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Magazine Breech Loading Gun.

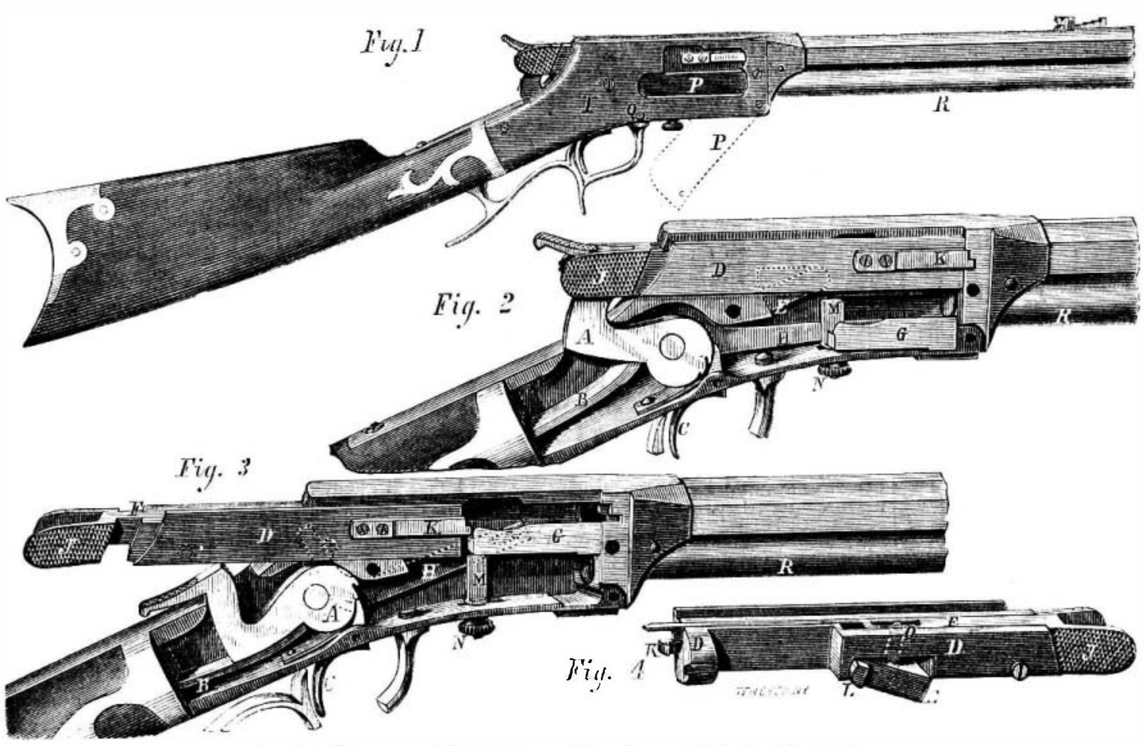
We this week place before our readers a firearm, designed more particularly for sportsmen and professional hunters, for which a number of important advantages are claimed.

Fig. 1, which shows the gun with the barrel broken away just beyond the back sight, gives an excellent representation of the symmetrical compact appearance of this arm, which is, as our heading implies, of the kind known as magazine arms.

Figs. 2 and 3 are enlarged views, showing in detail the mechanism of the lock and charging devices. Fig. 2 shows the parts as they are related to each other at the moment of discharge and subsequently thereto, until they are made to pass through the necessary movements for charging and discharging the piece. Fig. 3 shows the hammer at full cock, and the charging device, in the position it occupies at the moment of charging.

The lock consists of the hammer, A, the mainspring, B, and the trigger C. Its action will be sufficiently understood upon reference to the engravings without further description.

The charging and discharging device consists of a breech block, D, Figs. 2, 3, and 4, a recoil brace, E, a bar, F, for transmitting the shock of the hammer to the cartridge, and thus exploding the latter, a cartridge carrier, G, and a bell crank lever, H.



ROBINSON'S MAGAZINE BREECH LOADING RIFLE.

The outside plate, I, Fig. 1, is shown removed in Figs. 2 and 3. to exhibit the working parts. Considering the gun as just discharged in Fig. 2, it is charged by the following movements: The hammer is placed at half or full cock—the latter will save a subsequent movement in cocking the gun. The right hand thumb and finger then grasp the exploding bar at J, and draw it back as far as it will go, bringing the parts into the position shown in Fig. 3, and then instantly thrust it back again into the position shown in Fig. 2. These movements of the hand, two in number, will have thrown out the spent shell and placed a new one in the barrel, ready to fire, which is accomplished by one more movement—pulling the trigger if the hammer be placed at full cock, or two movements if half cocked—making the minimum number of movements in loading and firing three, and the maximum number four.

The movement of the hand in thus drawing back the exploding bar and thrusting it forward again, produces the following action in the moving parts: The recoil brace, E, which, in the position shown in Figs. 2 and 4, rests against a projection formed upon the breech piece, and engages with a shoulder upon the under side of the breech block, firmly holds the breech block from recoiling, and is attached to the exploding bar, F, by a short link, O, Fig. 1, shown partially in dotted outlines.

