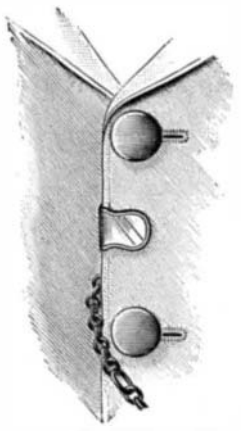
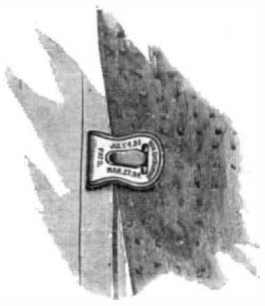
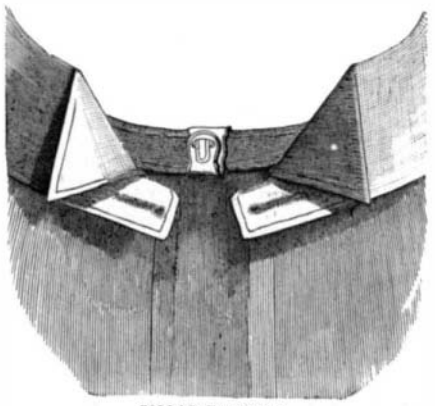
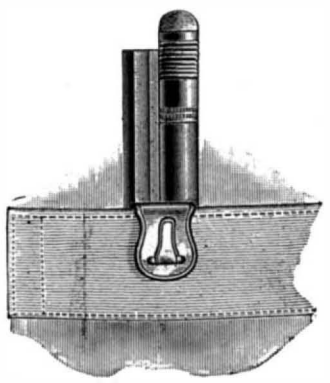
THE WASHBURNE ADJUSTABLE FASTENERS FOR WATCH CHAINS, NECKTIES, COLLARS, ETC.

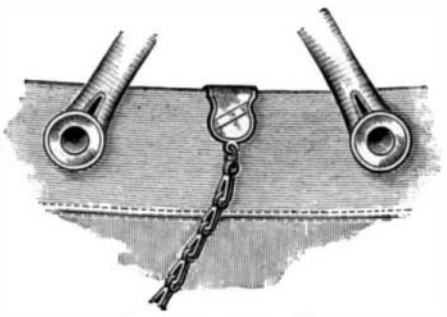
The accompanying illustrations represent a very pretty and unique little device for the safe and secure fastening of watch chains upon the garments without tearing or fretting the cloth and without using the buttonhole. It is manufactured by the Washburne Manufacturing Company, of Waterbury, Conn. It may be instantly adjusted to any part of the clothing, and forms an ornament as well as a great convenience, being much more quickly brought into service than the buttonhole bar, which frequently causes the buttonhole to gape open, allowing the button to become unbuttoned. The fasteners are finished in 14 k. gold and gold plate, and may be engraved with initial or emblem, thus serving as a society badge in addition to their usefulness. In another application of the device, as a scarf fastener, it presents a very neat appearance, but cannot slip or fall off, although it will not tear or fret the most delicate fabric. It is a simple but practical form of spring clamp made of brass or bronze, and, by lifting the lever in the center of one of its shield-like sides, the edge of the vest or of a pocket, the waistband of the trousers, the edge of a scarf, or of the belt, or any other part of the clothing, may be placed between the open leaves, when an attachment will be securely made by turning down the lever, clamping the fastener into position. In its use as a collar fastener, buttonholes are not required on either the neckband or the collar. A rear leaf of the fastener is first attached by means of the clamp to the proper central position on the neckband, and the ends of the collar are then placed between the open leaves in front, when the closing of the lever securely clamps the collar in place. The device takes the place of the common collar button or stud, and the adjustment is much more easily and quickly made. The free ends of the collar are allowed to lap or pass by each other, so that collars of different lengths may be readily worn over the same neckband. When applied to a pencilholder, it holds the pencil securely, takes up no appreciable room, and presents a neat and attractive appearance, the adjustment being effected by simply opening and closing a lever. As an eyeglass holder its advantages are obvious, from the readiness with which it can be instantaneously adjusted in any desired position upon a garment, and for this service it is largely employed by both ladies and gentlemen.

