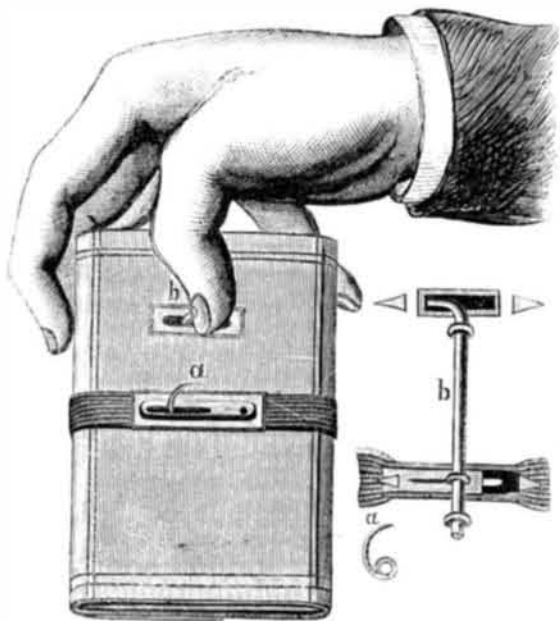


WEBER'S SAFETY POCKETBOOK.

Not only visitors to our large cities, but the regular inhabitants have frequent cause to deplore the skillfulness of the professional pickpocket, who so adroitly relieves them of their pocket-books, generally without alarm or detection. The engraving, however, shows a very simple means of balking their skill and protecting the citizen's money. Under the clasp, which retains the elastic strap in place, is a curved needle, seen at *a*, which is secured to a wire bar, *b*, in the smaller figure, inside the wallet cover. The other end of the bar is bent at right angles and terminates on the outside of the porte-monnaie in a small knob, which works in a slotted guard, *b*, in the large figure. The point of the curved needle projects through the central guard at *a*.



The operation is simple. When the pocket book is to be placed in the pocket the thumb presses against the knob, *b*, and the needle is turned back until its point is below the surface of its guard; the thumb is then withdrawn, and a spring on the inside of the book cover throws the curved needle forward, engaging with some portion of the pocket or clothing and securing it in a loop. Now, unless the knob is pressed back, the book cannot be removed from the pocket, at least, without alarming its possessor.

This ingenious device was patented April 2, 1867, by Theodore A. Weber, who can be addressed care U. Herrmann & Bro. 159 Pearl street near Wall, New York city.

Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents.

"Running Down" the "Dunderberg."

MESSRS. EDITORS:—When the English journal *Engineering* by error assigned to Captain Ericsson the design of the *Dunderberg*, it was made an occasion to declare this vessel a "weak monstrosity;" when she was sold to France this was made an occasion to impeach her prowess and ridicule her purchasers. The last paper ball fired at this persistently abused vessel was by the *Army and Navy Journal* in its issue of June 29, 1867. If there is then, anything in the tone of the present article seemingly harsh, let it be viewed in the light of those persistent misrepresentations; let it be viewed in the knowledge of persistent efforts to glorify Mr. Ericsson's monitors and defame any ship of any other man. Then to the subject. The *Army and Navy Journal* tells us: "The broadside vessel is a style of iron-clad which we have uniformly pronounced inferior to the turreted monitor. . . . The 9-inch Woolwich rifled gun, a very common gun in England, at moderate range, would certainly penetrate the 3½-inch armor of the *Dunderberg's* casemate, and probably go through both sides into the sea." Now the SCIENTIFIC AMERICAN says, page 173: "The *Dunderberg's* casemate sides and ends are inclined inward for the purpose of 'shedding' the shot fired against it, and plated with armor plates 28 inches wide and 4½ inches thick, extending in one section the entire height of the casemate." So there seems one inch more of solid iron than the *Journal* gives credit for. Then the *Journal* gets 7 feet of soft timber into the *Dunderberg's* casemate, in order to afford its shells chance for "maximum destruction," when other accounts put the 7 feet of timber as well as the 3½ inches on the vessel's sides proper. Is the *Journal* merely innocently "in error" or "wilfully misrepresenting?"

