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CENTRAL PARK VEGETATION.

Rain and sun a-plenty have hastened along the somewhat tardy vegetation of the Central Park. The lawns and hillsides seem daily to become greener and more luxuriant, and the flock of Southdowns over in the Western pasture nip less eagerly toward the close of day; the lambs having more time for sport among the rocky hillocks and knolls at the southern limit of their domain. But there is a deal of moisture in the ground, and "Shep," the collie, who has charge of the flock, must needs keep moving around for fear of rheumatism, even keeping his long, bushy tail well clear of it, though later on, when the grasses are tall and dry, and the flock quieter, he will doze away the summer afternoons under the wide-spreading elm near the Western promenade. Many thousands of tulips and other perennials planted last autumn are well up above ground, and others, less robust, are lifting up little trapdoors of soil above them farther and farther daily. The daffodils will be blooming a maze of gold in a fortnight or so, and the lilac bushes will be covered with bunches of purple perhaps even earlier. The daisies and pansies, set out from the hotbeds a few weeks ago, are now in luxuriant bloom, and when they go, probably about the middle of May, will be succeeded by the coleus and geranium and the summer plants. Pretty soon, now, the wistaria that has been so much admired at the arbor near the Casino—72d street near the East drive—will be in bloom. The coreopsis, whose seeds, not the flower itself, as the name would imply, have the resemblance of a bug, is developing rapidly, and by the last of May will be in bright yellow bloom—a bloom that will last till frost comes again.

On the rocks near the Art Museum is a mass of that curious plant, Live Forever, with succulent thick leaves; a hardy plant it is, that minds neither hottest sun nor prolonged drought. Then there is the genista, the broom plant, also low-growing, whose yellow flowers will be a-bloom in June; the wild asters of the wood, that throw out their white and purple blossoms toward the last of summer. Further along is the red-hot poker (Tritonia), being like a lily, and indeed it is sometimes called torch lily. It is a late flower, not coming till autumn, but when its neighbors have well nigh exhausted their bloom, it will throw out a spike of brilliant scarlet flowers. In a field near the hot-houses is a large bed of periwinkle, with its diminutive purple flowers in full bloom. It is used for carpeting under shrubbery like ivy. Near by is a quantity of German iris, now only a mass of green leaves, but in June it will be filled with white, and red, and yellow, and blue, and purple flowers.

One of the most beautiful trees in the park is the viridis (Forsythia). There is a pair of them over on the west side, just above the ball ground. They stand about eight feet from the ground, and are covered with a luxuriant mass of yellow spires, that make great curves outward, and droop till they touch the ground, thus forming a bower. It is easy to understand why they have been given the name "golden bell," for they bear a strong resemblance to big brass bells hung suspended in mid-air.

The honey locusts along the Western drive are thriving apace toward blooming, being one of the hardiest trees known for rocky soils. Its proper name is Gleditsia triacanthos, its foliage being made up of many finely pinnate dark green leaves, having small flowers and long irregular pods filled with highly polished seeds. These seeds are surrounded with a pulp of intense sweetness, with a delicate flavor well known to most boyish palates; but these pods are not so easily gathered, for, as if nature was opposed to their being indulged in too freely, there are formidable spines growing along the trunk, which will discourage the most ambitious climbers, being stout as hickory and sharp as a serpent's tooth.

The cedar of Lebanon (Pinus cedrus), also on the Western drive, is in bud, and is alone worth a visit to the park, being at once majestic and beautiful. It comes from historical Mt. Lebanon, and is the same variety of which the palace of David and temple of Solomon were built. Once, as we are told, it covered the hills of Lebanon, some of the trees having diameters of seven and eight feet, and, because of the fragrance and durability of their wood, being in demand for palaces and sacred offices; a demand which became so great that forest after forest disappeared, till finally, in the time of Justinian, not enough could be found to build a single house.

The spreading junipers (Juniperus virginiana) are beginning to burst their brown and yellowaments, and are giving other evidences of activity. So are the Scotch pines, the Austrian pines, the Norway spruces, the white pines, the stone pines, the nettle, and the mulberry.

The Characteristics which Surround Old Age.

