CUTTING GLASS.-Take an old three-cornered file, heat it red hot and suddenly plunge it into a previously prepared mixture of salt and ice, stirring it about so as to cool as rapidly as possibly. Now grind the point on a stone preserving the three sides as much as possible, when it is ready for use. The glass to be cut is nicked on the edges, then laid on a perfectly smooth surface, and the point of the file is, with a moderate pressure, drawn over its surface, the direction being guided by a rule. Such an instrument will be found serviceable for cutting glass for windows and all ordinary purposes. So says an exchange.

CHLOROCARBON, the new anaesthetic of Dr. Protheroe Smith, is a tetrachloride, or as it used to be called, bichloride of carbon. Although powerful and rapid in its effects, consciousness is rapidly restored after its use. Its vapor is very agreeable, having a delicate perfume not unlike that of a quince, and when inhaled imparts at first a sensation of coolness to the throat similar to that experienced in drawing in one's breath after taking peppermint, followed by a feeling of warmth on the surface of the body generally. Drowsiness and other sensations similar, but in a less degree, to those experienced from chloroform follow.

IS SWEEDEN A RISING NATION ?-Sir Charles Lyell, thirtytwo years ago, from an examination of some ancient sea marks on the Sweedish coast, concluded that the peninsular was rising at the rate of three feet a century. The Earl of Selkirk, from a recent examination of the same marks, comes to an opposite conclusion, which he has communicated to the Royal Geographical Society. The change in the position of the marks he attributes to fluctuations in the level of the water, and not to any upward movement of the land.

CARRIER PIGEONS lately traveled the distance between Brussels and Cologne, one hundred and ton miles, in from three to five hours. One bird flow thirty-seven miles, another twenty-two, and others twenty miles per hour. A pigeon race between birds owned in the former city, and others bolonging in Hamburg, is soon to take place. The birds are to be thrown up in the Zoological gardens in Cologne and to fly thence to Hamburg, two hundred and thirty miles distant.

BEER VERSUS BREAD.—The amount of nutriment contained in beer is generally greatly over estimated. Liebig asserts that in 1,460 quarts of the best Bavarian beer, there is exactly the nourishment of an ordinary two and a half pound loaf of bread. This beer is about on a par with our best American beer. Instead of being a condensation of the nutriment contained in the grain, in just so far as the liquid has undergone fermentation, the nourishment has disappeared.

THE NIAGARA SUSPENSION BRIDGE.-Ever since the middle of March, 1855, from thirty to forty railway trains have passed over the Niagara Bridge daily. With the exception of the removal of the timber girders, and some other wooden parts which showed signs of decay, no part of the suspended system has ever been disturbed. The work is considered just as strong this day as it was at the time when the first train of cars passed over.

ANOTHER NEW FIBER-By a late patent, a species of nettle, which grows luxuriantly and spontaneously throughout the Mississippi valley, is employed in the manufacture of cord, rope, cloth, bagging and paper. The stalks, which grow from four to eight feet high, are gathered in the winter, and are ready for the brake without any rotting process. The fiber is said to be exceedingly fine, strong, and susceptible of a high finish by dressing.

FISH BISCUIT .-- Professor Rosing, of Asa, France, has invented a process of making flour from a species of sca fish, which he forms into buiscuit, thereby providing a very nutritious and compact article of food. These biscuit are four times as rich in albuminoid substances as beef, four and a half times as fresh codfish, and sixteen times as fresh milk.

LECTURES AT THE PARIS EXHIBITION .- The Imperial Conmissioners have made arrangements for the delivery of a course of lectures, at various places within the buildings and grounds, on various subjects, such as caoutchouc, artificial icc, iron smelting, brass founding, and other kindred themes, connected with the mechanical and art displays in the Exposition.

AN INEXHAUSTIBLE ICE HOUSE .- A company has been formed in France for supplying towns in the southern provinof Savon Alma The alasian iss is rith ico fro m the sid

Patent Report for 1867.

We are glad to learn that the contract for engraving the diagrams for the Patent Report for 1867 has been awarded to Messrs. E. R. Jewett & Co., Buffalo, N. Y., whose excellent the road there is an uniform gradient of 1 in 12, This latter section of the work has for many years adorned these important volumes. road was expected to be open for travel by the 1st ult. The French section It appears that in the present case Messrs. Jewett had no competitors; at least none who were willing to engage to produce work equal in quality to theirs at the same price. The engravings for the volumes for 1867 are to be finished by July 1868, and then the work for the latter year will be begun, this is quite again in time. Heretofore the publication of the reports has required about two years. The report for 1865 is not yet out.

Distances from San Francisco to New York, THE CENTRAL PACIFIC RAILROAD ROUTE.

