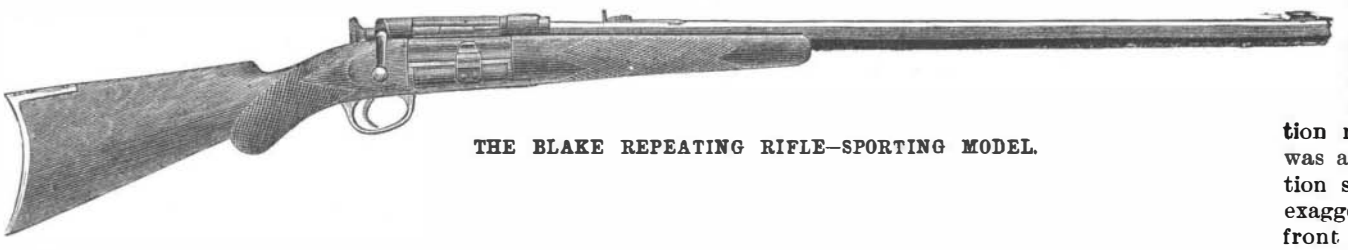
THE BLAKE REPEATING RIFLE.

This rifle was, in its military model, one of those submitted to the United States Army Board on Magazine Arms which reported May 20, 1893. It also was brought before the Navy Board on Small Arms in May of the present year. The inventor and maker is Mr. John H. Blake, of No. 136 Liberty Street, New York. The arm was favorably spoken of by both the Army and Navy Boards, but the radical departure of the magazine system from any known system or any system before either board, made it almost too much of an innovation to be hastily recommended for adoption. Since these tests, sportsmen and rifle experts have encouraged the inventor to put it on the market slightly modified to conform to sporting requirements, the cut showing the sporting model. The system is that technically known as a "multiple loader revolving packet repeating rifle."

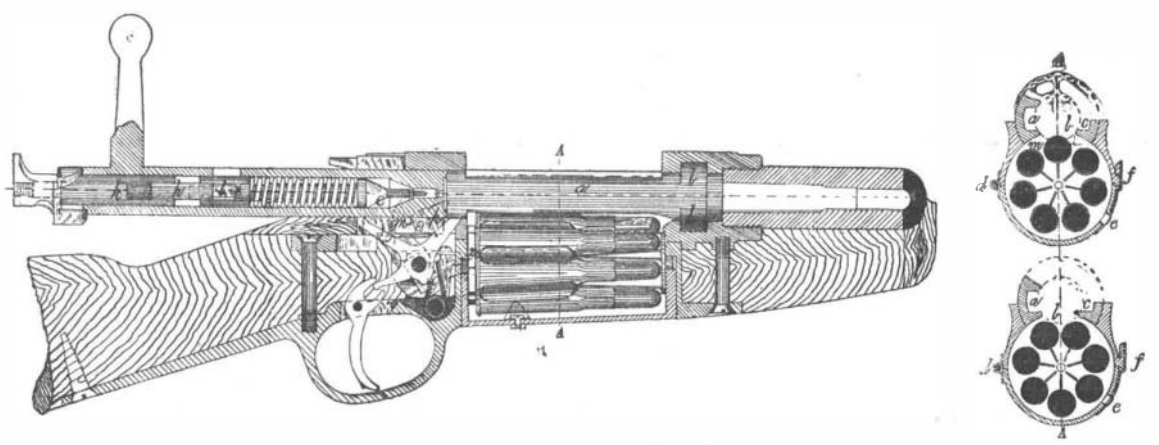
It is a "central" magazine rifle that by the use of a "cut-off" can be used as a rapid single loader, with magazine holding seven cartridges in reserve, available as a repeater whenever the cut-off is thrown in. Single loading fire can be resumed at any time, holding the remaining cartridges in packet in reserve. It is said that an expert is able to fire at the rate of 43 shots per minute until his ammunition supply is exhausted.

The distinctive feature of the system is that of the cartridges being carried in the belt or pockets in a revolving cylindrical packet, holding generally seven cartridges. These packets are charged into the magazine, which lies under the receiver and just forward of the trigger guard, in one movement and "en bloc," as if the packet were a single cartridge. The cartridges are fed into the chamber by a positive movement, and when the cartridge packet is empty, the magazine door is opened, the empty packet drops out and a full packet is recharged. An empty packet may be refilled with cartridges many times, if desired; the packet weighs less than two ounces and can be furnished for a few cents.