An English physician, who has investigated the characteristics and surroundings of centenarians, says he found that the average qualities were a good family history, a well made frame, of average stature, spare rather than stout, robust, with good health, appetite,

and digestion, capable of exertion, good sleepers, of placid temperament and good intelligence, with little need for and little consumption of alcohol and animal food.

An April Thunder Storm.

A dispatch to the Associated Press from Tionesta, Pa., says: During the frightful thunder storm that passed over the oil regions on Friday afternoon, April 6, Simon Frey was in his barn, looking out of the door. A blinding flash of lightning was followed almost immediately by a terrific thunder clap, and Frey saw a ball of fire run along a wire clothes line from a post in the yard to a corner of the house, to which one end of the line was fastened. When the ball struck the house, Frey saw the splinters fly from the timbers, and the ball disappeared.

Frey's wife and baby were in the house. He ran to the house to see if they were injured. He found the baby lying in one corner of the kitchen and his wife in the middle of the floor. Both were apparently dead. He dashed water in his wife's face, and she slowly recovered. Frey then succeeded in restoring the baby. His wife's shoes were lying side by side under the table. When he lifted his wife from the floor he found a round hole burned in her dress between her shoulders. He stripped the dress off and discovered a red spot on the flesh, from which two red streaks led, one to the right hip and down the side of the right leg to the toes. The other streak led in the same way to and down the left leg to the toes.

As soon as Mrs. Frey was able to speak, she told her husband that she had been sitting in one corner of the kitchen, holding the baby, when she suddenly felt a great shock, and that was all she remembered. She had her shoes on at the time. The electric fluid which Frey had seen had evidently struck Mrs. Frey after it entered the house at the corner, separated, and passed down each side of the body, tearing off her shoes, and leaving the marks of the passage as described. No marks were found on the baby, which had been hurled across the room.

On looking for further traces of the electric current, Frey found that it had passed through the floor into the cellar, where it had burned the iron hoops off a vinegar barrel and made a hole in the bottoms of three milk pans.

A bolt struck the house of William Oadel, a quarter of a mile from Frey's. It came down the side of the chimney, hurling the bricks in every direction, and pulverizing many to fine powder. It followed the chimney into the garret of the house, ran along the garret floor to a partition, when it went through the floor, half of it on one side of a partition wall on the story below and half on the other side. The half that was on the left side of the wall jumped into the room when half way down, setting a bed on fire, tearing the baseboards away on all sides of the room, and then passing through the floor again to the kitchen, where it knocked a servant senseless, broke a table to splinters, set fire to a splint bottom chair, and then passed down into the cellar.

The part of the fluid that went down the right side of the partition up stairs entered a bedroom where one of Oadel's sons was lying sick in bed. It splintered the footboard of the bed, ran along the floor, burning the carpet as it went, returned to the partition, and, passing down into it, knocked it entirely away between the dining room and kitchen, and disappeared through the floor into the cellar. With the exception of the servant girl, no one in the house was injured, although there were seven persons in the dining room and two besides the girl in the kitchen. Mrs. Oadel ran up stairs to her sick son, and found the carpet on fire.

The invalid was uninjured. The fire had barely been extinguished when the house was struck the second time, the bolt passing through the roof and entering the sick man's room. It knocked the headboard of the bed to pieces, and ran along the four sides of the room, and, uniting again on one side, where it passed through the floor, splintered the casing from a window in the room below, and tore the clapboards off the side of the house for several feet, spending its force against a cherry tree, to which it jumped from the house, splitting its trunk as if it had been done with an ax.

The servant whom the first stroke of lightning rendered unconscious had not been restored when the house was struck the second time, but she came to without anything having been done to restore her, immediately after the house was struck the second time. Every person in the house, except the servant and the invalid, was made deathly sick by the second stroke, some of them suffering with distressing nausea, attended by a strong sulphurous taste for hours afterward. The invalid was not affected in any way by the fluid, although he declared that a flame the size of a lamp flame rested on his forehead while the current was flashing about his bed, and that from it a thousand jets and sparks issued and seemed to envelop his head. No fire resulted from the lightning, except the burning of the carpet in the invalid's room, but the damage to the property will require the almost entire rebuilding of the house.