The following complete table of distances and elevations of points on the Central Pacific Railroad of California, and other roads connecting therewith, between San Francisco and New York, is useful for reference.

| Names of | Distance | Fotal dis | Elevat la fei | Nam es of | Distance | Fetal dis | Elsynt in fog |
|-----------------|----------------|-----------|------------------|----------------------|----------------|------------------|------------------|
| Places. | from point. | ылсе | ion Top | Places. | from point. | tance | ř. |
| an Francisco | .112 | ** • • • | tide. | Twelve mile Calor. | 5 | 545 | 4,925 |
| akland | - i C | | 99 | South Fork | ~ő | 577 | 5 052 |
| an Leandro | 8 | 14 | 45 | North Fork | 24 | K O I | 5.220 |
| avward's | 5 | 19 | 75 | Bishop's Creek | ĩŝ | 620 | 5.418 |
| allejo's Mills | 8 | 27 | 121 | Humboldt Wells | 15 | €35 | 5,650 |
| ottinger's | 10 | 37 | 885 | Nevada State Line. | 65 | 700 | 4,830 |
| ivermore Pass | 12 | 49 | 734 | Point on Salt Lake. | 75 | 775 | 4,290 |
| an Joaquin Ri'r | 20 | 69 | 22 | Bear River | 45 | 820 | 4,820 |
| tockton | 10 | 79 | 22 | Weber Uanon | 25 | 845 | 4,654 |
| roodbridge | 13 | 100 | 100 | Echo Canon | 31 | 870 | 5,805 |
| Osamaes River | 10 | 194 | 100 | Boar Digor | 10 | 000 | 6,019 |
| | 18 | 191 | 76 | Read's Summit | 30 | 920 | 2 567 |
| ntelope | ŝ | 199 | 190 | Groon River | 75 | 1 025 | 6,002 |
| unction | š | 14% | 189 | Bitter Creek Sumit | 20 | 1.045 | 7.175 |
| ocklin | 4 | 146 | 269 | Bitter Creek | 13 | 1.058 | 6.315 |
| ino | 3 | 149 | 420 | Bridger's Pass | 97 | 1,155 | 7.584 |
| ewcastle | 6 | 155 | 900 | North Platte | 28 | 1,178 | 6.695 |
| uburn | 5 | 160 | 1,385 | Battlesnake Pass | 54 | 1,282 | 7,560 |
| lipper Gap | 7 | 167 | 1,785 | Laramie River | 85 | 1,267 | 7,175 |
| olfax | 11 | 178 | 2,448 | Evans's Pass | 3) | 1,297 | 8,242 |
| old Run | 10 | 188 | 3,245 | Foot Black Hills | 31 | 1,328 | 7,040 |
| uten Flat | 5 | 191 | \$,920 | Julesburg | 149 | 1,400 | 3,51. |
| hade D. n | ã | 193 | 0,0.00 | Brady Island | 18 | 1,505 | 2,790 |
| | 2 | 20.2 | 4,120 | Willow Island | 18 | 1,505 | 2,040 |
| migrant Gan | ň | 205 | F'300 | Plum Creek | 10 | 1 615 | <i>k</i> ,014 |
| laco | š | 216 | 5.9it | Elm Creek | 10 | 1.6% | |
| rest | 13 | 229 | 7.042 | Fort Kearney | 21 | 1.655 | 2.128 |
| ruckee River | 14 | 243 | 5,866 | Wood River | 19 | 1.674 | |
| ittle Truckee | 816 | 2511 | 5,56J | Grand Island | 18 | 1,693 | |
| agle Gap | 13% | 265 | 5,000 | Lone Tree | 22 | 1,714 | |
| unter's | 9 | 274 | 4,640 | Silver Creek | 22 | 1,736 | |
| lendale | 8 | 282 | 4,430 | Columbus | 18 | 1,754 | 1,458 |
| g Bend Truckee. | 29 | 811 | 4,219 | Shell Creek | 17 | 1,771 | ••••• |
| ambolas Lake | 41 | 852 | 4,047 | Formont | 14 | 1,785 | ••••• |
| | 30 | 417 | 4 950 | | 10 | 1,800 | ••••• |
| Rend Humboldt | 37 | 454 | 4 800 | Papillon | 16 | 1 824 | •••• |
| on Point | 19 | 478 | 4.460 | Omaba | 12 | 1.845 | |
| eese River | <u>33</u> | 50.6 | 4.550 | Chicago. | 494 | 2.34 | 695 |
| kull Ranch | 10 | 513 | 4 590 | Toledo | 244 | 2.584 | 585 |
| hoshoue Point | 18 | 529 | 4,690 | Cleveland | 118 | 2,697 | 585 |
| e-o-wa-we Gate | 8 | 537 | 4,785 | Dunkirk | 148 | 2,8.0 | 585 |
| ravelly Ford | 4 | 511 | 4.780 | New York | 460 | 8,300 | tide. |

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The oldest mills in Pennsylvania are in the quaint old town of Bethlehem Pa., built by the Moravians in 1793, and are now in good running order.

A stationary engine of 500 horse power is being built in Newburgh, Cuya hoga Co, Ohio, This, the largest stationary engine in the Western States, is the property of the Cleveland Rolling Mill company who are erecting immense Bessemer steel works in the former place, The engine is horizontal non-condensing, 36 inches bore, and 60 inch stroke. Two blowing cylinders of 50 inches bore and 60 inch strokefurnish an air blast of from 20 to 24 pounds per square inch, a pressure far beyond anything heretofore used in the pro duction of iron. The full capacity of the works when comple.ed, will be from 50 to 60 tuns of steelingots daily, or 12,000 tuns per annum.

