

Feats of Fire-arms.

The Crimean war and the recent revolt in the East Indies have given an impetus, in a martial direction, to the inventive talent of a great number of ingenious men, both in the United States and Europe; and this movement in military manufactures has resulted in the issue of many patents (especially in this country) for improvements in fire-arms, the majority being of a breech-loading character.

On the 17th ult. a Board of experienced military officers was convened at West Point, N. Y., for the purpose of testing the respective advantages of various new breech-loading rifles, with a view to ascertain which arm of that description is best suited to the service of the United States army. Through the courtesy of an ingenious and gallant friend, an officer in the Ordnance Department, we have been favored with the following interesting account of the experiments made before the Board:—

MESSRS. EDITORS:—In compliance with your polite request that I should report the results of the breech-loading trials now going on at West Point, N. Y., the following succinct statement is submitted for the information of the readers of your valuable journal:—

About three years ago, Congress, desirous of fostering the growth of the manufacture of arms in this country, or from some other motive, made an appropriation of something less than a hundred thousand dollars for the purchase of the best breech-loading arm that the country produced. This was originally intended for the benefit of a particular company, but an amendment—viz., the word "best"—threw it open to all arms, and in such manner as the Secretary of War might see fit. Thus was given a strong incentive to mechanical ingenuity. Now, our people, as you know, have more of that quality, *pro rata*, than any other; and I heard an officer, who was stationed at the arsenal at Washington in the years 1854-'55, say that, on an average, there came down there at that time, to be tried and reported upon by the directions of the Colonel of Ordnance, two new breech-loaders per week. Secretary Davis had preliminary trials before a Board of officers convened for that purpose, in order to select the best of those presented, and submit them to further trial in the hands of the troops. Only four competitors were admitted, viz.: Sharpe's Co., Perry, Green, and Symmes. Others were admitted afterwards, who had not submitted their arms to the Board, making in all some eight or ten. Each of these had an order for a limited number, and they went to the field.

Before the experimenting officers had reported on the merits of the arms, the Administration changed, and with a new Secretary of War came in new ideas. The present Secretary brought officers from the field, and told them to arraign and try all the breech-loading world.

The officers comprising the Board will be recognized by any one familiar with their register as being "from the field." They are as follows:—Lieut. Col. Beale, Major H. Hill, Capt. Thos. Duncan, Capt. Heth, Capt. Benton, and Lieut. Gibbon. This Board assembled at West Point on the 17th ult., as per orders, but did not get to work before the 19th. The place chosen for the firing is across a bend or inlet in the Hudson river. A platform is erected and covered with canvas, from which the guns are to be fired. The rifles are not fired off-hand, but by a person sitting on a stool, resting the barrel of the piece on a support, and also bending forward and resting his right arm against a bench, from which the support of the barrel is raised. Each gentleman exhibiting a gun must submit it to the following test, viz.: 20 rounds at a target at 100 yards, 20 rounds at 300 yards, 20 rounds at 600 yards, 18 rounds to judge of rapidity, and 100 rounds to judge of durability. This is a severe test, but a good one. The members of the Board do not scruple to take hold of the guns and carry on the firing themselves, first having taken the precaution of letting each inventor expose himself

to any dangers from the same, for five or six rounds. Thus they proceed, slowly, but quite surely. Twenty-three guns are said to have been presented. Some competitors have declined or "flunked," but a majority have stood up to the test. These, in order of time, are as follows:—