Military Notes.

The recent practice of the French Mediterranean squadron under Vice-Admiral Amet, in the roads of Toulon, aptly illustrated how advantageous to the French are the present changes in the mode of conducting naval operations. When good seamanship was the primal consideration, the Anglo-Saxon had a manifest superiority; he being a born sailor and possessing that phlegmatic coolness and endurance which counts for so much in the handling of sailing craft. But now that the sailor is succeeded by the engineer and machinist, when the rigors of sea life have been reduced by science to a minimum, and quickness and ingenuity are of the first importance, the Latins are showing well to the front; for, if we may rely upon the accounts of the recent practice of this French squadron as given in *L'Avenir Militaire*, there were fewer break-downs and mishaps and quicker response to orders than in any similar practice of modern ships, whatever their nationality. The squadron was made up of six ships of the line, Colbert, Devastation, Amiral Duperre, Courbet, Redoutable, and Friedland, the floating batteries, Indomptable and Terrible; the Milan, a first-class steel cruiser; the Condor, a cruising torpedo boat; the Balny and Doudart de Lagree, sea-going torpedo ships; and six torpedo boats of the harbor defense type. The squadron was manned by 6,000 men and carried a battery of 130 big B. L. guns, besides a formidable display of machine guns. Though there was a stiff breeze of wind and a heavy sea running, the squadron formed line, divided into two columns, and formed crescent and wedge without running afoul the one ship of the other, or falling astern from mishap or lack of coal. To those who have studied such displays this will scarcely fail to be looked upon as remarkable.

In the new regulations for the conduct of field operations of the German army (*Felddienst-Ordnung*) the careful observation and mathematical precision of the German mind is clearly discernible. The composition of the advance guard and the rear guard of a marching army has been variously formulated by military writers, with a general tendency to strengthen the van and neglect the rear. In the new German orders this is reversed; the rear guard being made by far the strongest, because it cannot look for any support, while the advanced guard if in need of re-enforcements has only to fall back or wait for the main body to come up. It is, however, where directions are given as to keeping a portion of the road clear on the line of march and the treatment of troops while *en route* that these orders are most original and interesting, and, with no intention of giving an opinion as to their efficacy, their reasonableness is obvious. Students of military history will remember how often armies with everything favoring their success have been detained or even demoralized by long marching without food. It is the footsore infantry and the lame horses of the cavalry that give the trouble, for, as the strength of a chain is not greater than that of its weakest link, so an army cannot move faster than its slowest sections. Napier, in his admirable history of the Peninsular war, describes the disastrous effects of that penny wise, pound foolish policy of saving an hour that should be given to rest, and then losing six because of premature fatigue of the soldier, and there have been many modern instances of this.

Major Wachs, of the German army, in an extended examination of the place held by Britain among the nations, and especially as to her military strength, declares her to be weak in her insular defenses and as having by no means adequate power to defend her possessions. These latter, he thinks, are likely to tend to her utter discomfiture in the future, for that once her strength is put forth to defend them, she will leave her immediate coast assailable, and in proof of the danger of this he quotes Napoleon's remark: "Six days' command of the channel, and on the fifth I shall be in London." He does not believe that the guns made at Woolwich are to be depended upon, and cites the accidents aboard the Collingwood and Thunderer as evidence in support of this belief, and a recent order of the British Admiralty to the captains of the fleet, forbidding the firing of big guns save under special instructions. From a translation of this paper printed in the *Royal United Service Journal*, we quote: "Major Wachs reproaches us [the English] with our inaction and irresolution in allowing the favorable opportunity of the great war of secession [American civil war] for putting down our dangerous rival for the dominion of the North Atlantic to pass away. When the war which he foresees with America once commences, he prophesies the loss of Canada, which he supposes not to have forgotten its French origin."

A French military writer, M. De Fletres, in an essay on the education of the French infantry, makes some very serious charges against the French soldier. The latter, he says in effect, has serious moral as well as physical defects; grossly abuses his officers when out of hearing, is careless and slovenly, has no heart for military service, and, when opportunity comes, conceals all trace of its insignia.

