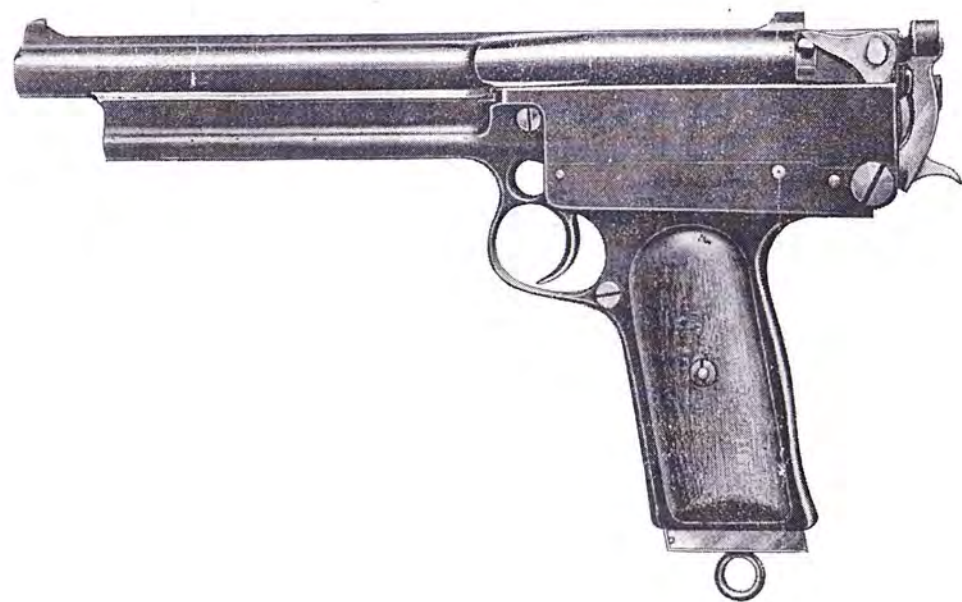


THE "MARS" PISTOL.



29/35, Whitehouse Street

Aston.

BIRMINGHAM,

OCTOBER, 1902.

The "Mars" Pistol.



THIS Pistol occupies a unique position in that it is the *only* Automatic Pistol which can fire a heavy projectile at a high velocity.

The Revolver is essentially a short range weapon of low velocity, but possesses a stopping power absolutely lacking in the Automatic Pistols *at present* on the market. The projectiles of the latter attain fairly high velocities, but being of small size and light weight, they are totally deficient in the stopping power essential to a defensive weapon.

The *shock-producing* effect of a Pistol bullet depends upon the striking area, mass, weight, and velocity of the projectile. Thus the maximum useful effect can only be obtained from a **heavy bullet** travelling at a **high velocity**, and in this respect no other approaches the combination of *shock-producing* and ranging powers found in the "Mars."

To obtain such a combination has been the work of some years and constant experiments; the special features now embodied in the "Mars" being radically different from those of all other automatic small arms.

In the "Mars" Firearms the entire effort of the powder gas has been expended before the breech commences to unlock, as only AFTER THE TERMINATION OF THE RECOIL does this unlocking take place.

The recoil is absorbed in compressing springs, which, by their reaction —

- (a) Unlock the breech;
- (b) Withdraw and eject the empty case;
- (c) Reload;
- (d) Close and lock the breech.

The Magazine (which serves as butt or handle) in the "Mars" Pistol, *lies immediately under the barrel* and the cartridges are withdrawn **rearwardly** therefrom (see illustration page 12), thus the barrel can be made of greater length than in any other Automatic Pistol within the same limits of overall length, as in all others the breech end of the barrel must commence *in front of the magazine*. Now, conditions as to calibre, pitch of rifling, &c., being identical, the length of the barrel practically determines the quantity of powder which can be burned, and this again determines the velocity obtainable. Therefore, these fundamental principles ensure for the "Mars" Pistol a marked superiority to any present or future competitor, as they are essential to the attainment of equal ballistic results.

When fired from a rest at short ranges, there is little to choose in accuracy between a first-class Revolver and any good Automatic Pistol, but owing to its much better balance (the centre of gravity being in the hand) much better shooting can be made with a "Mars" Pistol by an inexperienced shot than with a revolver. At ten paces it is not difficult to group eight shots in as many seconds within a four inch circle.

Description of "Mars" Military Pistols.

Length of Barrel	...	9.5in. overall.
Length of Pistol	...	11.5in. overall.
Weight of Pistol with Magazine	...	48oz.
Diameter of Bullet	...	0.335in. 0.360in. 0.450in.
Capacity of Magazine	...	Eight and ten cartridges.
Weight of Projectile	...	140 grains, 160 grains, 220 grains.
Muzzle Velocity	...	1,750 ft. sec., 1,640 ft. sec., 1,250 ft. sec. (according to weight of bullet, charge and calibre).
Charges...	...	10 to 12½ grains of Smokeless Powder.

