

ey, of Ireland, who says he perfected his breech-loading needle-gun in 1823, and that the original and its cartridge can now be seen in Dublin. France has her claimants for the honor of the invention; and this Canada of ours has no less than two citizens who each claim to have been the original inventor.

As to the efficiency of this weapon, the Vienna *Medical Gazette* informs us that

"Of the 12,000 wounded men brought to Vienna, not 5 per cent. are so severely hurt as to be in danger of losing their lives. This confirms Dr. Russell's statement, in his letter to the *Times*, respecting the trifling nature of the needle-gun as a penetrating weapon."

The London *Engineer* says that

"Experiments are being made on a large scale at Chalons with breech-loaders. Military men in the camp declare that the worst of the various specimens of breech-loading arms which have been offered to the French Government are better than the Prussian needle-gun." And that—"The needle-gun was presented to the French Emperor six years ago, and immediately the committee of artillery engaged in the task of comparing together all the guns which load at the breech. Upwards of one hundred models were tried, and it was only last year that an arm was adopted, far superior, it is said, to the Prussian one."

The *Scientific American* thus expresses its opinion:—

"Judging it solely by its intrinsic value, it is not up to the standard of American breech-loaders. All military men know that an essential point in a fire-arm is simplicity and certainty in fire. Neither of these qualities is found in the needle-gun, for the mechanism is clumsy compared with recent inventions, and the ammunition is complicated and costly to prepare. The principal idea in this weapon is in firing the charge from the front instead of behind as in other weapons. To do this the percussion powder is put into a cavity in the base of a paper sabot, between the ball and the powder, the charge being exploded by a wire or needle thrust through the cartridge.

"The experience gained in the war of the rebellion shows us that the 'magazine arm,' or that weapon where the charges are contained in the breech, is most deadly, when in the hands of skilful troops. Other breech loaders have their good qualities, but all who remember the part the Spencer rifle bore in the contest will concede the point we make."

The London *Times*, on the Austro-Prussian war, says:—

"The great lesson to be learned by military men from the present war in Germany is the irresistible superiority of breech-loading rifles in action. In several sanguinary conflicts the Austrian troops fought obstinately and well; but they were fairly beaten (according to all the accounts that have reached us) by the more rapid fire of the Prussian infantry. From first to last, it is the 'needle-gun' that has carried the day; and that gun is simply a

breech-loading rifle of very indifferent quality. In principle, as well as in construction, it is not to be compared with several breech-loading rifles manufactured by English makers; but imperfect as it is, it has proved quite good enough to secure victory for the Prussians in almost every encounter. The letter of our correspondent, at the headquarters of the first Prussian army, contains numerous proofs of its extraordinary effect. It was this gun which mainly enabled the Prussians to force the passage of the bridge over the Iser at Podoli. The Austrians had occupied the village through which the road passes toward the bridge, and commanded all the approaches from windows and barricades thrown up across the street. But the Prussian riflemen fired *three times* before the Austrians, armed only with muzzle-loading rifles, were able to reply. This more than compensated for any disadvantage in numbers or position, and the Austrians seemed to have been completely overmatched. In the street, the Austrian soldiers, huddled together and *encumbered with heavy ramrods*, were unable to load with ease, and could return no adequate fire to that of the Prussians, while these, from the advantage of a better arm, poured their quick volleys into an almost defenceless crowd. It was the same at the railway bridge, about 200 yards distant; here the needle-gun showed its advantage over the old-fashioned weapons of the Austrians, for the latter fell in the proportion of *six to one* Prussian."

From these extracts it would appear that the Prussian needle-gun is, after all, but an indifferent weapon; nevertheless, the advantages of it, or any other good breech-loader, over muzzle-loaders is very apparent. The disadvantages of the latter in actual warfare are shown in the following extract from the report of the master-armourer at Washington, on the condition of the arms gathered after the battle of Gettysburg:—

"The number of arms received here from Gettysburg was 27,574. The number found to be loaded was 24,000; of these 6,000 had one load each, 12,000 two loads each, and 6,000 from three to ten loads each. In many of these guns from two to six balls have been found with only one charge of powder; in some the ball has been found at the bottom of the bore, with the charge of powder on the top of the ball; in some, as many as six paper case cartridges have been found—these cartridges (regulation ball, calibre 58) having been put into the gun without being torn or broken. In one Springfield rifle musket there were twenty-three loads—each load in regular order. Twenty-two balls and sixty-two buckshot, with a corresponding quantity of powder all mixed up together, were found in one percussion smooth bore musket."

The trouble in England just now is, from the numerous inventions of repeating and single breech-loading rifles, of which there are upwards of sixty, to select the most efficient weapon. At the recent Volunteer Rifle Match at Wimbledon, a prize was offered by the proprietors of the London *Saturday Review*, for the breech-loader that would make the best score on time at 500 yards—covering both