How to Make Crayon Portraits.

BY E. W. CURRIER.

Supply yourself with some charcoal pencils, a stretcher covered with Whatman's crayon paper, and chamois skin palette, a chamois stump, tortillons, a porte crayon, some sticks of black Conte crayon No. 3, some finely pulverized pumice stone, an easel, a mahl stick. Having now purchased your materials, you proceed to sketch the head you are going to make with a lead pencil on thin, smooth paper. Having made the sketch, rub charcoal entirely over the back. Now lay this sketch over the stretcher and trace the outlines with a hard lead pencil on the sketch, remove the sketch, and you will find the drawing nicely transferred on the stretcher.

Now grind up some crayon very fine with emery paper, and saturate the chamois palette. Dip your chamois stump into the crayon sauce and work in the principal shadows, preserving their form and depth. After the crayon is thinner on the stump, rub in the half tints. After this is done take a tortillon and place in your porte crayon holder and work in the shadows all over the face, evening up the shadows and smoothing up the entire face. Mix some of the pulverized pumice stone with the powdered crayon and rub this preparation over the background and drapery with the end of your finger, using a circular motion. By practicing on drapery awhile you will acquire the knack of doing this evenly and without any difficulty. Preserve the shape of the high lights, also the catch lights in the eyes. Never rub the shading of background over the head. Let all the shading of the background beat the sides. Back of shoulders, and extending above them a trifle, a little higher toward the edges of the portrait, a piece of Green's ink eraser can be used in the porte crayon holder to advantage at times for cleaning up shadows where they are too dark; also for working backgrounds. A jet black background is sometimes suitable for portraits where the drapery is white. This can be best made by rubbing the crayon all over the surface of the background, and then smoothing it up and rubbing it in with the finger or thumb. In making lace, rub in the shadows and rub in the half tones all over the lace. Then pick out the pattern and high lights with a piece of Green's ink eraser. In this way the effect obtained is beautiful, and it is the easiest way of doing it.

Point crayon work is much more difficult. The portrait is entirely stippled over with the point of a No. 3 black Conte crayon. Some artists use a crayon sharply pointed, and draw in lines very lightly over the shadows and cross them with parallel lines, making diamond-shaped interstices all through the shadowed side of portrait. The crayon must be worked very lightly in doing this class of work. For amateurs, we would advise them to stick to the stump and tortillons. Very fine portraits can be made by this method alone. Considerable practice will be necessary before the pupil will be able to execute fine portraits; but by following the directions given one may be able, after a little patient practice, to do a satisfactory piece of work.

The Work of Counting \$150,000,000.

The money stored in the United States sub-treasury building on Wall Street is now being weighed and counted, and this is rather a more serious undertaking than the average citizen would suppose from his own experience at taking account of funds. The necessity for the count arises from the fact that assistant treasurer C. J. Canda is about to retire from office to be succeeded by Judge A. McCue. The retiring assistant treasurer must give an account of all funds that have come into his hands during his incumbency, in order that he may be released from liability under his bond, and may take a receipt from his successor for the amount turned over to him. The count is made by direction of the secretary of the treasury and treasurer at Washington. It is carried on under the immediate supervision of Major J. F. Meline, who has under him eight expert counters and weighers of money and eight able bookkeepers and accountants. These gentlemen, two other gentlemen appointed to look after the interests of the outgoing and incoming assistant treasurers respectively, and to represent them in the settlement of any disputed questions that may arise during the progress of the count, sixteen laborers to handle the coin, and an occasional honest-appearing representative of the press—these are the only witnesses of this interesting operation. The amount of money to be counted, weighed, and accounted for is, in round numbers, \$150,000,000. In notes of various kinds and denominations, the count of which began on Tuesday, February 23, and is now finished, there were \$25,000,000. The denominations of these notes ranged all the way from \$1 to \$10,000, and the number of them was about 440,000. When currency is put up in packages each of which contains notes of only one denomination (and care is taken at the sub-treasury that this shall be done), an expert and rapid counter, according to the estimate of Cashier William Sherer, can count, if the bills are in fairly good condition, about 6,000 per hour. Care is taken, as has been said, to have only bills of like denomination in the same package; but if a bill of

another denomination has found its way into the package, as sometimes happens, the counter must detect it. When this fact is borne in mind, and the further fact that each counter of bills is responsible under a bond for the perfect accuracy of his work, it will be seen that to count 6,000 bills an hour, or 100 a minute, is pretty rapid work; but even at this rate it would take one man something over seventy-three hours to count the 440,000 bills which go to make up the \$25,000,000 of currency in the sub-treasury.

