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TERMS , the vemalinder in 6 months.
drase Advertisement on last page.

## POETRY.

LAUGH, LADY, LAUGA.
Lough, lady, laugh :
There's no a vail in weeping 3
Grief' mas never made
To be in beauty's keeping
Tears are of a stream,
Where pleasure lies decaying;
Bmiles, like rays of light,
Oer sumny waters playing, Laugh, lady laugh.

Sing, hady, sing;
There is a charm in singing,
When melody its spell
Upors the air is flimsing,
Sweet sounds have often won
More than the farrest faces;
And Harps have always been
The plaything of the graces, Sing, lady sing.
Love, lady, love;
There's always joy in loving;
But sigh not when you fiud
That man is fond of roving;
For when the summer bee
Takes wring through beauty's bowers;
He knows not which to choose
Among so many flowers, Love, lady love.
CHID EMBRACING ITS MOTHER. by thomas hood.
Love thy mother, little one! Kiss and clasn her neck againHereafter she may have a son Will kiss and clasp her neek in vain-
Love thy muther, little one!
Gaze upon her living eyes,
And inirror back her love for theeHereatier thou may'st shudder sighs
To meet them when they cannot see. Gaze upon her living eyes!
Press her lips the while they glow With lose that they have often toldHerrafter thou mayst press, in woe,
And kiss then till thine own are cold.
Press her lips the while they gluw!
Oh! revere her raven hair Althe' it be not silvery grey,
Too early death led on by care,
May silateh, save one dear lock, away. Oh ! revere her raven hair!

Pray tor her at eve and morn,
Tbat Heaven may long the stroke defer For thou may'st live the hour forlorn
When thou wilt ask to die with her.
Pray for her at eve and morn!

## An Industrions Woman

Talk indeed, of your pantomines and gaudy obows, your processions, and installations, and coromations! Give me for a beautiful sight, a neat and smarl woman heating her oven, and selting in her bread. A red if the bustle dies make the sign of tibor glisten on her brow, where is the man that would not ' kiss that off rather than a phister from a Duchess! Them's bur sentiments.
Oie of the Mexicanstates is called Zaratecas, which is there pronulaced Zachy taie us.


The above is an engraving of an invention $\mid \mathrm{J}$, at its apex, through which the mud or sedfor the construction of filters to be used in connection with steam engines and boilersand consists in so arranging and adapting them to the hot-wells of steam engines, that the many disadvantages resulting from the incrustation in boilers would be seldom, if ever known. For this objeci Mr. N. Harvey, of St. Erth, Cornwall, England, the patentee, prefers to enploy compressed sponge, through which the water, during the process of filtering, passes, a pressure being exersed beheath the sponge by the action of fusce pumps the the purpose of driving it through ; the effect of which causes the sponge to arrest, during the passage of the water, the mud or sediment which it atterwards deposits in a suitable chamber, preparatory to its being takea or cleared away, as hereinafter explained. The engraving, by reference to the letters thereunto annexed, will represent vertical section of a single cylinder, or filtering apparatus. B, represents the fixed plate or perforated partition, sustaining the pressure of the sponge from above; $\mathrm{C} C$, the corpures sed sponge or filtering material; $D D$, the pertorated pressure plate; E E, circular weights; F F, connecting rods or shats on which are fitted the accumulating pressure weights; $G$ G, stuffiing boxes; H H, egress pipes tor sug,plying the teed; 1 , an isverted conical diapliram, placed under the cumpressed sponge, or filtering material having a hule or opening,

## Curlosity.

A traveller going from Erie to Pittsburg, fell in with a Yaukee, both being mounted on horseback The first was rather inclined to tacituraty, and bore with great patience the questions with which the New Englander bored him Finally, uan the Yanke moticing that the traveller had $1 \cdot \mathrm{st}$ an arm, and inquiriug the reason, he replied, " 1 will tell you, iny friend, if you will promise, on your howor, to ask me no more questions." The promise was mate. "Well," said the strangry, "it was bit of:" Jlue Yankee rode on $\mathrm{i}_{1}$ s silence for several miles, but in an agony of curtusity. At last, in a trans, ourt of des, mir grex a shilling to, know what bi it itl",
"I knows well euough," suid durpen one, Where firsh tish comrs trom- mithore they catch ticese ere $\Delta$ it f.as, 111 be has:a ed
image passes; $K$, the mud or sediment chamber; $L$, a sediment release tube; $M$, the ingress, or supply pipe to the filterer; $N \mathrm{~N}$, a funnel-shaped tap situated at the top of the cylinder, for supplying water to the apparatus for the purpose of washing the sponge or filtering material. Fig. 2 represents a side elevation of the filtering apparatus atached to the hot-well of a steam engine. $A$, is the hot-well; $B$, the exhaust chamber; $C$, the condensed steam passage or supply tube, the action of whict is as follows: Spenge or other suitable filtering material is placed between two perforated plates, and compressed by reason of certain weights exerting a gravitating influence or pressure upon the sponge or other suitable filtering materials aforesaid; the water to be filtered is then driven through the compressed sponge, in an upward direction, by the action of force pumps attached to the engines, leaving behind all impurities in the body of the sponge. The application of a double filterirg apparatus for purpores aforesaid, consists of two cylinders placed side by side in connection with each other, having two two-way cocks and pipes leading therefrom, in such a manner that when it is necessury toclean one or the other out, these cucks are turned in the required direction, shutting off the communcation from the one cylinder while the other cylinder is in operation, as before described.

New, יPon Honor.
"I'll take two children, if I can have'em cheap?" said a tall Yankee on entering an oyster cellar in Canal street the other day.
"Two children? -what two childreni"
"Why, I hain't got any aryself, and your sign reads Families snpplied;' dus't it? 1 want you to supply me with one!"

## " Grinding Toals.

Whatd a curpeater to his appren-
 you to grind all the tools."
"Yessir." The car, enter came home at might. "William have you ground all the Pouls right shari; :"
"All but the havelsaw," sai. Bill, "I could.'t get quite all the gap; out of that."
"Hai, weddedl we," as the mansaid to his wif whea asked what was breaknothe wias.

## LIST OFP PATENTS

 office,for the qurek ending July 24th, 1847 To Josse Eullock, Jr. and Sewall Eenson, of New York, for improvement in machines for Paring Apples. Patented July 24, 1847 Paring Apples. Patented July 2a, 1847 .
Tor David Cannon and Heman S. Lucas, of Chester, Mass, for improverrent in composition for Fire Bricks. Patenteal July 21, 1847. To Richard M. Hoe, of New York, for improvement in Rotary Printiog Presses. Patea. ted July 21, 18.17.
To Richard M. Hoe, of New York, for other improvement in Pxinting Presses Patented July 24, 1347.

To Emanuel Parker, of Camden, South Carolina, improvement in Water Wheels. Patented July 25, 1847.
To Timothy Gilbert, of Roston, Mass., for improvement in Meallic Frames for Piano Fortes. Patented July 2.4, 18.17.
To Alexey W. Von Schmidt and Julius H. Von Schmidt, of Washington, D. C., for improvement in centrifugal lamps. Patented July 24, 1847
To William James Cantelo (residing in England, for improvement in Artificial Incubation. Patented July 24, 1847.

To Nathaniel Bachelor, of Now York, for design for Clock Frames. Pateated July 24, 1847.

To James Albro, jr. if Elizabethtown, N. J. for desigu ior Flour Cluth. Putented July 24, 1547.
To Don A. Booth, of New York, tor desiga for or
$18 \pm 7$.
The-isectes
To Elijah Prati, of New York, for improve ment in Artificial Nipules. Patented August 4, 1845. Ante-deted Juiy 4, 1心łよ5. Re-issued. July 24, 19-47

## NVERTORSC CLAMMS <br> Couphings fur Cars.

Invented by Willam C Rassey, of Buckgrove, Illinois. Patented 17 h July, 1847 No. 5194. What he claims as his invention, and secures by letters patemt, is coapling and uncoupling cars by means of an ecceratric lumbler, revolving ruller, turning dor and compling bar, constructed, arranged and operated in the manner and for the purpose set forth, the coupling being effected by the mo. tion of the car.