The first effect of drawing back the exploding bar is, through the link alluded to, to draw up the recoil brace into the recess on the under side of the breech block, so that its under surface accurately corresponds to the under surface of the breech block, and forms with it a continuous plane. The continued motion of the exploding bar now draws back the breech block itself, and with it the spent cartridge, which is seized by the grippers or extractors, K; and the lug, L, on the recoil brace, striking upon the upper arm of the bell crank lever, H, the other arm of which is pivoted to the cartridge carrier, G, throws the latter upward with the cartridge forced nto it from the magazine, and forcing behind the spent cartridge a peculiarly formed projection on the carrier, not distinctly shown in the engraving, throws out the empty shell as the new one rises to replace it.

Reversing the movement of the hand of course reverses the action of the parts, thrusts the new cartridge into the barrel, braces the breech block, and throws down the carrier to receive another cartridge.

An attachment of this carrier renders it one of the most conspicuous features of the gun. A gage, M, Figs. 2 and 3, held by a thumb nut, N, adjusted in a slot formed in the bottom of the carrier, enables varying lengths of cartridges to be used, so that if the sportsman should find his original stock of the extra long Hammond cartridges—the ones preferred for this gun—exhausted, he may generally be able to obtain those of other kinds, which may be used with satisfaction.

The magazine, R, is supplied with cartridges by unscrewing the screw, Q, and dropping the pivoted plate, P, into the position shown by the dotted outline, Fig. 1. This opens the breech piece to permit the insertion of the cartridges.

It is claimed that this gun will use a longer cartridge than any other repeating arm, and hence, that it has greater range and penetration than any other gun of its class.

As will be seen, the adaptation of different lengths of cartridge is easy and rapid. It has no loose guard, a source of much annoyance in many repeating guns, and the form of the breech piece protects the working parts from water in moist weather.

Patented May 24, 1870. For further particulars address A S. Babbitt & Co., Plattsburg, N. Y.

New Light for the Use of Photographers.

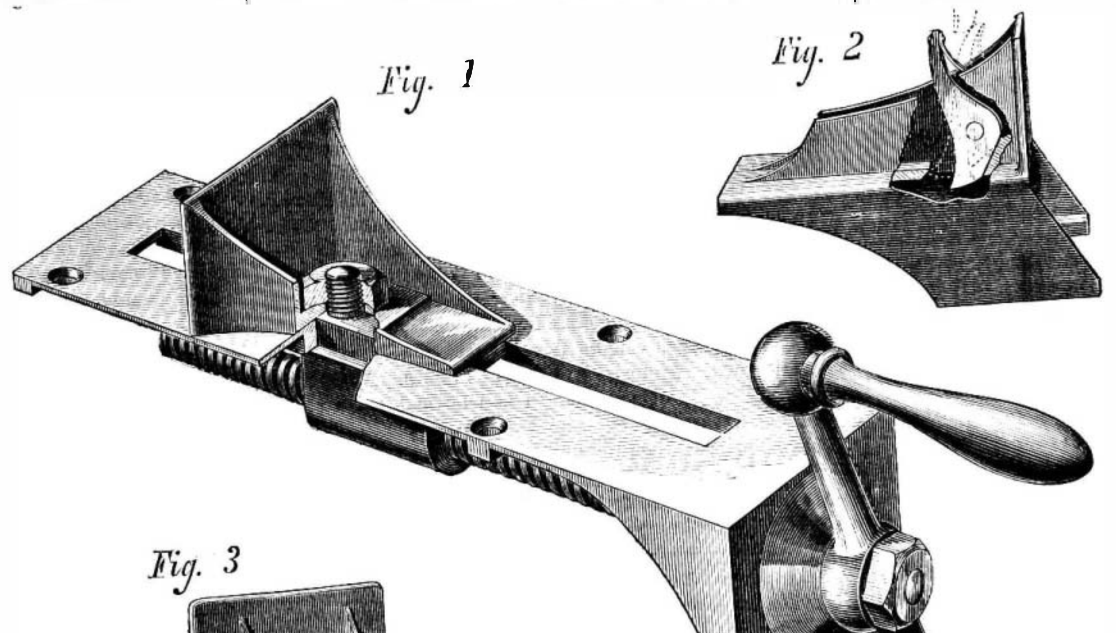
Photographers have long been seeking for an artificial light, so readily available that the success of their manipulations may not be wholly dependent on the sun, and subject to the caprice of the clouds. The last attempt to find the much needed substitute is by digesting zinc in the iodide of ethyl, a process which yields a liquid substance inflammable by the mere contact of the oxygen in the air. By passing pure hydrogen (or perhaps ordinary illuminating gas) through the fluid, the compound of zinc and ethyl will volatilize into the gas, and will yield, on combustion, a flame of extraordinary brilliancy and vivid whiteness of color.

It is said that the actinic effects of this light are inferior to those of combusted magnesium; but the steadiness of a flame from a gas will so far surpass any that can be obtained from a burning metal, even when the latter is of the highest purity chemically obtainable, that most photographers will doubtless give it the preference.

