Editorial Summary.

Density of Population.—Even in our most populous cities much more space is allotted to each individual than is ordinarily believed. Over-crowded London allows one square acre of land to every forty of its inhabitants. New York averages fifty-six persons per square acre, Philadelphia only seven. Boston, previous to its late enlargement, was the most crowded city in the United States, but every fifty-nine of its inhabitants, possessed on an average one square acre of land. Taking the area of all the states and apportioning it out to the population thereof, it appears that every seventeen inhabitants have one square mile at their disposal, while in the Territories there are four square miles to each inhabitant. In the year 1865, Belgium, England and Wales, and France, had three hundred and ninety-seven ; three hundred and sixty-seven ; and one hundred and seventy-six inhabitants to the square mile respectively. If the United States was as densely populated as the former of these three countries, its inhabitants would number, 1,195,000,000, which is a little difference of one hundred and eleven millions of people, above the entire population of the world.

Napoleon's Needle Gun.—The Emperor, author, and architect has again appeared as an inventor. In his ostensible desire to prepare his nation for the maintainance of a vigorous peace, he has contrived a new gun concerning which nothing is really known, but reports affirm, is the most terrible weapon yet invented, a single discharge being expected to destroy a battalion. The workmen who are engaged in manufacturing this arm, are never allowed to leave the premises being locked up night and day, the Emperor himself keeping the key. In the trials, the cannon, carriages and ammunition are brought in leather valises, and the firing takes place behind a screen of boards. It is known that at 8,200 feet, the balls pierce an iron plate eight-tenth inches thick. Each cannon fires twenty shots in a minute and two men suffice for the transporting of the field piece with its carriage, ammunition, etc. Says a French notice of a late trial, "a clump of trees five thousand feet distant, were mowed down in a few minutes, like a grain field by a steam mover. It was positively frightful."

Iron Sand.—One of our exchanges lately noticed the discovery of finely divided particles of ferruginous sand in unlimited quantities upon the seashore of New Zealand, and in a very non-commital style adds, "it is announced that a process has been discovered, by which this sand may be converted into use." Wherein the novelty of this discovery lies we have failed to discover. The existence of this iron sand, is nothing new, and the direct manner of smelting it, is simple enough and has been practiced for years. Iron ore, finely comminuted and probably resembling this sand, is used in its natural state without previous smelting, in forging iron faggots.

Tenacity of Life.—A large flowered and fleshy plant which flourishes in British, Columbia, Oregon and California, possesses a most astonishing tenacity for life. Botanists have great difficulty with the plant for it will revive after being dried pressed and lain in a herbarium for several years. Dr. Lyall once immersed a species of the plant in boiling water to stop its growing propensity, yet more than a year and a half afterwards it showed symptoms of vitality, and in May 1863, produced its beautiful flowers in the Royal Gardens at Kew.

An India-rubber Tongue.—A Paris coachman having lost his tongue by amputation—considered necessary because of a cancer thereon—a surgeon of the Hotel Dieu replaced it with with one made of India-rubber. Although, like old dog Tray, "he cannot speak," he tastes and smokes his pipe with apparent enjoyment. After eating he takes out his tongne, cleans it, and carefully lays it away in his pocket until it is again called into requisition.

Photoperipatetigraph.—This is a contrivance which is bound to bring itself into notice on the strength simply of its name, and independent of any merit it may or may not possess. A Missourian photographer is the originator of this abreviated cognomen, and the contrivance is a dark closet mounted on wheels and containing all the apparatus required for out-door photography.

Bottles Hermetically Sealed.—Gelatin mixed with glycerin yields a compound, liquid when hot, but becoming solid by cooling, at the same time retaining much elasticity. Bottles may be hermetically sealed by dipping their necks into the liquid mixture, and repeating the operation until the cap attains any thickness required.

A new French coin.—In carrying out the project of making a unification of gold coins of different nations, the French government propose soon to issue a new coin of the value of twenty-five francs, which will nearly correspond with ten Austrian florins, the English sovereign, and the American five-dollar gold piece.

New Postage Stamps of four different styles are being prepared in Paris for the Egyptian government. The first denomination has on its face an engraving of the pyramids ; the second, a representation of Cleopatra's needle ; the third, a picture of Pompey's pillar; and the fourth, a vignette of the Sphinx. Stamp collectors will take notice accordingly.