Cultivator.
Invented by Alanson E. Odell, of Royalton N. Y Pateited 17 th July, 1817. No. 519j. What he clains as his invention and secures by letters patent, is tirst the combination of the iwo double jointed, hinged and wheeled wing trames, containing side cultivators, with the ceatral trame containiug the third wheel and central cultivator, constructed, arranged and operated in such manier that undulatory land may be cultivated in uniform deptho of furrows, withut straining or breaking the frame-the cultivators being made to accommodate thembelues to the hills and hollows and wher inequalities of the land, by means of flexible central juints or hinges, attached to the afiresaid central frame. Second-he also claims combining a thin whel with the two side wheels in a juinted, flexible or fulding cultivator trame, made in the manner above described.
 Lo, N. i. Palelted luth July, 1847. No. 5189. What he claims as his invention and secures by letters patent is, the erdless chain cutter in combination with the fulloys and rack teeth for entling $\ell$ rain and goass as described. He also claims the croohed art: or coupling piece in cond.oction and cunbilationa whla a rucs picce and frame.


On the first day of the assembling of the Chicago Convention, Thomas Allen. Esq., submitted a report drawn up by him at the request of the delegates of St. Louis, relative to the commerce and navigation of the valley of the Mississippi. It is stated in this document that in 1846 the receipts at New Orleans from the upper country amounted to 77 millions of dollars; the steamboats engaged in the trade of St. Louis were 251 ; and the whole number on the Western rivers near 1200, valued at 16 millions of dollars, to which are to be added 4000 keel and flat boats. The annual cost of transportation is 41 millions. The total value of the domestic products put afloat upon the waters of the valley is 260 millions; and the value of the whole comme afloat is 430 millions, being double the amount of the whole foreign commerce of the United States. The number of steamboats lost in 1842, was 68 ; in 1846 the nutnber was 36.The annual loss of lives is 160 . The snags it is well known, have caused many of these disasters.

## Another Comet.

A new comet was discovered ou the 14 th inst at the Cambridge Observatory, by G. P. Bond, being the fifth comet first seen in this country by this gentleman. It was found with the aid of the exceilent comet-seeker recently presented to the Observatory by J. I. Bowditch, Esq. Through the grand refractor the con.et shows a bright nucleus surrounded by a diffused nebulous appearance. The comet, having a very great northern declination, does not set in our latitude. Its approximate pla ces were as follows :
July 12, 19 h 0 m . Right Ascension 16h. 24 m. Declension $85^{\circ} 17^{\prime} 0$.

July 20, 10in. 23m. Right Ascension 13b 59 m . Declension 8005312

## Forgers.

An engraver, named Lovejoy, and two oth er persons, were arrested in Cincinnatti, a short time since, on suspicion of being concerned in counterfeiting, and committed for trial. Upon searching Lovejoy's house, one plate, nearly ready for printing spurious money, was discovered; and in the residence of one of the others, named Sleight, sundry plates, and a large quantity of counterfeit notes, amounting in all to about $\$ 1000$, was taken. This is said to be the most important arrest made in Cincinnatti for some time past Copper from the Sault.
By the Schooner Lena 44 tons of native.copper was shipped a short time ago for Boston and there are now 90 tons more of the same metal waiting for a vessel. This copper is in masses weighing from 500 to $3,500 \mathrm{lbs}$. and is of the very richest quality of native copper, and is worth in Boston $\$ 400$ per ton From the mine, we learn that they are raising ummense masses of native copper, and that the great difficulty consists in cutting up the mas. ses into small pieces to erable the shippers to get them on and off the vessels.--One mass weighing $3,700 \mathrm{lbs}$. will be sent to Eugland as a specimen of what Yankecs can do in making copper

A Hinmbug Exploded.
The grand project of raising Capt. Kidd's vessel at Caldwel's Landing on the Hiudson, and obtaining vast treasures-a project in which a large amount of money was embark ed by credulous men, has proved to be what many suspected, an egregious humbug, originating in fraud. It is now known that a gun which had been taken from the wreck, pieces of gold, coins, \&c., were deposited there a a few days previous, that this discovery might cheer the hearts of the stockholders, and in duce others to purchase shares!

According to an official statement made to the Illinois State Convention the entire pub lic debt of that State is $\$ 14,042,61822$.

## Something New.

The splendid steamboat Louisiana, running between Buffalo and Chicago, is provided with a number of colored waiters and servants who within themselves compose a band of choic musicians, arid every evening the ladies' cabin is graced with a ball, accompanied by their music. They are vocalists too, and treat passengers to some of the best strains of the Sable Harmonists. To add to the harmony of the evening, the lady passengers frequently lend their sweet voices, accompanied by the piano,
with which the ladies' cabin is furnished.

## with which the ladies' cabin is furnished.

## witser.

The Boston Traveller's London correspondent asserts that the use of ether in England is doing more harm than good. That it has an injurious effect upon the blood, produces tubercular consumption, and in thirty cases o death after its use, recent tubercles have been found in the luags, believed to be the product of ether

## A New Manufacturing Company

A company has completed a contract with the Water Lot Company, for the purchasc of a site, in Columbia Georgia. A building 120 feet in letigth and 5 stories high, is to be commenced immediately, and the establishment is to be pat into operation, as speedily as possible. $\$ 40,000$ have already been subscribed, and the capital can be increased to $\$ 100,000$ as it may be needed.

## Scarcity.

On Saturday week a merchant at St. Louis filled an orderfrom Dubuque for 200 barrels of flour. The same flour was brouglit from Dubuque to St. Louis a fortnight previous by the same boat that carried it back. So great has been the demand for this staple, the Reveille says, that many portions of the upper country are completely drained of eupplies.

## Love-Letter Ink.

A Yankee has invented a new kind of ink called " the love-letter ink," which is a sure safeguard against actions for breach of marriage, as the ink fades away, and leaves the sheet blank, in about four weeks after the letter has been written. The truth of this in vention so universally noticed, is just about as lasting as the ink.

## Indtans.

A number of Iowa Indians passed through Cincinuatti last week, on their way to Wash ington. Among them was an old chief who had been in Nineteen battles, and had once been scalped. His name is Saw-tu-stob-en-ne-to, or red fire, and his age is upwards of rinety

## Copper Ore.

It is not known generally, says the Alexandria Gazette, that examinations are making in Prince William county, Va., for Copper, an that the progress thus far has been favorable. Twenty-five hundred pounds of ore, from an excavation near Brentsville. were brought to town yesterday, to be shipped to Boston for examination and proof of its quality.

## Pennsylvania Coal.

Penosylvania alone contains an erea of coal land five times the extent of that possesed by Great Britain. Her irou: mines are also very extensive-probably equal, if not supeior to those of the mother land. And yet the annual produci of the mines of Great Britain is computed at $£ 20,000,000$ Of this va:t suri2, $£ 8,000,000$ accrue from iron, and £ $9,000,000$ from coal

## San Peciro Expedition.

The schooner Cecil, Capt. Binney, arrived at Baltimore on Monday from Cumana and St. Thomas. She brings $\$ 20,000$, recovered from the wreck of the Spanish frigate San Pedro, suak off Cumana. This is the second successfull trip of this vessel, having once before brought an eiqual amount from the same wreck.

## Curious Fact

A degree of latitude is equal to a degree of Fahrenheit, and 400 feet of elevation is the same. The fact though curious, is of a demontrative character, and will go far in enabling

Mechanics Mutual Protection.
This order of practical Mechanics, are a bout forming a Literary Institute, the memintend which must belong to the order. It in and Laboratory connected with the Institution. The design of it is, to bring about a general intimacy among the mechanics of this city, and also, personal improvement.-Each member to take part in the exercises, and the whole business to be done by Practical Me chanics.
We shall publish a list of the officers of the Protections in this city next week-the names from three being still wanting to complete the ist. This Order of Practical Mechanics, is progressing firmly throughout the United States. We have received consoling news rom Protection No. 14 of Geneva, which is encouraging to hear. We hope to be able next week to have some news from the Grand Convention at Buffalo. The Grand Secretary, J. Washburn of Troy, has been ery sick. R. Macfarlane, P. G. S.