Further on we quote: "The *Tennessee's* armor was not only much thicker than the *Dunderberg's*, but was backed by more solid timber," etc. The report of Captain Jenkins and others on "Survey of the rebel ram *Tennessee*," of August 13, 1864, says: "The plating at the casemate sides is 5 inches thick, consisting of two 2-inch and one 1-inch plates, about 6 inches wide. The backing was yellow pine, 13 inches, placed vertically; outside planking of yellow pine, 5½ inches thick, placed horizontally, and outside of this a layer of oak 4 inches thick, bolted on vertically, upon which the plating is secured." In all say 22½ inches mixed timber and 5 inches laminated armor in plates only 6 inches wide.

The *Dunderberg's* casemate has 4½ inches solid hammered plates 28 inches wide (which are certainly equal to the laminated armor of the *Tennessee*), and three courses of timber each one foot thick, say 36 inches of timber (which are certainly a little more than equal to the backing of the *Tennessee*)—so this assertion is "curiously the reverse of the fact."

Then the *Journal* tells of the "15-inch shot fired at the *Tennessee*, instead of being fired at point blank range, was fired at a considerable elevation, and struck not fair and square, but at an acute angle with the casemate, and even at an acute angle with the length of the vessel." Official reports do show that a certain Captain Nicholson, of the *Manhattan*, claimed all sorts of havoc committed by his 15-inch shot, but the survey of Captain Jenkins rectified some of this "fearful" havoc. In 2 hours and 52 minutes the *Manhattan* fired just 11 times, whereas the *Winnabago* fired 56 times in 2 hours and 30 minutes, the *Chicasaw* in about the same time fired 12 times, and the survey aforesaid showed more "fearful havoc" by the 11-inch balls of the *Winnabago* and *Chicasaw* than by the 15-inch balls of the *Manhattan*. Only two 15-inch balls are claimed as effective; one went through the armor, the other indented it (as per Captain Nicholson's report) so that Captain Jenkins and others did not find the indentation, for they do not mention it. Now does not the *Journal* get the two 15-inch balls "mixed"—did not the one that was fired at considerable elevation, at an angle, etc., as stated above, only graze the armor, and was not the ball that went through really fired "fair and square?" It looks too much so to be otherwise.

Then the *Journal* persists: "A single well directed shot, even if it took an hour to fire it, would pierce the *Dunderberg* * * *, while the latter might be firing her guns once a minute, if she liked, for an hour, without being able to enter such monitors as the *Puritan* or *Kalamazoo*." It is proposed to accept these odds. The *Dunderberg* fires for an hour, the *Puritan's* turret has an hour to get jammed (and certain official reports show that it does not take an hour to so get them), the pilot house has an hour to be pounded out of true, and its supporting spindle to be strained so as again to jam the turret; then there is the hour to jam a port stopper—in short, an hour in which any one of the numerous authenticated ills may befall the "rotating turret" which disable the ship. But even at the risk of imputation of cruelty, it is proposed to pour a single well-directed shot into the *Puritan* in the following manner. Aim to strike square about 2½ feet below load water line, if the swell of the sea only once in an hour favorably exposes the side armor of the *Puritan*, then the *Dunderberg's* single well-directed shot meets two 1-inch plates of iron and four feet of wood, and just beyond the boilers! It is not proposed to send the ball entirely through.

The *Dunderberg* carries an armor of 3½ to 4½ inches solid iron on the entire side to a depth of six feet below the water line, placed at an inclination, backed by seven feet of timber; the *Puritan* has laminated iron—six one-inch plates—extending but one foot below the water line, and then receding at the rate of one plate for every six inches of depth, backed by four feet of timber. Which is the better, or to put in other words, which isn't a swindle?

The English *Bellerophon* carries her solid 6-inch plates six feet below load water line, and here is the boasted, puffed monitor fitted with a sham protection that does not need a Woolwich 9-inch gun to "certainly penetrate it." To hold the *Puritan* or any other monitor to be an immaculate conception is an Ericssonian assumption. The interests of John Ericsson, Esq., are not always those of the nation—the *Puritan's* side armor shows it. To boast of the monitors as our accepted "war vessel," is to remain in the past. Happily, republics are ungrateful enough to keep on regardless of individual interests. In our infancy we may have petted these things over much; in our riper day it becomes us to consider that nothing, even nothing is perfect, save the illustrious vanity of certain inventors.