Large importations from Belgium are annually made of rough plate glass there being hitherto, a lack of suitable apparatus for manufacturing the article in this country A practical glass blower in Birmingham, Pa., has in vented an apparatus for making the rough plate and furnishes an article which is pronounced equal to the best imported.

The salt springs of New York produce nearly 7,000,000 bushels of salt per year. The wells are owned and worked by the State, the water being purchased for evaporation by private parties, at a fixed rate per bushel of salt varying from one to twelve and a half cents per bushel. The net revenue to the State, from this source during twenty years, has been \$421,582.

The work of changing the North Missouri rallroad from a broad to a nar row gage, for a distance of one hundred and seventy miles, to Macon, was lurnished in four adys. Quick work.

The Viceroy of Egypt is said to be the owner of more than one hundred steam plows, We would like to get drawings of them for publication.

Ransome's concrete stone, is to be manufactured in this country by a joint stock company of Baltimore. The process of making this artificial stone is simple enough. The sand or chalk is intimately mixed with its proper pro-portion of asolution of silicate of soda; the plastic material is then pressed intomolds or rolled into slabs, and afterwards immersed in a solution of chlor ide of calcium, when the silica combines with the calcium forming insolubl silicate of lime, firmly comenting the sand particles together, while at the same time chloride of sodium, or common salt is produced, which is subsc quently removed by washings.

The Montana people are congratulating themselves over the discovery of genuine sapphires in that territory. The precious stones found on El Dorado AUGUST 31, 1867.

The Mount Cenis railway is to be forty-eight miles long. The initial point on the French side is 2,493 feet, and the summit of the pass, 6,322 feet above sea level. For six miles before reaching the summit the ascent must be on an average gradient of 1 in 14. From this point to the Italian terminus of of the road having suffered severely from inundations last year will not be ready before September, by which time the entire road will be completed. The existing travel across Mount Cenis averages 220 passengers and 120 tune of goods, daily. The time required is from nine to fourteen hours, but by the railroad the journey will be completed in less than five hours.

The largest iron works in the country are located at Johnstown, Pa. The works are run day and night and give employment to 3,000 hands.

Steel boilers, it is said, are coming into use on French locomotives. Twelve express engines, with steel boilers, are employed on one railway leading out of Paris, fifteen on another, and several on other roads.

The entire tankage capacity of Oil City, nearly 200,000 barrels of oil, is awaiting a rise in the river for transportation to Pi.tsburg.

The new bridge at Louisville, Ky., is to bc 5,220 feet, or nearly one mile in length. The longest span will be 360 feet, thirty-six feet longerthan the longest span of the Montreal "Victoria bridge." The lowest projecting point of the long span is ninety feet above low water, while the highest rise ever known in the river was forty four feet, leaving a clear space of fifty two feet.

The Anglo-Indian Telegraph company propose to build a direct telegraph line, via. Egypt and Aden, with subsequent extensions to Singapore, China, Japan and Australia. The direct route from London to Sucz will, it is anticipated, be in actual work during the present year and the company have entered into a contract with responsible parties for laying a thoroughly efficient line from Suez to Bombay. The entire line will be completed next year, or at the latest, in the May following.

It is found necessary on some railways having numerous short curves, to have the flanges of the driving wheels of the ordinary 6 wheeled engines turned anew as often as everysix weeks.

For the past three years, \$4,000,000 worth of boots and shoes have been shipped annually from Worcester, Mass. This business gives employment to 2,000 hands in the city, and as many more in the neighboring villages.

Recent American and Loreign Patents.

Onder this heading we shall publish weekly notes of some of the more promi-nent home and foreign patents.

LATHES .- S. L. Hart, Milwaukie, Wis .- This invention has for its object to furnish an improved device for attachment to lathes for the purpose of cupping the ends of wagon hubs, turning the interior of hollow wooden ware, and for similar uses.

BOB SLEIGH.-G. O. Momeny, Locust Point, Ohio.-This invention has for its object to furnish a bob sleigh, or other sleigh or sled so constructed as to adapt it to all kinds of roads, and to enable the beams and raves of the sleigh to be readily removed from the knees and runners for convenience n storage, making the sleigh limber, strong, and durable.

Ox YOKE-W. A. Thompson, West Winsted, Conn.-This invention has for its object to so improve the construction of ox yokes as to diminish their weight and increase their strength and durability.

BEDSTEAD FASTENING .- L. L. Jackson, Paterson, N. J.-This invention as for its object to furnish an improved bedstead fastening, simple in construction, reliable in operation and which will enable the bedstead to be easily and quickly set up and taken down.

SNAP HOOK .- W.S. Furlow, Geneseo, Ill .- This invention has forits obect to furnish an improved snaphook simple in construction, not liable to get out of order, not liable to freeze up in cold weather, and which can be manufactured at a small expense.

AERIAL MACHINE.-J. F. Elston, Elston Station, Mo.-This invention has forits object to furnish an improved machine for navigating the air so constructed and arranged as to be completely under the centrol of the navigator.

FOUNTAIN PEN HOLDER.-J. S. Charles, Omaha, Nebraska.-This fountain pen holder is made in two parts, arranged to move the one within the other, and relatively so constructed that the ink can be drawn in at one end, and from the other discharged and expelled upon the pen, attached or inserted at such cnd.