## Shingle Palace.

Barnum, the proprietor of the N. Y. Museum, and the Tom Thumb man, has erected a house on the Turnpike west of Bridgeport, which exceeds all his other eccentricities. It is said to resemble Sophia's Mosque in Contantinople. It is a square building of over a 100 fect in leugth, and four stories high, with cireular wings at the end, having piazzas to each story, filled in with lattice work. The roof and wings are surmounted by turrets and minarets, and every part of the building is covered with elaborate work.

## Accident to a Professor of Chemistry

On last Tuesday, Rev. Wm. Aldrich, pro fessor of Chemistry in Washington College, Pennsylvania, while performing in the laboratory a very interesting experiment with the compound hydro-oxygen blowpipe, was severely injured, in consequence of the flame passing back into the tube, igniting the gases, and causing the vessel to burst into fragments, several of which, in their passage, struck Prof. Aldrich, laying him on the floor stunned, senseless, and to all appearance, lifeless. Medical help was immediately calledin, who pronounced him very severely, though not dangercusly wounded.

## Wonderful Cave.

There is a cave in the Green Mountains which is said to be of wonderful beauty, rom the dropping of crystals. It is composed of 4 compartments ; the outer one being in the form of an Ellipse, 53 feet by 37 and 16 feet in height; the second compartment is somewhat smaller than the first and of a more irregular form, and so also is the third; the fourth is the grand hall of a circular form, the diameter of which is 321 feet, overarched by a magnificent dome, the extreme height of which apparently exceeds the diameter of the floor; the walls are composed of brilliant iron ore, and the light of torches reflected in a thousand hues lighting the whole with the brightness of a Summer's day.
Free Navigation of the St. Lawrence.
On Monday night the House of Assembly of Canada passed an address to her Majesty, that the free navigation of the St . Lawrence be granted to them ; and also that the Navigation law :ce repealed, or at least modified, so far as itjards this colony. There were 59 ayes, and only two dissenting roices, Messis. Aylwin and Ermatinger.

## Shipment of Bread Stuff

$15,000,000$ bushels of corn, $2,700,000$ bushels of wheat, and $2,500,000$ barrels of flourthe whole valued at $\$ 33,000,000$-have been shipped this season to Great Britain and Ireland alone.

An Earthquake at Glen's Falls.
The Republican states that on Friday morning the 9 th inst. a severe shock of an earthquake was felt in several towns in that county, the effects of which extended for fifty mailes distant.
Home Manufacture for Foreign Use. Messrs. Knapp \& Totten, of Pittsburg have een largely engaged during the past year in casting canon, shot and shells for the U.S. Government Mr. Jesse Marden, of this city, has a machine for casting bullet.s, which can be made to manufacture from one to two thou sand rifle balls per miaute.


## late from mexico.

Santa Anna was about sending a number of the American prisoners from the City of Mexico to Acapulco, on the Pacific. It was rumored at Camargo and Matamoras that Urrea was in the neighborhood with a strong Guerilla force ready to tall upon the trains. The news from Santa. Fe was exciting. Fears were entertained that the Mexican inhabitants would rise and butcher all the Americansso deep is their hatred towaids them. There had been an engagement between Major Edmonston and the Taos Indians, the latter claiming the victory. There were but few kiiled. The Camanche Indians were very troublesome.

The Sun and Moon in Danger.
A letter written from china, and addressed to a person in the city of Nantes, in France, by a French Missionary, states that several captains of vessels, belonging to the marine of the three nations, of France, England, and the United States, had been received into the presence of the Emperor of Japan, from whom they had solicited the opening the ports of his kingdom to the commerce of Europe and America. We'll next hear of the august person of the celestial Em porer of the Sun and Moon, himself, being contaminated by contact with outside baroarians. Trade and commerce are, indeed, great le vellers.

Interesting Geological Discoveries.
The Journal des Debats publishes the following letter, dated Odessa, the 4 th inst." The Counsellor of State, Erdmann, Professor of Geology at the Imperial University of Dorpat, who at this moment is travelling in the south of Russia, has discovered in a property situated to the north of Odessa, several skeletons of fossil animals of enormous dimensions. The skeletons are 83 in number, viz: 6 elephants, 1 rhinoceros, 2 oxen, 4 stags, 1 antelope, 61 bears, 2 hyenas, 2 dogs, 3 cats, and a ruminating animal; species unknown. Those skeletons, together with the bones, were found under a thick layer of catcareous earth. The discovery made by $M$. Erdmain is the more remarkable, as hitherto there never have been any remains of the antediluvian animal reign discovered in Russia."

## Scientific Examination of the Potato

## Disease

The French Government has ordered that scientific men in all the departments shall ex amine microscopically every fortnight, the growing potatoes in the several districts, with a view to discover if the plant be again tainted and the cause, if such a calamity again arise.
Charles Murray Nairne, a Scotch Clergy-man-one of the most profound and accomplished schollars of the age-an intimate friend and associate of the late Dr. Chalmers, was on Monday evening last, initated as a member of the Mutual Alliance Division No. 130 of the Sons of Temperance, of Albany.
It is stated that a young lady, who is a great admirer of Gen. Taylor's epistolary style, re ceived a letter the other day from a sweethear enquiring if she would have him. She immediately sent him in reply, General Taylor's er to Santa Anna, "Come and take me."

The Galveston, Texas, News, estimates that the quantity of sugar which will be mare in Brazoria county alone this year, will not fall much short of 2000 hogsheads The quantity raised in the whole state last year was but little over 200 hogsheads
Charles Ellett, Esq. has been selected engineer of the the wire suspension bridge over the Ohio, at Wheeling. This will be the largest structure of the kind in the world, being a span of upwards of 1000 feet, whereas that of Friburg in Europe, the largest now in existence, is but 800 feet span.

A law was enacted at the last session of the New Hampshire Legislature, establishing ten houre as a day's work.

## TGIE BROKEN HRART.

A ballad
The sun may rise and shed his light Ashe was wont to dae;
And a' around look smiling brightI cannot mair look gay.
Oh, Jamie, ye've deceived this heart That was sea leal to thee,
Your fause, fause looks and flatterin' airt Have left me-but to dee.
Ye tauld me, and ye sware it too, Ye lov'd na one but me;
And often hae ye pledged your faith Beneath the trystin' tree.
The holy moon alane was by,
To hear the vows ye made;
Ah! had she seen their falsity,
She wad hae veiled her head
And if I've done a deed o' guilt, 'Twas in the lovin' thee My guiltless heart was a' your ain'Twas a' I had to gie.
And yet I dinna wish it back,
For 'twas a worthless thing:
'Twas hardly worth a proud man's while So poor a heart to wring.

E'en let it lie, like rude torn flower, A trampled, wither'd blight.
Where a' may see its shame and fa''Twill soon be hid in night. I'll tak' me to some lonely spot, Where man may never be; Where moon and stars alone may mark Thy Annie's closen e'e.

