

action of the bolt movement, suffices to dislodge even the most obdurate cartridge case. The extractor is, in reality, a long piece of steel, spring-tempered so as to allow it to snap over the rim of the cartridge, but for extraction it does not rely on its strength and springiness. On the contrary, the under-cut lug laps over the extractor during the withdrawal of the bolt, thereby locking it mechanically against the cartridge case. That Sir Charles combines the practical knowledge of the soldier with the mechanical ingenuity of the born inventor, is shown in his arrangement of the sear and trigger. He has so designed these that, though a strong trigger-spring is provided, the rifle would be quite as effective were it broken or lost. The sear-piece consists of two parts, the one being of the usual bell-crank form working on a rocking pin, with one end engaging in the trigger and the other in the usual manner in a detent in the cocking-piece for the purpose of holding back the striker in the cocked position. But, in addition, there is another arm on the cocking-pin, reaching forward and normally in contact with the under side of the bolt; it is compelled, except under stress of *force majeure*, to act on the sear proper by the pressure of a powerful spring, so that even were the trigger-blade entirely disconnected, the sear would be compelled to engage with its corresponding detent in the cocking-piece as the bolt was shot forward into locking position. So far, so good; but we may imagine that both the trigger-spring and this special sear-spring become inoperative through breakage or any other cause. In this case the trigger itself provides a solution to the difficulty. The back of the trigger-guard is slotted, and the trigger is made of extra depth so that it projects backwards an appreciable distance through this slot. In the natural process of handling the rifle and operating the breech mechanism, the middle finger of the right hand presses against the back of the trigger-guard just at the very spot where there is this projection of the trigger, and that pressure of the finger operating through the trigger to the sear affords at once the missing impulse to engage the sear with the cocking-piece.

The next point of interest lies in the magazine, which, as has already been

pointed out, is of a compact form kept flush with the wood-work of the rifle. Generically, the Ross magazine belongs to the same class as the Harris magazine, which was described and illustrated in these columns some few months ago, to the extent that it consists practically of a metal box, into which the cartridges, five in number, can be dropped haphazard on to a platform depressed for that purpose by hand, the arrangement of the cartridges in proper zig-zag fashion ready for use being accomplished automatically, or at worst assisted by a slight shaking of the platform. In addition it permits of the use of a clip or charger such as is adopted in the Mannlicher and Mauser rifles. But beyond that general likeness, the two magazines have little in common. Without instituting any odious comparison, it may be said that the Ross magazine is decidedly the simpler in its mechanism, and consists of the fewer parts, three, as against eleven. The platform extends into, and is concealed in, the wood of the fore-end below the barrel of the rifle, and normally the platform is pressed upwards by the force of a strong and sufficiently flexible steel spring of Z shape. The platform, however, can be operated readily by hand, it being for this purpose provided, midway along its length, with an extension piece, which comes up on the right side of the rifle barrel through a suitable recess cut in the wood of the stock and hand-protector covering that portion of the barrel, in such a manner that, though not constituting a marked projection, the visible portion is easily reached by any of the fingers of the left hand when holding the rifle at its centre of balance, as would be done naturally during the process of firing and loading. One finger suffices to work this ingenious contrivance for lowering or shaking the cartridge platform, and the more so since its total downward travel in depressing the platform to its utmost extent is less than half an inch. Before leaving this point it should be mentioned that a simple indicator fitted in conjunction with the depressing stud shows at a glance how many cartridges are in the magazine at any given moment, and that miss-feeds cannot occur from accidentally depressing the platform, as might be the case were a forward movement required to depress it.