Improved Clamping Devices.

In the joining of wood, in the various wood working trades, the handiest and best mode of clamping the joints tightly and securely is a desideratum. The devices illustrated in this article are claimed to be the best for the purpose. It will be seen from the illustrations annexed that they are extremely simple, and their construction is such that they are strong, effective, and durable.

Fig. 1 is a perspective view of the clamp screw proper, with such portions broken away as will admit a view of its working parts. The cap casting, in which the working parts are held, is slotted as shown. It has cast on its under side cross ridges, which defend the clamp from any end movement off the clamp stick, and also relieves the ordinary wood screws, by which it is fastened, from strain. This casting is also strongly braced at its front by webs. The strain is taken by a collar on the inside face of the front of the casting, which collar is shrunk on when a machine handle is used, and run on and pinned for a vise handle; this will be readily understood.



GOODCHILD'S CLAMPING DEVICES.

The construction of the traveling nut and head block is clearly shown. It will be seen that the head block is cast so that two stout projecting portions run in the slot in the cap casting, before and behind the traveling nut, relieving the bolt part of said nut from all strain when the clamps are in use. The traveling nut is rebated so as to fit the slot in the cap casting, and engage with its under side, as shown. By these simple means the head block is obliged to keep a right line, which is necessary in straight work. The tail blocks of these clamps are meant to take the place of the ordinary wedge block, and other contrivances of wedges, etc., and furnish in their stead a substantial, reliable, easily operated, light, and handy device.

These patents embrace two kinds of tail blocks, the pawl and rack block, and the pin block. Many would prefer the former, as it is set almost instantly. Others would prefer the pin block, as in its use the top of the clamp stick is clear of metal. Either kind of tail block is effective and self-locking. The pawl and rack block, Fig. 2, operated by the thumb and finger, as shown in dotted lines, is disengaged from the rack; the spring shown always being in readiness to reset the pawl when the pressure is released. It will be seen that the arrangement of the pawl, spring, and fastening pin, is such that the pressure is taken entirely on the large, straight, bearing surface, directly at the front base of the block, relieving the spring and pin from strain. The pin block, Fig. 3. is also self-locking—the pin, in its use, requiring to be pulled out and pushed in only; there is no unscrewing and screwing up of nuts in changing its position. The pin will not draw entirely from the block, it being locked as it clears the stick; by this means it cannot be lost and is always ready. As it is pushed home it locks itself again, so that it will not fall back or slip. If the pin should be bent by long use, it will operate equally well. The pin cannot be twisted so as to throw the locking device out of the slot.

These two kinds of tail blocks were prepared to suit preference, as before stated, one only being used on the same stick. The clamp stick, three by three and a half inches (any length desired), is not furnished by the manufacturer.

The advantages of these devices are as follows: The screw is protected from injury and is out of the way of the workman. The traveling head block has no upward or side motion. The faces of both head block and tail block are the same, always allowing the work to be set square on the clamp stick. The tail blocks can be moved readily and conveniently. They are simple, light, and strong, being made mainly of malleable iron. A saving of time and temper is effected by their use, there being no slipping; they also leave better work; they can be furnished cheaply; they can be guaranteed to the purchaser. Considering the quantity of the old styles of clamps that are manufactured and sold by different parties throughout the United States (being bought in sets of three or four) these improvements, covered by two United States Patents—dated May 16, 1871—offer desirable investments in rights for single States, or any number of States combined. The patentee would rather sell one half of his rights, and join with the buyer in extensively introducing this simple, efficient machine throughout the United States.

The patentee is W. H. Goodchild, 98 Liberty street, New York, to whom communications may be addressed.

On the Transplanting of Large Trees.

Mr. O. C. Bullard, Superintendent of Prospect Park, Brooklyn, N. Y., at our request, sends us the following interesting particulars relative to the transplanting of trees, so extensively and successfully practiced by him in various parts of the grounds under his charge:

The planting of the Park has been under my charge from the first, and no part of my work has received more careful study than the subject referred to.

We have planted nearly 2,000 trees of from five inches to two feet diameter, with a very small percentage of loss.

Relying upon a few plain simple principles, healthy, vigorous trees, of almost any size, may be safely transplanted.

There are, of course, exceptions. With some varieties, as the hickory and other essentially tap rooted trees, it is almost useless to experiment. Those with soft succulent roots, like the sweet gum, sassafras, and some of the magnolias, are difficult to manage.

To insure success, it is important to take with the tree a mass of earth, proportionate to its size, which shall contain a large part of the fibrous or feeding roots uninjured. This accomplished, the tree may be moved without the necessity of materially damaging its form or losing its character.

The leafage should be reduced, somewhat in proportion to the necessary damage of roots. Much, however, will depend, in this matter, upon the vigor of the tree when moved, what the change is to be, whether from a poor soil to a better, or the reverse, from a sheltered locality to more exposure, or otherwise.

