

THE JOURNAL
OF THE
Board of Arts and Manufactures
FOR UPPER CANADA.

SEPTEMBER, 1866.

MUZZLE VERSUS BREECH-LOADERS.

For the past three or four years a great deal has been published on the subject of improvements in fire-arms, both by American and European journals. We have heretofore almost wholly refrained from noticing either the inventions of new or improvements in old weapons; but as the Austro-Prussian war has brought the peculiar merits of breech-loaders, in contrast with muzzle-loaders, so prominently before us; and as this is also to us a most important subject, involving the efficient defence of our Province, we purpose giving a few extracts from articles thereon, culled from leading British and American journals.

The London *Engineer* of the 20th of July contains a very full description of the Prussian needle-gun, with illustrations of the weapon and the various movements necessary in loading and firing. The length of this article, and the number of illustrations, preclude its transfer to these columns. The following lucid description, however, from a Prussian correspondent of the London *Army and Navy Gazette* will be found interesting:—

“*The Gun.*—The ‘needle-gun’ was originally invented in 1835, although of course many improvements have since been made. The credit of the invention belongs to a Mr. Dreyse, a manufacturer of fire-arms at Sommerda; but in some respects the weapon is similar to (and an improvement upon) the breech-loading musket of Norway. It is simply a breech-loading rifle, the cartridge of which is exploded by the intrusion of a needle into the fulminate attached to it; the needle being propelled by a spiral spring. The rifled part of the barrel is thirty-six inches long, and it has a calibre of six-tenths of an inch, with four grooves having a twist of five elevenths in the length of the barrel. The breadth of these grooves is about a quarter of an inch. There is an unrifled chamber for a bed of the cartridge, of a diameter slightly larger than the calibre of the barrel and enlarging a very little at the rear to admit the cartridge after repeated discharges. Where the chamber unites with the grooves there is a gradual slope to facilitate the passage of the ball, and to prevent too sudden a compression. The barrel is screwed into a cylinder, which holds together the mechanism of the piece. The contrivance by which the trigger pushes forward the needle is too complicated to be described here without diagrams.

“*The Cartridge.*—The cartridge used in the ‘needle-gun’ is made of stiff card-board; the ball, powder, and explosive composition being contained in one and the same cylinder. Its great peculiarity is that the detonating charge is placed immediately in the rear and base of the ball, and between it and the gunpowder. The advantage of this is that, when the powder is ignited, that portion next the ball, in which combustion is first perfected, exerts its full force upon the projectile, the powder in rear also exerting its influence, as it becomes almost instantaneously ignited. Under the present system in which that part of the powder next to the breech of the gun is first ignited, a portion of the powder is frequently expelled from the gun with the ball in a condition of only partial combustion; the explosive force of the powder first consumed being adequate to expel the ball and the powder in its front before the whole charge has time to become entirely ignited. In the ‘needle-gun’ all the powder is consumed, and applied to the best effect, and so as to obtain its fullest force at the same instant and in the same direction. When the trigger is pulled a stout ‘needle’ or wire is thrust through the base of the cartridge, parallel with its axis, into the detonating charge, causing its explosion and the ignition of the cartridge. The ball is spherico-conical, weighing 450 grains. The charge of powder is 56 grains. The weight of a gun complete is under 11 pounds.

“*The Fulminate.*—The composition used as a fulminate is a compound of ingredients known only to one man—the inventor; and so determined is the Government that the secret shall not escape, that that man is guarded night and day by a squad of twelve soldiers; every letter which he writes is inspected, and he is not allowed to communicate orally with any person out of sight of his guard.

Advantages.—The advantages of the ‘needle-gun’ besides the great one of celerity of fire, are (1) the simplicity of the mechanism, which can be taken apart without a screw-driver or other implement; (2) the safety and ease with which it may be cleansed; (3) the convenience of loading in a limited space or on horseback; (4) the certain and uniform filling of the grooves; (5) the reduced charge upon the entire consumption of the powder; and (6) the disuse of the ramrod.

“*Range.*—In accuracy the ‘needle-gun’ cannot be surpassed, and its effective range is said to be about fifteen hundred yards. It is, however, doubtful whether it will be found to long bear with impunity the necessarily rough treatment of an active campaign. The Prussian sharpshooters are all armed with this formidable weapon; and upon a skirmish line, whenever it can be used *with care and deliberation*, it must prove very effective; but the chief objection brought against it has been that, firing so rapidly, the soldiers are apt to forget the aim, and to waste more ammunition than with the old weapons.”

From the above it would appear that the needle-gun has been invented upwards of thirty years. It was introduced into the Prussian army in 1849.

A Mr. John Hansom, of England, claims the invention of this gun; as also does a Captain Whit-