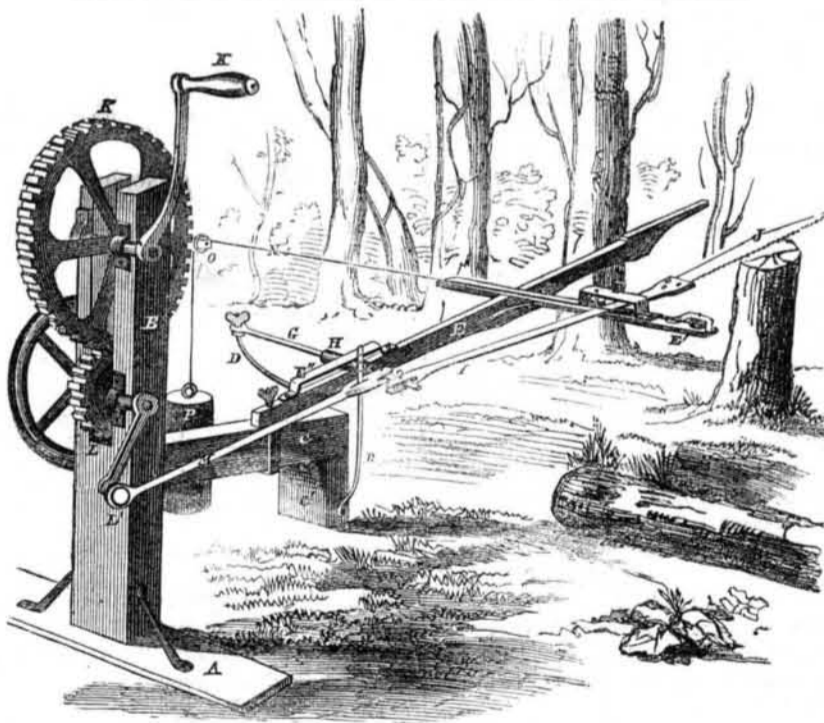
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| 1. Howe. | 7. Burnside. |
| 2. Gross. | 8. Green. |
| 3. Schenkl. | 9. Sharpe's Co. |
| 4. Gibbs. | 10. Colt. |
| 5. Morse. | 11. Jocelyn. |
| 6. Merrill. | |

Of these arms, Mr. Howe's was an exceedingly simple chamber gun, but did not shoot accurately, as almost every chamber gun fails in this respect. I now distinguish between chamber-loading, where the cartridge is inserted backwards, or the powder first, and breech-loading, where it is inserted forward, or the ball first. Mr. Gross' arm is a chamber gun, also, but I³ was not present when it was fired. Mr. Schenkl's weapon is a modification of the Prussian needle gun, with the cap in the base of the ball. I understood that it did not fire well. Mr. Gibbs' arm (a breech-loader) has the barrel movable, and closes down and back against the breech. It did good shooting. Mr. Morse's gun was a breech-loader; he used a brass case and beautifully swedged ball for his cartridge, and the cap or explodent was fastened in the bottom of the metal cartridge, so that a smart blow from behind, made by the hammer, was the cause of the explosion. The case was automatically withdrawn, when it was necessary to insert another cartridge. His shooting was moderately accurate. Mr. Merrill's weapon was a faucet breech-loader. He used, I think, too little powder, and his ball did not weigh enough. He, also, did only moderately well. General Burnside presented a beautiful chamber gun. His cartridges, also, were encased in thin brass covers. They were made to fit both the chamber and barrel by a zone of lead on the end of the brass next the ball. This gun did good firing. It was subjected to a

wetting while loaded; after which it was not used for two days; it was then fired perfectly free. The cartridges, also, were submerged for a day, and then fired. This gun presents strong claims upon "the service." Next came the breech-loader of Col. Green, (not Greene,) of Boston. He has named his weapon "the plug-ugly." It has the peculiarity of loading forward—the powder first and then the ball, and lastly a thick felt wad. Thus the ball of the preceding cartridge is propelled by the cartridge that is fired. The lock is underneath, and the cap fires through the side of the cartridge. It is a good rough little piece, but did not throw its ball with great accuracy. Then came the piece so well known as Sharpe's. It had the gas-choke in it, and was fired, by the aid of the primer arrangement, *eighteen shots in fifty-five seconds*—an unprecedented rapidity; not but that any breech-loader could do the same with proper arrangement for primers. Let Americans think of this: Are soldiers brought before an enemy for the purpose of receiving or of giving balls? All we want is what the Board are now seeking. This gun, however, was not "up" in accuracy, having been beaten by Gibbs' and equalled by Burnside's. Then came Col. Colt's piece. This gun is well known. It is a "five-shooter," strong, and well made. It fired the heaviest ball (530 grs.), and was the most accurate of all the guns thus far tried—beating Gibbs', Sharpe's and Burnside's by far. How much is to be deducted for extra length of barrel (35 inches) and overweight (12½ lbs.), the Board are to judge. Its rapidity of firing was not so great as was expected. The next was the Jocelyn gun. It is a breech-loader, of very neat appearance, but the connection between the cap and the chamber is such as not always to communicate fire to the cartridge. It shot unaccountably wild, probably because the ball stripped.

Next week I will give the remaining trials, two of which promise to be very interesting. †

LUDWIG'S MACHINE FOR FELLING TREES.