When the little *Monitor* drove back the *Merrimac* we felt gratitude to the great engineer; she was a good ship to fight in. When she buried herself and part of her gallant crew, we buried a part of our gratitude; she was a bad ship to sink in. Every blow that jammed a turret, or strained a spindle, or broke the turning gear, undermined a great Ericssonianism—the rotating principle—and the first design that gives us a vessel strengthened by her turret, not subject to derangement in her battery, not endangered by that ever awkward turret deck joint, the first such design that gives equal offensive prowess of battery, will apply the principle of rotation in office to the rotating principle of the Ericsson turret.

Progress never sleeps, and this country will progress, and in spite of the *Army and Navy Journal* or any of its pet notions. G. P. HERTHEL, JR.

To Prevent the Ravages of Bolt Eaters.

MESSRS. EDITORS:—I notice in your valuable paper an answer to inquiry in No. 23, Vol. XVI, of E. W., of Pa., by J. Allen, of Grafton, Ill., how to prevent the bug from destroying his bolting cloths. I have had quite a good deal of trouble from the same cause in my own mill. I first tried to prevent the ravages of the bug by giving light to the chest by putting glass around it and muslin doors; their deeds being evil, I thought they would require darkness. The result was profitable, but not radical. I next procured wire cloth, so fine that those bugs could not get through the meshes, covered a reel, and bolted the chop through this bolt just before entering the silk cloth reel. Thus the bug never gets into the reel; it also prevents any hard substance from injuring the silk cloth. I have a smoothly made barrel at the end of my wire bolt, where I can catch hundreds of them, as they can not crawl out of the barrel. Mr. Allen's plan of running bolts rapidly when empty may be a partial remedy, but when the bug once gets into the reel it is certainly difficult to bolt him out, as he holds tenaciously to the cloth in the vicinity of the rib, and at that point bores through to release himself from prison. I hold to the doctrine most emphatically that an ounce of prevention is worth more than a pound of cure. If E. W. will come to Miamisburg he can see my arrange-

ment, which I know is effectual, in an old mill where any quantity of bugs are hatched, besides seeing one of the prettiest countries in the United States, with a harvest unsurpassed in quality and good in quantity in wheat, rye, oats, and flax, abundance of all kinds of fruit, with a good prospect for corn and tobacco. JACOB SHUEY. Miamisburg, Ohio.

The Mechanical Question.

MESSRS. EDITORS:—In reading the "mechanical question" of your correspondent H. H., page 50, I am at a loss which most to marvel at, the complacency of your contributor, who seems to be both imperfectly acquainted with the rules of simple arithmetic and profoundly ignorant of the nature of the mechanical laws he professes to manifest such contempt for under the name of "theory," or the superficial nature of your reply. His statement is briefly this:—Take an inclined plane having a length of 4 feet and a height of 4½ inches (or else a base of 4 feet and same altitude; it is difficult to make out which he means, but the result would not be materially different), then 100 pounds resting on the plane can be balanced by 8½ pounds power. He speaks of "ocular demonstration." The thing is simply absurd. The testimony of individuals, or crude and careless experiments, can have no weight with any intelligent mind against that of absolute laws. He may indeed place his inclined plane upon a rickety table not beveled up, and imagine he has a rise of 4½ inches when the actual lift may be perhaps 2 or 3 inches. But accuracy is as necessary in conducting "practical experiments" as in working problems, and he who fails in the latter and treats arithmetic with contempt may well be suspected in his attempts at the former. I give the problem, (*l* being length; *h*,

height of plane; *P*, power, and *W*, weight). $\frac{P}{W} = \frac{h}{l}$. $P = \frac{W \cdot h}{l} = \frac{100 \times 4.5}{48} = 9.375$ pounds (or in case 4 feet represents the base of his plane, $\frac{100 \times 4.5}{48 \cdot 21} = 9.334$ pounds). To move the

weight would require considerably more, of course—experiments to the contrary notwithstanding. Let me add that the laws of mechanics were first deduced from multitudes of careful and accurate experiments—not from theories, which on the contrary were against them, as Galileo found to his cost while verifying this very principle of the inclined plane. Washington, D. C. H. H.