My system of pruning large trees which have been transplanted is (if the form is satisfactory) to thin out over and through the entire head, cutting as few large limbs as possible, and reducing the outline only by cutting back the leading twigs or small branches at their points of junction with the larger branches.

The trees with which we have been most successful are the maples, elms, lindens (American and European), hornbeams, some of the oaks, and birches. These for the most part have abundant fibrous roots reasonably near the stem of the tree.

We dig a liberal trench around a ball of earth and roots, varying in size from six to thirteen feet diameter, according to size of tree. The roots are smoothly cut as far from the tree as they can be safely retained. The trench is carried below the roots, and the excavation well under the ball, leaving only a small pedestal.

Timbers and chains are securely placed under the ball; to the latter, heavy tackles, attached to the windlasses of the tree truck, are fastened, and the tree is then raised in an upright position far enough to clear the ground in conveying it to the new home.

In planting, the excavation to receive the tree is dug much larger than the root ball, and deeper than its thickness. Good loam or soil is filled in to the required depth, and the tree lowered on this bed, the greatest care being taken to properly place and cover all exposed roots. Composted manure is mixed with the soil that does not come directly in contact with the roots.

Our trees make but little growth the two first years. New roots are forming and getting well hold of the rich food furnished them. The third year, and sometimes the second, they are among our most vigorous trees.

During the summer following planting, and, if necessary, the second summer, we mulch the trees liberally with fresh cut grass, and water if the season be dry.

I think the foregoing may give your readers a general idea of the possibility of transplanting large trees with comparative safety, and may be of some service as to the method.

Our trucks for moving trees were gotten up by the Park engineers, modified from time to time as we made our first experiments. I can hardly go into such an explanation of their construction as would be of any value.

O. C. Bullard, Park Inspector Brooklyn Parks.

Selenitic Mortar.

For some months past, says *The Building News*, a series of careful and exhaustive experiments has been in progress at South Kensington, in order to test the value of a new kind of cement and mortar. This substance is the invention of Colonel Scott, R. E., and has been freely used in the construction of the French annexe. It has been named by Colonel Scott, selenitic mortar, and the process of production consists in mixing with the water, used in the preparation of the mortar, a small quantity of sulphate of lime, in the form of either plaster of Paris, gypsum, or green vitriol. These substances having been intimately mixed, the lime is added and ground with the water or sulphate into a creamy paste. The mixture is prepared in the pan of an ordinary mortar mill, in which the water and sulphate are first introduced, and subsequently the lime. After the lime has been ground for three or four minutes, the sand, burnt clay, or other ingredients are added, and the whole is ground for ten minutes more. By this invention, ordinary lime can be at once converted into a species of cement mortar which sets rapidly and well, and can be used for concrete, bricklayer's work, or stuff for plastering at a cheaper rate than that made from lime in the ordinary way. From his experiments, Colonel Scott finds the use of sulphuric acid to give the best results, so that this substance is used in preference to plaster of Paris or gypsum, although the latter materials will answer for all practical purposes. Sufficient acid is contained in plaster of Paris to effect the necessary chemical change, and to prevent the lime from slaking, which in effect is the secret of the whole process. The lime by this means, is enabled to take twice as much sand as when slaked, its fiery nature being brought under control. Any lime can be made selenitic by Colonel Scott's process, and the more hydraulic it is, the better are the results obtained with it.

The invention is not only applicable to cement manufacture and mortar mixing, but its use extends to brick making. A number of bricks have been made since the opening of the Exhibition, by Mr. Large's dry brick press in the pottery machinery annexe. These bricks are composed of one part lime to eight or ten parts sand or burnt clay, and they are found to be ready for use in about ten days after pressing, without being burned, It is found that these bricks do not swell as is ordinarily the case from the slaking tendency of lime when not made selenitic. The proportions adopted for various purposes are as follows:--Mortar for bricklaying, water half a pail, plaster of Paris, 4lb.; mix and add in the pan of the edge-runner two or three pails of water, a bushel of lime, and six bushels of sand; grind for ten minutes. For mortar for pointing water, plaster, and lime as before, and add two parts chalk, slaked lime or whiting and two parts sand. For coarse stuff for plastering same ingredients as for mortar, but coarser sand, and grind for five minutes only. For fine stuff for plastering, water, plaster, and lime as before, a bushel and a half of chalk and two bushels of fine mashed sand. For coarse stuff on lath add with the lime 5 lbs. of hair, which need not be previously beaten. For rough stucco, same as for mortar, but four bushels only of sand. Plastering on walls can be done by this process as two coat work, while ceilings can be floated immediately after the application of the first coat and set in 48 hours. An examination of the walls of the French annexe and some recent samples of work in the experimental yard at South Kensington have shown us the thorough adaptability of this material to the various purposes to which we have referred. The cements are very quick setting, and they produce a very hard and finely finished surface.

An Artesian Well in Boston.

