

THE MANNLICHER GUN.

Austria, like France, has adopted for the arming of her infantry a gun of small caliber, and has chosen the model presented by the armorer Ferdinand Mannlicher. This weapon, like the French gun (the Lebel), is of 8 mm. caliber, and fires a steel-incased ball.

The closing of the Mannlicher gun differs completely from that of guns provided with a bolt. The object of the inventor has been to suppress the lateral motion of the movable breech, and to effect the opening and closing of the gun by a single horizontal motion, such an arrangement permitting of exhausting the magazine of cartridges without removing the weapon from the shoulder. It is doubtful whether such a result can be obtained in practice, on account of the friction of the movable breech in its socket, this constituting a sufficient resistance to quickly fatigue the soldier at the outset; but, even supposing that the magazine can be exhausted without taking the gun from the shoulder, the opening and closing are not easily enough effected to allow the rapidity of firing to be perceptibly increased.

The opening and closing are effected as follows: In order to open the weapon, the lever, A, is grasped with the right hand and pulled back. To close the gun, the movable breech is shoved forward by means of the same lever. The gun being loaded, as will be explained further along, the movable head carries along into the

Some Golden Rules.

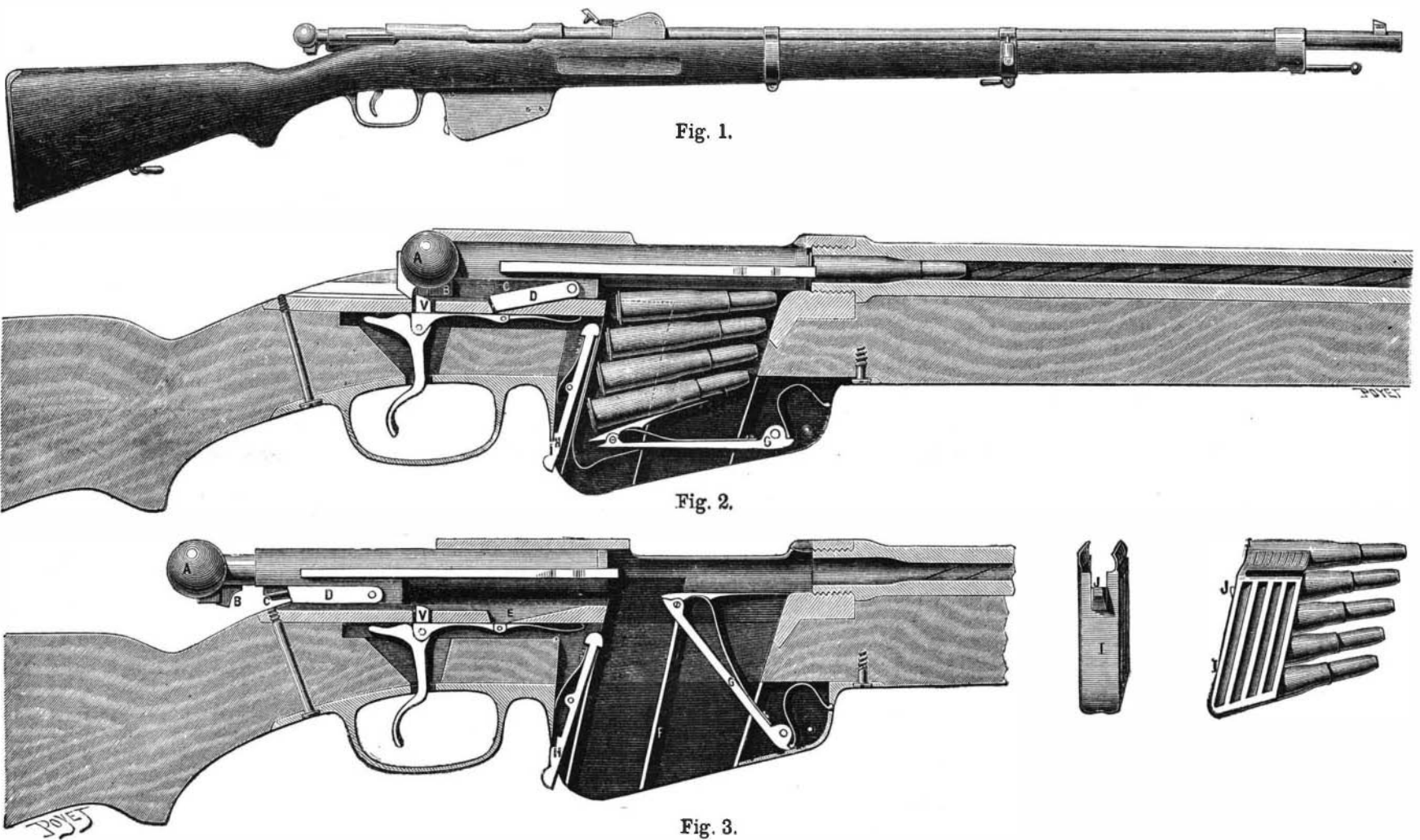
The following, from an unknown source, contains advice which experienced business men indorse and young men will do well to follow:

Have but one business, know it thoroughly, and attend personally to its minutest details. Be self-reliant, concentrate your energies in a determination and supreme effort to conquer success. Keep your own counsel, attend strictly to business, and never dabble in anything foreign to it, curtail your expenses, never sacrifice safety to prospective large returns, cut short your losses and let your profits run on, and make your prime movers industry, economy, and fair dealing. It is the merest rant and bosh to rely on Luck. He is always indolent and whining, folding his arms, drinking and smoking, waiting for big prizes in lotteries, or lying abed expecting a letter with news of a legacy. On the contrary, Labor and Pluck are the invincible heroes who conquer success; they strike out new paths, create, contrive, think, plan, originate, take all legitimate risks, toil to surmount obstacles, push forward, win renown by success. The glorious galaxy of successful business men and illustrious authors have all been hard workers. Shun bad company and the prevalent vices of the day, never loan a borrowing friend more than you are able to lose if he cannot pay, and never take a loan on importunity. Never borrow money to speculate with. Acquire

Pierce S. Marx recently obtained a verdict of \$6,000 as damages against the Manhattan Railway Company before Judge Barrett and a jury in the Supreme Court. On the 17th of October, 1883, while Marx was standing on the corner of the Bowery and Doyer Street, a large piece of coal dropped from the locomotive of a passing train, and, striking the sidewalk, broke into pieces. A small particle of the coal struck Mr. Marx in the right eye, and he lost the sight of it. He sued the railroad company to recover \$25,000 damages. The case was on trial for several days, during which time a great deal of testimony was taken as to the condition of Mr. Marx's eye. The company endeavored to prove that the injury was not caused by the coal at all.

Cultivation of Nutmegs in New Guinea.

Paddling into a little cove, says Captain John Strachan, on the south side of the bay, we landed beside a clear rippling stream, and, having ordered the whole of the men to march in Indian file in front, we started by a little rugged path into the mountains, with my interpreter immediately behind me and the Rajah just in front. Every foot of the journey, which was laborious in the extreme, disclosed fresh scenes of verdure and tropical splendor. Winding along the sides of deep ravines, sometimes dragging ourselves up by the creepers and undergrowth, we ultimately attained an altitude of about 1,000 feet above the sea, and then entered



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chamber the first cartridge of the magazine, and the cock, B, meets the trigger, V, which arrests it. If the pressure on the lever is kept up, the coin, C, enters the bolt, D, and forces it to fall and enter the recess, E.