The following table shows the comparative energies developed in the Colt Revolver, Colt Automatic, Mauser Automatic, and "Mars" Pistols:—

Pistol.	Calibre.	Weight of Bullet.	Charge of Powder	Muzzle Velocity.	Energy in foot lbs.
	ins.	grs.	grs.	ft. per sec.	
Colt Revolver	.455	265	18	700	287
Colt Automatic	.360	105	7.8	1,260	364
Mauser	.300	85	7.75	1,400	379
"Mars"	.450	220	12	1,250	760
"	.360	160	12	1,640	969
" (8½ mm.)	.335	140	10	1,750	950

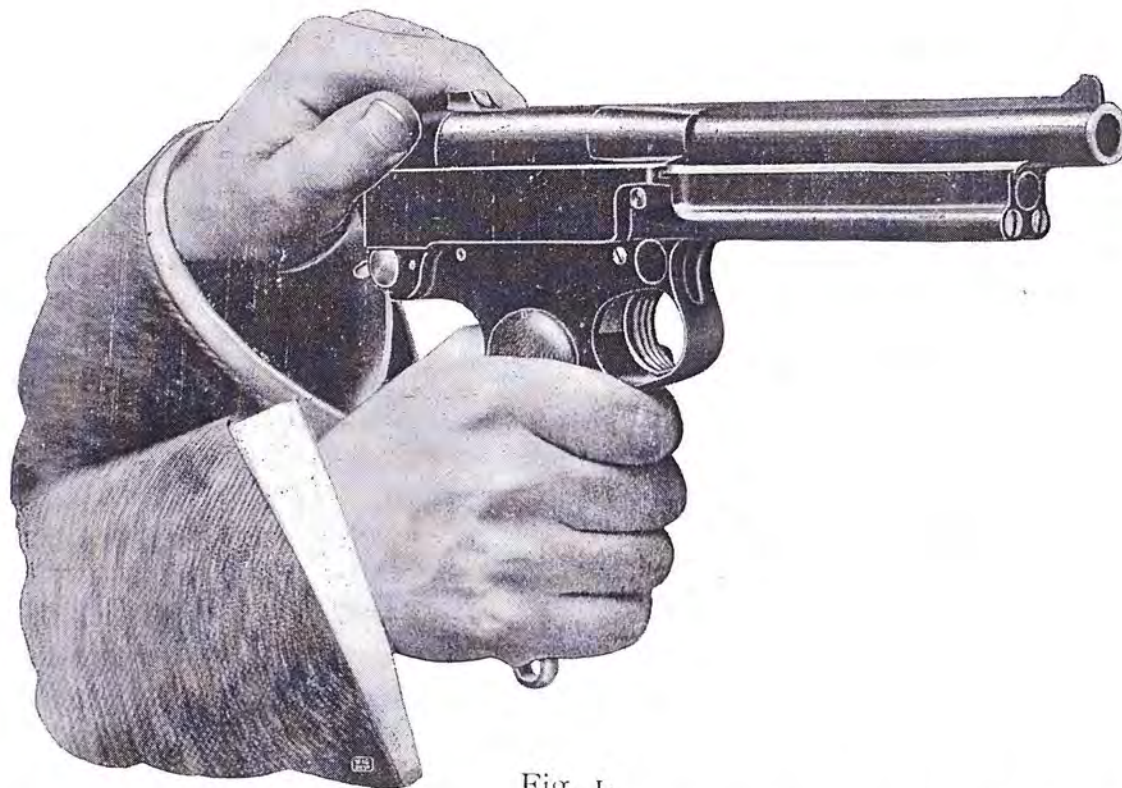


Fig. 1.

OPERATION.—To withdraw magazine out of the Pistol, press the button on the left hand side of trigger guard, when it may be easily withdrawn. The magazine is charged by pushing the cartridge in, bullet first, then holding down the previous cartridge, so as to leave space for the next one to be pushed in on top. The magazine may be charged with any number of cartridges, from one to eight. The magazine is then inserted into the handle, and pressed in as far as possible. Then, as in fig. 1, take the Pistol in the right hand, and with the left hand turn the Bolt Handle as far as it will rotate from right to left.