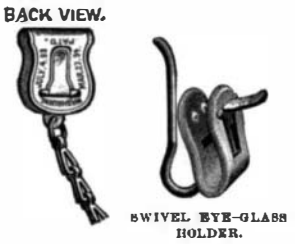












THE WASHBURNE ADJUSTABLE FASTENERS.

Faraday's Disinfecting System.

In 1825 Professor Faraday was consulted by the government about the disinfection of the prison at Millbank. The space amounted to nearly 6,000,000 cubic feet, and the surface of the walls, floors, ceilings, etc., was about 1,200,000 square feet. This surface was principally stone and brick, most of which had been lime-washed. A quantity of salt reduced to powder was mixed with an equal weight of binoxide of manganese, and upon this mixture were poured two parts of sulphuric acid previously diluted with one part of water and cold. The acid and water were mixed in a wooden tub, the water being first put in, and, it being more convenient to measure than to weigh the water and acid, ten measures of water and nine of acid were used; half the acid was first used, and when the mixture had cooled the remainder was added. Into common red earthen pans, each capable of holding about a gallon, were put 3⅛ pounds of the mixed salt and manganese, and there was then added such a measure of the diluted acid as weighed 4½ pounds; the mixture was well stirred and then left to itself, and all apertures were well stopped. The action did not commence immediately, so there was sufficient time for the operator to go from pan to pan without inconvenience.

On entering a gallery 150 feet in length, a few minutes after the mixture had been made, the general diffusion of chlorine was sufficiently evident; in half an hour it was often almost impossible to enter, and frequently on looking along the gallery the yellow tint of the atmosphere could easily be perceived. Up to the fifth day the color of the chlorine could generally be observed in the building; after the sixth day the pans were removed, though sometimes with difficulty, and the gallery thus fumigated had its windows and doors thrown open. The charge contained in each pan was estimated to yield about 5½ cubic feet of chlorine gas. In fumigating a space of 2,000,000 cubic feet, about 700 pounds of common salt and the same of binoxide of manganese were employed, and it will appear by a slight calculation that about 1,710 cubic feet of chlorine were employed to disinfect this space. In common cases Faraday believed that about one-half to one-fourth of this quantity of chlorine would be sufficient. —The Architect.

Cycle Notes.

Great Britain it is said has 1,300,000 cyclists and a capital of 75,000,000 pounds sterling is invested in the production of these bicycles and tricycles. The factories in which the machines are made give daily employment, so it is reported, to 43,000 men.

The second annual exhibition of cycles and cycle accessories and sundries will be held under the auspices of the National Board of Trade of Cycle Manufacturers at Madison Square Garden, New York City, from January 18 to 25, 1896. Spaces will be allotted October 9, and applications must be received prior to October 4.

A speed indicator called "Howigoe" is being introduced in England. It has no clockwork or springs, but consists of a closed glass cylinder contained in a nickel plated casing which is clamped to the handle bar. At the end of the cylinder is a small pulley wheel which is operated by a cord passing around another pulley wheel attached to the center of the front wheel of the bicycle. When the machine is in motion the glass cylinder is revolved rapidly, the bubble in the liquid with which the cylinder is filled shows the speed which is being made. The casing is graduated from zero up to forty miles an hour. To insure accuracy each machine is graduated separately.

With very little practice on a slight incline any rider may become an expert in back pedaling. Simply reverse the action of pedaling, putting on the pressure gradually and keeping the chain taut, not putting on the weight in sudden jerks.

Very stringent regulations have been adopted for cyclists in Naples. Private machines are taxed $2.40, while those which are rented are taxed $1. Each machine must be numbered and the number must also be on the glass of the lamp, which must be lighted at the same time as the street lamps. A brake and some means of giving warning of approach are also required.

The L. A. W. Bulletin gives the following regarding the packing of pneumatic valves: "Nearly all caps used to stop the openings in air valves have a little washer of some elastic material which is designed to make a tight joint in between the cap and end of metal tube. The most satisfactory material is a partial rawhide such as is used for belt lacing. It may be obtained at hardware stores."

An association to be known as the United States Military Wheelmen has been organized, with offices at 621 Broadway, New York City. The plan is to unite wheelmen who have a knowledge of military tactics into bodies of such size as to test the practicability of moving and maneuvering large bodies of troops with the bicycle.