The gold is weighed and estimated in the same manner as the standard silver dollars, a description of which will be found below. Up to Saturday night \$49,000,000 in gold had been weighed and found not wanting, and \$41,000,000 remained to do.

To weigh and count the silver is the most tedious task the counters have, because much of it is fractional silver which cannot be accurately estimated by weight, but must be laboriously counted piece by piece. Four and a half million dollars of silver have been counted, and about \$34,000,000 remain, which of itself will occupy the whole force of counters for at least three weeks.

Of fractional silver there are about \$10,000,000. Every piece of this must be handled and counted, because, owing to the loss by abrasion, no reliable estimate can be made of the amount by weight. Of two bags weighing about sixty pounds each, and each containing the same value of fractional silver, the weight will indicate, as a rule, a difference of from \$5 to \$10 in value, while cases have been known in which the difference has been as great as \$30. Of quarters 4,000 pieces go to each bag, and a rapid counter will count ten bags a day. If the whole \$10,000,000 of fractional silver, therefore, were in 25 cent pieces, as it fortunately is not, its counting would keep one man reasonably busy for the greater part of three years. When a bag is filled, it is marked with the initials of the counter, who is thenceforward responsible for the accuracy of his count.

Standard silver dollars are kept in linen bags, sixty pounds to the bag. The value of these bags can generally be determined by weight. The bags are passed from the vault in which they are stored to the scales, and thence, if they pass the test, they are removed to another vault. When a bag fails to pass the test, as about 1 per cent of them do, it is opened and the contents counted. It is generally found in such cases that the bag contains its full complement of dollars, which have suffered rather more than an average amount from abrasion. The weight in the other pan of the scales is a test bag of silver dollars which have been in circulation, with \$1 added, because most of the silver being weighed has lain in the vaults for years and has been in circulation very little, if at all, and has not, therefore, suffered anything from abrasion. Some bags are found broken by the pressure under which they have lain, and their contents spilled about the floor. In such cases counting and rebagging are of course necessary. Some idea of the amount of pressure to which some of these bags are subjected may be had from the fact that they are stored in tiers, a tier containing as high as 800 bags in some cases, each bag weighing sixty pounds. The bags are handled by muscular longshoremen, but the work is so heavy and so constant that it is found impossible for even one of these men to work at it more than one hour at a time; so they work in relays, each working one hour and resting one hour alternately.

So far no discrepancy has been found between the count of coin and the books of the department, and it is not likely that any will be found. Many counts have been made of the funds in the nine sub-treasuries since their establishment, but no serious discrepancy has ever been found. It must not be understood that a change of officers is the only occasion on which an examination of the sub-treasury funds is made. On the contrary, assistant treasurers, for their own information and as a check upon any fraud that might exist in the department, institute such examinations very frequently. The cost of the present examination will probably not be less than \$5,000.—*N. Y. Jour. Commerce, March 12.*

New Postal Arrangement with Canada.

By the new postal arrangement between the United States and Canada, which went into effect on March 1, 1888, articles will be allowed to go into either country, if admitted by the domestic law of either, except sealed packages (which are other than letters) and publications which violate the copyright laws of the country of destination, liquids, etc.

All articles exchanged under this arrangement are required to be fully prepaid with postage stamps, at the rate of postage applicable to similar articles in the domestic mails of the country of origin, and are required to be delivered free to addresses in the country of destination.

Articles other than letters, in their usual and ordinary form, on their arrival at the exchange post office of the country of destination, will be inspected by customs officers of that country, who will levy the proper customs duties upon any articles found to be dutiable under the laws of that country.

Diphtheria from Poultry.