The Way to Grow Big.
A little fellow from the country called on a gunsmith in Beaver street, Albany, a short time since, and wished to know where he might get enlisted, as he was mighty patriotic. The gunsmith told him that he had just come to the right shop and that he would measure him to see if he was the full height. The little fellow strutted his head as high as possible, brushed up his hair, and raised his heels. All to no purpose, however, he was an inch too short and could not be taken. The little fellow looked sorry and the gunsmith appreciating the value of his services against the Mexicans, told him that he knew a method-an operation-which if he went through, would soon raise him to the required standard. The plan he said was by the simple efficacy of manure, so excellent for raising crops, of which if he put a good layer into his boots and walked a couple of hours in the sun, he would come up to the soldier's mark. No sooner said than done. The little tellow sprung off shouting capital idea, and in half an hour he was seen in the same street beneath a broiling sun marching backwards and forwards, his patriotism being enlivened by three several measurements of the gunsmith in the course of an hour, who pronounced an increase of height three-eights of an inch. In two hours and a half the intended soldier would have gained his point, but alas, for fate, the best laid plans of mice and men go oft agee," for a number of people at last began to take notice of him and the joke leaking out, the would-be-soldier saw a snicker and a sneer on every face, and taking the hint started off up past the little Basin amid the laughter of a considerable crowd, a substantial illustration without any fiction, of the wonderful effects of Albany Guano.

Motion or Comets.
If comets, like planets, revolved round the sun in nearly a circular orbit, they might be seen in their path and their identity thus established. But they don't. They rush from some far removed point in space into our system, in a straight line towards our sun. As they approach they make a curved path, rounding out generally from the sun, and
rush out of our sphere in a straight line.
Abbot Lawrence has given $\$ 1000$ to the Lawrence Library Association, at the new city of Lawrence, Mass. This gentleman evidently understands the truesecret of success; that an intelligent community will produce the greatest dividends, with the least labor to the empluyer, and that nothing can create one $s 0$ socn as libraries, and institutions made di
rectiy fur the elevation of the masses. W wiwh there were mure Abbot Lawrences.

## A Ourlous Race in Georgla. Light

We may talk as we like about Chinese and Indians but the following description will shew that there are as queer folks in the States as out of them. The poor white population of Georgia are very poor and very igncrant Very few of them can either read or write, and are loth to improve their condition. They abhor labor, and will only work just so much as to obtain a mere subsistence. They will take possession of any land unoccupied, which suits their fancy, without knowing or caring to whom it belongs-erect a cabin-plant a few acres of Indian corn, and a little patch of cotton to make their own cioth, and with a few pigs, a cow or two, a mule or horse, inanage to bring up a large family in the same ignorance with themselves. When they get tired of living in one place, or have exhausted the soil of the few acres they have cultivated, they pack all their moveables into a one horse cart, and move to another country. Their ancestors are said to be Highland Scotch, who first settled the Western part of North Carolina; thence they have gradually worked their way into Georgia, and have commenced invading Alabama They have no objections to work-
ing in cotton factories, and are employed in the factories which are now in operation in Georgia, and make much better operatives
than the slaves-but agricultural labor they than the slaves-but agricultural labor they consider nigger's work. If they are generally goed-natured, irofiensive people, they have great deal of pride and independence of char acter, with all their poverty and ignorance They scorn to tell a lie or steal; but vindic tive and revengeful when insulted or injured, and will not hesitate to shoot a man behind his back to revenge an injury or an insult. Their implements of husbardry are of the most rude construction. Their plows are such as we might imagine were used in scriptural times, being three stick sputtogether in the form of a triangle, the hypothenuse forming the handle-the point at the sharp angle being shod with iron, much in the shape of a mason's trowel and not much larger.

## Wonders of Nature.

" In the leaves of every forest, in the flowers of every garden, in the waters of every rivulet, there are worlds teeming with life and numberless as are the glories of the firm ment."-[Rev. Dr. Chalmers.
Sir John Herschel, in an "Essay on the Power of the Telescope to penerate into space, a quality distinct from the magnifying power, informs us that there are stars so infinitely reinforms us that there are stars so infinitely re-
mote as to be situated at the distance of twelve millions of millions of millions of miles from our earth; so that light, which travel with a velocity of twelve millions of miles in a minute, would require two millions of years for its transit from those distant orbs to our own; while the astronomer who should record the aspect or mutations of such a star, would be relating, not its history at the present day, but that which took place two millions of years gone by. And, when we reflect that if it were possible to attain to those distant spheres, we should look, not on the limits, the blank wall of creation, but only inofresh fields of Creation, Power, and Wisdom, we feel that our earth and all that it in herits is a mere speck in space, an atom amid the vast Universe.
Nothing more perfectly demonstrates the power of Nature to effect her vast designs though apparently teeble and insufficient a gents, than the coral formation. It requires, indeed, ocular proofs, of the labors of the madepores, to credit what stupendous sub marine reefs and islands, many miles in com-
pass are indebted for at least a great portion of their structure to the secretotory economy of these minute artificers.

Serpents have lungs, and a single heart, and old blood, but no jointed members, with a rain and skeleton
Reptiles have lungs, and joined or divided embers, but a single heart and cold blood, with a brain and cartilaginous skeleton.
Mammalia have a double heart and warm bloud, with an internal bony skeleton and , and suckle their young
Birds have the same, but do not suckle their

Light travels at the rate of twelve millions of miles in a minute; if, therefore, its particles were not proportionably minute, it would batter the hardest bodies to atoms. The denity of the sun's rays at the earth is such that the number collected upon a burning glass an inch only in diameter, is sufficient when concentrated, to set wood on fire. By the present composition of light, we have that variety of colors which is of infinite use to us for distinguishing of objects, which adds to the beauty of the earth, and augments the stock of our innocent pleasures. With respect to the reflection of light: if we had the power of seeing only by means of rays coming directly from the sun, whenever we furned our backs upon that luminary we should be in darkness. The world can only be enlightened by the light of the sur being from all sides, and on every direction, reflected to the eye by particles as widely diffused as those of an:

The Sun.
The centre of our system, that glorious orb " kindled by God on the morn of creation to cheer the dark abyss and to pour his radiance on surrounding worlds," is 886,000 miles in diameter, and five hundred times larger than the aggregate of all other parts of the system, and moves in space with a velocity of 28,000 miles an hour. Mercury, the nearest planet, is distant from the sun, $37,000,000$ of miles; its diameter is 3000 mules; its hourly motion in 1 ts orbit 95,000 . Venus is $69,000,000$ miles distant, nearly 8000 in diameter, and moves 75,000 per hour. The Earth is $95,000,000$ miles distant, 8000 diameter, and moves 68,000 per hour. Mars is $145,000,000$ miles disant, upwards of 4000 diameter, and moves 55,000 per hour. Jupiter is $495,000,000$ miles distart, 90,000 diameter, and moves 30,000 per hour. Saturn is $900,000,000$ miles distant, 80,000 diameter, and moves 22,000 per hour. Herschel or Uranus is $1,500,000,000$ miles distant, 35,000 diameter, and moves 15, 000 per hour These distances being graduaed by mathematical law, the new planet Neptune or Le Verrier is found to be $1,800,000,000$ miles distant from Uranns, thus by its addition doubling the radius and consequently the diameter of the Solar system, and making them respectively $3,600,000.000$ and $7,200,000,000$ of miles.
Now if we look at that sublime law, by which the two forces that appertain to these worlds are exactly balanced, and find them all moving on in harmony in their orbits and still ustained, together with their sustaining cener, as the whole solar systera moves on in its vast orbit around some far distant central sun, yet as a part only of myriad systems, forming one great whole, to us inconceivably vast ; if we find all controlled by immutable law, nd still more, if we cannot believe these worlds to be barren wastes, but inkabited by mmortal beings, and that this grand whole is pervaded by moral affinity, this subject has sublimity which no seraph can measure.
a Curious Discovery in Natural History
There was lately discovered in opening a quarry at the Island of Grand Canary, the keleton of an enormous Dog, in a good state of preservation. It was purchased by the Consular Agent of France, and sent to the Museum of Natural History at Paris. It is
an object of the greatest interest to science, an object of the greatest interest to science,
trom the fact that it belongs to that enormous race of dogs which, according to Pliny, gave the name to the Canaries, and which for some centuries have disappeared from the face the Globe.