The Boston *Herald* gives the following facts relating to the Gas Company's boring for water. The apparatus is similar to that used for boring oil wells. This is worked by a ten horse power steam engine, and consists of a heavy plunger, upon the end of which is a hardened steel tool, similar in shape to the drill used by the stone cutter at the quarries. This tool is attached to a long bar of iron, fastened together in sections, and weighing about 800 pounds. Connecting with this by a sort of loop or link is another section of iron weighing about the same. The whole length of iron is about fifty feet. This is attached to a walking beam by a $5\frac{1}{2}$ inch cable, which has a weight of some 500 pounds more, making in all over two thousand pounds of dead weight, which by the motion of the walking beam falls 28 inches about 15 times per minute, the tool being turned by an attendant at each descent. This entire weight does not act as a force upon the tool at the bottom. Only the 800 pounds directly attached does this. When this broad chisel strikes against the hard ledge, nearly seven hundred feet away, the portion of iron above the link spoken of yields its pressure and descends some three inches independently. On its return this weight of half a tun strikes against the top of the link, knocking the tool or drill out from its bed, and suffering it to rise for another stroke. This is necessary, as a steady pull would not release the tool, as it sticks in the pulverized stone at the bottom. This drill does not cut the full size, five inches, but after it has cut as far as it is practicable to work it without a charge, another tool is put down. This is a sort of rimmer with blunt edges, round with exception of a little cavity on the sides, and not wedge like, as is the first. This crushes down the rock, leaving a cylinder just five inches in diameter. No tubing is needed down here, the solid rock being self-supporting. Besides, if tubing were run at so great a depth, the friction would become so great that the tools could not be worked with any degree of efficiency.

While working through the black slate, occasional layers of white quartz, very hard, have been encountered. These strata have about an inch thickness, as nearly as can be judged. At a depth of 520 feet two layers of pure black clay, about an inch thick and a foot apart, were found. When five hundred feet were reached, a thin layer of honeycombed quartz was found, looking as though it had been washed by the permeation of water, and since this the water has been somewhat salt leading to the belief that at some former period there has been a direct connection with tide water, which is now nearly or partially stopped by the filling in of clay or sand. When the depth of 600 feet had been drilled, and no supply of water obtained, a new contract was made at an increased price per foot (not yet exactly determined, however, or if determined, to be subject to change by circumstances), of 600 feet more; and still the drilling goes on, until evening the depth attained was about 900 feet, 600 of which have been in the solid ledge. The progress at present is about four feet per day. Small fragments of the rock, from the size of a pea that of a goose egg, are brought to the surface occasionally, showing that the slate is broken into somewhat beyond the diameter of the well. The writer has a small specimen taken out yesterday. It is dark, quite even in color, and of a medium degree of hardness, and this is throughout the whole extent of this quarry. After drilling for ten or twelve hours the *debris* is removed by means of a sand pump, which is let down, the plunger be forced in by the immense weight above and the suction being sufficient to draw the tube full of the sand and fragments of rock, and as soon as the pump lifts from the bottom the valve closes and it is drawn to the top by steam.

In case of an accident the machinery is ample for any emergency, there being instruments to cut off or seize the end of the rope or even the tools themselves. The rope did break at the depth of 170 feet, and but little difficulty was experienced in recovering this and also the tools. There is little to be seen in the operation, the machinery above ground being simply a steam engine and a huge walking beam, with a rope attached. If water is reached, its fountain may not be elevated enough to force the water to the surface, and in that case, should the supply be ample, a lifting pump will be employed.

Extinguishing Fires by Carbonic Acid.

We published on July 8, under this heading, an article commenting on the fact that a law had been passed by the Legislature authorizing a company to lay pipes underground to convey carbonic acid to all parts of the city of New York, for the purpose of putting out fires; and concluded with the expression of doubt as to the genuineness of the scheme, and as to whether the idea had ever been seriously entertained. Our uncertainty as to the project is now ended, the company being fairly launched. The mechanical and chemical difficulties in the way, were mentioned in the article above alluded to, and need not be recapitulated here, as the affair will doubtless receive plenty of criticism as to its feasibility and derision of its claims and professions. We imagine, however, that its promoters will not be much hurt either by argument or satire. The city authorities of New York will probably vote a considerable sum of money as a subscription to the company's stock, and then, the object being gained, and the most important result achieved, the matter will be allowed to drop, and we hope this end will be obtained before the public has suffered much annoyance from the tearing up of sidewalks, or has placed much money in the venture. The inhabitants of New York have little money and less patience to spare for new schemes of any sort just now; and the directors of this visionary affair would have done wisely had they kept it out of the light of day till trade improves and the new Court House is forgotten.

Universal Joint for Shaft Coupling.