A correspondent of the L. A. W. Bulletin advises, after numerous experiments, that cotton seed oil in the proportion of 40 per cent to 60 per cent of kerosene produces as nearly perfect a light as is possible.

Booksellers say that the present craze for cycling has nearly demoralized the summer book trade in light literature, for the cyclist does not carry books.

The motor bicycle was used as a pace maker in a race held at Mulhausen, Germany.

Metallic Lactates for Electroplating.

In connection with a paper on the electrolytic deposition, for analytical purposes, of metals dissolved as lactates or glycolates, Dr. Jordis, of Munich, pointed out that lactic acid provides an excellent solvent for electroplating. As yet experiments have only been made in the laboratory with plates of 30 square inches surface. The deposits form so uniformly and easily, however, and adhere so well, that there is great hope for technical processes based upon Dr. Jordis' researches. The expensive free lactic acid is not required. In Germany, according to Engineering, lactic acid is quoted at 590 marks—as many shillings—per 100 kilogrammes (220 pounds); a fairly pure acid can be obtained for 300 marks, while pure lactates of calcium and zinc, from which the acid is generally separated, cost 190 and 435 marks.

Coatings of copper and brass of varying shades on iron, zinc or copper, of zinc on iron and copper, and of iron and of nickel, can be obtained without difficulty, without any special apparatus. Whether the latter point will be confirmed in operations on a larger scale remains, of course, to be seen. As to zinc, Dr. Jordis does not appear to have been particularly successful. In any case, the process has great interest for engravers, whose blocks are not as a rule of large dimensions, and particularly for the silverplating industry. Amalgamated brass is, in a bath of lactate of silver, covered with a pure white coating of silver, which takes the highest polish. It would be a great boon if we could replace the dangerous cyanide of potassium by the harmless lactic acid. The connection with milk might suggest bacteria, as the decomposition of the lactic acid into carbonic acid and acetal aldehyde need not, in the vat, proceed as certainly as it does in platinum dishes. But lactic acid is itself regarded as antiseptic, and the electric current, though perhaps not so fatal to micro-organisms as is often asserted, does not favor their development. The communication was brought before the second annual meeting of the German Electrochemical Society, which assembled at Frankfort-on-the-Main in the first week of June, under the presidency of Professor Ostwald.

Knowlton's Waterproofing for Woven Fabrics.

This composition is used for the purpose of filling up the pores of the fabric previous to the application of the waterproofing material. Two pounds of common flaxseed are steeped in half a gallon of water, until it reaches the consistency of laundry starch. The mixture is strained, and a quart of the liquor is mixed intimately with one-quarter pound of Spanish white. Instead of Spanish white, there may be used ocher, ground chalk, soapstone, or pumice stone.—J. J. K.

Improved Mining and Milling Methods.

A striking contrast between old and new mining and milling methods and conditions is afforded by the old bill in an Arizona mining camp and the report of the operations of the Alaska-Mexican Gold Mining Company for the year 1894. Alaska is more remote than Arizona, yet last year that company worked 73,141 tons of low grade ore at an average cost per ton of $1.97½. This includes everything, and is illustrative of what skill and close management can do in a mine. Of that $1.97½, labor in the mine took less than 70 cents; supplies, 32½ cents; labor in the mill took less than 24¼ cents; mill supplies, 33 cents; chlorination of concentrates cost 17¾ cents; "general expenses," 7¾ cents; the office expenses, less than 1½ cents; bullion charges, 4 cents. Of course such a result would not be possible, even at the present day, in Arizona; but is worthy of note that in far off Alaska, so remote from supplies of all kinds, a corporation was able to work in one year 73,141 tons ore that only yielded $2.79 per ton and yet make a profit of 81½ cents on each ton. Of the $2.79, $2.11 was free gold, the 68 cents coming from concentrated sulphurets. The year's profits were $59,640; the total receipts, $204,042.

A METHOD of welding lead has been recently devised in France by M. Blondel. The surfaces to be joined are carefully cleaned, and between them is placed a thin layer of lead amalgam. On passing an ordinary soldering iron along the line of junction, the mercury of the amalgam is vaporized, and the lead, set free in an exceedingly finely divided state, fuses and unites the two surfaces together.