

conditions of accuracy and rapidity. This prize was won by a Berdan-Enfield rifle. It is said that the military authorities were so satisfied of the superiority of the Enfield as converted to a breech-loader on Col. Berdan's plan, that an order was immediately given for the alteration of 50,000. The London *Mechanics' Magazine*, speaking of the improved guns used on the occasion referred to, says:—

“It is satisfactory to observe that the competition by these arms at the Wimbledon meeting is exciting unusual interest. The object is to fire the largest number of shots within a given time, and of course the value of the weapon is enhanced if accuracy is combined with rapidity. Among the various results of breech-loader shooting, it is reported that Mr. Dunlop fired 26 shots with a Remington rifle in 3 minutes, making 60 marks; but Private Kerr, of the London Scottish, who used the Remington carbine, for rapidity, shot 49 times, and only made 33 marks. Lord Elcho, with a Berdan's breech-loader, fired 23 shots, and Lord Mahon (of the Grenadier Guards), Robb, Mackie and Banting made 21 shots in the stipulated 3 minutes. For rapidity, Mr. Peterkin made 76 points in 29 rounds with a Spencer repeater; Mr. Dunlop in 20 shots made 59 points; and some other high scores were made. These last scores speak very highly for the Spencer repeating rifle, both as a rapid shooter and as an arm of precision. It appears from a recent statement of General Peel, in the house of Commons, that the Spencer rifle was brought before the War Department in 1864 and 1865, and was reported upon by the Ordnance Select Committee as ingenious, but liable to be damaged by exposure to weather. The committee at that time reported generally against repeating rifles. Since then, however, they have seen reason to change their opinion, and have now given orders that they should be supplied with six repeating arms of various patterns, of which a trial will take place. It is satisfactory to find the minds of the committee becoming open to conviction, and we think there can be little doubt that a fair trial will lead to conclusions in favor of a repeating arm. With regard to the rejection of the Spencer rifle on the score of liability to damage by exposure to weather, it is gratifying to find no worse reason given. We should like to see the arm that was not liable to damage under such circumstances. If hard service in the American war, as certified by generals under whose command the Spencer rifle was used, and successful experiments by the American Government to test this very point, go for anything, then the Ordnance Select Committee can dismiss all fears upon the subject. The weapon has proved itself equal, if not superior, to other rifles in its non-liability to damage by weather, both in practical use and under more than ordinarily unfavourable circumstances. Whatever system may ultimately be adopted by our Government, it is to be hoped that the merits which accompany an arm having a bore or small caliber will not be overlooked. This is an especially important point with a repeating gun; by increasing the number of rounds carried it meets the objection sometimes raised that the men

waste their ammunition in firing away too rapidly. This objection in practice, however, is said not to hold good; the men are found to be careful of their fire, and gain confidence from having so many charges at command without reloading. A small bore is of still greater importance in another way; it enables troops to take the field with a much larger quantity of ammunition, speaking numerically, although of only the same weight as the supply for weapons of larger bore. It is highly desirable that the soldier should be able to carry a greater number of cartridges, in proportion to his increased facility of using them.”

The same journal refers to an improvement in fire-arms, by Mr. Gale, in the following terms:—

“Mr. Gale, F.C.S., the discoverer of the process by which gunpowder can be rendered non-explosive and explosive at pleasure, has just invented a very ingenious piece of mechanism, which on being applied to small-arms, will enable him to discharge them with far greater rapidity than has been possible hitherto. It consists of a longitudinal piece of steel perforated for bullets, and fitting into a pistol between the stock and the barrel at right angles to the weapon. A revolving screw worked by the trigger moves this bar, and at each movement one of the holes in the bar is brought opposite the barrel of the pistol, and a shot is fired. The bar at last passes out at the other side with all its shot expended, and can then be loaded again and used as before. Supposing each bar to contain ten shots, and a soldier to be provided with half a dozen such, he could load and discharge at the rate of sixty rounds a minute, if necessary; thus far outstripping the famous needle-gun. The same mechanism can be applied to rifles and even to artillery, and a proportionate increase of rapidity in discharge is obtained. It is believed the British Government will adapt this invention to the present Enfield rifle, which can be done with comparatively little cost.”

The *American Artizan*, speaking of another improvement says:—

“Captain J. V. Meigs, of Washington, D. C., has invented a new device for changing the common musket into a breech-loader, which can be applied to the United States arms with little difficulty. The invention consists in so constructing the guard that its *horizontal* motion opens and closes the breech vertically, thus obviating levers and protruding parts, or the necessity of changing the position of the hand which grasps the stock after firing, to extract the shell or preparing for reloading; and the extractor has no spring, but ejects the shell by a positive motion. Captain Meigs is engaged in perfecting and applying his invention to a magazine gun, which will enable the soldier or sportsman to dispense with ammunition boxes, and yet carry 50 rounds within the breech of this gun without increasing its size or weight. These fifty rounds may be fired without removing the gun from the shoulder.”

A writer in a recent number of the *Scientific American*, thus sums up some of the many advantages of the breech-loading fire-arm:—