Chalk and Coal Fire
The practical utility of Chalk as an article of fuel, has been tested within the last few weeks, according to a Salisbury (Eng.) paper, and with the most satisfactory results. Surrounded with coal, it gives a strong heat and clear fire, at half the usual experse; so that to the poor, in the chalk districts, it must be an incalculable boon. The first experiment with chalk was made last year. It must first be eated to a great degree before its qualities of pouring out heat are displayed. When it becom
coal.
Never tell a woman she is not handsome un-

This air-pump (Dr. Arnott's doubl e acting air pump,) was used on board the Anson, formerly a seventy-four gun ship, which las year carried out to Australia 500 convictslarger number than the government had ever before ventured to send in one vessel. There were in addition 300 troops and the crew, in all about 1000 persons. The apparatus was worked by one lad; and it was reported that about three times more air was driven in by the four wheeled ventilator commonly used and which required eight men to work it. Only one person, and that an old epileptic, died on the passage. All the others enjoyed singular health during the voyage; and it was remarked when they were landed, that they had fresh complexions, very unlike what wa observed in ordinary cases.
The Discoverer of the Dirummond Light Mr Charles Cameron, of Edinburgh, in a recent letter proves a priority in the discovery of the Oxy-hydrogen Gas Light. He savs that in 1818 while visiting some calico print works in the neighborhood of Glasgow, he observed wooden bleaching vessels were bleached as white as the goods and had lost all the appearance of wood. From the singularity of the wood, he cut a few slips from the edges of the vessels and having dried them held one to a gas light. and was struck with the brilliancy of the light. He was made sensible that lime was the cause of this, as it was the chloride which was used for bleaching, and baving made an experiment with pure lime, he be came satisfied of this thoroughly. He mentioned this to Sir David Brewster, who also tried the experiment with some of Mr. Came ron's chips and then published an account of the same in the Edinburgh Philosophical Jour nal. It was after this, while Lieut. Drummond was making a trigonomical survey of Scotland, that he applied the blow-pipe to the lime, and so got the name of the discoverer, but Mr. Ca meron's discovery had been before the public previous to this

Lamp and Candle Flame
The flame if a lamp or candle is nothing but gas heated to whiteness, caused by the combustion of the volatile matter contained in the oil or tallow. The wick spres to convey the oily liquid, by capillary attraction up to the source of heat, where it is boiled and converted into vapor, and being of less specific gravity than the atmosphere, ascends into a column and combines with the oxygen of the surrounding atinosphere, developes heat, communicates with the surrounding current of gas and instantly becomes luminous. A wick is by no means necessary forthe production of flame, though it greatly facilitates the conversion of the volatile matter into vapor

## The Mexican Plough.

Mr. Gregr, who has travelled extensively in Sante Fee and Northern Mexico, says the ploughing is done altogether by oxen, and the agricultural tools are very rude; thei ploughs, hoes and axes would be as great a curiosity in this country as Santa Anna's wooden leg. The plough is altogether of wood and is attached to the horns of the oxen. The laborers are generally slaves for debt. He had heard of a Yankee plough introduced in Mexico, but an inquisition was held over it, -the wood was condemed to be burnt and th iron to be thrown into the river,

## Archimedes.

Archimedes was a famous geometrecian of Syracuse. When the Romans beseiged that city, he constructed machines which sunk some of their ships, and sthers he set on fire with burning glasses, or reflectors made of metal which produced the same effect. When the Romans entered the city, Archimedes was found by a soldier, po ring over some figures which he had drawn in the sand He begged the Roman to spare his circles but the man heedless of his request, rushed forward and killed him with a blow. He was 75 years old, dying 212 years B. C. He is said to have de clared he could move the globe if he only had a place to stand upon.

Cure for Deafness.
It is stated in the $\mathbf{U}$. S. Gazette that if pure honey be poured into the ear it
ful effect in relieving deafness.

## NEW INVENTIONS.

Mr. Stowroved Passeager Car.
Mr. Stowell, Superiatendent of the Nor. wich and Worcester Riilroad, has had a new passenger car constructed under his direction, with accomrnodations for 80 passengers. The seats are fitted up in a most comfortable and elegant style, and the great improvement consists in the manner of their construction, whereby passengers can go to sleep as quietly as sitting in a parlor on a rocking chair,-the seats being so swung as to destroy much of the jarring and jerking experienced on the very best of our railroads. We have not as yet been infurmed of the precise manner of their construction, but to sleep and travel on the railroad must be the very achore of modern commercial enthosia.
A gee Hitleman in Norw ich, Ct., bas mikle some impruvement in the Bee Hive, which is said to he very beneficial. It is of the usual form, but closed at the boltom, with a close fitting lid, covered with wire cluth, about $\varepsilon$ meshes to the inch. This allows all the dirt and chips of comb made by the bees to sift through; and admits sufficient air for veatil. ation It is huns on butts, and can be opeaed, to brush off any dead bees, or other substance too large to fall through the wire. Near the top, directly over the drawers, is an inch auger hole, for the passage of the " workers." This aperture, being at the top of the swarm, has always a cluster of busy bees about it, so tnat no iniller can enter; and there is no oth. er mode of ingress, Nuthing larger than ants can go throngn the wire bottom; and they are easily kept away by salt.

## New Wagon Springs.

A merhanic in Bucks Co Pa., has construc. ted a wayon hung upon invisible spiral springs which promises to be a great improvement in comiort and economy. It is said to be easy and graceful in metion, especialty in crossing gullies or rough ground-it having more the motion of a lerht boat in gliding over the waves, than a vehicle upon wheels. The springs are made of hrass wire, (iron wire is better if galvanized,) and though weighing only four pounds will carry a load of a quarter of a ton, and can easily be varied in size to support any weight desired. There is als", support any weight desired. There is abs',
connected with them, an invention to prevent connected with them, an invention to prevent
the carriage wheel touching the body in turning, which is also a great improvement. Measures, we understand are in progress for securing a patent for this invention.
India Rubber Springs for Carringes.
Mr. B. F. Ray, of this city, has invented springs for Railroad Carriages made of Geod. year's plepared india rubber. They are said to be more economical and durable than iron springs, combining strength with elasticity.

## Hast lathe.

A gentleman in New Orleans named Peoples has invented a Lathe which can turnout masts and spars with great rapidity. The machine in represented to take out all the bendings with great nicetv by cutters. We presume that it must be upon the principle of Blanthat it must be upon the
chattern gearing.

## Now Boller Feeder.

Mr. T. D. Stetson, of Kingston, Mass., proporses to adopt a new method for mpenimg and clusung the passaces of a boiler and cistern by means of a smooth rod or sliding phate, acting upon colled springs, which attermately open one passage and shuts another more easy, he claims, by the springs and oliding on the rod. than by a lifting float.

New Sprang Awio
We have been iufurmed thit an Awl for pegging boots and shoes has been inve tes in this city, which when it reaches the proper depth in the leather, comes out speedily of atself by mearse ot a sprines.

## Hedge's Cora sincticr.

One of them machnes receutly erected in St bounis, when turned by hand, shelled and cleaned half a bushel in twelve seconds.
Wish one horse, and two men, one fo feed With mie horse, and two men, one to fred
that boper, and the wher to attach the empty casks and driach the fall ouses, a machine wheh casis only fitty or sixt? dellare, will shell had clean it is suid 1000 busbicls a day!