As a repeating gun, the Mannlicher weapon belongs to the two categories of arms with fixed magazine and those with a movable one. Beneath the breech socket there is a steel plate magazine, F, which contains the cartridge lever, G, and the hook of the feeder, H. The repetition is completed by a feed box, I, of very light steel plate, containing five cartridges. To fill the magazine, the soldier opens the gun, as shown in Fig. 3, and takes the feed box and introduces it into the magazine through the recess in the socket until the part, J, has crossed the hook, H. During this operation the last cartridge, which rests upon the upper part of the lever, G, forces this piece to descend (Fig. 2). During the firing, the cartridges rise in succession under the action of the lever, G, and at the moment of the introduction of the last cartridge into the chamber, the lever, experiencing no further resistance, resumes its place (Fig. 3), and the feeding box, which is no longer held, is thrown automatically out of the gun by the pressure of the hook, H.

To consider but the repeating mechanism, the Mannlicher gun may, as regards its simplicity, the strength of its parts, and its operation, be considered as the most perfect one that has been made up to the present.—*L'illustration.*

PAINT stains that are dry and old may be removed from cotton or woolen goods with chloroform. First cover the spot with olive oil or butter.

knowledge. It is only enlightened men who successfully hold their own with the surging masses who throng the road to riches. Avoid law and legal squabbles of every kind. In discussing business disagreements, keep cool. Make all the money you can and do all the good you can with it, remembering that he who lives for himself alone lives for the meanest man in creation. If engaged in public business, advertise it; be punctual in meeting promised payments; keep short accounts; settle often; be clear and explicit in making bargains. Be civil and obliging as well as decisive and prompt with customers, and do not overtrade your capital. Finally, in the maturity of life, don't rust out by retiring from business; keep bright by useful effort, remembering that industry and happiness are inseparable.

Life in the Great City.

Among the dangers peculiar to life in New York are the injuries to person and property resulting from the carelessness of employes connected with the elevated street railways, of which some forty miles are now in operation within the city. The railway people think nothing of piling up the coal on their locomotives in such a way that more or less of it rolls down into the street twenty feet below, to the danger of the crowds of people; while showers of hot water, oil, and live coals are not uncommon. It is only now and then that the companies are called to account for the injuries thus occasioned, as few people are willing to go to the expense and trouble of fighting such rich corporations. Here is a case, however, in which justice appears to have been done, in part at least:

the nutmeg country. Here we halted and rested. The Rajah pulled some of the nutmegs, and explained how far they were from being ripe.

Having rested sufficiently, we again started forward, and after scrambling along for about an hour, we gained a fine piece of table-land, over which we traveled for about another half an hour, when we reached three houses erected in the very heart of the forest. These were used by the natives for drying the nutmegs. The country was everywhere magnificent, and the aroma of the spice-laden air delicious. Nutmeg and other equally valuable trees were everywhere growing in great profusion. The fruit of the nutmeg in appearance resembles a pear, and, when ripe, opens and displays the nut covered with a beautiful red coating of mace. The nuts are then picked from the tree, put into baskets, and taken to the houses, where they are husked and placed on shelves. They are then partially roasted over a slow fire until all the moisture is extracted. After this they are cooled and carried down to the village in nets ready to be bartered to the Bugis, Arabs, and other traders who frequent the Gulf in their small prows or junkos at the proper season.—*Tropical Agriculturist.*

SOME one tells how to prepare soft coal in such a way, at small cost, that there will be no accumulation of soot in the chimney, and that the under sides of the stove lids will be kept clean. Here it is: For a ton of coal buy a few cents' worth of common salt, make a brine of it and pour over the coal. We do not say that the result will be as effective as the promise, but it is worth trying.

Prevention of Typhoid Fever.

BY R. HARVEY REED, M.D., SECRETARY STATE SANITARY ASSOCIATION AND HEALTH OFFICER, MANSFIELD, OHIO.*

You all, no doubt, remember the terrible scourge of typhoid fever that visited Plymouth, Pa., only a few years ago, during which 1,104 persons were stricken down with this foul disease, of whom 114 died, while the actual cost of that epidemic was carefully estimated at \$97,120.25, all in hard cash, saying nothing of the loss to that village from 114 deaths, whose yearly income, when in health, amounted to \$18,419.52, to all of which is yet to be added the sorrow and suffering that cannot be measured in dollars and cents.