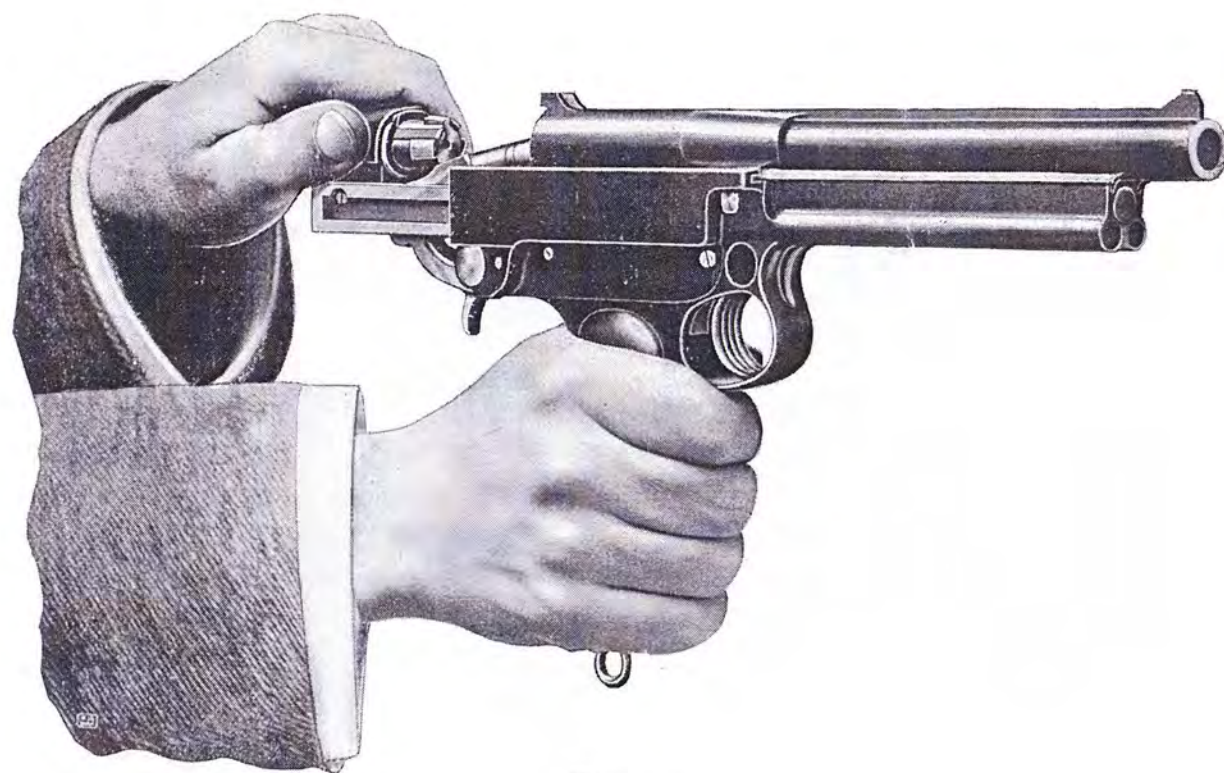


Fig. 2.

Now pull back as far as possible, (see fig. 2), and release sharply. This movement withdraws the cartridge from the magazine, and elevates it, cocks the hammer, and releasing the bolt, is pulled forward by its spring, pushes the live cartridge into the chamber, and locks the breech. The Pistol is now ready for firing

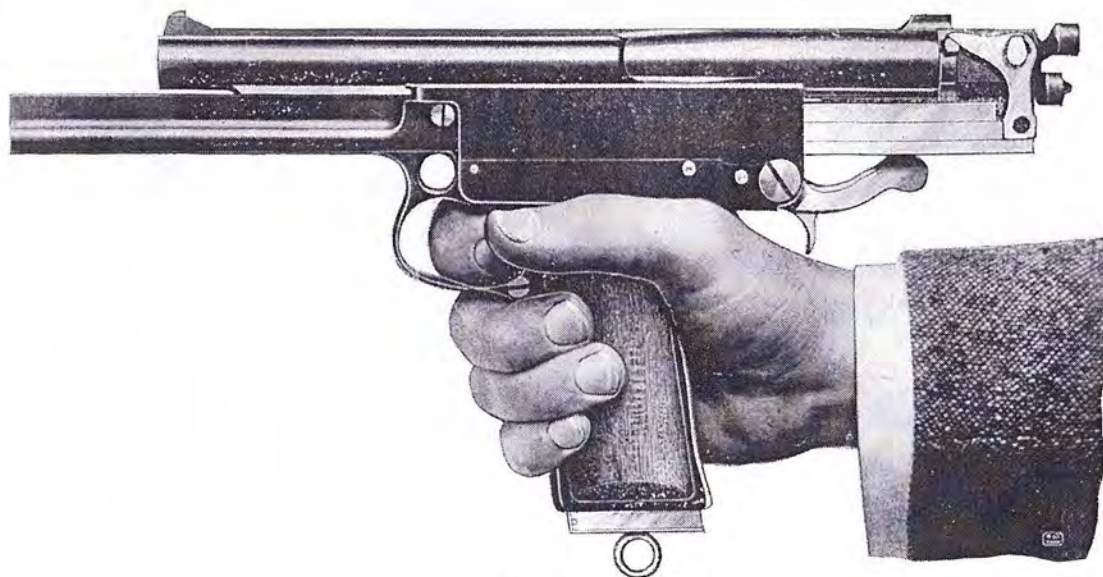


Fig. 3.

To fire the Pistol, *press* the trigger firmly. The barrel and bolt carrier will now recoil together fully locked against the resistance of their springs, as shown in fig. 3.

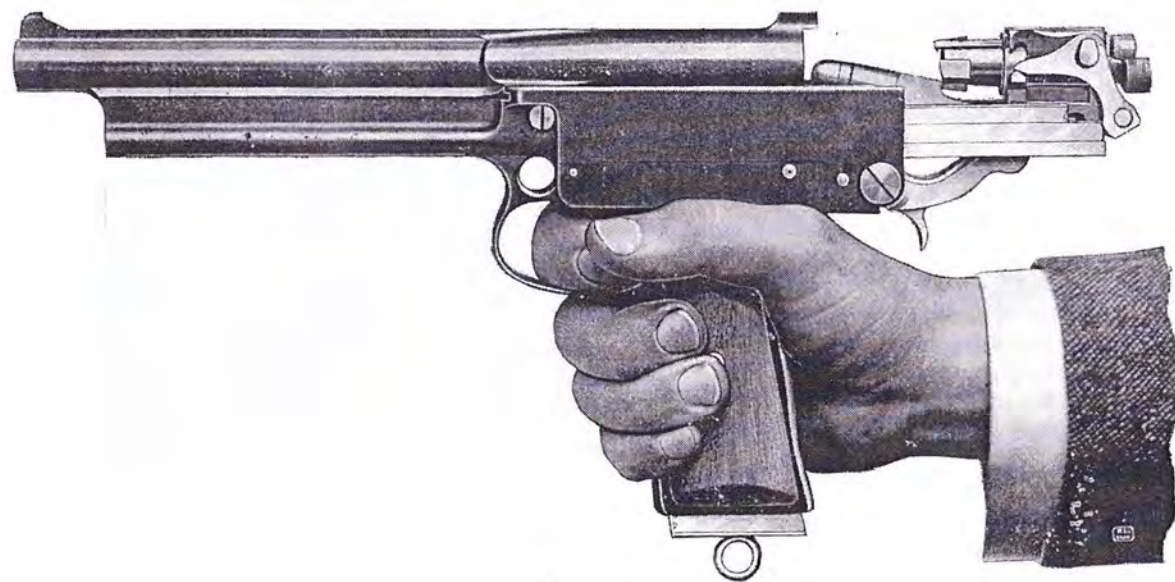


Fig. 4.