Wromight Iren Trabe Madiuc.
This invention relates to the manufacture o welded wrought iron tubes, the novelty of which consista in forming flat pieces of wrotght iron, with chamfered edges, into tuhes with over-Lap joints for which purpose there is employed, during the closing the seam or juint, a hot and cold blast apparatus applied between the rolls directly upon the seam or joint to be welded, these seams by the intervention of a mandril placed inside the partly furmed tube, verically between the pinch of the two rolls, cause the ream or juint (which is kept by the bhast apparatus in a fusible state) to be welded together by the external pressure of the rulls afuresaid, the engraving $1,2,3,4$, riperent parts of the machine in section $F i k, 1$, is a vertical side section on a Fig. 1.

small scale, the same letters of reference apHying in each case to suitable corresponding parts. A A, are standard frames; B B, are the rolls shown in section C C, the shafts on which they revolve, the periphery of which are semi-circular, so that when placed togethe they form a circle through which the tube passes during its formation; D D, represents
the mouth of the moulding tube attached to the mouth of the moulding tube attached to is a circu'ar mandril or core fitting the inside of the manufactured tube for the purpose of closing the seam by the external pressure of the rolls; G, is the hot and cold blast appara tus worked by steam or other suitable contrivances; $H$, is an endless chain wheel to which motive power is applies; $I$, is a portion of the newly finished tube, constructed according to this invertion; $J$, is the endless chain passing over two pulley wheels at each end of the drawing bench ; K , is a fastening claw or clutch, linked to the chain $J$, with which it travels at the same surface speed as the rolls L L. Fir. 2 represents a plan view of a skelp or bar of iron, before it is converted into a tube, the first process being to bend it in the manner seen at L , to enable the clutch to take hold of it; $M$, is the clutch, which is formed for holding or nipping the end of the skelp that the tighter it is pulled, the tighter it holds these bars of iron-so held, being of various sizes, widths and thickness, having bevelled or chamfered edges are placed in a fur nace, and there kept until at a welding heat they are then placed in a mouth piece or fun-nel-shaped tube, through which it is drawn by the endless chain in connection with the draw-bench, until faished.

$$
\text { Fig. } 3 .
$$



Fig. 3, represents an enlarged transverse Eectios! of a wrought iron tube, with an overlap joint $D$; and $r$ ig. 4 , a plan view of the mouth-prece before described.
It is clamed for this invention: the mode of using either hot or cold blasts arling upon the tnetal, to be juined during the welding of
the seam ar juitt of the rubeg atoresaid; and, secondly, for the made of constructing the rulls with one fange on each of the ends of the boltom rolls, and the top roll fitting on and adjasting themaslues uhen screwed duwn.Auct, thirdly. for the combination of the machine. so as to produce a welded iron dap
jont tube be ome heat, wheel amudno is da ced in the in me of the tube, capable of giv ing saficiear iatemal support; and lanty, for
 her The i, ventur is James isose, of Statford, ELaglaad. We are lot iaformed that any pio
ent has been taken out in this country for a similar invention.

## Harpeons, se.

A correspondent asks if there is any other method used for capturing whales than the entmon lance or harpoon, and whether there has been anyapplication of explosive materials in the whale đishery In answerwe have tostate that three patents were granted last year, two for harpoons, to be used in the ordinary way, and one for a whaler's bomb lance, to be projected by gumpowder. Both of the harpoons have double flukes. In one of them the upper or auxilliary finkes revolve upon the shank; and after the harpoon has entered the whale, its drawing will be resisted hy primary and auxillary pointsat different points, and of nurse its hold will be much firmer than that f the ordisary harpoon. In the other harpoon the auxillary flukes are jointed near the shank to t: e ordinary flukes, with a firmsuppost in addition to the joint pin. When the harpoon is entering the whale the auxilliary llukes lie close to the shaft; but when any draught comes upon it the Gukes spread for wider than those of the ordinary harpoon, and take a much firmer hold. The patentees of take a much firmer hold. The patentees of
these harpoons are Hulmes \& West, Tisbury, these harpoons are Hulmes \& West, Tisbury,
Mass. and Charles Randall, Palmyra, Georgia. The bomblazce was patented by Oliver Allen of Norwich, Conr. It is constructed as follows: A hollow metallic tube is made, capable of containing a considerable charge of powder. The point of the lance has a shank at its everse, and fitting the muzzie of the tube. This shank has a shoulder to prevent it entering the muzzle toc far. At the opposite end of the tube there is connected to it a smaller tube containing priming. When the parts are put together, the appearance of the instrument is that of a common lance. When properly prepared, and the primer ignited, it is thrown into the whale. and the explosion of the powder sends the point of the lance, like a ball, urther into him.

## Musical Instrumenes.

We have received a commuacation from one of our correspondents, stating that his atention was directed to our answers to corres pondents in the Scientitic American of the 9th June, in relation to the use and superiority of five strings for the Violin instead of our. He says that his attention was directed o the subject in 1836, when a pupil of Prof. Mutt, of Quebec, Canada, and at that time from the difficulty of learning the shifts, it ccurred to him that five strings might be a reat improvement over the four. He had a fine silver wire drawn for the purpose, and lso a violin made, but it would not answer, neither would the best Italian E string last longer than 30 minutes. But while the Itahian string lasted, he was conscious of a great advantage. He believes that if a proper string could be made for a Gith string wonderful improvement in tone and facilty for execution would be the result, and such was the opinion, he says, of every person who heard him perform. Those who might be desirous to communicate with our correspondent, will get his address by calling at our office.

## New style of Carpets.

Mr. Whitlock near Edimburgh, Scotland, has invented a process whereby Brrussels, and Wilton, and other expensive hinds of car pets, are made much cheaper than heretofore, while the same time, a more durable article is produced, and the most gorgenus patterns in roduced, with scarcely any-limitation of conors. At one factory there are two hurdred looms at work on this principle. The principle is said to be in priating first the yarn and weaving it by a mathematically correct pattern soon after the prattern of the print. The least baggang in the warp or weft there fore will spoil the beauty of the web.

## Sabing Trunkso

Captain Willtam diams left Wilming on, it geems a short time since, in what is calied "passe iger gum elantic sea-safety trunk," boun to Prilladelphia, with irorisions sulficient for a voyage of three days. The trolk is By unches loag by a bout by binches deep and as many deep. If was buce writton that the bowl," but whit shall be the ent or the

Ranway speed mensurer.
M. Ricardo has invented a michine for the measurement of the Locomotive speed and which has been tested on the London and Brightan Railway with some success. The principle on which its arrangement proceede is that of the centrifugal force, as employed in the common stam engine g"vernor. In order to render that machine available for the purpose of increasing the velocity of a train. a wheel is mounted on the revolutionary axle of any of the carriages, and is made to revolve in contact with another wheel of the same diameter, placed within the carriage. This interior wheel carries a pulley, about which an endless rope is passed. By means of this cord the vertical shaft of the governor is made to rotate about its axis, and the braths, as they rise by virtue of this centrifural tendency. elevate upon the shaft a moveable sole, to which is attached an upright slender metalic rod, cansed to ascend and descent with a ver tical line by means of eles. The upper end of the rodi is made fast to a second but much smaller endless cord passing round two small palleys.
Oue of the pulleys is carried upen on arbor to which an index is affixed, and this index by revolving upon the facc of a dial plate graduated at its circumferance according to a mathematical firmula, represents miles, per hour, the speed at which the trainid moving. A double slip of vulcanized india rubber is used to counteract the rapidity with which the balls would otherwise raise the upright rod, and which would necessarily occasion a very small range of scale upon the dia. The effect of this arrangement is that the whole of the circumference of the dial is brought into graduation, and made to indicate the slightest ad teration of velocity, up to 70 or 80 miles per hour. It is altogether different from another machine invented last year by the same genHeman, which registered the velocity, and exhibited the intervals during which the train was running from station to station, and those alse during which it was stationary, at the station, and is exceedingly simple in its con struction.

## New Life-Buoy.

A highly interesting experiment has beem made at Portsmouth, in the presence of Admirul Sir Charles Ogle, and other distinguished otlicers, of a new life-buny invented by Liett. Irvine, which, beside its properties as an in falliable agent in the saving of life at gea. possesses also the uses of a trunk or sea-chest in which may be stowed, without the poesibility of the approach of wet, such maters as bread or other dry.provisions, linen, ammunition, \&sc.

