

Webley and Scott first developed their self-loading pistol in 1904 but it was not a success. An improved version was introduced in 1910 and became the Royal Navy's standard pistol, remaining in service until the end of World War II. It was also adopted by the Army for use by the Royal Horse Artillery in 1914, but was soon abandoned as being unsuited to the conditions of life on the Western Front. It was also used by the Royal Air Force for some years.

This is another pistol which looks a good deal worse than it is due to the angle of the butt, but it is very robust and uses a unique locking system which relies on inclined planes in the receiver body to cam the barrel and breech out of engagement. There is no applied safety, only a grip safety: this does not seem illogical for it often appears that self-loaders have a superfluity of safety devices built in and on them, when the best safety device is a well-trained user.

Two minor features are worthy of note: the ejection of the spent case is up and forwards, not to the rear as is common with many self-loaders. The other feature is the magazine which has two notches for holding it in place. On inserting the magazine and locking it into the first notch, rounds will not feed. The slide can be pulled back, a round is inserted into the breech, the slide is closed by pressing the slide release, and the round is fired. On recoil (*right*) the



slide stays open, awaiting further hand-loading. Pressure on the base of the magazine, driving it into the second notch will allow feed to take place in the normal fashion. This is similar to the 'cut-off' found on many military bolt-action rifles, allowing the firer to keep up a slow aimed fire while having a full magazine readily available in case of emergencies.

*Weight:* 2lb 7½oz

*Barrel:* 5in

*Magazine:* Removable magazine, 6 shots