Then, as soon as the powder gases have been expended, the barrel and bolt begin to be pulled forward by their springs, the breech being *unlocked* during the first part of the *forward* movement. The barrel is now pulled forward by its spring into its normal position, the empty case being held by the retracted bolt until ejected by the elevation of the fresh cartridge. See fig. 4.

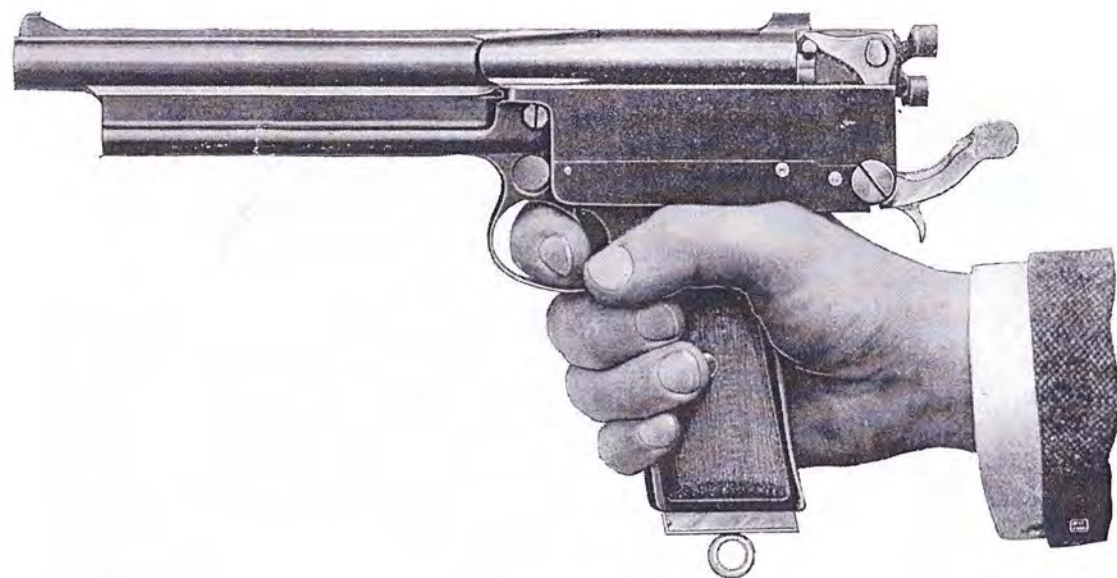


Fig. 5.

As soon as the trigger is released and returns to its forward position, it will disengage the bolt and allow it to move forward (see fig. 5), pushing the fresh cartridge into the chamber, and locking the breech, thus making the Pistol ready for another shot, and on pressing the trigger the operation will be repeated until the magazine is exhausted.

The Pistol should be kept oiled with a thin oil that will not congeal, and all screws kept tight. After firing, clean out the barrel with Nitroclean, and after wiping dry, coat with Rifiline.

INSTRUCTIONS FOR STRIPPING.

Take out the Magazine by pressing the button (*G*), and withdrawing by means of the loop on the bottom of the Magazine.

Unscrew the two Bolt Carrier Nuts (*H*), and withdraw the Springs; then cock the Hammer, and unlock the Bolt by turning the Handle (*I*) from Right to Left, and withdraw the Bolt Carrier (*C*) from the Body (*B*).

Then turn the Gib (*J*) until the Saw Slot is horizontal, then press out from the opposite side. Now the Barrel (*A*), together with its Spring (*K*), Buffer Bush (*L*), and Buffer Spring (*M*) may be drawn out backward from the body of the Pistol.

To take out the Lockwork, unscrew the Hammer Bolt Pin (*N*), then press out the Hammer Bolt (*O*), when the Hammer, together with its Spring, may be taken out of the Body of the Pistol.

Then unscrew the Trigger Pin (*P*), and take off the Lock Plate (*Q*).

The Detent (*R*) is then turned round from Right to Left as far as possible, when it may be lifted out of the Body. Then lift out the Connecting Rod (*S*) from the Trigger (*T*); next press out the Trigger Pin (*P*), and withdraw the Trigger (*T*) from the top of the Body.

To take out the Sear (*U*), unscrew the Sear Pin (*V*), when it will come away freely.

Now the Cam Piece (*W*) in the centre of the Body can be pulled out backwards, and then the Sear Spring (*X*) pressed out from behind.

To take out Magazine Catch (*G*) give a smart tap from behind, when it will spring out.

To strip the Bolt Carrier (*C*) take hold of the Sliding Bolt (*V*) (not shown in drawing), and turn upwards, when it will come away.

Then take out the Elevator Pin (*Y*), by turning the head downward and press out from opposite side when the Elevator will drop out.