Siberian Marmots.

MESSRS. EDITORS:—In your Scientific Magazine of the 27th April there was a receipt to destroy rats by injecting into their haunts sulphuret of carbon in vapor. We have here an immense quantity of little animals about the size of rats which live in the ground, they lie dormant all winter very deep in their holes and in the summer they are destructive to the grain crops, particularly wheat, they are called "siberian marmots." Would some of your correspondents be kind enough to tell us how they can be destroyed? If by vapor from what the vapor is produced, and by what means it can be injected into the ground as their runs are very extensive running out of one into another for a great distance and for about three feet from the surface perpendicularly. WM. COWLEY.

1½ June, 1867. Nicholas Plain, Kharkoff, Little Russia. [The marmot belongs to the squirrel family; the American wood chuck and gopher are varieties which closely resemble in their habits the European marmot. If the outlets of the holes are guarded, it seems very likely that a good dose of bisulphide of carbon would destroy the pest. Bisulphide of carbon is a very volatile liquid, and if it were poured into the marmot holes, its heavy vapor would immediately penetrate into all their ramifications.

Our readers will observe the peculiar method of expressing the date of the letter. The Russians still adhering to the unreformed calendar or old style are twelve days in advance of our reckoning. Our 6th of June was their 18th. Little Russia is one of the departments of Russia in Europe and Kharkoff is a province.—EDS.

Mysterious Boiler Explosions.

MESSRS. EDITORS:—There have been three mysterious boiler explosions in this city within two or three years, all in the same mill. First, that of a four-flued boiler, which had been in use two or three years, when one of the owners passed through the engine room a few minutes before the explosion, and noticed the water running out of a leaky gage, and believed there was plenty of water in the boilers.

They then put in two double-flued boilers, with glass water gage in addition to the usual gages; water connection in the form of a large mud receiver, with large pipes from the boilers down to the mud receiver. It ran about a year and blew up, killing the engineer, so there was no evidence in regard to the state of the water, but it is supposed that with the glass water gage he could not very well be deceived.

The mill was rebuilt, with two more boilers, water connections the same as before. The steam connection was the pipe for conveying steam to the engine. In both the last explosions the boilers next the brick smoke stack were blown to pieces, while those next the engine remained whole, except the damage caused by being thrown out of the building. The engineer says that by the indicator he had between 45 and 50 pounds. It had been higher but it was working down. He tried the water and found it well up; stepped out to get a drink and away it all went.

Many suppose that some peculiarity of the water causes it, there being indications of oil or something of the sort near by, where they are boring for oil. But if this is so, why should not other boilers in the vicinity be troubled in the same way?

Editorial Summary.

There were no water gages in the boiler next to the chimney; the breeching that conveyed the smoke from the flues to the stack, running into the chimney not very high above the boilers. If the breeching was not very large, would not the boiler nearest the chimney have the strongest draft through its flues, consequently make steam the fastest, while the engine, through a small pipe, was drawing off steam as fast from the boiler nearest to it as from the other? Would not the boiler with the best draft make most steam and push the water down through the large water pipes up into the other boiler faster than a small steam pipe connection could equalize the pressure, at a time when the engine was drawing its steam through this pipe, thereby causing the boiler nearest the engine to show water at its gages, while but little water remained in the boiler nearest the chimney? If this is so, would not large steam connections (steam drum for instance), remedy it? Or running the breeching perpendicular for a distance before turning into the chimney so as to equalize the draft, be a remedy? C. G.

Beardstown, Ill.

[This may be a series of "mysterious" explosions, but we are inclined to think otherwise. The only mystery is that the explosions did not follow one another more rapidly. It seems strange that any competent engineer should arrange boilers in the way described. If we had full data, such as the size of the boilers, amount of grate surface, area of breeching, and area and height of chimney, size and length of steam pipe, size and speed of piston, we think we could show conclusively the cause to have been the water leaving one boiler for the other; at least such is our present opinion. An expert examining the exploded boilers could have determined, probably whether there had been a lack of water or not.