WELL SEED BAGS.-A. D. Griffin, Meridith, Pa - This invention relates to a method for closing the bore of an oil, artesian, or other well, and thereby stopping off the surface or other water, during the process of boring or working the said wells.

OX YOKE .- C. H. Post, Guilford, Conn.-This invention consists in attaching a hinged metallic plate to the yoke, the end of which engages with the ow in such a manner that the bow is securely fastened thereby

OAE COLLARS .-- Jackson Robinson, Curwinsville, Pa.-This invention consists in supporting and moving the steering oar on metallic surfaces whereby the friction is greatly lessened, and the management of the steering or rudder oar is rendered much less difficult, and consequently the raft is much more easily managed than by the old method.

RADIATORS.-J. A. Marvin, Red Wing, Minn.-This invention consists in forming the flue through which the products of combustion pass, in such a manner that the heat from the stove is compelled to travel a long distance and be retarded in its course and radiated from the surface of the flues and the casing utilized.

WATCHES.-Thos. Baker, New York City.-This invention relates to that class of watches, which are provided with an arrangement of mechanism, for stopping and setting free the second hand, or the hand for indicating half, quarter, or any other fractional parts of a second.

COMDINED BUREAU AND BEDSTEAD .- John Stark, El Paso, Ill .- The present nvention consists in so constructing a bureau, in such a manner, and in parts hinged or hung together, that they can be opened from each other and broughtinto a horizontal position for use as an ordinary bedstead, while at the same time, if so desired, they can be brought into an upright position and shut the one upon the other, forming a bureau, to all appearances, with the

| loaded on vehicles at the foot of the mountains, transported | and are said to be quite plenty and easily procured, | mattrasses and other articles constituting the bedding, encased within the same. |
|--|---|---|
| Indeed on venteles at the foundations, transported to Geneva and thence by rail to its destination. WE are indebted to Mr. H. T. Anthony, 501 Broadway, N. Y., for samples of Lithographic paper, from Paris, which we find excellent for printing photographic pictures. The keeping qualities of this paper render it convenient and valuable. J. H. HALL, 102 Fourth Avenue New York, cured by his patent process; for one man in Cincinnati last year 11,000 dozen eggs. They were so well preserved that the dealer sold them in February as fresh eggs. MESSES. NOTMAN & Co., of Boston, Mass., have sent us some photographic cards which indicate excellent skill in portraiture. National Academy of Science. This association held its semi-annular session in Hartford, Conn., during the past week. A report of their proceedings, which we had prepared, is crowded out of this issue by other matter, but will appear next week. | The largest dye-house in America is about to commence operations in Paterson, N. J. Its appointments are on a very extensive scale and all its arrangements have been made under the direction of a French gentleman, for many years superintendent of the largest dye-house in Lyons, it is believed that 1,600 or 1,200 pounds of silk can be turned out in one day. An exceedingly rich bed of oinnabarhas been discovered about four miles south of San Jose, Cal. There is a solid ledge about twelve feetwide and eight feet thick, between walls of rock, which grows richer as the excavation proceeds. A sudden reduction has been made in the working force at the Springfield Armory, in consequence of an order to reduce the production of breechloaders to two hundred a day. A train on the New York Central Railroad ranfrom Spencerport to Rochester, a distance of 10 miles, the other night, in 9 minutes. The net profits of the Anglo-American Telegraph company for the eleven months ending on the first ult, was more than sufficient to meet the sums of £125000 payable to the company as a first charge upon the working for the year, the sum of £12898 0s. 11d. is carried forward to credit of next year's revenue. Natural soap, it is again announced, has been really found, is probably "fullers earth " avariety of olay which from its unctious touch might easily be mistary of stops. | SWAP-HOOXM. F. Mitchell, Waukau, WisThis snap-hook is so constructed as to be most durable and substantial, and most convenient and service-able. LUBRICATORR. P. Underwood, Brooklyn, N. YThis lubricator is for the spindles and shafts of machinery, and is more especially intended for cotton and spinning machinery. HOLDER FOR REINSPhineas Jones, Newark, N. JThe object of this invention is to provide a simple device, whereby harness reinsmay be securely held, and whereby they will effectually be prevented from slipping out of the hand. SPRING MATTRESERSHenry H. Vere, New York CityThe object of this invention is to so arrange and hold spiral springs in mattresses that the durability of the mattress will be increased, and to do away with the wooden frames now generally used inspring mattresses, that the mattress way be easily handled, and may be reversed and used on both sides. CALCULATING MACHINEA. Mendenhall, Cerro Gordo, IndThe object of this invention consists in constructing a machine by which figures of any desired magnitude may be readily added, subtracted, multiplied and divided. Brop ATTACHMENT FOR EBOULATING THE LENGTH OF STITCH IN SEWING MAONINESGeorge Robinson, Detroit, MichThis invention relates to a new and improved attachment for sewing machine, more especially designed for the Wheeler and Wilson machine, whereby the length of stitch may be regulated or varied as desired, with far greater accuracy and facility than by the ordinary cam attachment now used for that purpose. |

BRICK DRYER.-John McDonald, Saratoga Springs, N.Y.-This invention relates to an apparat: s in which the heat which is used for burning brick is further utilized for the purpose of drying the same.