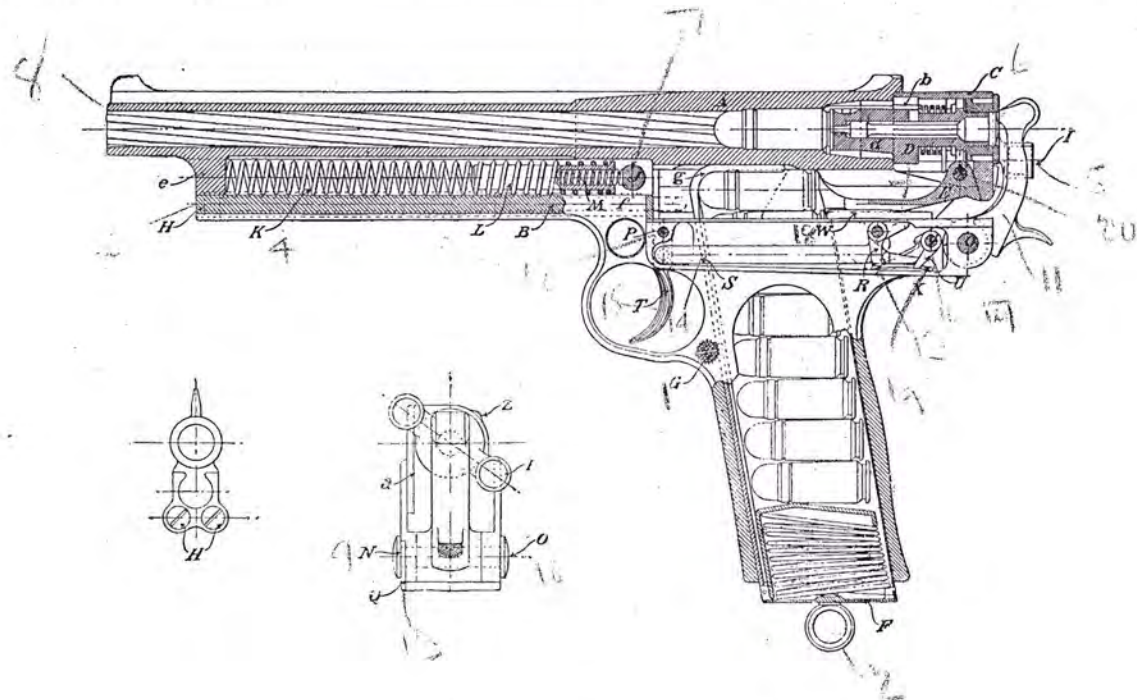
Next lift the Spring (*Z*) on the screw out of its catch, and unscrew and take out, when the Firing Pin will come away.

Then turn the Handle (*I*) from Right to Left, as far as possible, when the Bolt (*D*) can be pulled forward and out, together with its Spring. Then turn the Handle (*I*) until it can be pulled out backwards.

The Bell Crank (*A*) is then taken off, by turning from Right to Left as far as it will go, when it may be lifted off.

To take out the Extractor (*b*) from the Bolt (*D*) lift up the front until it can be turned opposite Slot in Bolt, when it can be lifted out from the Bolt.

To put together, reverse the operation, taking care to put back each part in the same order as taken to pieces.



PRESS OPINIONS.

"THE SPORTING GOODS REVIEW," December 16th, 1901.

THE "MARS" AUTOMATIC PISTOL.

In February, 1899, not very much less than three years ago, one of the London daily papers published an article on the subject of automatic pistols, wherein the supineness of British manufacturers was strongly reprobated. The month following we were able to show that the British manufacturers were not, as a matter of fact, lagging so hopelessly behind. After speaking of the Webley-Fosbery revolver—which in its final form we were only enabled to describe and illustrate in our issue of August 15th last—we went on to instance an English automatic pistol, called the "Mars," which had been invented by Mr. H. W. Gabbett-Fairfax. "The present model," we wrote on March 15th, 1899, "is of .400-calibre, and the bullet weighs 175 grains, the case being a straight taper, but in its final form it is quite possible the calibre of the 'Mars' automatic pistol will be reduced to .360, with a bottle-neck case. Until

these details have been thoroughly worked out, further speculative discussion can serve no good purpose. We hope, however, to return to the subject as soon as the arm is perfected."

For some considerable time nothing more was heard of the new weapon, but it happened a few months ago that almost by accident an automatic pistol of an unfamiliar type found its way into our hands. We thought, at first sight, that it was, perhaps, some new kind of Borchardt, a pistol first described in this journal so long ago as January, 1894. But a very cursory examination satisfied us that it was not, and ultimately we found it to be the long-talked of "Mars." Even then, however, the hope expressed in 1899 had to remain unfulfilled, and in May last we contented ourselves with merely recording the fact that the pistol had been exhaustively tested by the Small Arms Committee. After a lapse of yet more time the weapon has been publicly exhibited, and we are now at liberty to give details concerning this, the first all-British automatic pistol that has been produced.

As will be seen from the illustration, the resemblance to the Borchardt consists chiefly in the fact that the handle of the pistol is utilised as a magazine. Its most important peculiarity is the comparative largeness of the bore, whereby stopping power, derived from the use of a heavy projectile, is assured. For purposes of warfare, the new weapon, therefore, starts with an important advantage, in view of the fact that international sentiment on the question of expanding bullets of all kinds is such as to give a preference to projectiles large enough to deal a disabling blow without having recourse to expansion. The original .400 "Mars" has apparently been dropped, but the .360 has been perfected, and also a pistol of .450 calibre, taking a 220 grain jacketed bullet, as compared with the 265 grains of the .450 Service revolver. To set against the reduction in weight, we have the fact that the automatic pistol has no break in the barrel, and is therefore capable of a higher velocity. With $12\frac{1}{2}$ grains of Cordite in an Eley case, which, by the way, is made with a groove at the base instead of a rim, the muzzle velocity of the "Mars" is stated to be 1,250 feet per second, while the .450 revolver gives 700 feet.