An investigation into the cause of this greatest of modern local epidemics by so eminent an authority as Dr. Benjamin Lee, Secretary of the State Board of Health of Pennsylvania, showed that in a house on Girard Avenue, in Philadelphia, a blacksmith was taken down with typhoid fever in September, 1883. After a few days, however, he was removed to the Episcopal Hospital, from which he was discharged on the 13th of the following October.

In the following May or June, 1884, a street car conductor, who was boarding at the same house on Girard Avenue, was taken down with the fever, and also taken to the hospital for care and treatment.

In the following July, a huckster, boarding at the same house, was attacked with typhoid fever and sent to the same hospital.

Here were three cases, all boarding at the same house, and all taken down with typhoid fever, the attacks ranging over a period of about eleven months.

A CASE OF AERIAL INFECTION.

Dr. Lee tells us that from all the information he could gather by personal inspection and diligent inquiry of neighboring physicians and other observant citizens, he had not the slightest doubt that, while there were numerous and glaring unsanitary conditions in the vicinity, the real cause of the cases of typhoid fever occurring in this ill-fated house on Girard Avenue was to be found in the grossly defective cesspool, with its foul exhalations, completely shut in from lateral air currents, and pouring through open doors and windows into the kitchen and dining room, to be inspired by the inmates, or, worse still, to be absorbed by the food in course of preparation for the table, and thus brought in contact with the alimentary mucous membrane. "It is proper to state in conclusion," he adds, "that the dangerous character of this particular cesspool cannot be abated or removed by any amount of cleansing or emptying, however frequently performed. Its complete abolition alone can bring safety to the household."

THE COURSE OF THE CONTAGION.

"Into this house, with its history of fever and its foul environment, late in December, 1884, came David Jones, fresh from his mountain home, overlooking the vale of Wyoming, to visit his city brother and spend his Christmas holidays. Forth from this house, early in January, 1885, again he went, but went not as he came. A poisoned blood now coursed through his veins, and shortly after returning to his home he was prostrated with what his physician soon pronounced typhoid fever, and lay on his back for many weeks in his cottage on the banks of a little stream which supplies the reservoir of the town at the foot of the mountain.

"This little town at the foot of the mountain was Plymouth, a mining town of some 8,000 or 9,000 inhabitants, situated on the right bank of the Susquehanna River, three miles below Wilkesbarre. As a large part of the town is upon a side hill, the surface water readily finds its way into the Susquehanna River.

"No system of sewers and no effort at systematic drainage have ever been introduced, and the borough council seem singularly apathetic in the matter of sanitary reform. The drainage from each house is into cesspools situated in the back yard, or, in some cases, it is even into the streets themselves, which, in parts of the town, have not a proper arrangement of gutters for disposal of this drainage.

"It was found, on further investigation, that the house in which the young man lay with typhoid fever he had contracted at his brother's house in Philadelphia was situated so near the stream supplying the water reservoir at Plymouth that, as soon as the weather permitted a sufficient thaw to allow the frozen accumulations of weeks of dejection from this one case to reach this stream, only a few yards distant, with the conformation of the ground favoring its course to this water supply, a local epidemic of such magnitude ensued during the following April and May of 1885, and continued until the following September, that it is scarcely paralleled in modern history, and at the same time making this 'one of the most instructive as well as one of the most terrible instances which ignorance and negligence have contributed to the records of disease.'"

THE FEVER FOLLOWS DRY SEASONS.