THE BLAKE REPEATING RIFLE—SPORTING MODEL.

The rifle holds eight cartridges, one in the chamber and seven in the magazine. Two more packets may be carried in a vest, or shooting jacket, lower pocket, which would give a supply of twenty-two cartridges. If it is thought desirable to carry more cartridges, more packets may be carried in the pockets, or in loops on the cartridge belt as those now in use, the loops merely being larger. A full belt would hold fifteen packets. A belt may have a smaller number of loops, the rest of the belt being looped to carry single cartridges.



THE BLAKE RIFLE—ACTION OPEN.

The action is that of the bolt system. In the sectional view showing the action open, the receiver has on its left hand side a broad and deep groove, a, for the passage of the left locking lug of the bolt, and on the right a shoulder for the extractor and right locking lug of the bolt. The entire bottom is cut away to permit the upward and forward movement of cartridges from the magazine. The forward breech casing contains the grooves for the locking lugs of the bolt, and on the right hand a cut for the hook of the extractor. At the rear the breech casing for a short distance is closed at the top, completely encircling the bolt; back of that a channel is left for passage of the handle, while at the right a shoulder is formed, in front of which the base of the handle locks in the firing position. The magazine casing consists of a cylindrical box placed below the receiver. A central section of it is shown in the small figures, the upper view representing the cartridge packet adjusted for magazine fire and the lower one with the magazine in reserve. Its bottom is hinged at the left side, d, and when closed is secured by the catch, e f. The cartridge packet has at the front and rear ends trunnions, which rest in beds in the front and rear faces of the casing.

The action of this rifle is built strong enough to shoot the 7½ millimeter, or 0·30 cal., U. S. army smokeless rifle cartridge at a muzzle velocity of 2,000 feet per second, which gives a chamber pressure of twenty tons per square inch; and also the 6 millimeter, 0·236 cal. U. S. navy cartridge at a muzzle velocity of 2,500 feet per second, giving a chamber pressure of thirty tons per square inch.

THE splendid lake steamer, the Northwest, recently made the trip from Milwaukee to Chicago, 86½ miles, in 4 hours 6 minutes, being at the rate of 21·13 miles per hour.

How to Ride the Wheel.*

In the course of a paper on "Cycling as a Pursuit," F. W. Shorland, an English bicyclist, has set down a number of hints on riding that beginners will find very helpful. As the recent impetus the sport has received has brought out many new devotees of the wheel, we reproduce here a portion of Mr. Shorland's article.

Cycling as a pleasurable pursuit ceases to be enjoyable when it becomes sheer hard work. In nothing is it so easy to make a toil of pleasure, and therefore my strongest advice to every one indulging in the pastime is to take it easy and not to overdo it. This is, of course, a personal matter entirely. One man's pottering pace is another man's high pressure effort, and I have often noticed how inferior riders will utterly ruin their enjoyment of a run by dreading to acknowledge that they cannot keep up as high a rate of speed as other men with whom they may happen to fall in during a spin upon a frequented road.

Be very careful of strange cyclists. You never know whether they are able to ride or not, and the wobblings of a novice are the most dangerous obstructions of the highway. Even one's own companions are sometimes the cause of collision, especially if they are not used to riding in company. One man can squeeze through a tight place where two cannot, and it is customary for men not used to riding at close quarters to cut in front very dangerously.

In all road riding it is a good plan to avoid sudden changes and violent alterations of pace and course. For instance, in passing a cart it is much better and safer to take a long swing round it than to swerve sharply behind and to return to one's course immediately in front of it. A sudden and jerky style of riding is the usual cause of slipping sideways on a wet and greasy road. Of course, there are certain conditions of road when the most expert riders cannot avoid slipping, especially with plain-faced tires; but these states of greasiness are exceptional, and most side slipping is due to spasmodic instead of smooth pedaling, to bad steering, and a wrong position.

Bad pedaling is a very common defect in the average rider. No man can race successfully without pedaling well; but the average rider who only uses his machine for pleasure would be astonished at his increase of enjoyment, if only he took the trouble to learn to pedal smoothly. It is noticeable, in nine cases out of ten, that the chains of ordinary riders are not kept continuously tight on the driving or upper part. Smooth pedaling, with continuous pressure, will change all that. Backlash should never be permitted, as it is evidence of a slovenly, wasteful style, besides being a very frequent source of slipping.