WATCH -Arthur Wadsworth, Newark, N. J.-This invention relates to that class of watches for the winding and setting of which no key is required, and in which both operations are performed by simply turning the pendant to the watch case.

REVERSIBLE FEED MECHANISM FOR SEWING MACHINES.-Robert B. Stan ton, Oxford, Obio.-This invention relates to a new and improved feed hanism for sewing machines, so constructed and arranged as to be capa ble of being reversed and feed the work either to the right or left on the cloth place, whereby the removal or the work from the machine and the turning of it around at the end of each seam or row of stitching, is avoided.

GANG PLOW.-H. P. Stafford. Decatur. 111.-This invention relates to a new and improved gang plow, and consists in a novel plan or mode of attaching the plow beams to the carriage, and also in a novel arrangement of the beams, mode of connecting them together, and in a peculiar application of a lever for moving them laterally and vertically, whereby the driver or operator has full control over the plows, and a very simple and efficient gang plow obtained.

KNOB LATCH .- George H. Palmer, New Bedford, Mass .- This invention re lates to a new and improved knob latch for doors, ctc., and it consists in a new and improved manner of attaching or connecting the latch to the hub of the door arbor, whereby the latch, in case of the door being closed while the hand of the operator is upon the knob, may be forced back and made to catch into or engage with the nosing, or strike equally as well as if the knobwere perfectly free.

ANIMAL TRAP.-Hermann Belmer, Cincinnati, Ohio.-This invention relate to a trap that is stamped or pressed of wire cloth with a wooden or other bottom, and which has but one entrance or opening. The door to this opening is so constructed that a rat or other animal can easily open it from the outside, and so get into the trap, but when once in the trap it will be almost impossible for the captive to open the door from the inside.

BALE TIE .- L. Littlejohn, New York City.-This metal tie is for securing from hoops on cotton and other bales and packages, and it consists of a stirrup yoke or bale, with an eye at one end and a hook at the other, in the former of which a headed pin is hung that at it its other end is headed, and is engaged with the hook end to the yoke or bale.

PHOTOGRAPHIC CAMERA.-F. E. Wilke, Brooklyn, N. Y,-This invention relates to a new device by which photographic cameras can be set up and down or inclined to any desired gage with great facility.

FULMINATE FOR NEEDLE GUNS.-Büchner & Ebertz, 202 Greenwich st., N. Y. City.-This fulminate is intended for needle suns which are provided with a needle designed to pierce or penetrate the fulminate. It is composed of chlo ride of notassium, sulphur, charcoal, niter, chlorate of notash, antimony, and mucilageor gum in about equalproportions, the office of the gum being to bind the other ingredients together so that they may be formed into elongated, conical, or other shapes, to insert into the rear of the cartridge. The inventors of this composition claim that it is certain fire, leaves no residuum, and is not affected by moisture.

ROLLER COTTON GIN.-J. W. Kokemuller, Bluffton, S. C.-This invention is an improvement on the old roller cotton gin and is designed to obviate the difficulty attending the springing of the rollers, a contingency due to the necessary small diameter of the latter. This difficulty, in connection with that of gearing the rollers so that they may be readily driven, renders the operation of the old roller gin very slow; it performs its work perfectly though slowly, and has not as yet been superceeded by any gin for thorough work, although other gins have operated more rapidly, but with more or less injury to the stock or fiber. This improvement admits of the rollers being rapidly rotated and without the possibility of their springing and without in the least injur ing the fiber or stock.

LUBRICATOR.-Edwin Faull, Maldon, Australia.-The invention has for its object the obtaining a more certain and continuous supply of lubricating matter to the parts of machinery subject to friction and forthis purpose I make the reservoir containing the oil or lubricating matter of glass or other transparent material, having a glass or other transparent conduit pipe through which 1 place a supply cockfor the purpose of regulating the sup ply having a nut at one extremity, for the purpose of permanently adjusting it; below this regulating supply cock another similar one may be placed if desired for the purpose of cutting off the supply when needed, thus dispense ing with the necessity of closing and readjusting the first mentioned cock. The coupling between the glass conduit pipe and the metal should be elas tic to allow for the unequal expansion of the glass and metal

HEMMER FOR SEWING MACHINES .- James R. Haggerty, Hillsdale, Mich. This invention relates to an improved hemmer for sewing machines and consists in a hemmer having hinged edge turners.

BRICK MACHINE.-J. W. Crary, Pensacola, Fla.-This invention possesses novel arrangement for crushing or pulverizing the clay, consisting of the rollers operating with different degrees of speed, whereby a combined crushing and grinding action is obtained which renders the operation of the rollers very efficient.

MOLD FOR CASTING LEAD .- S. E. Chuhbuck, Roxbury, Mass .- This inven tion consists in suspending the box or mold on pivots and applying gearing to the same in such a manner that the box or mold with the plate it contains may be readily united and the plate discharged with the greatest facility.

