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The Burnside Rifle.

In 1856 General Burnside, now the commander of the Army of the Potomac, invented and patented a breech-loading rifle. In 1857 a board of seven officers, appointed by the Secretary of War under an act of Congress, met at West Point for the purpose of subjecting to trial all the breech-loading small-arms in the country which might be submitted to their examination; about twenty different kinds were tried, and the board in their unanimous report gave the preference to the Burnside rifle. In 1858 a second trial was made at the same place of some twelve different kinds of breech-loaders, also before a board of army officers appointed by the Secretary of War, when the preference was again unanimously given to the Burnside rifle. When the war broke out, a company with a large capital was formed in Providence, R. I., for the manufacture of these rifles for the army, and at the present time they are being furnished to the cavalry at the rate of about 70 a day. After the soldiers began to use the gun in actual warfare a slight objection was discovered in the difficulty of removing the empty cartridge cases, but this was effectually obviated by a simple modification invented by Dr. Hartshorn, of Providence, and the arm is now giving perfect satisfaction to the officers and soldiers of the army. The rifle as now manufactured is illustrated in the accompanying engravings, of which Fig. 1 is a perspective view and Fig. 2 is a section of the breech.

Through the breech is made a vertical slot into which is fitted a block of steel, *a*, swinging upon a hinge *b*. In the block, *a*, is formed a conical hole, *c*, to receive the cartridge; the block being turned down into the position shown in dotted lines to permit the insertion of the cartridge, and then turned back into the position shown in the full lines before the gun is discharged.

The cartridge, Fig. 3, has a thin brass case for holding the powder; the conical shot, *d*, is inserted into the upper or forward end; a wad, *e*, covers the powder; and the flame from the percussion cap enters through an orifice at *f*, in the rear end; this orifice being closed by beeswax. The cartridges thus constructed are impervious to water; after lying under water a week they are fit for use.

As, when the gun is discharged the expansive force of the gases fits the cartridge case closely and firmly into its receptacle, it is necessary to loosen it before it can be removed. This loosening is effected by means of a movable bolt, *g*, which enters the block, *a*, at the rear of the cartridge. When the cartridge is inserted in its receptacle and the parts are brought into the position for firing, the bolt, *g*, is pressed backward, bringing the piece, *h*, to which the bolt is attached, firmly against the solid metal behind it; and then after the gun is fired, as the block, *a*, is turned down to permit the removal of the cartridge, the projection, *i*, presses the piece, *h*, and with it the bolt, *g*, forward, thus loosening the cartridge case, when by the action of the spiral spring, *j*, the bolt is pressed still further inward, and the cartridge case is forced out sufficiently to be easily seized by the fingers and removed.

As first made, the block, *a*, was hung upon only one hinge, *b*, but this carried it so low in the slot when it was turned down, that it was difficult for a soldier with large fingers to reach the cartridge case. Complaint having been made of this, the difficulty was removed by the introduction of a second hinge, by which the case is carried up in the position represented in the dotted line.

When the breech is closed, ready for firing, a strong catch, *l*, holds the parts in place, and this catch is loosed from its hold by the pressure of the thumb as the breech is opened, without any additional motion of the hand.

The bead in the cartridge case around the bolt is filled with grease, by which the shot is thoroughly lubricated; the grease being effectually protected from contact with dust or dirt.

The shot is secured in the cartridge case by the guidance of mechanism, and thus the axis of the shot is made to coincide precisely with the axis of the bore, securing an accuracy for this breech-loader equal to that of the muzzle-loaders.

Patents for this invention were secured, through the Scientific American Patent Agency, in England and France about the time the American patent was granted. Further information in relation to it may be obtained by addressing the Burnside Rifle Company, at Providence, R. I.

Fig. 1

GENERAL BURNSIDE'S PATENT RIFLE.

Fig. 2

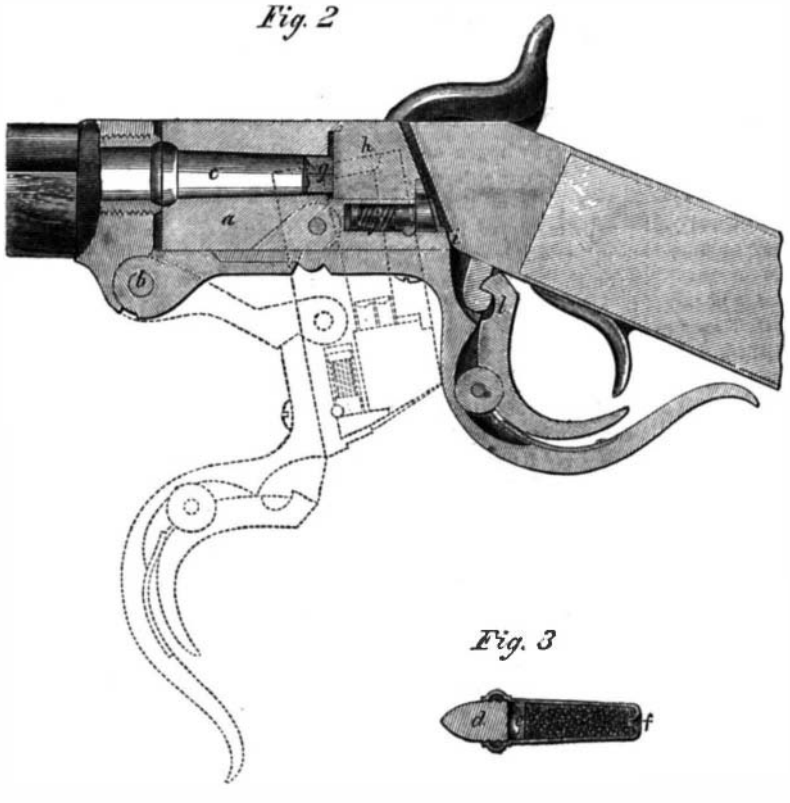

Fig. 3

Licensing Engineers

A correspondent writing to us from Oxford, N. Y., makes inquiry regarding a statement in an editorial article lately published in this journal, respecting engineers' certificates. We would state in answer that, so far as we know, the certificates are only required by law in this city. It is a municipal ordnance, under the control of the Metropolitan Police Commissioners; and one which we, in common with others of the mercantile community, would be glad to see put in force in every town where steam is used. Perhaps our correspondent will use his influence in his locality to that end.

THE Mormons are turning their attention to the cultivation of cotton.