The boiler next the engine would naturally have the greatest draft of steam from it, especially if the common pipe was small. The boiler next the chimney would have the best draft unless the breeching was large; hence, a greater pressure upon it. It would require but half a pound difference in pressure to change the level of the water nearly one foot, which would leave the flues bare.

Water connections should always be arranged with checks, so that the water could enter but not leave the boiler; this is a cardinal point. No boiler should be without gage cocks, glass gages, and low water indicator and reporter. Had there been a good low water reporter attached to these boilers these accidents would not, in all probability, have occurred. The mud receptacles should have been independent, having each no connection with the neighboring boiler. It would be well to run partitions in the breech or conveyer to the chimney from one boiler to another to equalize the force of the draft. —EDS.]

A Question.

Messrs. Editors:—Suppose a chain composed of three links, the whole outside-to-outside measure of which is twenty inches, the links being made of 1½-inch-diameter round iron, and a single link made of the same size iron and having the same length as the chain made of three links. Would the single link be as strong to resist the strain of a train of cars stretching up as the three links? If not, why?

If there is any difference in favor of the three links then I think it would have to be the result of the six ends each springing a little or being more elastic than the two ends of the single link. But again, unless very carefully made, there are more chances of tearing or breaking one in three welds than a single weld. If the single link is not as strong, made of the same iron, how much heavier ought it to be made to be as strong? WM. WEILES.

New York City.

An Invention Wanted.

Messrs. Editors:—One article which is of more importance to the laboring people of the United States than any other, would be a neat wooden shoe with a flexible sole. It ought, it can be invented. It now costs from ten to twelve dollars per year for each laborer's shoes; two pairs of wooden shoes, or \$2½ per year ought to shoe our laborers. H. E. L.

New Jersey.

VALUE OF ADVERTISING—ITS IMPORTANCE, AND HOW TO DO IT.

In establishing a new business, advertising is indispensable to success. To increase or keep up an already established business, money cannot be so well expended as in judicious advertising. It is important to select mediums for advertising where the circulation is to be among the class of readers most likely to patronize the article offered for sale, and it is cheapest to advertise in papers of the largest circulation.

The SCIENTIFIC AMERICAN has a weekly circulation of over 32,000, which is probably more than ten times greater than that of any other publication of its kind in this country, and four times greater than the aggregate number of all similar publications, both weekly and monthly, issued on this continent.

As an advertising medium for the sale or purchase of machinery, patents, water powers, proposals for construction of bridges, situations for engineers, draftsmen, etc., we believe that the SCIENTIFIC AMERICAN is unequalled, and that the advertiser will derive a larger profit for the amount disbursed, by making his wants known through the advertising pages of this paper, than in any other way.

Messrs. Witherby, Rugg & Richardson, manufacturers of wood-working machinery, whose advertisement may always be found in our columns, add the following postscript to their last letter to this office:

"We consider your valuable paper worth to us more than all other sources of advertising."

This is a specimen of the expressions of appreciation we are receiving daily from all parts of the country.

EFFECT OF LIGHTNING ON WIRES.—When the electric fluid is passed through a wire, undulations of the latter are produced, and the wire is momentarily shortened. This shortening was first observed by Nairne, but no satisfactory explanation of the phenomenon has ever been given. In a paper addressed to the Academy of Sciences by M. P. Leroux the subject is examined anew. Operating on wires left entirely free at their nether extremities, the undulations were quite apparent, but their order was so irregular, and they assumed such a variety of shapes that no rule could be laid down regarding them, but M. Leroux observed that the temperature caused by successive electrical discharges was not without influence upon them, and he concluded that the phenomenon alluded to involves in its explanation no new principle, and is simply a question of temperature. As the heat engendered by the discharges increases, the wire tends to expand in length by dilatation, but simultaneously and from the same cause there is a tendency to increase in diameter, and it is to this double molecular action the undulations must be ascribed.