This invention relates to a new and improved universal joint for shaft couplings; and it consists in the employment for such couplings of two coiled springs connecting the two shafts either in connection with the jointed forked ends thereof, or of collars thereon or not, one of said coils being smaller and within the other, and coiled in the opposite direction to that of the outer one, and in such relation to the section of the shaft to be turned that the resistance of said shaft will tend to uncoil it and expand it against the outer coil, which is to be arranged to be twisted smaller by the resistance, whereby the tendency of one to be changed from its normal condition will be neutralized by the other; and all the advantages offered by the flexibility of coiled springs for universal joints will be utilized without any of the objections that prevent the practical success of the single coiled spring which, when the resistance takes place, will either coil up the spring more, or uncoil it, according to which way the coil is arranged relatively to the direction in which the shaft turns, and then fly backward or forward when the resistance ceases. Greene V. Black, of Jacksonville, Ill., is the inventor.

Painters should seldom wash their hands in turpentine as the practice, if persisted in, will lead to the most serious results, even to the loss of power in the wrist joints.

Disinfectants.

Dr. Moreau Morris, of New York city, recently read an admirable paper on the "Sanitary Care of Contagious Diseases," from which we gather the following:

"Contagious or infectious diseases have certain laws of inception, growth, and propagation. The elements of which they are composed are as yet unknown, but their methods of progression and diffusion are better understood. We know that they have a beginning, and can, in many instances, anticipate and prevent the initiative; if once fairly established, we can control if not destroy them. By the aid of chemical science we have learned how to arrest, destroy, and transmute into innocuous compounds, the germs that propagate disease. The appliances for removing the causes of disease are varied according to the nature of the evil; if there are filthy streets, or accumulation of decomposing matters in cellars, privies, or houses, cleansing and disinfection, or arrest of decomposition, are the means employed. If there is a confined, vitiated atmosphere, openings are made, letting in sunlight and air. In a word, the most important means for securing health and preventing diseases are fresh air and pure water."

In the practical application of disinfectants, they are classed into two groups:

1. Disinfectants which arrest fermentation, such as carbolic acid; sulphate of zinc and iron; sesquichloride of iron.

2 Disinfectants which effect chemical decomposition: chloride of lime; sesquichloride of iron; chlorine; lime; sulphurous acid.

"The disinfectants that arrest fermentation are either employed separately or mixed with some of the same class, depending upon the circumstances in each case. The better qualities of carbolic acid are used for fumigating rooms, disinfecting bedding and clothing; but for basements, cellars, and privies, a 70 per cent acid is all that is required.

"For the disinfection of damp cellars and yards, a concentrated solution of protosulphate of iron, mixed with a low grade of carbolic acid, is employed; and for privies, a solution of sesquichloride of iron of 1·30 specific gravity is used, mixed with 10 per cent of carbolic acid and water. Sulphate of zinc is also found useful in solution with water, or in combination with carbolic acid, for infected clothing and bedding. The formula employed are as follows:

Sulphate of zinc, 8 ounces; water, 3 gallons. Or, sulphate of zinc, 8 ounces; carbolic acid, 1 ounce; water, 3 gallons.

"The latter has been found effectual in arresting or destroying the infection upon bedding and clothing in scarlet fever and small pox, and probably will be found efficient in other contagious fevers.

Disinfectants that effect chemical decomposition:—"The fermentation of filth and vegetable germs are destroyed by chloride of lime, and it ought to be liberally employed. Its use in relapsing fever proved invaluable, as likewise with other malignant fevers depending upon filth and foul atmosphere. It is used either in a dry form sprinkled upon the floors, or in solution upon the floors and wood work of infected rooms. In damp places, to avoid the hygroscopic properties of the lime, carbonate of soda is added. In the cleansing and disinfection of houses and apartments infested with relapsing fever, chlorine gas has been extensively used, and with the best results."

The sanitary officers have also found sulphurous acid a valuable agent for the fumigation of infected rooms and clothing. It arrests fermentation, and acts as a deoxidizer. It is used specially in the disinfection of the contagion of small pox, scarlet and yellow fever, and in skilled hands seems to control effectually.

The Metropolitan Disinfecting Fluid is highly commended by Dr. Morris, as a preparation which has been employed during the past three years for purposes of privy disinfection, and was the result of a thorough scientific experimentation by the officers of the Metropolitan Board of Health.

"Sesquichloride of iron is prepared by dissolving the hydrated sesquioxide of iron (bogore) in muriatic acid; to this is added 10 per cent of carbolic acid. This forms the fluid in a concentrated form, and is largely diluted with water at the time of using. Its preparation requires chemical knowledge, and involves time: but it is kept for sale at two places in the city, and is thus always available. All night scavengers are compelled by the Board of Health of New York to use it. Its effects are compound. The iron checks fermentation, and the chlorine acts as an oxidizing agent. Its carbolic acid also aids in arresting decomposition and fermentation, and the whole combination, therefore, by its chemical action, decomposes the sulphuretted hydrogen. Hydrated chloride of aluminum has recently been brought to notice as a disinfectant, but not having yet given it a fair trial, no definite statement of its properties can be given."

What our Hand Gear is, and where it comes from.