In the *Bulletin Medical* of January 22, 1888, Dr. Paulinis publishes an interesting report of an epidemic of diphtheria, occurring in one of the Grecian isles, which lends considerable weight to the arguments in support of this theory. The epidemic began in the summer of 1884, in Skiatos, a small island having a population of about four thousand souls. For over thirty years no case of diphtheria had been seen on the island, according to the testimony of a Dr. Bild, who had practiced there during that time. In the early part of June Dr. Paulinis was called to see a child aged twelve years, suffering from sore throat, and found her tonsils and pharynx covered with false membrane. This child died, and seven other cases occurred in the immediate neighborhood, five of them terminating fatally. The epidemic soon spread through the entire community, over one hundred being attacked, and thirty-six dying during five months.

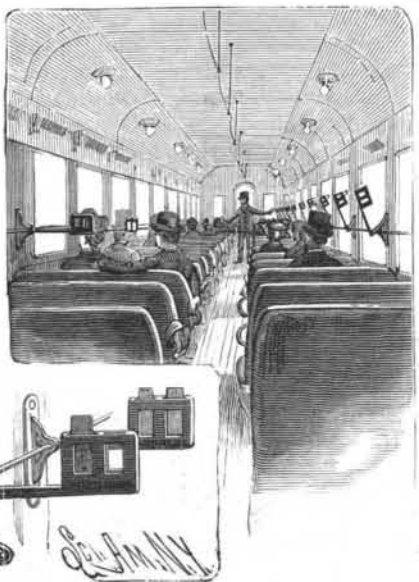
An examination was made to discover, if possible, the source of the disease, and it was found that a flock of turkeys had been received some three weeks before from Salonica. Two of the turkeys were sick on their arrival, and each of the others was attacked in succession. Dr. Paulinis found two of them still sick, and inspection showed patches of pseudo-membrane on the mucous membrane of the vault of the palate and of the pharynx. On detaching strips of the exudation by the forceps, the mucous membrane beneath was seen to bleed slightly. The glands of the neck were swollen, and in one of the fowls the diphtheritic process had extended to the larynx, as was shown by the hoarseness of the cry and evident dyspnoea. One of the turkeys, which had recovered from the throat affection, suffered from paralysis of the legs, being unable to walk. The garden where the turkeys were was at the northern extremity of the town, and the first children attacked were in the immediate neighborhood. There had been no immediate contact between the fowls and the children, nor between the first child attacked and the others, but there was a north wind blowing the greater part of the time, and the author believed that it was in this way that the disease was spread. He concluded, from this experience, that the diphtheria of the ordinary barn yard fowls was similar in its course and symptoms to the disease occurring in man, and that it could be carried from the one to the other, sometimes through the medium of the air.—*Medical Record*.

The Philadelphia Manual Training School.

The second annual catalogue of this institution affords evidence that its work is now well under way, there being 283 students in the school. The school affords an opportunity to those who have finished the ordinary grammar school course to continue their literary, scientific, and mathematical studies, and also receive a course in drawing, and in the use and application of tools in the industrial arts. The combined course of study covers three years, the time of the pupils being divided into one hour per day for drawing, two hours to shop work, and three hours to the usual academic studies. This school is supplementary to the public schools of Philadelphia, admission thereto being obtained by promotion from the other schools.

A TICKET AND CHECK HOLDER FOR RAILROAD CARS.

A novel device designed to be attached to railroad passenger cars, for holding and checking the tickets of the occupants of a car, is illustrated herewith, and has been patented by Mr. John B. McIntyre, of Turtle Creek, Allegheny County, Pa. A rod or shaft is sup-