Professor Vaughan, in speaking of the Iron Moun-

* From a paper read at the sixth annual meeting of the Ohio State Sanitary Association, held at Canton, Ohio, November 14 and 15, 1888.

tain epidemic, to which I have already referred in this paper, says: "It is well known that typhoid fever follows dry seasons, and is coincident with low water in wells. There are, on an average, 1,000 deaths and 10,000 cases of sickness from this disease annually in Michigan. These figures can be greatly reduced if people will cease polluting the soil about their houses with slops, garbage, cesspools, and privy vaults, and will see that their drinking water is pure beyond all question. When there is any doubt, the water should be boiled and kept uncontaminated afterward. While the germ most frequently finds its way into the body with the drinking water, it may be taken in with any food, and even with the air. The earth, air, and water about our homes must be pure, if we escape this disease altogether. When cases of typhoid fever occur, all discharges should be thoroughly disinfected."

THE EFFECT OF PURE WATER IN MANSFIELD.

Since Mansfield has practically ceased the use of water from wells throughout our city and adopted the use of water supplied by the powerful artesian wells drilled just north of our city, and which have been given the flowery title of "wonderful artificial geysers," a chemical analysis of which was made by Professor C. C. Howard, of Columbus, and showed the water to be unusually pure (and more recently pronounced by the Professor, in a private letter to the writer, the purest water that he has examined for any city in the State of Ohio), the prevalence of typhoid fever in our city has greatly diminished, only one death from this disease having been reported during the summer and fall, and but a few cases having occurred in the city, and they were all in persons who used well water, which is all more or less contaminated with organic filth throughout the principal part of our city, which certainly demonstrates to any unbiased mind that typhoid fever is a preventable disease, and can be prevented by the use of pure water.

SIX FACTS TO BEAR IN MIND.

Before closing this paper, allow me to call your special attention to a few facts:

1. Typhoid fever is caused by the introduction of a specific germ into the alimentary canal.
2. That this specific germ multiplies in the alimentary canal, and in turn is thrown off in the stools of the patient.
3. That its vitality is much greater than at first supposed, resisting a variation of temperature ranging from even below the freezing point to 133° Fah., without being destroyed.
4. That the germ may be communicated from one person to another by water, milk, foods, and air, in the manner illustrated in the cases cited in this paper.
5. To prevent its spread, all the dejecta should either be burned at once (which is preferable) or thoroughly disinfected, by throwing them into a pot of boiling water and thoroughly cooking them, or use some effective germicide, such as a strong solution of the bichloride of mercury, in sufficient quantities as to insure their destruction before they are buried, which should be at a sufficient distance from any neighboring water supplies as to insure their freedom from contamination.
6. If the water supply is of a suspicious character, thoroughly boil it before using, and then place it where there is no possibility of its becoming infected. If ice is to be used to cool the drinking water, keep it out of the water, only packing it around the water vessel, but not putting ice into the vessel or allowing the melted ice in any way to enter your drinking water, and thus take the chances on its contamination.

By the strict observation and practical application of these few simple hints, I am certain you will soon be led to believe that typhoid fever is a preventable disease.

Rabbit Skins.

When the Acclimatization Societies of Australasia introduced the rabbit some years ago, they thought they were accomplishing a good work, and little anticipated what a serious injury these rabbits would effect in less than ten years, and that their extermination would be a costly and impossible work. Rabbits have so increased now in Australia and New Zealand that the colonists are at their wits' end how to repair the evil. The extent of the injury done to the pasturage required for sheep may be inferred in some measure from the enormous number of rabbit skins exported, which, however, prove a blessing to the cheap furriers of Europe and America. A local industry has also sprung up in the colonies in making soft felt hats from their fur. Coney wool was encouraged and valued in England a hundred and fifty years ago, and is now worth 7s. a pound. The damage done to the crops in the Australian colonies by the little animals that furnish the skins for export has become of such magnitude as to furnish the subject of parliamentary legislation there.

From the single colony of New Zealand there has been exported about 70,000,000 skins, valued at nearly £750,000. But the property destroyed by these rodents

is estimated by millions, and this industry of rabbit skins is one which the people there do not wish to see prosper. In Victoria the colony is asserted to have sustained a loss of about £3,000,000. The cheap linings of coats and ladies' cloaks, and many of the dyed articles of fur, are due to rabbit skins, home and foreign. In the last ten years 29,000,000 rabbit skins have been exported from Victoria. In addition to the exports from the colonies many have been used locally by hat manufacturers and others, and large numbers have doubtless been destroyed or allowed to decay. The extensive supply from Australasia has flooded the English market, and the trade has on hand a supply sufficient to last for a year or two.