In Ceylon there is a fig tree 2,155 years old, having been planted 288 B. C. Its history from that date is preserved by both documentary and traditional evidence.

Aerial Perspective.—The appreciation of distance and magnitude of objects is entirely a matter of training or education. From greater practice, most people can better judge of objects on a plane than of aerial magnitudes. Thus, to one observer the full moon appears many feet in diameter, while to another it seems but a few inches across. We are reminded of this fact, in connection with the testimony concerning the late boiler explosion in this city. No two witnesses of its aerial flight agree as to its apparent size while in the air, but indulge in such wide comparisons as likening it to a hat, a hogshead, a nail or a barrel. With such vague testimony, an interesting point as to how high the boiler was thrown, it seems can never be determined.

New Application of Photography.—Corridi has ingeniously contrived an apparatus by which a ship's course is accurately registered during the entire voyage. In place of the symbol on the card of the vessel's compass indicating north, a hole is punctured and a small lens inserted. Through this the light passes, and acts upon a roll of sensitized paper, made to move with a regulated speed by clockwork. The paper continually changes its position with the ship, but the lens is ever maintained in the magnetic meridian ; hence the deviation of the vessel therefrom is recorded.

Fly Paper.—In consequence of the sometimes fatal effects caused by the use of paper prepared for the destruction of flies, a cotemporary suggests a substitute which is devoid of danger, and though effective in its working, shows mercy to the entrapped. It is formed by moistening blotting paper with a concentrated solution of quassia. The prepared paper is moistened with water, the unsuspecting victims being attracted to it in great numbers for the purpose of quenching their thirst, but soon appear to be struck dead, and may be easily destroyed before the effects of the anesthæsia has passed off.

Cranial Capacities of Man and Monkeys.—Dr. Bischoff, of Munich. has just published a series of lithographic plates, comparing the skulls of the gorilla, chimpanzee, and orang-outang. From a measurement of thirty-five crania, he found the maximum internal capacities to be of the gorilla, 28·37 cubic inches ; chimpanzee, 28·07 cubic inches ; orang-outang, 35·07 cubic inches. The last is said to be the largest monkey skull ever brought to Europe. The human skull has rarely, if ever, a capacity of less than 65· inches, and attains its maximum in 114 inches cubical capacity.

Fossil Ivory.—From New Siberia, about forty thousand pounds of fossil ivory, or the tusks of at least one hundred mammoths, are annuully procured. Notwithstanding the enormous amount already carried away, the stores of fossil ivory do not appear to diminish.

A Fire-proof Dress.—Mr. Champy has invented an ingenious form of fire-proof dress. The clothes are woolen, but the waist belt is in connection with the fire engine, and being provided with a stop cock, the wearer can instantly saturate himself with water.

Change of State and Conducting Power.—Common salt, or chloride of lead, in a state of igneous fusion, are excellent conductors of electricity ; when allowed to cool after being thus fused, they completely prevent the passage of electricity.

We are indebted to John A. Whipple, the distinguished photographer of Boston, Mass., for a couple of very large and beautiful marine views, containing portraits of the Cunard steamer *Java* and the U. S steamer *Guerriere*.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

There are 341 manufacturers of false teeth in the city of Paris

By the 1st of November the Union Pacific railroad will be completed as far as Cheyenne City, Dekota Territory, at the base of the Rocky mountains. This is the point of intersection of the Denver branch railroad—from which place it is distant one hundred and twelve miles—the distributing point for Colorado mines, and the general depot for all parts on the Fort Laramie, Fort Reno and Montana roads.

The sugar product of Brazil, according to the report of the English Consul, Mr. Morgan, though formerly almost entirely the product of slave labor, does not appear to have suffered from the abolition of slave traffic. Last year's exports amounted to 48,000 tuns, while the average of the preceeding twenty-five years was only about 41,000 tuns.

The aggregate production of gold in the world for eighteen years past, is $3,341,500,000, of which the Pacific States and Territories yielded nearly one third, while Australia and New Zealand produced nearly one fourth.