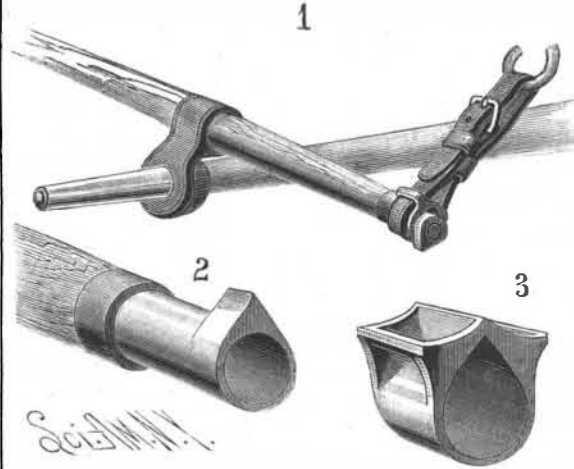
**McINTYRE'S TICKET HOLDER FOR RAILROAD CARS.**

ported in suitable holders lengthwise on each side of the car, above the seats, the shaft carrying perforated ticket receivers, which, on turning the shaft in one direction, are lowered, and on turning it in the opposite direction are raised to be out of the way. These ticket receivers are on the ends of short arms secured to the shaft, one arm with a receiver for two tickets for each double seat, the tickets being plainly seen through openings in the receiver. Each shaft has an end crank

or bent portion, upon which a spring catch engages to hold the shaft in a position that will keep the ticket receivers raised or out of the way, or turned down to receive the tickets, as when a conductor is passing through the car and punching them; the conductor, after lifting all the tickets in the car, operating the crank end of the shaft to lift the ticket holders out of the way.

AN IMPROVED NECK YOKE FASTENING.

A detachable fastening, whereby the strap connecting the ends of the neck yoke with the harness collar need not be buckled or unbuckled, but can be simply attached or detached, is illustrated herewith, and has been patented by Messrs. Adolph P. and William C. Koch, of Effingham, Ill. It is a metal sleeve of novel form, shown in Fig. 2, adapted to receive and retain a

**KOCH BROS.' NECK YOKE FASTENING.**

collar strap, and to slip over the ferrule or point on the end of a neck yoke shown in Fig. 3, the ferrule having a projection on its end corresponding in form with a recess in the sleeve. In use the collar strap is attached to the detachable sleeve, which is then slipped over the ferrule while its point or projection is turned upward, to permit its passing through the corresponding recess in the sleeve, after which it is turned down to the position shown in Fig. 1, by which the sleeve is securely held in position on the neck yoke, being disengaged by reversing this operation.

Proposed Increase in the Patent Office Staff.

A correspondent of the *New York Tribune* says: An item in the legislative appropriation bill, which was lately submitted to the House by the appropriations committee, provides for the appointment of thirteen additional examiners for the Patent Office, and for twelve more \$1,200 clerks. The committee has also so shaped the appropriation for the Land Office that the law providing for the evicting of the Land Office from the Interior department building in December must be enforced. This will in itself accomplish much toward heightening the efficiency of the Patent Office force, which has been crowded together until the breathing of foul air and the necessity of climbing over somebody every time one moved from his seat seriously interfered with the progress of the work.

Two of the new positions thus provided for will be for principal examiners, and thus two new divisions will be created to aid the present twenty-nine divisions in disposing of the ever increasing volume of business pouring in upon the office. Mr. Butterworth, of Ohio, who was Commissioner of Patents under President Arthur, introduced the matter to the attention of the committee and procured the incorporation of the above provisions in the bill. If he was as successful in convincing the members of the House at large that the Patent Office should be run upon a non-partisan basis for the benefit of American inventors, who pay the bills, as he was in driving that point to the mental consciousness of his colleagues on the appropriations committee, Saturday, that item of the bill will go through untouched. It certainly does seem absurd that any picaune considerations of "reform" economy should keep Congress from appropriating sufficient sums out of the money which inventors pay into the treasury promptly to transact the joint business of the inventors and the government.

All salaries and expenses of the Patent Office, together with expenses of conducting and maintaining the great building popularly known as "The Patent Office," but which also contains the office of the Secretary of the Interior, his assistant secretaries, and clerks, are paid out of the patent fund. This fund is replenished by the fees paid by the inventors at various stages of Patent Office action upon their applications for patents. Not a cent comes out of the government's pockets for the support of the Patent Office. On the contrary, the surplus of the fund is continually increasing, and is now about \$3,000,000. This vast amount of money sucked from the pockets of American inventors—who are generally poor as church mice—lies idle in the treasury, while their business in the Patent Office is so far in arrears through an inadequate force and in-

adequate accommodations that in some cases six months pass after an application has been filed before it is heard from, and after that a period of three months must elapse after each letter written in the case by the inventor before he gets an answer. Consequently, where there happens to be a difference of opinion between the examiner and inventor as to the scope of his claims, the case may drag on for years, while the new art is advancing at the rapid rate of mechanical development of the present age, some other inventors are coming in with conflicting applications, and endless confusion results, to the loss of the inventor, the vexation of the examiner, and the fattening of the patent lawyer. One can imagine the high rate of speed with which an argument advances, when three months pass between the statement of each proposition and the answer thereto.