ENCOURAGING, VERY.—J. R. Glover writes to the New York Farmer's Club, that he has been so engaged in his experiments in hatching eggs artificially that he has not had his clothes off more than two and a half hours in any of the twenty-four for the last three months. The results of his persevering labors he sums up as follows: "I have used about 1,600 eggs, and I have now on hand, in good condition, sixteen chickens—just one chicken to one hundred eggs." Still he believes the thing can be done, if we only knew how.

THE FEMALE SKULL, according to Wecker, is smaller than that of man, both as regards horizontal circumference and internal capacity, and the weight of the brain is correspondingly less. It may be said that the type of the female skull approaches in many respects that of the infant, and in a still greater degree that of the lower races. With this is connected the remarkable fact that the difference between the sexes, as regards the cavity of the skull, increases with the development of the race, so that the male European exceeds the female much more than the negro does the negress.

MINERS' LAMPS.—Notwithstanding that every English miner who is detected in unlocking his safety lamp is liable by law to three months imprisonment, the offence is committed with impunity by means of false keys. A simple plan has been invented by a manufacturer of these lamps for sealing them without using any lock. When the staple has been put down over the eye a small leaden pin is inserted in the latter, then being placed under a horizontal press fitted with two dies, the shank of the plug is formed into a head and both heads are impressed by the dies with any lettering or device.

LIFE AND DEATH.—It has been estimated that the number of deaths per year throughout the world is about thirty-two millions. Assuming this to be correct, the deaths each day would be about 88,000; 3,600 per hour, 60 per minute, and thus every second carries one human being into eternity. A calculation of the annual births on the globe shows that whereas 60 persons die per minute, 70 children are born, and thus the increase of the population is kept up.

A HUGE LAUNDRY is established in the suburbs of Paris at which is washed the soiled clothing of the guests of the principal hotels, at the rate of 40,000 pieces a day. The clothing is boiled with soap and soda, and then washed in hollow wheels, rinsed, partially dried by centrifugal machines, and for the rest in hot air ovens, which carry off nearly three pounds of moisture per pound of coal burned, and is finally ironed between polished rollers, and then packed ready for return to Paris.

A MAMMOTH CAVE in southern Illinois is reported to rival the famous Kentucky cave and to exceed in length any others yet discovered. It has been partially explored a distance of three miles, but a thorough search through it has never been instituted. Some years since two men got lost in its passages, and after three days of unceasing travel emerged into the open air thirteen miles distant from the place where they entered.

THE AMERICAN POULTRY ASSOCIATION recently organized in this city is instituted to encourage the raising of poultry on a larger scale than has heretofore been attempted in the United States. They propose by statistics and by the practice of individual members, to show that poultry is a source of wealth, and that the raising of poultry may be combined with many other branches of farming industry. This will encourage at some future time the formation of large poultry establishments, such as have been erected at Bromley (Kent, England), and in the environs of Paris.

NEW ZEALAND FLAX.—Interesting samples of paper made from this fiber have been forwarded to England. While rather highly colored, the flax paper has a singularity of texture and a strength which suggests an excellent paper for bank notes. The coloring matter has been removed by chemical means, leaving the pulp as white as that of ordinary cotton rags.

WALRUSSIAN WEALTH.—Reports of gold deposits in our new Russian Possessions are still coming in. The latest is contained in a letter to Secretary Seward from Mr. Berry, of Oregon, who relates that a party of prospectors found in the Stickeen River, three hundred miles from its mouth, gold and silver deposits of great wealth, also rubies and agates, and on Bristol River, copper and coal indications.

NOVEL METHOD OF MANUFACTURING GAS.—According to a Swiss journal a means has been discovered of utilizing cockchafer, or, as they are more commonly called, "June bugs." The *Estafette* of Lausanne states that between four and five millions of these insects were recently sent to Friburg for the manufacture of gas, and the residue forms an excellent carriage grease.

A NOVEL SPECULATION of the Accidental Insurance character has been started in Buenos Ayres. A joint-stock hospital has been opened to which subscribers who pay \$1 25 in silver monthly are to be admitted free, and attended with the best medical skill, in case of sickness or accident.