From among the many myths and shams of this fictitious age, the Boston *Commercial Bulletin* selects kid gloves, on which to dilate as follows:

It would be quite impossible to find kid enough to supply the demand for gloves; so recourse is had to sheep skin, and it is asserted, by several of our largest small ware folks, that not 10 per cent of the gloves sold for kid are the legitimate article. The pelts of sucking lambs and colts are the principal materials used. Rat skins are never used for gloves; they are too small, and cannot be dressed soft and durable. Rat skins are tanned for covering to jewelry boxes. A genuine kid glove is thin, fine grained, delicate and soft, yet very strong. A sheep glove is coarser grained, thick and stout, and if shaved to a thinness to represent a kid, it is flimsy and rotten.

Paris is the headquarters of the kid and colt skin glove. The kid skins are collected in all parts of the world, while the colt skins come from Tartary, where the flesh of suckling colts is a staple article of food. The tanning, dressing, and cutting out of the gloves, are done in Paris, and they are sent out into the country to be sewed. The great bulk of the Paris gloves has always been sewed in the districts of Alsace and Lorraine; and now that Germany has acquired this territory, Paris, to retain her glove trade, will be compelled to very generally adopt the sewing machine. By an ingenious application, skillful operators can afford to sew gloves 30 per cent cheaper with machine than by hand. The sheep skin gloves come principally from Naples and Vienna. About 300,000 dozen pair from the former place are sold yearly in Boston, and about 200,000 dozen pair from the latter city reach this market. This class of glove is very largely worn by preference by many, as being about one third the price of a kid article; the wearer can afford with better economy to wear a new pair of sheep skin gloves each day, and thus present a cleaner, unsoiled glove, than in purchasing kid continually, and replacing them when soiled.

The dressing of skins for gloves is somewhat ingenious. Lime for removing the hair cannot be used, as is done in preparing skins for boot leather; but it is done by soaking them in water and Indian meal, and afterward treading the skins in a rough trough until all the meal is well out of the hide, when the hair peals off easily.

The skins are then skived or thinned down, and the inner side laid upon a large flat stone, and the dye or color applied with a brush to the outer side. The skin is then dried slowly, when it is ready to be cut into gloves. This latter process is done by laying a skin over a steel frame, the upper edges being sharpened, in the shape of two open hands, and striking the skin with a padded club. The strips between the fingers are cut from the edges of skins. They are then tied in packages of a dozen pairs, and, with printed instructions accompanying each pair, are sent out to be made. For ladies' wear, they are made in ten sizes, from 5⅝ to 8 inches, which, also, is an index of their number. This is the size of the hand they are to fit, measuring around the knuckle joints. Gloves are put up in packages of a dozen, each a different color. Manufacturers are often at a disadvantage in waiting for some one color to complete an invoice to be sent off. One of our Boston jobbers had a lot of 14,000 dozen making up in Paris, (when the war broke out), that had been waiting shipment six weeks, delayed by the non-receipt of a peculiar shade of green, one pair for each dozen. They were finally shipped with a different color sorted to make up the count. This seemingly small matter of substituting one color not specially ordered, ruined the lot, and the goods were sold as unmarketable.

The sizes of gloves sold in the United States are smaller than they were twenty years ago; and the call is still for snugger fits on smaller hands. The smallest gloves made are sold in the American market, and now the sizes 7⅞ and 8 are not put up abroad in the assortments for the market. For the first time, sizes 5¼, up to 6, are to be put up expressly for a Boston house. The colors now in use are lighter than formerly, as opera shades are very generally worn on the street. Gloves from abroad are ordered eight months ahead, and in lots to arrive from the coming fall or winter trade are four and five button gloves, seemingly an exaggeration of the present popular gauntlet style. The very general use of kid gloves has almost driven Lisle thread goods out of the market. These are a German manufacture, as are also our white cotton military gloves. It is the cheap labor that keeps this line of manufacture abroad. A very good kid glove is made in Philadelphia, and at Gloversville, N. Y. Some of our retail small ware dealers have them in ladies' sizes. They are not so thin and soft as the French article, but are really more serviceable, and if the trade would throw them into the market with a legitimate American brand, Yankee kids would be very generally accepted as a desirable article.

Nutrition.

The matter of properly selecting and preparing food, and its judicious variation, is one which does not receive the attention that it ought. Professor Blot, who is admitted to be authority on this subject, says that "it is by practical experience that we learn what is proper for us, and not by chemical analysis." How can it be otherwise, when the same articles which are relished and easily digested by some persons, are distasteful and indigestible in the case of others? As no satisfactory reason can be assigned for this, it must be attributed to the peculiar idiosyncracy of the individual, and it is only experience that can teach each one what particular article of food agrees with him, and what does not. It often happens that a certain article of food is highly relished and enjoyed, and yet is indigestible by the one who is thus fond of it. In this case taste will not do to be relied on, and experience will have to admonish when inclination prompts to indulgence.

The great chemist and physiologist, Magendie, made some interesting experiments on the effects of certain kinds of food. He fed geese on gum only, and they died on the sixteenth day; he fed some on starch only, and they died on the twenty-fourth day; he fed others on boiled white of eggs only, and they died on the forty sixth day; he fed others on the three kinds mixed together, and they fattened instead of dying. Here is a proof of the necessity of not only varying but mixing food as much as possible, in order to supply the waste and necessities of every part of the system.