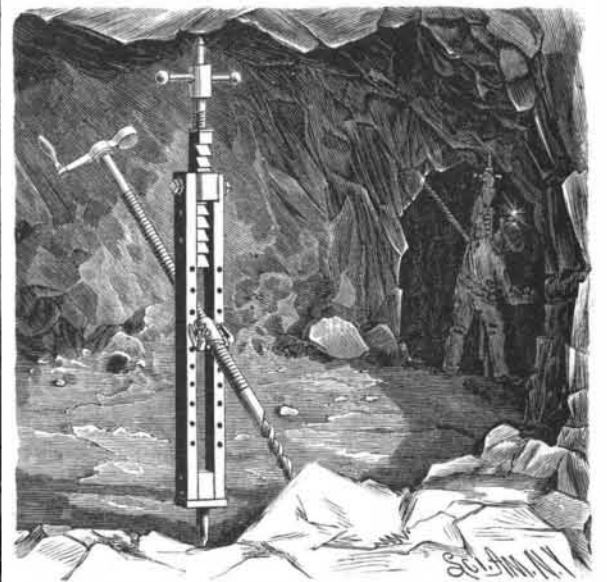
In the face of all this the appropriations committee every year cuts down the salary of the principal examiners in the Patent Office to \$2,400, while the law says they shall be \$2,500, while chiefs of divisions in the treasury of the same rank get the full \$2,500 for work which does not require the abilities and special knowledge called out in the daily decisions in the Patent Office upon rights involving thousands of dollars, and turning upon the finest legal and scientific points; and while the surplus Patent Office fund goes on accumulating.

Fluorine a Universal Solvent.

Iron gives an interesting account of what it calls the universal solvent, and which it declares, though long known to modern chemistry, has only just been separated, and cannot even now be retained in its isolated state, simply because it destroys everything. This fury of the chemical world, it goes on to say, is the element fluorine. It exists peacefully in company with calcium in fluorspar, and also in a few other compounds; but when isolated, as it recently has been by Henri Moissan, it is a rabid gas that nothing can resist. It combines with all metals explosively. When they are already combined with some other non-metallic element, it tears them from it and takes them to itself. In uniting with sodium, potassium, calcium, magnesium, and aluminum the metals become heated even to redness by the fervor of its embrace. Iron filings, slightly warmed, burst into brilliant scintillations when exposed to it. Manganese does the same. Even the noble metals, which at melting heat proudly resist the fascinations of oxygen, succumb to this chemical siren. At a moderate temperature glass is devoured at once, and water ceases to be water by contact with this gas.

AN IMPROVED HAND DRILL FOR MINERS.

A device which permits a quick and sure adjustment of the drilling tool and the drilling post for hand drilling is illustrated herewith, and has been patented by Mr. James O. Patridge, of Wellston, Ohio. The post consists of two uprights connected at the bottom by a cross piece having a downwardly extending point, the cross piece at the upper end having a square aperture into which fits a hollow bar with teeth on one edge adapted to be engaged by a supporting plate, the bar being internally threaded to receive a screw rod having a point on its upper end, and with handles for turning the rod in the threaded bar, whereby the post is firmly fixed in position by the points being forced into the bottom and ceiling or sides of the mine. The two up-

**PATRIDGE'S HAND ROCK DRILL.**

rights of the post have apertures in their front edges in which is held a vertically adjustable nut of peculiar construction, into which screws the threaded shank of the drilling tool, the nut consisting of two parts hinged together so that one part can be thrown open for the admission of the drilling tool. With this construction the post can be quickly and accurately fixed in varying locations, and the drilling tool placed ready for work in any desired position.