PHILADELPHIA SCHOOLS.—Of the total number of 142,517 children between the ages of six and eighteen within the city limits, 53.5 per cent are in her public schools; 17.4 per cent in private and parochial schools; 14.6 per cent at work, and 14.5 per cent in the streets. The children between six and eighteen are usually estimated at 48 per cent of the whole, which would give for Philadelphia a total population of 734,000.

FOR TESTING the different lubricating properties of oils and other lubricants an English inventor has contrived an apparatus whose principle depends on the amount of frictional motion necessary to produce a given temperature.

FLEXIBLE GLUE.—A German chemist has discovered that if glue or gelatin be mixed with about one-quarter its weight of glycerin, it loses its brittleness and becomes useful for many purposes for which it is otherwise unfit, such as dressing leather, giving elasticity to porcelain, parchment or enamelled paper, and for bookbinding.

A HEAVY BLAST.—Two tons of gunpowder was fired in a mine of the Salt Lime Works Company, Clitheroe, England, and the explosion which followed the lighting of the train resulted in the displacement of about 20,000 tons of stone.

POWER OF THE HUMAN VOICE.—It is stated that the human voice, when speaking with clear articulation and supplied from good lungs will fill 400,000 cubic feet of air. The same voice singing, under like circumstances, can fill with equal facility 600,000 cubic feet.

THE IMPERIAL COMMISSIONERS of the Exposition are proposing to give a grand entertainment to the members of the juries, the great prize holders, and other notables, while the exhibitors are about preparing a banquet for the Emperor himself, who, it is said, has given a conditional acceptance.

REMARKABLY ACCURATE.—A full examination of the United States Treasury Department shows that since 1861 \$14,500,000,000 have passed through the hands of the Treasurer, in many thousand receipts and payments, but such has been the accuracy with which all these monetary affairs have been transacted, that the vaults contained the requisite cash indicated by the books, to the fraction of a dollar.

A NEW ALLOY consisting of 65 parts tin, 8 parts copper, 10 parts lead, and 17 parts antimony, has been patented in England. The composition is particularly designed by the inventor for facing or forming calico-printing rollers. In this country these rollers have been always made of composition brass or bronze, or preferably of copper, cast, drawn and rolled directly from the ingot.

EXPLOSION OF A LETTER.—While one of the employés of the New York Post Office was stamping a letter a few days since, he was much perturbed by a mysterious explosion that blew part of the letter away, and scorched his hands and face. The letter contained percussion caps upon which the stamp unfortunately descended.

A FRENCH CHEMIST says that thirty pounds of flesh, thirty-two pounds of blood, and sixty-two pounds of bone, contain as much nitrogen as one thousand pounds of farm manure; and hence that the carcass of a dead horse is worth more than a ton of the best farm-yard manure for the purpose of vegetation.

GRAPHITE.—A gas pipe in the lower part of this city that had lain undisturbed for several years, was recently taken up and found to be so completely coated with graphite that pieces were sawed off in convenient size and served admirably as lead pencils.

CONSUMPTION OF PAPER.—England uses about 220 million pounds of paper annually, France yearly consumes 195 millions, while the United States demands more paper than both these countries combined—440 million pounds.

THERE are 862 journals of various kinds now published in Paris, against 416 only in 1854. The Exhibition has been the cause of eleven publications being added to the usual list.

DIET EATERS.—An analysis of the earth eaten by the natives of the Island of Borneo shows that in 100 parts there was 15.4 of pit-coal, resin (organic matter volatile at red heat), of pure carbon, 14.9, of silica, 38.3, of alumina 27.7, and of iron pyrites, 3.7 parts.

PROLIFIC.—In San Bernardino county, California, the farmers raise three crops a year off the same field: first oats or barley, next Indian corn, and last, turnips, beets or grass.

BISMARCK was a healthy man till he achieved greatness, and now he has all the diseases which foreign correspondents attached last summer to Napoleon.

THE GREAT tabernacle of the Saints at Salt Lake City is now finished. It is 350 feet wide, and furnishes comfortable sitting room for 10,000 people.

TWO century plants are now in full bloom in New Orleans, and, say the papers of that city, attract great attention.

GOLD, in paying quantities, is found near Bellville, Richmond county Ohio.