SECRETARY BEDSTEAD .- J. F. C. Pickhardt, New York City .- This inven tion relates to a new and improved bedstead of that class which admits when not required for use, of being adjusted or folded up so as to reserve a secretary or book case, and when required for use, of being turned down and adjusted so as to serve equally as good apurpose as an ordinary bedstead The invention consists in a peculiar construction and arrangement of parts whereby the bedstead is allowed to fold compactly within a case and still be of ample size even when designed to be occupied by two persons-such as are commonly termed double bedsteads-and the case also besides being or namental, or chaste and neat, is capable of being made of quite moderate pro portions not larger than an ordinary low secretary with book-case on top.

POWER FOR SEWING MACHINES.-L. Curdts, New York City.-Thisrelate to a new and useful adaptation of a clock arrangement, with a spring or weight as a power to the driving of sewing machines. The invention consists in an improved means for controlling the power, a substitute for the pendulum, and n in an improved stop mechanism, and a brake, whereby o plete contro is obtained over the motion, its stoppings and starting and the regulating of its speed being at the will of the operator.

COMBINED PLANTER AND CULTIVATOR.-Jesse Adams, Clarksville, Texas. -The object of this investion is to produce a simple, practical, combined planter and corn cultivator, which sball be easily adjusted and operated, and shall be cheap and durable.

RAILROAD CAR HEATERS .- W. G. Kendrick, Wilmington, Del.-This invention consists in a heating apparatus suspended under the center of a car floor, in combination with certain pipes opening into the outer air, and registers to receive the air entering through and under the car doors, for the purpose of heating the same, and diffusing it when heated through the car, as hereina.ter fully described.

SHIP VIAMETER.-James C. Walker, Waco Village, Texas -In this invention a tube is attached to the hull of the vessel, at or below the water line, through which a current of water is forced by the motion of the ship. At a convenient point in the tube a whecl is placed so as to be rotated by the current, and an indicator in some part of the ship, connected with the axle of the wheel, records the number of revolutions of the wheel, and in consequence the distance traversed by the ship in any given time

TAILOR'S MEASURING INSTRUMENT.-J. M. Krider, Madison, Va.-The instrumenthas an elastic metallic strip andstrap, which encircle the body under the arm pits. Upon the bar is a cross piece, which ranges vertically in front of the left arm ; a movable stud slips upon the meta'lic strip, and is adjustable thereon, and a second metallic strip is adjustable on the movable stud. There are four points of departure on the instrument thus arranged from which measures are made and noted ; and the instrument being detached and laid upon the cloth, the distances obtained are laid down from the points of departure as before, giving on the plane of the cloth the points by which to Pattern Letters and Figures to put on patterns for castings, scribe and cut to fit the figure.



CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sugn their names. We have a right to know those who seek in formation from us; besides, as sometimes happens, we may prefer to an dress the correspondent by mail.

SPECIAL NOTE.- This column is designed for the general interest and in struction of our readers, not for fratuitous repties to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at 50 cents a line, under the head of "Busi-ness and Personal."

IT All reference to back numbers should be by volume and page.

J. E., of N. Y .- You are right in supposing that steam is invisible. What is seen issuing from an exhaust, or above the surface of boiling water, is spray, or water in a finely divided state. There is steam present in both of these cases but it cannot be seen. . . We understand that wood in seasoning contracts in every direction and hence that a seasoned tenon driven int green wood will become loose as the green wood seasons.

A. G., of Wis., would like to be informed how the column of air in front of a bullet can be practically exhausted, so as to secure the ad vantages claimed by Mr. Pardee on page 67. . . . The percussion powder of metalliccartridges is the same as that used for caps, fulminate of mercurv.

T. S., of Idaho, destroys gophers by smoking them out. He takes a length of stove pipe, places near one end of it a grating, and provides the other cad with a closely fitting cover with a hole in it to admit the nozzle of a hand bellows. He sets the pipe on the gopher hole binking it round with earth, puts rags and sulphur on the grating, sets them on fire, fits on the cover, and blows with his bellows. Whatever is in the hole never troubles any one afterwards.

N. T., of Pa.- The substance used to give the crystalline appearance on the somewhat fashionable wedding note paper, is sugar of lead. This paper is a good example of the folly of fashion.

H. W., of Pa.-Wood which has become creosoted becomes denser and tougher. The reason is that the resinous matter of the crossote fills the pores of the wood, and cements the fibers more firmly together The unpleasantsmell of creosote, however, would render the process in applicable for wood which is to be used in doors.

. K., of Mich.-Turbines belong to the class of reaction water wheels. . . . Rubber cloth is suitable for small bell ws and in fact is much used for blowing apparatus. We suggest to you to examine tne bellows of accordeons and melodeons.

J. B. W., of N. H.-Most of the silver plating at present is done by the battery, and you will find that process quite suitable for your purpose.

J. H. C., of N. Y.- The Lawrence Scientific School, (Harvard), SheffleldScientific School (Yale), and the School of Mines (Columbia) and The Polytechnic, Troy, N. Y. are institutions of the highest grade, and of such equal merit, that convenience, expense etc., might be sufficient rea sonsforchoice between them.