In the first instance, gum afforded a nourishment similar to starch and sugar, serving to sustain animal heat, but not to restore the waste of the tissues, on account of the absence of nitrogen. In the second instance, the starch served to keep up the animal heat, and being more highly organized than gum, enabled the birds to maintain existence a few days longer. The want of nitrogen, however, proved fatal, as in the case of gum food. Those fed on white of eggs alone had the nitrogen afforded by the albumen, but eventually died from want of a supply of animal heat capable of being yielded by the starch. Those fed on the three kinds of food mixed, not only survived, but throve because all the wants of the system were supplied.

As before stated, the preparation and cooking of food should receive its proper share of attention, if the greatest amount of benefit is to be derived from its introduction in the system. Blot, the professor of this art, says that green vegetables, such as cabbage, spinach, etc., should be put in boiling water, but dry vegetables, as beans and peas, should be put in cold water to cook, after having been previously soaked in lukewarm water. In the case of potatoes, the eyes or germs are to be cut out, and the skin rubbed or scraped off, then steamed or roasted. He thinks that fish, although only containing twenty per cent of nutritious matter, ought to be partaken of at least twice a week, as it contains more phosphorus than any other food, and serves to supply the waste of that substance in the system, and particularly in the brain. He says that the brain of an idiot contains about 1 per cent of phosphoric matter, that of persons of sound intellect 2½ per cent., while that of a maniac contains 3¼ per cent. If this be so, it would seem that in a maniac the brain appropriates an undue proportion of phosphoric matter from the rest of the system, whereby its functions are materially impaired.

A Dutch Laundry.

At the top of the house, both in town and country, is invariably to be found a spacious laundry, extending, in fact, over the whole area of the house. In this the linen is stored in presses, and the c othing of the past season, winter or summer, all duly turned inside out, hangs on pegs all about. Here, twice in the year, Mevrouw holds her grand saturnalia. Without doubt, the most important item in a Dutch girl's dowry is linen. The quantity she thinks necessary for her own person and for household purposes is enormous. But then it should be known that she "washes" (the linen of course) but twice in the year. Cuffs, collars, and muslins, she says, must be washed often; but all other things are flung, for a time, into huge buck-baskets big enough for a half dozen Falstaffs to hide in; indeed these are astounding baskets, and when full will weigh four or five hundredweight. Every house has a block or pulley firmly fixed to the ornamented coping of the roof, which indeed, is purposely constructed to carry this useful machine, and forms a noticeable feature in the architecture of all the Dutch houses; and by means of the block, these huge baskets are readily lifted to and from the laundry, and furniture or heavy articles of any kind to the other stories through the windows. A visitor for the first time may see with amused bewilderment that particularly lumbering trunk of his wife's, which had been the despair of railway porters throughout his journey, whipped up by invisible hands to a hight of sixty or seventy feet in no time, and disappear through a bedroom window. The clothes are simply rough washed in the country, and, when sent back, all the females in the house set to work for a good fortnight to mangle and iron, starch and crimp; and you may be sure that every bit of clothing a Dutch young lady of the middle classes is wearing has thus been got up by her own fair hands. The original outlay in linen is, no doubt large; but the cheap mode of washing pays good interest for the money.

Manufacture of Artificial Butter.

In the recent siege of Paris, the inhabitants were almost entirely deprived of butter, and many processes were resorted to, to manufacture a wholesome article having all the qualities and appearance of the genuine butter.

The Mège artificial butter received the approbation of all, as being the best and most nearly approaching the real article. Since 1869 M. Mège has endeavored to utilize the oleine and margarine obtained on pressing animal fatty matters in the manufacture of stearine. The oily matter yielded has the same composition as butter, and Mège gave it the softness and the taste.

This result is obtained in the following manner:

1. Washing and grinding the crude fatty matter.

2. Soaking it in a solution at 30° to 40° of the acid contained in the stomach of hogs or horses, in order to dissolve the fibrinous matters.

3. Compression of the fatty matter between heated blades to separate the stearine from the oleine and margarine.

4. The oleine and margarine are brought to the consistency of butter by a thorough heating at the ordinary temperature.

5. Decoloration or bleaching of the paste thus obtained is done by beating with water acidulated by hydrochloric acid.

6. Transformation into artificial butter by soaking for three hours in the following mixture, heated to 30° to 40° Centigrade: Fatty matter, 100 parts; water, 100 parts; animal tissues, 2 parts; bicarbonate of soda, 2 parts; caseum, 2 parts; yellow coloring matter, *q. s.* The yellow coloring matter is generally annatto or carrot juice.

If M. Mège had been familiar with the New York adulterations, he would have known that thousands of pounds are sold daily, in that city, of butter adulterated with the stearine and margarine obtained from the chilling of cotton seed oil.

THE SPIDER.—The value of this disagreeable insect is well understood by dealers in quills and quill pens, as the spider preys on a most destructive moth which is attracted by the feathers of the goose.