Sixty-one trains are run daily between London and Manchester, one half being run in excess of the requirements of the traffic. The excess of train miles is upward of two millions and the cost of running them over £235,000 a year.

Steel Pen Manufacturers in Birmingham employ 380 men and 2,000 women and girls ; 98,000 gross of pens are turned out weekly, in which ten tuns o steel, worth $15,000 are used. Thirty years ago these pens sold at 5s. per gross, they now bring only 1½d. to 1¾d.

The manganese mine at Red Rock, in San Francisco bay yields ore in sufficient purity to warrant its working, a fortune which has attended the working of no other manganese mine in the country. In three weeks five miners extracted upward of sixty tuns of first-class ore the market price of which is $80 per tun. The ore is extracted by contract at $10 per tun, the contractor agreeing to pay all expenses, from the raising of the ore to its delivery at San Francisco.

An oil bearing stratum three hundred miles square, has been discovered not far from the city of Pekin, China.

The sulphur mines of Italy are producing 800,000 tuns per annum. representing in a crude state, a value of $6,000,000. The greater part of this supply comes from Sicily. The separation of the sulphur from the gangue is always affected by liquidation, the necessary heat for the fusion being obtained by burning a portion of the ore ; by this method only. ten of the 80 parts of sulphur is obtained pure.

Mr. Ransome has made many grindstones, from the artificial stone that bears his name, and they are found to be of a perfectly uniform quality, but wear faster than ordinary stones. By increasing the proportion of silicate o soda, and by some other unimportant changes in his process this fault has been partially remedied.

A train on the Northwestern Railroad, in the western part of Iowa, was a few days since delayed one hour and a quarter by grasshoppers, which covered the track so thick that the engine drivers slipped on the rails.

The London underground railroad has carried in six months' time over 12,000,000 passengers, or about three times the population of London. The actual number transported over the line since its opening in January 1863, is about 70,000,000. The line is only three and three quarter miles long ; and was constructed at an enormous cost, but makes annual returns in dividends of from twelve to fifteen per cent.

Since the year 1812 when the first load of anthracite coal was taken back to Philadelphia and given away, the production consequent upon an extended demand has increased with great regularity, and now it reaches from ten to twelve million tuns a year. It is estimated that in ten years it will have reached the enormous annual production of twenty million tuns.

It is stated on good authority that there are some 3,000 pianos rented to parties in this city. One firm alone hires out one thousand which yield them an income of $80,000 yearly.

A Chicago firm advertised certain agricultural implements in a Buenos Ayres paper as an experiment. The result was an order from that country for $30,000 worth of the goods.

A coach car built upon the English plan, will soon be put upon the New London and Worcester railroad to run in connection with the old Norwich steamboat line between Boston and New York. The car contains seven compartments, which are finished in sumptuous style, and cost $18,000.

The city of Waterbury, Conn., has manufactories for making cutlery, clocks, iron and steel rollers and machinery, jewelry and its rolls, hosiery, hardware, pins, percussion caps, flasks, brass goods of all kinds, lamps and trimmings, buttons, buckles, hinges, books, paper, boots and shoes, brooms boxes, cartridges, fire-arms, curtain fixtures, mattresses, yarns, thread, bats carriage trimmings and hardware, oil burners, coffins, confections, cigars soaps, crackers, daguerreotype plates, mats and preservers, springs, rails, collars, eyelets, escutcheons, furniture gas burners and pipes, silver ware, hair-pins, hooks and eyes, leather, locomotive tubes and flues, lamps, medals, military ornaments, cloths, nails, reticules, shears, suspenders, wires, carriages, whips and thimbles. We know of no place which produces a greater variety of manufactures.

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

Stretcher for Drying Hose.—Sylvester J. Wright, Ellsworth, N. Y.—This invention has for its object to furnish an improved instrument by means of which hose may not only be kept from shrinking while drying after being washed but may also be shaped to the foot or leg.

Device for Holding Sheep while being Shorn.—Webster Ellyson, West Branch, Iowa.—This invention is designed to furnish an improved apparatus for holding sheep while being shorn and it is formed by the combination of the platform having hinged ends, hinged adjustable side boards, supporting racks, straps, loops lever pawls, catches and boxes so constructed and arranged that the sheep may be securely held and its position easily and quickly changed as required for shearing each part conveniently.