R. G. C., of N. Y .- You need have no fear of the aerated bread on accout of the conspicuous part which carbonic acid plays in its manufacture. The pores of the bread contain some of the acid, but its presence is in no way harmful.

C. E. F., of N. Y.-I think your reply to "W. J. B. of Mich," in No. 6 current volume was enormous; for since one cubic fost of water weighs 62.5 lbs., a column of water of one inch sectionalares and one foot h gh would weigh 0.434 lbs., and one of five square inch sectional area and four feet high would weigh 868 lbs., instead of 42 60 lbs. as you state. . . Our intention was to give the weight of a column of water five inches diamet.er and four feet high. We copied from a manual for mechanics, instead of making the calculation, or of directing the inquirer to the professed au thority. Whether they are right or wrong can be easily ascertained by investigation. The full theoretical effect of five square inches of water under four feet head is 0. 25 horse power ; the practical effect will vary from 20 to 90 per cent according to the kind of wheel used.

P. H. of Pa. wants the difference between one square mile and one mile square demonstrated. What demonstration is needed? mile square and a square mile are identical; there can be no argument on this question. When you talk about two, three, four, or more square miles or miles square you change the subject entirely. These paltry arith nal muzzles are rthy th them. Our time and that of our correspondents can be better employed than on their solution or statement H. B. B., Jr., of Manchester, Eng., sends a diagram repre senting a pinion (driver) A, engaging with a gear wheel, on the shaft of which is another pinion, B, engaging with a gear wheel on a twird shaft and asks if it is not necessary that the pinion, A, and its wheel shall be as strong in pitch and width of face as the pinion. B. and its wheel on the third shaft. We reply that the last wheel-on the third shaft-and the pinion which engages with it should be as much stronger as the last whee moves slower than the first. Example: If A makes forty revolutions and the third wheel ten, then the third wheel should have four times the strength of A, because the strain on it is as four to one. C. S. W., of N. H. says:—" In your reply to 'R. S. S. of Ga." in your issue of Aug. 10th referring to a pipe carrying wind from fan to cupola you say that 'when elbows are used they should have four time the sectional area of the straight pipe and asks.' Does this apply to water pipes as attached to force pumps for fire pupposes?" The same law applies to your pumps as to the fan blower, if your pump is centrifugal. The angles will impede the current of the water. If your pump is a cylinder and piston the obstruction will be the same, but it is then simply a question of power to overcome the resistance and the strength of the pipes to sustain it. H. W. H., of N. Y.-We know of no darker colored bronze than Copper, 85; Tin, 10; Zinc, 5.

C. C., of Miss., has a boiler 40 inches diameter, 26 feet long, with two 15-inch flues, chimney 24 feet high and 24 inches diameter. The grate of the turnace is about 18 inches from the boiler, and the passage for the smoke under the boiler is from four to six inches high. The mill is located in a swamp and no good draft can be obtained. Our correspondent asks the reason why, and inquires further for a coment to stop up blow holes in a cylinder. Reply. If you burn wood your grate is too near the boiler. It should be 30 inches from it. The under flue of boiler is of sufficientarea, but if it has no pits it will choke. Your chimney should be at least 40 feet high. The boiler flues are sufficient for 18 feet of grate surface. The draft may be further increased by turning the exhaust steam into the smoke stack. Run it into the stack, turn it up and reduce the end aperture of the pipe to say about two inches diameter. We know of no cementforclosing blow holes in steam cylinders. Your best way would be to drill and tap in a plug with a cement of red and white lead and linseed oil.

J. S. McC. of Ohio.-F. S. of Me., says that small cores for cast iron made of charcoal are very effective. He has used them three-sixteenths of an inch square and four inches long with success.

Business and Lersonal.

The charge for insertion under inte head is 50 cents a line.

etc., etc., are made by Knight Brothers, Seneca Falls, N. Y.

G. M. Danforth & Co., Inventors' Exchange, see advertisment.

New invention. A potato digger which puts the potatoes in a bag and the small ones apart in a box. The original was made by a blacksmith at very little cost, which will be saved by the work on three acres of potatocs. Patent 1 ights sell: C. G. Grabo. Address care of Schober Bro., Detroit, Mich.

Wanted. A man to bore an artesian well. Address, J. C. Burruss, Carrollton, Green Co, Ill, Stating price, etc.

Manufacturers of glass-ware for the use of chemists and druggists, will please send their address and circulars to H. B. Bond, Houma Postoffice, Parish of Terrebonne, Louisiana.

E. Lunsford, Woodbury, Ind., wishes an agency to sell new and good inventions.

Rare chance. Patent rubber tips and fasteners for billiard cues, no chalk " miss cues " or torn cloth. Part or whole of right for sale. E. B. Stocking, Binghamton, N. Y.

EXTENSION NOTICES.

Henry Waterman, of Hudson, N. Y., havin, petitioned for the extension of a patent granted to Fim the 15th day of November, 1853, and reissued the 9th day of July, 1867, for an improvement in safety valves for locomotive engines, for seven years from the expiration of said patent, which takes place on the 15th day of November, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 28th day of October next.