A smooth, continuous style of pedaling gives one a firm seat on the machine and helps the steering. Every one knows that in slowing a bicycle by back pedaling the conditions of steering are different from those of pedaling forward; if, then, a rider by uneven pedaling introduces a little back pedaling every revolution, he is continually varying the conditions affecting the steering, which consequently is erratic, if not dangerous. Smooth pedaling and a straight course go naturally together, yet the majority of trails one sees are wonderful loopy and zigzag; clear proofs of the prevalence of uneven driving and the consequent indifferent steering.

Alternate plugging on the pedals is hopelessly wrong, and the first aim of any one who wants to ride well should be to get his feet round evenly, not to raise one by the down push of the other in jerks, but by dropping the heel at the bottom of the stroke and, as it were, gripping the pedal, to maintain as near as possible a continuously even driving pressure, one foot taking up the strain before the other ceases to drive.

Although steering and pedaling are so closely related in this respect that it is impossible to steer well when one pedals badly, yet that is not the whole secret of good steersmanship. No one is a good steerer who cannot ride a "safety" with his hands off the handles. I do not advise this style of riding, which is merely the showing off of a really very simple accomplishment, but what I mean is that the ability so to steer shows that one's steering has been mastered. It is only a matter of a few trials, provided one's machine has its frame true and its wheels in line. It means that the rider has escaped from the elementary and erroneous impression that his handle bar is something to keep a tight grip on.

Aching wrists and blistered palms are proofs of bad steering. Handles do not want to be grasped like a try-your-strength machine; they are, when steering is mastered, simply hand rests, and a light touch is all that is needed. Pulling at the handles and wrenching the front wheel about is all wrong. For very stiff hills it is useful as a change to pull at the handles, but when a hill is severe enough to need this style of riding it is wisest to walk.

The third point of importance in style is the position; that is, the relative positions of the handles, saddle, and pedals. The center of the crank axle, to which cranks and pedal are fastened, is a fixed point in the machine, and the handles and saddle are equally adjustable; so it is convenient to measure from this fixed point, and when one's own fit is found, to keep a memorandum of it. A very suitable medium position for all-round work is to have the peak of the saddle just so far back that a vertical line from it hangs against the pedal when at its rearmost position. In the old days of the ordinary, a very vertical position right over the work was assumed, and a reaction set in on "safeties," exaggerated immensely on front drivers to a ridiculously far back position of 14 inches or more, both of which extremes are wrong. The further one sits forward the higher can one's saddle be raised, and in a very far-back position a rider has always to be doubled up, and cannot sit in comfort.

The reach is best determined by noticing, when riding, whether at the bottom of the stroke you can, while keeping the foot in position on the pedal, drop the heel to the lowest possible extent and then find the leg straight. The leg should never be fully extended at any point of the revolution. That is why if at the lowest part of the stroke you exaggerate the position of ankling, and then find the leg straight, you may be certain that for riding purposes you are, as you should be, just within your reach. In any case, it is a far less serious error to be too short than too long.

Handles should be so adjusted that they can be easily reached when sitting in a comfortable posture; not so high that the arms are akimbo, and not so low that a humped-up attitude is enforced. Bicycle hump and a crouched-down stoop are only necessary at sprinting pace when windage is excessive. The majority of the stoops and humps seen on cyclists are due to the rider having his handles too low and trying to sit up to an easier position. A bicycle rider should not copy either a piano player or a man pulling up weeds; he wants his hands about level with his knees when his thighs are horizontal. If they are up too high, he does not get the best results or have as accurate a control of the steering; but even that is better than being folded in half on the machine by an outrageously dropped handle bar.

*From the National Popular Review, originally in the Argonaut.

Street Car Fenders.

A correspondent says: A properly constructed bale or cushion filled with flocculent or equivalent material and of suitable size and shape and restrained from materially yielding otherwise than backward, and arranged to lie or be adjusted in proximity to the track, would, if carried by the car in front, be much more efficient, prevent injury to limb, and be more certain in its action than a metal fender in pushing a body before it on the track or out of the way of harm till the car could be stopped. It is a simple expedient, but often simple means are the most reliable.

THERE are over seven miles of tunnels cut in the solid rock of Gibraltar.