Fire Clay Alum.
Mr. J. Cliff; of Worly, England, has diseovered a method of making alum out of fire clay. He first takes the fire clay and grinds it, then he submits it to the action of muriatic or sulphuric acid and then by lixivating the mass by water obtains the alumina in solution and set free from iron by means of the prussiate of patash, or sulphurated hydrogen, and then evaporates the solution and gets the muriate or sulphate of alumina. He then mixes it with sal ammonia or sodia, evaporates and crystalizes so as to obtain the alum salt.
Notra Sulphate of 1 ron for Callico Print
We see it reported in some of the papers that a chemist in England has muchimproved the sulphate of iron for calico printing, by fusing it along with the nitrate of polass. We believe that a solution of sulphate of iron and the acetate of lead is better for calico printing thans the aitrosulphate of irom

## Atmosphertc Tides.

It has been proven, by a long geries of ex,eriments at St. Helena, by Cul. Subine, of the British Army, that the air has the same tides, which have their flux and efflux, which aceur at the sume times and are produced hig the same causes that problace the tides of the cemen. This has existed as a hypethetical act ener sace the theny was deceloped of (i)e sun and mom being the frike agents in aksing the ncean tides
The nations of the earth most distinguished or civilization, are the must fumous fir mochanical kuowledge.


Mental Developement
Civilization is a progressive wark-there is no standing still-its principle is continual advancement. The nation that ceases te goforward musi certainly go back. When Rome lost her vistue, she soon lost her prower and with her lisz of power soon cate the night of her Gothic darkness. The use ot history, is to teach us upon what rocks and shoals bations and men have been wrectad, so that we may avoid the evils which have always resulted by a deviation from those principles which in all ages have exalted man. If we wish to be good we must be viriuous. If we desire to be noble, we must be generons. If we wish to be great, we must be energetic, and if wewish to be great, gool and poweral, ive mast be vir tuous, industriuus and just. The most proper direction, therefore, of the meatal facul ties must be towards some object or abjects for the good ot man. If there is a continuat reaching, of the mind to grasp some new idea anless it studies the consequences as well as the mere discovery, the most itaportant en dowment of the soul's power has been led astray in search of an imaginary foible-a foible for earthly fame or selfish aggrandisemem.The man who merely studies tor a great name or to invent something that shall make him rich, may well be lauded for some successful scheme, but surely not for his motives. Every action ought to spring from upright motives. When the fountain is pure the wate will be sweet. Therefore in the mental de velopement of the rising generation, the principal object should be virtue for the moral guidance and the acquirement of usetul, practical knowled se before aitention is paid to mere elegance. The children of our farmers should be taught the principles of agriculture and the children of our mechances the prin ciptes that govern the uechanic arts. There is a wide field for mental expansion in every department of science, and auless the children exceed the parents, we surely carnot expect to be making advancemetts in civilization, but if there is a direct and positive attention paid to the right education of the rising generation, may we not jusily expect that our chil dren will surpass their parents, and if there is not, they will certainly fall far behind.Every mechanic ought to learn his son to draw befure he would learn him to dance or sing and mathematics in preference to Latin. Every chemist, dyer or painter should learn his son chemistry in preterence to any elegant study, music or poetry's charms, and if after having acquired the useful, in fact the positive instruction for an industrious life, he finds tha he has time still to acquire more, but less practical intormation, then he may do so, but the mind should fir.st be directed to the use ful before the ornamental. This much we have gaid in regard to mental develupement know ing that if the rising mands of our people pro gress, ou: country must-ou: people is ou conntry. We have thrown out these few hiats directed to sur mechanic fathers, and our mechanic youth. We would sincerely desire to see our apprentices spending their spare momeats in ac puiring useful ing their several occupations, for we are sorry te say that there is too much ignorance of the very principles with which they ourht best to be acquainted. Let them seep gwid campany, use pu:e language and study for the benetit of man, and we may then expect to see a men. t.1 developement in the rising generation which will carry our conntry forward in the career of civilization with a wing as strond as the eagle's of cur montiains.

The Gulf of Mexico covers a much larger space than matig persous suppose. It ex tenchs north and south about bow miles, ane easf aid west about 7.50. From Alvarad, i Moxico, to Pensacoli, Florita, is abultilior milex- It exceeds in dimensions :llluefict water hales us the glube taken tugether.

Uafformity buthedeiverec. One principle of gravitation causes a stone droys tuwards the earth, and the nown to heel around. One hitw of attraction carries all the planefs about the sun. New comeries are continually discocered, but the old biows of nature are al ways found in them, new planis animals, but aleways in company with plants and anituals which we already kow, and always possessing many of the same general properties. The same order of things attends us wi erever we go. One atmosibhre invests all parts of the globe; one sun illuminates one encon exerts its specific attraction upon all parts. Of all large teriestrial animals he structure is alike; their senses nearly the same their natural functions and passions also nearly the same. Digestion, nutrition, circusecretion, go on in a similar manner 11. Wate: and earth are connected by a spe des of animals that inhatits both, and also by alarge fube of equatic animals, which lisely resemble the terrestrial in the internal sructure, viz. the catirrous tribe who have hot blow, respiring lunga, bowels, \&r., like hose of land animals. This sim litude surely espuaks the same creatiun and the same cre tor.

Middaletown, Ct. Manufictures.
Middletown contains 8000 inhabitants. Its cation is upon a gentle declivity commandng a beautiful view of the winding river and the more beautiful valley stretching far atway to the blue eastern hills. There is a Methodist college lacated there which is in a prospercus condition, and schools of a high character fir the education of both sexes abound The advantages for manufacturing are fine The water privileges are good. The manufacuring establishments are woolen, button and comb, plane, screw and knob, webbing, gun and pistol factories, a steam four mill, \&c.Just across the river, and within two stones throw of the bridye location are the famous Sandstone Quarries teerming with workmen who are continually employed in getting out stone which is sent North, South, East and West.

## Carbonsc Gas

The volume or bulk of carbonic acid ca expired by a healthy adult in twenty-four hours, it is gaid to amount to 15.000 cubic inches, containing about six ounces of solid carbon. This is at the rate of 137 pounds voirdupois per annum; and taking the total population of the globe at seven hundred and ixty million, the amount of solid carbou or charcoal every year prosluced by the human race, exceeds 40,493,143 tuns! Adding to his all the carbon produced by the combustion of fres and gas-lights, by the decay of animal and vegetable natter, the exhaltations rom springs, ete., there need be no marvel as the source whence plants derive their solid or woody material, (which is principally carbon,) seeing that their leaves are especially fitted for the absorption of carbonic and acid gas frou the surrounding atmosphere.

## Westorn ciallroad.

The amount of travel upon this great thor oughfare at the present time supasses that of any former period of its history. The passeager cars are filled to repletion dally-The muense freighting business of the radalso continues without abatement, taxing to the utmost the unrivalled facilities of transionta ion, which have recently been entarged by the addition of mure cars. The work ef gra ding for a 21 track is now going on along the whole line from Springfield to Worcester, and the increase of business will probably ere long demonstrate the necessity of anothe track from $3_{\text {pring fold to Aloany. The income }}$ of the road exhibits a lar; e weekly increase uver the amount ef correspooding perieds of ast year, whea the gross receipt; were $\$ 9.5$, $00-$ The gain of the first six months of the present finameal year, annunts to \$1/1,0,0 which if continued in like manure through he year will swell the recepts of the last ear to zame thas $\$ 1,200,900$.
locasts.
The seventec sear hicasts have mode their ppenrate in immense numbers in the Wes era onrt of Nort' Carolina. Seventeea year ootiay visited the same place.
madehamical movemeata Arch mearlo


The above is a representation of a beam oprating upon a rack and as shown before in the manner of pile driving machines and by operating on stampers. lo the present case it is one of the many wassemployed for the pur pose of stamping. This engraving, however, gives a full idea of the method employed by Watt for connecting the motion of the piston with that of the beam, solving thereby one of the most elegant mechanical problems The piston here tooves in the are of a circle yet by the arrangetnent of the rack shaft and the arch head, white the arch head moves in the arc no sensible deviation from a straigh line is communicated to the rack. This me thod of communicating motion is very objec tionable, it is rough and liable to wear. A chain communicating with a rod or a wipe is far superior to the rack teeth.