THE American Watch Company now finish a watch every two and a half minutes during the working hours of the day.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The plans for the new bridge across the Mississippi river at St. Louis have been accepted, and it is to be commenced without delay. The new bridge will be an immense structure, accommodating two double tracks of rails for street cars, beside sidewalks for foot passengers, and will consist of three arches, the central arch having a span of 515 feet, and the two side arches 497 feet. The central piers will be nearly 200 feet in height from the bed of the river. The estimated cost of this great bridge is \$5,000,000.

The Dismal Swamp canal, now in a very dilapidated condition, is to be repaired by a company composed chiefly of North Carolina speculators. It is estimated that more than a half million dollars will be needed to restore the canal to a working condition.

The Union Pacific Railroad will locate its locomotive, machine and car shops at Cheyenne, a new city just laid out at the foot of the Black Hills. Coal, iron, minerals and water power are found in proximity. At present it is a bare prairie, but within four months it will be the terminus of the railroad.

Ohio has just now two mining excitements; one is a gold mine discovered in Richland county, the other a silver discovery in Washington county. The former locality has been visited by a Cincinnati scientist who reports extensive deposits of gold ore, the best specimens being found near Bellville on the borders of West Virginia.

In the United States there are 81 square miles of territory to each mile of railroad, and one mile of road to each one thousand of population. In Great Britain the proportion is nine miles area to one of railroad, and one mile of road to each 2,819 of population; in France the ratio is twenty-four miles to one of railroad, and one mile of road to 4,172 inhabitants. Belgium with one mile of railroad to every seven miles of territory, has a more thorough network of railroads than any other country, while Russia, with a territory twelve times the extent of the British Isles, has only one fifth the length of road.

In San Francisco, the North Pacific Fur company, capital \$1,000,000, has been formed for trading in our new northern possession. The trade of this latter country in skins and furs, last year amounted to \$1,500,000. These furs consisted of sea-otter, seals, blue and white foxes, mink, muskrat, beaver and bears.

The citizens of Schuylkill county, Pa., have under consideration the erection of Bessemer steel works in that county. At a meeting in furtherance of the project held in Schuylkill Haven, it was stated that \$160,000 had already been subscribed. There are now only two Bessemer steel works in the country.

The directors of the New York Central Railroad Company, at their late session resolved to issue stock of the company to the holders of the stock of the Athens and Schenectady line, so as to absorb that line in the Central. This will add two millions to the capital stock of the Central Company.

The largest blast furnace in the world is at the Norton iron works, Cleveland district, England. Its capacity is 3,600 cubic feet. Although its productive powers have not yet been tested, it has already made 434 tons of pig iron in one week.

The total consumption of roofing slates in the United States was, in 1866, 250,000 squares, a square being ten square feet. Beside this the trade in finer slate qualities used for mantle-pieces table and billiard plates, is annually increasing in importance. There are twelve slate quarries in Pennsylvania whose combined productions in 1865 was 60,000 squares, in 1866, 90,000 squares, and this year it will reach a much higher figure, while the demand exceeds five times the present power of supply.

The Pacific Asphaltum company have an apparently inexhaustible mine of this substance convenient to San Francisco. The Asphaltum, which has the solidity of coal—powder being used to blast it—and differing entirely from that heretofore used, is found at a depth of six to ten feet from the surface, continuing in solid masses about 15 feet deep when soft and liquid matter is met with, which the company do not yet know how to employ, or dispose of.

The originator of a railroad route from Cordalia to Salta, S. A., a distance of seven hundred miles, is William Wheelwright, a native of Newburyport, Mass. The road is being built by an English company, and 130 miles of it are already completed.

EXTENSION NOTICES.

Norman Millington, of Shaftsbury, Vt., for himself and S. M. George, executor with Abraham B. Gardner and Leland J. Mattison, executors of the estate of Davies J. George, deceased, having petitioned for the extension of a patent granted to the said Millington and George the 18th day of October, 1853, for an improvement in machines for figuring carpenters' squares, for seven years from the expiration of said patent, which takes place on the 18th day of October, 1867, it is ordered that the said petition be heard at the Patent Office on Monday, the 30th day of September next.

Harry Whittaker, of Buffalo, N. Y., having petitioned for the extension of