The labor required in felling trees by the ax, in the ordinary manner, is considerably greater than would be required in severing the trunk, under favorable circumstances, by an ordinary cross-cut saw; but the unfavorable position of the work for operating a saw, goes far to counterbalance this advantage, and to compel an adhesion to the old system of chopping. It is evident that the absolute amount of power required to excavate a thin kerf by a saw is far less than that to remove two large wedge-shaped sections, as is required in felling by the ax; the problem is to so mount the saw that it may be moved with facility, and that it may be operated by a motion which is easy for the muscles.

The engraving here presented shows a light and simple apparatus, invented by Matthew

Ludwig, of Boston, a gentleman of considerable experience in adapting saws to this and analogous uses. The power of the man or men is applied to a crank or cranks on a suitable frame, and the saw is made capable of being worked thereby with a rapid motion, either in making a horizontal cut, such as is required for cutting off a standing tree, or in vertical cuts, such as are adapted to cut up the log into suitable lengths after it has been felled.

A is a broad foot, and B a stout upright. The latter is divided into two parts at the top, as represented, and forms the bearings for the shafts. C is a horizontal part or stick, mortised into B, and C' is a leg or support therefor. D is a light iron rod projecting nearly in a horizontal direction at right angles to C, and E is a long wooden arm, connected

by one or more bolts to C, as represented. E' is a cross bar, extending rigidly across E near its center, and E'' is a light iron attachment on the top of E, to guide the roller, H, which latter will be described below. F is a carriage, so connected to the cross bar, E', that it is free to slide endwise thereon. G is a light rod, termed a radius bar, jointed at one extremity to the fixed rod, D, and at the other to the rod, I, which latter, passing through the carriage, F, is firmly fixed to the saw, J. The office of G is to guide the motion of I. It plays backwards and forwards as the saw is moved, and is provided with the roller, H, to diminish the friction against E and E', which would otherwise be caused by its motion.

K is a crank, and K' a stout gear, which is turned thereby. L is a smaller gear wheel, the motion of which is steadied by a balance wheel, as represented, and which turns with some 2½ or 3 times the regular velocity of K'. L' is a crank on the same shaft, which gives, by means of the connecting rod M, a reciprocating motion to the radius bar G, and thus to the nearest extremity of the saw bar I. This motion is not rectilinear, but curved, according to the length of the radius bar G, and this imparts a slight oscillating motion to the saw, which aids in clearing the sawdust.

This makes one of the simplest methods of mounting a saw for this purpose, and one which involves less friction than any other with which we are acquainted. The saw is urged up to its work by the tension of the cord N, to which is suspended a weight P. This cord is not attached directly to the saw bar I, but to the carriage F, and there is a roller, as represented in F, to diminish the friction which would otherwise be experienced at that point.

This machine is adapted, by a very simple change, to the cutting off of logs. For this purpose it is necessary simply to bolt the long bar E on the side, instead of the top, of C, and to disconnect from the radius bar G, and make the connections to the bar P, which serves in its stead for vertical cutting. In such cutting the cord N and weight P are dispensed with, and the weight of the parts are amply sufficient to hold the saw teeth to the work.

This machine is an improvement on the machine formerly patented by Mr. L. for the same purpose. It was patented on the 30th of June last. For further particulars address M. Ludwig, 35 London street, Boston.

Steam Cultivation in England.

An experiment has recently been made in Lincolnshire, Eng., in steam plowing, with Boydell's traction engine, which appears, from the published reports, to have given satisfaction. Several varieties of plows were tried, the peculiar construction of which we cannot get at from the vague descriptions given of them; but it was proved that the traction engine, with three double plows, plowed one acre in seventy-three minutes, or about eight acres in one day of ten hours, at a cost, in labor and coals, of about \$7 50, while the work performed by six single plows, with eighteen horses, in the same time, would be only four acres and a half, and this at a cost of about \$12 50—being three acres and a half in quantity, and a little less than \$5 in favor of the steam work. The prime cost of the engine with the plows complete, is estimated to be about the same as eighteen horses, while upon the point of wear and tear, the former would be the most economical.

A Trap Vender and his Wares.

I. S. Clough, whose advertisement appears in another column, is quite as much of a novelty in his way as the thousand and one traps which he is constantly offering for sale, and it would do some of our country friends good to call upon him when in the city, and look over his effects. He has letters from the most eminent men of the day; notices from all sorts of newspapers, for which he has a strong predilection; besides cockroach traps, rat traps, mice traps, fly traps, match safes, tooth-picks, furniture and stove polish, apple parers, apple and potato slicers, &c.,