In essential principle the large bore automatic pistol closely follows its predecessors of smaller calibre, but in details interesting differences are to be observed. The recoil has hitherto been generally used, first, to slide back the barrel and breech-block for a distance of about one-fifth of an inch, and then to release the block, which continues its travel to perform the ejectory and reloading operations. One pistol, however, the Bergmann, had a breech that was never locked, the block being only held up to the breech by means of a coiled spring, the swelling of the cartridge case being relied on to retain it in position until the

period of highest pressure had elapsed. The "Mars" goes to the opposite extreme, for not only is the breech securely fastened, but block and barrel recoil, locked together, to the full extent of the travel. The illustration on page 10 shows the pistol cocked ready for firing. The trigger being pressed, the locked barrel runs out, over the hand of the shooter, and recocks the hammer. At the full extent of the travel, when the projectile has left the muzzle, and the period of high pressure has ceased, the breech-block is unlocked, and held back, along with a sliding piece or carriage on which it is mounted, while the barrel, freed of restraint, is carried forward again under the influence of a compressed spring. During this movement of the barrel the spent case—which, with its extractor, remains behind with the breech-block—is ejected as a fresh cartridge rises from the magazine. At this point, which is reached so soon after the discharge that no appreciable time elapses at all, the finger is still pressing the trigger, the spent shell is dropping to the ground, the breech block on its slide is projecting behind the pistol, the barrel has returned to its forward position, and the cartridge has risen in the open space between the block and the breech. Now release the trigger, the block and its slide fly home, carrying the cartridge into the chamber; the operation of locking is automatically performed, and the pistol is ready for firing again.

The automatic fastening of the breech-block, and the working of the magazine in re-loading, are operations which, lacking diagrams, it is somewhat difficult to clearly explain. The .450 "Mars" holds eight straight-taper cartridges in the magazine, and when fully charged the weapon, before it can be used, requires cocking, as well as that retraction of the breech-block necessary to bring a

cartridge into the chamber. In the illustration it will be observed that two small projections are fixed at the back of the breech. With their aid a half turn is given to the block when it can be seen that the closure is effected by means of three lugs of taper shape, so arranged that while in one position the block is locked with absolute security, in the other it is not locked at all. Having with the fingers imparted this turning movement, the bolt can be withdrawn and the hammer cocked. In most automatic pistols such a movement uncovers the top of the magazine, but in the "Mars" this is not so. The withdrawal of the block is therefore so arranged that in combination with an elevating device it draws the top cartridge out of the magazine and tilts it up in such a way that the return of the block carries the cartridge into the chamber. After that, the first shot may be discharged, and the automatic action already described will continue to take place, as the trigger is pressed and released, until the magazine has been emptied, which it is said can be accomplished in about three seconds. To secure the automatic release of the block when the pistol is working under the influence of recoil, a spring is provided to impart the necessary turning movement. The barrel and block being locked together

while in their extreme rearward position, continue so locked at the beginning of the return travel. In the first quarter of an inch or so the turning spring is brought into operation, and the block, immediately revolving, is left behind on its carriage with the spent cartridge case held in the jaws of the extractor, ready to be ejected as the next cartridge rises.

In the '360 model, the case used is, as we conjectured it would be, of bottle-neck shape, while the '450 is a straight taper. We take it, therefore, that the first pistol, the '400 bore, has been developed into the '450, while the '360 has been perfected, and an additional model of 8.5 mm. ('3246) has been introduced, so that a weapon of yet smaller calibre is available if required. The '450, as we have said, takes eight cartridges, the smaller bores taking ten and eleven. The bullets used are nickel-cased. The '450 has a charge of 12½ grains of Cordite, and the '360, 12 grains. The cartridges are not held in a clip, the magazine in the handle serving the same purpose. With the '450, the velocity developed is 1,250 ft. sec., and the velocity energy 760 ft. pounds, while the '360 gives velocity 1,640 ft. sec., and develops about 960 ft. pounds of energy.

"ARMS AND EXPLOSIVES," December, 1901.

THE "MARS" AUTOMATIC PISTOL.

On the 23rd ult. representatives of the Press were invited to witness an interesting display of the performance of the "Mars" automatic pistol by its inventor, Mr. Hugh W. Gabbett-Fairfax. Not the least striking of the claims to novelty put forward on behalf of this weapon is the fact that it is of English design and manufacture throughout, and shoots English-made ammunition. Mr. Gabbett-Fairfax has been at work on the various details of the pistol for several years past, and has doubtless experienced most of the vicissitudes of alternate hope and anxiety incidental to the shaping of a perfected article from the first crude imaginings, but it must be admitted that the success attending the recent demonstration will go far to compensate the inventor for the stress and strain which alone could have brought about so satisfactory a consummation.