Lanra S. White, administratrix of Jonathan White, deceased, of Antrim, N. H., having petitioned for the extension of a patent granted to the said Jonathan White, the 15th day of November, 1853, for an improvement in uniting shovel blades to handle straps, for saven years from the expiration of said patent, which takes place on the 15th day of November, 1867, it is crdered that the said petition be heard at the Patent Office on Monday, the 28th day of October next.

Robert Sinclair, Jr., and Richard F. Maynard, of Baltmore, Md., having petitioned for the extension of a patent granted to them on the 15th day of November, 1853, for an improvement in feed rollers of straw catters, io: seven years from the expiration of said patent, which takes place on the 15th day of November, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 28th day of October next.

William B. Bates, administrator of the estate of George Wellman, deceased, wheels and yield more of the force of falling water than any other kind of of Manstield, Mass., having petitioned for the extension of a patent granted to the said George Wellman the 6th day of December, 1853, and reissued the 30th day of July, 1867, for an improvement in stripping top flats for carding machines, for seven years from the expiration of said patent, which takes place on the 6th day of December, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 11th ay of November next.

William B. Bates, administrator of the estate of George Wellman, dcceased, of Mansfield, Mass., having petitioned for the extension of a patent granted to the said George Wellman the 18th day of Ma ch, 1856, antedated the 25th day of November, 1853, and reissued the 30th day of July, 1867, for an improvement in stripping top flats in carding machines, for seven years from the expiration of said patent, which takes place on the 25th day of November 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 11th day of November next.

NEW PUBLICATIONS.

A NARRATIVE OF THE CAMPAION IN THE SHENANDOAH VAL-LEV IN 1861, by Robert Patterson, late Major General of Volunteers. Fifth Thousand. Philadelphia: John Campbell.

In this volume General Patterson, while vindicating himself from the aspersions cast upon him for his management of the forces under his command at the time of the first Bull Run battle, has added a very important chapter to the history of our late war. It is a compilation of official reports and tesmony, with just sufficient narrative by the author to give coherency and continuity to the account. A very accurate plan of the country covered by the operations of the first campaign of the war accompanies the volume. Gen. Patterson is one of the wealthiest and most extensive manufacturers in Pennsylvania.

A POPULAR TREATISE ON GEMS IN REFERENCE TO THEIR SCIENTIFIC VALUE: A Guide for the Teacher of the Natural Sciences, the Lapidary, Jeweler, and Amateur. Third Edition. v Dr. L. Feucht wanger. Published

MILK COOLER .- N. C. Burnap, Argosville, N. Y.-This invention relates to an improved milk cooler and consists in a receptacle inserted in the middle of the milk can to receive ice or cold water. It is intended to be used while the milk is straining which is thus cooled by the time the can is filled.

METHOD OF HANGING SWORDS.-VirgilPrice, New York City.-This inven tion consists in securing the plate by which the scabbard is fastened to the belt, by means of a chain, so as to make a flexible attachment which does away with all the straps used to hang officers' swords ; it being as simple as the frog attachment which is generally used for lancy swords by free-mason and others.

RAILROAD SWITCH - Joseph P. White, Savannah, Ga.-This invention r lates to a new manner of arranging a self-setting railroad switch, which is se constructed that the engineer on the locomotive can set the switch, while the train is moving at full speed so that it will enter the required track.

VISE.-J. C. Tate, New London, Conn.-The object of the invention is to provide a vise which can be used for general work in the machine shop.

COTTON CULTIVATOR .- Jesse A dams, Clarksville, Texas.- In this inventio the hoes are made adjustable on a revolving shait, bearing on an adjustable frame.

APPARATUS FOR EXTEROTING ESSENCES .- James C. Walker, Waco Village Texas.- In this investion the extract is made under pressure, and bottled up, the whole process taking place in an air-tight apparatus, by which all the roma is saved.

J. M., of Mich .- We have as yet seen no official list of the awards at the Paris Exposition' Soon as the report is made it will be pub lished.

the Author, 55 Cedar street, New York.

This edition of Dr Feuchtwanger's valuable work is greatly improved by the addition of an Appendix containing a chronological list of works on gems and minerals since the fifteenth century, a table of the characteristics of gems, and the present value of diamonds, precious stones, corals, and pearls. It has also a very life-like engraving of the author and a series of colored plates representing most of the precious stones and ornamental minerals. The treatise is filled with interesting facts.

NED NEVINS, THE NEWSBOY. By Henry Morgan. Fifteenth Thousand. Illustrated. Boston: Lee & Shepard. This is the story of a Boston newsboy wh se checkcred career may be a copy of many others. The p pularity of the story is sufficiently attested in the fact that it has reached ts fifteenth thousand.

ELEMENTS OF CHEMISTRY, THEORETICAL AND PRACTICAL By William Allen Miller, M. D., LL. D., etc. Part II. Inorganic Chemistry. From Third London Editon. with Additions. New York: John Wiley, 535 Broadway. pp. 805. Price §7.50.

Dr. Miller in this edition of his Chemistry adopts the atomic notation, and presents the most recent views of the leaders of the science. The republication of this great work at the present time is very opportune for American students. We have needed just such an authentic and reliable version of modern chemistry. It is the only large treatise extant which fully and fairly can meet the needs of American science. We understand the third and final volume, on Organic Chemistry, will be published in September.