The English rabbit breeders also found it to their advantage to kill rabbits mainly for their skins, and the supply of home skins is said to reach 30,000,000 annually. Belgium, which supplies us with the tame-bred rabbits so largely appreciated and imported for food, sends away over 6,000,000 rabbit skins, but then these skins are much larger, of a finer color, and better fitted for furs than those of the wild rabbit.

In some of the Australian colonies attempts were made to preserve their flesh in tins for food. One company in South Australia employed forty or fifty trappers, and thus prepared 6,000 or 7,000 rabbits a day. But this utilizing process has been dropped since the wholesale poisoning and other methods of extermination have been resorted to, the public becoming shy of eating the rabbits as food.—*Journal Society of Arts.*

Small Timber Better than Large.

The statement that a 12 by 12 inch beam built up of 2 by 12 planks spiked together is stronger than a 12 by 12 inch solid timber will strike a novice as exceedingly absurd, says the *Mississippi Valley Lumberman*. Every millwright and carpenter knows it also, whether he ever tested it by actual experience or not. The inexperienced will fail to see why a timber will be stronger simply because the adjacent vertical longitudinal portions of the wood have been separated by a saw; and if this were the only thing about it, it would not be stronger, but the old principle that a chain is no stronger than its weakest link comes into consideration. Most timbers have knots in them or are sawed at an angle to the grain, so that they will split diagonally under a comparatively light load. In a built-up timber no large knots can weaken the beam, except so much of it as is composed of one plank, and planks whose grain runs diagonally will be strengthened by the other pieces spiked to it.

Use of Vanillin.

Commercial vanillin is not made from vanilla, but from the cambium sap of the pine, which contains coniferin or coniferyl-alcohol. The latter is converted into the former by a process of oxidation. The discoverers of the chemical constitution and of the method of artificial preparation of vanillin, Messrs. Tiemann & Haarmann, have gradually improved the process; so that the commercial product is fully equal in aroma to the natural vanillin contained in vanilla beans. And the vanillin is now sold at a price which makes it decidedly more economical to use it than an equivalent amount of the beans themselves. There are several manufactories in Europe which do not seem to have as yet combined to a "trust." In consequence, the price has been depressed more and more.

At one time it was supposed that artificial vanillin would ruin the vanilla industry and trade, just as artificial alizarin has practically ruined the madder industry. But, curiously enough, this has not been the case. Vanilla holds its own extremely well. In fact, there is much more vanilla grown and sold at the present time than before vanillin was known as a commercial product. And yet, the latter is also consumed in constantly increasing quantities.

There is one reason for this. It is well known that an extract of vanilla made from the bean contains other matters besides the vanillin, among them what is usually termed "extractive" and a good deal of coloring matter. Now these substances have the power of binding or holding the odor of vanilla much more energetically than a simple neutral solvent would. Therefore, if two liquids are made of as near equal strength in odor and taste of vanillin as possible, one from vanilla bean and the other from vanillin, and if these two liquids are used, in equal proportions, to flavor equal amounts of any inert or insipid mixture, it will be found that the one flavored with the extract of the bean will retain its odor longest. But this property is not always required of the flavoring. When used for culinary purposes, it is seldom required to preserve the odor or taste of some flavored delicacy more than 48 hours. On the other hand, when chocolate or other confectionery is made on the large scale for the market, it is necessary to insure the stability of the odor and taste for as long a time as possible. Hence while artificial vanillin is perfectly satisfactory in the former case, the natural bean is preferred in the latter. It is usually considered that 1 oz. of vanillin is equivalent to 40 oz. of good vanilla beans.—*American Druggist.*