Apart from the fact of its British origin, the "Mars" has various other features entitling it to favourable criticism. Hitherto there has been a somewhat distinct dividing line between the automatic pistol and the revolver in respect to calibre, the ammunition of the former being, with one exception, of relatively small calibre, and in no way comparable in actually shock-producing effects with the larger, heavier, and slower-moving bullet of the revolver. Reasons for this difference are not far to seek. The tendency of the day towards high velocities and long ranges needs no elaboration of explanation. Therefore, the fact stands

that in the leading and successful types of automatic pistol now in use the calibre rarely exceeds .300 in., or the weight of bullet 100 grains, while the muzzle velocity ranges between 1,000 and 1,400 ft. per second, as against the 455 calibre, 265 grain bullet, and 700 ft. per second velocity, which are adopted in the Service revolver. There is no need in this place to go into a consideration of the relative merits or demerits of the two forms of arm, or of the obvious difficulties to be encountered in providing satisfactory ammunition for the revolver. That is an aspect of the case which may be dealt with elsewhere. Suffice it to say that, for certain purposes, especially for practical close-range fighting, the revolver has always retained its full measure of adherents as a man-stopper, no matter what its alleged inferiority may be in ease of handling and working, range, and general efficiency.

Having these guiding marks in view, the inventor of the "Mars" pistol has turned his energies in the direction of producing a weapon which should combine the shock-producing qualities of the Service arm with the superior ballistics and the more rapid manipulation of the automatic pistol, and it is interesting to notice how the development has been brought about, and how far successfully accomplished. At the present time there are three calibres of the "Mars" in existence, advancing by steady degrees from a minimum of 8.5 mm, or .3346 in., to .360 in. and .450 in. It will be noted that even the smallest calibre is larger than the average of the other automatic pistols, whilst the second size equals that of the

largest of those arms, the nominal .380 Colt or Browning. The largest calibre is approximately that of the British Service revolver, but the ballistic qualities of the two arms are of a very widely-removed character. The Service cartridge is sufficiently well known to require no description here. It consists of a bullet weighing 265 grains, which is propelled by 18 grains of black powder, which give a muzzle velocity of 700 ft. per second, the muzzle energy therefore being 287 ft. lbs. This cartridge is obviously an anachronism, retained solely because it seems well-nigh impossible to devise anything better in conjunction with the principle of revolving chambers. On the other hand, the cartridge for the .450 calibre "Mars" pistol is of distinctly up-to-date design, weighing approximately 363 grs., of which the empty shell contributes 130 grs. The nickel-coated bullet is of 220 grs. weight, and is propelled by from 12 to 14 grs. of Cordite, the latter amount only having been quite recently adopted. This cartridge gives a muzzle velocity of about 1,250 ft. per second, corresponding to an energy of about 760 ft. lbs. In other words, it gives a muzzle energy practically $2\frac{2}{3}$ greater than that obtained with the Service ammunition. Superior relative results are also obtained from the smaller calibres, the 8½ mm. pistol, with its 140 grs. bullet and 1,750 ft. per second velocity, showing a muzzle energy of 950 ft. lbs., and the .360 calibre, with a bullet weighing 160 grs., and a muzzle velocity of about 1,640 ft. per second, developing about 960 ft. lbs. of energy. The ammunition for the three calibres of "Mars" pistol is supplied by Messrs. Eley Bros., Ltd.

Turning to the weapon itself, on pages 9 & 10, we give herewith two illustrations showing the "Mars" automatic pistol; the one showing the pistol prior

to the firing of a shot, and the other the weapon in a transition stage, having ejected a fired case, while another cartridge is just visible emerging on its way into the chamber of the pistol. It will be noted that the magazine is contained within the stock, being in the form of a slide inserted from below, much in the same manner as in the Colt, Luger, and Borchardt automatic arms; and in the .360 calibre, which is the one here shown, the magazine is constructed to hold ten cartridges. By the way, the 8½ mm. and .360 cartridges are of the bottle-neck pattern, while that of the .450 calibre is straight-tapered, all being provided with a rim groove. Each calibre of bullet has two cannelures, and the inventor of the "Mars" pistol may take some credit to himself for the neat and practical design of his ammunition. There is no projecting shoulder where the cartridge case ends, but the metal is bevelled off and then compressed all round into the top cannelure of the bullet, thus making a very efficient junction of the two components of the complete cartridge. Reverting to the pistol, the .360 calibre, as here shown, has a length of barrel, measured from the muzzle to the breech-block, of 8.7 in., or over all to the back of the latter of 9.5 in. The extreme length of the pistol is 11.5 in., and its weight 2lb. 10 oz. The actual bore is .354 in., the bullet itself being .360 in. in diameter, and weighing 160 grs., as already mentioned. Its powder charge is 12 grs. of Cordite, giving the muzzle velocity and energy above stated.

The actual working of the pistol reveals some features not to be found in other automatic arms now in existence, one especial point in relation to the "Mars" being that the breech-block and barrel recoil together through the whole length of backward travel, and do not separate until the

motion of recoil is completed and the barrel moves forward to its normal position. This important co-relation of the parts is effected in a very ingenious manner, the breech-block being held to the barrel by a method which can only properly be compared with the system of breech-closing by means of an interrupted screw that is invariably adopted in larger ordnance, a resemblance that is all the more fitting since the opening of the breech is effected by hand through the agency of two small handles, shown at the back of the breech-block, which are miniature reproductions of those originally introduced, we believe, in Armstrong's early breech-loading guns of the '50's and '60's, and retained in a more or less modified form to the present day. To follow the working of the pistol during the firing of one shot and the preparation for another, we will assume that the charged magazine is duly inserted into the stock or handle of the pistol, where it is firmly held by a spring catch. The chamber is still empty, so to load it the handles at the back of the breech-block are given a half-turn to the left, and the block being thus released from its locking to the barrel, is withdrawn backwards to a certain distance and then released. This action draws a cartridge from the magazine, which, it will be noted, is below the barrel of the pistol, and not below the back of the chamber, as in most automatic arms, and deposits it in the chamber of the barrel, and at the same time cocks the hammer. On pulling the trigger the cartridge is fired in the usual course. The recoil drives back both barrel and breech-block, firmly held together, to the distance of about 2 in. against the pressure of powerful springs contained in the body of the pistol below the barrel. As soon as the pressure of recoil is over, these springs pull the barrel forward again, but in the meantime a bell-crank lever, actuated by a detent