Animal Trap.—Silas Ward, Richmond, Ill.—This invention has for its object to furnish an improved trap for catching rats, mice, ground squirrels, quails, etc., which shall be cheap, simple in construction, not liable to get out of order, and which shall be self setting.

Cultivator.—J. H. Barley, Sedalia, Mo.—This invention has for its object to improve the construction of cultivator patented by the same inventor Sept. 4, 1866, so as to make it more convenient in use and more effective in operation.

Wagon Tongue Support.—O. Lapham, El Paso, Ill.—This invention has for its object to furnish an improved means for supporting the tongue so as to relieve the horses from supporting its entire weight.

Window Shade Fixture.—William Campbell, New York City.—This invention has for its object to furnish an improved device by means of which the spring roller of a window shade may be made to hold the shade stationary at any desired elevation and yet allow the shade to be drawn down or rolled up without obstruction or stoppage as far as may be desired.

Manufacturing Hay Forks, Manure Forks, Etc.—George B. Ely,—St. Johnsbury, N. Y.—This invention has for its object to furnish an improved machine by means of which the proper form may be given to hay and manure fork tines by drawing them out by the action of rolls having grooves the necessary shape formed in them.

Land Rollers.—George R. Burt, Perry, N. Y.,—This invention has for its object to so improve the construction of land rollers as to make them more convenient and effective in operation.

Cultivator.—J. W. Connely, Charleston, Ill.—This invention has for its object to improve the construction of the cultivator patented by the same inventor February 19, 1867, and numbered 62,185, so as to make it more satisfactary and effective in operation.

Car and Omnibus Fare Box.—John B. Slawson, New York City.—This invention relates to a fare box for cars and omnibuses, which is so arranged that the lamp is altogetner out of the way of the fare box, so as not to obstruct the inspection of the contents of the box, and so that by the lamp sufficient light is thrown into the fare box and upon the money trap to completely illuminate the same.

Machine for Pouncing the Brims of Hats.—P. W. Vail, Newark, N. J.—This invention consists in so arranging the brackets and pouncing roller between which the brim of the hat body is fed, that both sides of the same may be pounced at once. The feed rollers as well as the pouncing rollers are adjustable up and down, so as to expose the brim to more or less pressure, as may be desired.

Thill Coupling.—Lyman Derby, New York city.—This invention relates to a new and improved mode of securing thills to axles, whereby the former may readily applied to and detached from the latter, and at the same time a secure connection be obtained—one that will not admit of a casual detachment of the thills from the axle.

Head Rest for Chairs.—Henry Snowden, Baltimore, Md.—In this invention the head rest is supported on a universal pivot, and is fixed upon sliding adjustable rods, to as to be capable not only of turning in every direction, but also of being extended forward, backward, laterally, or vertically, and instantly clamped in the required position by a single movement of one set screw.

Horseshoe.—Albert S. Wilkinson, Pawtucket, R. I.—The subject of this invention is a horseshoe constructed with a continuous sole of india rubber or similar elastic material, serving to relieve the horse or other animal from danger of slipping and from injurious and uncomfortable concussion of the feet when traveling upon hard roads.

Fire Extinguisher for Vessels.—Daniel Spooner, Lowell, Ohio.—The object of the invention is to draw water from beneath a vessel and elevate it to any part of the ship, for the purpose of extinguishing fires, by means of the direct action of steam.

Window Blind.—C. K. Marshall, Vicksburg, Miss.—This invention relates to a new article of manufacture, and consists in the construction of window blinds with metallic slats.

City Car or Omnibus Money Box.—John Blackadder, New Orleans, La.—This invention consists in arranging reflectors in a city car money box in such a manner that the fare deposited can be seen by the passengers and by the driver, and also in arranging a wheel so that the fare deposited can be deposited in a drawer by the driver.

Attachment for Cook Stoves.—Jeannette Garrison, New York City.—This invention consists in applying a screen to the upper part of the fire chamber of a cook stove between the fire chamber and the top flue in such a manner that coal, cinders, etc., will not be allowed to pass into said top flue and pass down into the diving flue and choke up the same, a contingency of very frequent occurrence and which occasions a great deal of inconvenience