through a medium of a sliding bar, disengages the breech-block, which is left behind with the empty cartridge case still held in the jaws of the extractor. The backward movement of recoil has drawn another cartridge from the magazine into an elevating device, which, on the return of the barrel, tilts up so as to place the nose of the bullet in line for entering the chamber. It can be seen in this position in the second illustration, on Page 9, which shows the operation of the pistol at this particular juncture. The tilting of this elevating device at the same time throws the empty case upwards and outwards. Now it only remains to release the trigger, which unlooses the breech-block from its engagement, and allows it to travel forward under the impulse of strong springs. As it moves it pushes the waiting cartridge into the chamber, and still following on, is securely locked in place, the breech-lugs swinging over automatically by spring action the moment the block is home. The initial recoil has already cocked the hammer again, and the pistol is, as shown in the first illustration, ready for the discharge of a second shot. It may be mentioned that the above operations, which have taken so long to describe, are accomplished so rapidly that it is possible to fire from eight to ten shots in three seconds.

Unfortunately, Mr. Gabbett-Fairfax was not able to give extended displays of the rapidity of fire possible with his pistol, owing to the fact that he had not received the expected supply of ammunition, and had very few cartridges available. But he was able to demonstrate the ease and rapidity of working of all calibres of the "Mars" up to the full extent to which speed of fire would be desirable, in so far as it would be possible to take aim in shooting. And, beyond that, he was able to give a very practical trial of the ballistic qualities of his

pistol, as compared with others, by means of a series of tests for penetration.

To indicate the capacities of the pistol for long-range shooting, the inventor showed one of .360 calibre, fitted with a 12 in. barrel and a neat detachable stock, for firing from the shoulder, but it was impossible at that time, and under the circumstances, to make a detailed trial. Even under disadvantages, however, it was seen that the pistol could make fair practice at over 100 yards,

and possibly at some future time we may have an opportunity of making a personal test. For the present it is enough to say that Mr. Gabbett-Fairfax is to be congratulated on the production of a British-made weapon which, judging by present appearances, is in no way inferior to those already associated with foreign inventors and manufacturers, and which bids fair to establish, by sheer merit, a conspicuous position among automatic pistols.

"LAND AND WATER," November 30th, 1901.

SHOOTING.

A trial of the latest automatic pistol, the "Mars," was made on Wednesday, at the London Sporting Park at Hendon. This pistol differs materially in principle from all the automatic pistols now on the market. The only real point of similarity is the sliding barrel. The three models tried were a .450, a .360, and a .335. The .450 is specially designed for the British Government, and carries a bullet approved by the authorities.

The two illustrations will give a fair idea of the appearance of the pistol. Fig. 5 as it appears when ready to fire, and Fig. 4 as it appears after a shot has been fired and before the trigger is released. These illustrations, however, do not show what I consider is the most important point about the new pistol, which is that the breech-block is firmly locked to the breech of the barrel while the barrel is being moved back by the force of the recoil, and is not released until after the discharge has taken place.

It is most important to realise that the force of the gas generated by the powder is completely expended before the breech begins to unlock, as this is quite a new departure in automatic firearms. By this means the pressure sustained by the cartridge case is minimised, and so there should be but little risk of cartridges splitting or jamming, and all escape of gas backward is stopped. The breech-block, by the way, is secured into the breech end of the barrel by an interrupted screw, which is a very safe method.

When the energy of the recoil is expended, the barrel springs forward, and the pistol appears as shown in Fig. 4 as long as the trigger is pressed. The empty case is ejected by the incoming cartridge, except in the case of the last shot, when it

is ejected by a connection with the hammer spring. When the trigger is released the breech mechanism springs forward, taking with it the fresh cartridge and lodging it in the chamber of the barrel.

The three pistols shown at the trials all weigh about the same—2 lbs. 10 oz. The length of the barrel and of the whole weapon is the same in all three calibres. Barrel 9.5 in., pistol 11.5 in. The capacity of the magazine in the case of the two smaller calibres is 10, and in the .450 8 cartridges. The magazine is contained in the handle of the pistol. The .450 bullet interested me particularly, as it is, though completely nickel cased, specially designed to convey a great shock to the object struck, being of a very round-nosed character. The ammunition is manufactured by Eley Brothers, and the pistol itself was invented and is entirely manufactured in this country.

Mr. Gabbett-Fairfax, the inventor, is to be congratulated on having introduced an entirely new, and apparently very sound, principle in automatic firearms. The practical firing tests were eminently satisfactory, and the pistol gave very great penetration. I was glad to see that the inventor would not be induced to make any experiments as to extreme rapidity of fire, though I have no doubt that the pistol would fire much more rapidly than could possibly be required for practical purposes. All that is wanted is a weapon which will fire as quickly as the shooter can take aim, and the "Mars" pistol will do more than this.

I will not at present go into the question of muzzle velocities, but hope to do so in the near future. I will simply mention the fact that the .450 bullet weighs 220 grs. Cordite is the powder used in loading the cartridges, and for the purpose in question cordite is as good as, if not better, than any of the other powders on the market.