To drill holes in iron or wood by the hand drill, is a slow and not very easy task, and to relieve such labor it is no wonder that attention was eariv devoted to this subject. The above simple machine is well known to every mechanic, and without its aid the mechanic who has teo little business for a lathe would just feel as incompetent to perform the little which he has to do, as they would in a large shop where there is much heavy drilling.The bow string is here used to much better purpose andrilling a gun strock, than it possibly ever was by Sultan or Pacha. The drif has a large drum head in which there is a groove. The string is warped in the growve, and the mechanic applying the point of the drill to the place where be wishes the hole bored saws away like a fiddler and finishes his tune when the hole is bored to the required depth. It is used mostly in drilling wood and is a very old instrument. Horizontal and circular motion are here combined.

## Fixploring Expedition.

Drs. Owen and Norwood, with several genthemen are now exploring the regions near Lake Superior and the sources of the Mississippi. They are to make the necersary geo logical and other scientafic explurations of the Government landsthere, prior to bringing them into market. The region is sxid to abound in copper and other minerals They will he absent about five months on this scientific•tour, and we shall look with interest to the result of their researches and observations in that valuable district. The previous reports of Dr. Owen have commanded proround attencion among learned men, and been of great practical beneat to the Government. Dr. Norwood, who is associated with him in this scientific tour, is a gentle. man well gualified for the task. A party of sarvegors will be semf to ran the pracipal meridian from the Lliauis boundary to Lake Superior

## The Oregon Route.

Congress in ide an approprition some time back for the erection of block houses on the Oregon trace, and Capt. Van Vleit is now on his way out. His expedition egasists of five hundred mouted Missuri buluateers, with ou: 12 -pmund hewitzers
The instructions to this com nand are, to erect two block houses - the first, taree hundred miles bevond the wouth of the Kamsariver, where the Orerintrail er ase: the Plate river, and the secund thre ehande a miles beyont the firs: The ex,edtion wall be abse:at (wo )(ars.

War 8feamers.
The war steamers are authorized to to built under the late act of Congress approved March 18.47, are: Two of the first class; hurden, United States tonnage, 2,414 tons. Two of the second class; burden, United States tonnage, 1,379 tnns,
The first class are
Between perpendicula
Bean, extreme, Depth, to gun-deck in hold

The second class are:
Between perpendiculars, $\begin{array}{lr}\text { Bearn, extreme, } & 2100 \\ & 27 \quad 0\end{array}$ Depth to gun.deck in hold, 230 Thetow first class steamers, and one of the second class, to be propelled by side wheel3, the other by a screw nropellor. One of the largest class is to be built at Gosport, and one at Philadelphia: one of the second class at New York, and one at Kittery, Maine-We hope that the order for a screw propeller will be countermanded. No person can read the experiments already made between the paddle and screw without being sensible of the advert ages possessed by the former.

Digeovery of a New Cave.
A few weeks since, while some laborers were working in the lime quarry of Mr . Samuel Anan, of $F$ ishkill, Dutches county, they discovered a crevice which was soon widen ed and an entrance effected : whereupon quite a large cave (abnut 50 feet in length,) exhib iting marks of former occupancy, was disclosed to their astonished eyes. Boards lying upon the bottom of the cave, and supporters to the roof, were found in a somewhat decayed state, showing evidently that they, as well as the cave, are of considerable antıquity. Pieces of rock also are said to have been taken out of the cave, exhibiting a sirong resem blance to silver or lead; and its appearance warrants the belief that it was at one time, long since, occupied by human beings in some pursuit unknowr.
There is a spring of water in it five or six feet deep, which is evidence that the cave is natural ; and it is a singular fact, hat just at the mouth of this cave is a stately eln tree the only one in the neighborhood, suggesting the idea that it was planted there by the form er discoverers, as a landmark to guide them to their treasure.

## Grand Rapids Michigan.

The population exceeds somewhat 2,000 in number. The river at Grand Rapids becomes a broad and powerful stream, far exceeding in capacity the Genessee in our own State and not so subject to excerding low stages of water, and thereby affording one of the very best water powers in the St,te or Union, if properly improved. There are upon it two flouirng millstwo foundries, and various other establishinents incident to the developing $x$ esources of the mighty West.
Hon. Lucius Lyon has erected buildings for the manufacture of salt, and suak a salt well some 700 ft . from which water is procured, which yields from 50 to 60 bushels per day by boiling and evaporation.

A full caryo of copper ore was teceived by the Smeltung Company at Baltimore a few days aro, frum the Flemiagton Mines, New Jerscy,

## To New Subscribers.

Those subscribing to the Scientific AmeriTh will be turnistled, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form handsome and valuable work.

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SOUTHERN CORRICSPONDENCE.

## ehlicott's, Harper's Ferry, Wheeling, de

 Wherming, Va., July 15, 1847.From Baltimore to Wheeling is a distance of 400 miles via Pittsburg, and 300 going by the Blue Ridge Mountams. It was a beautiful morning when we left Ellicott's Mills (9 miles west of Baltimore, ) on board the Cumberland cars; the country along bere presents a wild romantic appearance, and to the lovers of nature, the painter, the poet, and the geologist rich fields are presented to their study. Ther are three factories within two miles of each other the "Thistle," (a Scotch settlement,) the "Patapsco" and the "Union" fac toriesin these factories the workers are well used, and the superintendents of them respected and the morals of the people are good. A fourth large factory is in progress of erection, the stone and wood work completed, and when put into operation, it will be one of the finest factories in Maryland—it is called the "Gra nite Factory." Away we went, at the sound of the whistle, and atter six hours top speed of the steam Peцasus we reached Harper's Ferry. Here the grand pancrama of mountain scenery commences; these towering peaks and mountain woods present a scene at once grand and imposing, unsurpassed in the United States for height and majestic appearance, so say some of our travellers. Looking to the vertex of these high precipicesoverhung with trees, I could not but recollect the words of Lady Randolph in Douglass-
"Ye woods and wilds whose melancholy loom," \&cc
Harper's Ferry is retaci an uneven, irregu lar built town without either design or regard to health, and there is at some seasons of the year much sickness about it. The manufac ture of muskets for the government is extensively carried on in this place. It was here two pugilists from your city fought in the spring, when a band of lawless men defied all civil restraint, becoming conductors and captains of cars and steamboats the whole route from Harper's Ferry to Philadelphia. At half past 2 , we again started, and while we passed the extremity of these huge mammoth peaks heavy thunder cloud overhung them, which bellowed away down the Potomac Valley The railroad runs for a great distance on the banks of the Potomac River a and the country here presents a general sameness for twenty or thirty miles. The river is of a serpentine form, consequently the valley is the same. There are a great number of to uns, villages and little groups of houses on the route. We eached Cumberland in the evening. This city is rapidly progressing. Iron and coal are extensively found in the mountains and great quantities of the latter are now carried on to Baltimore. This is the terminus of the Western Railway, the first in the United States, the great roate by which the produce of the Western world is brought on to the eastern cities. In the Spring and Fall the cars are loaded with merchants from the West and Scuth, making their purchases of goods in Baltimore, Philadelphia, New York and Boston. The fare from Pittsburgh to Baltimone is ten dollars. At a meeting of the stockholder: of the Ohio and Raltimore Railroad Co. last week, measures were adopted to extend the line on to Wheeling, to the muuth of the Ohio iver. At Cumberland we found the stages ready to receive us, and in half an hour we egan to ascend the Cumberland Mountains. Travelling twelve miles we reached Frostburg, a little town at the foot of the far famer Alleghany Mountains; here we alighted and took supper, and I had the privilege of having the first black tea served oet to me in this country, but it was too shorp ior my nerves. We now began to face the first steep of the Allegheny heights, and suffice it to say, those who are partial to staging require only to cross hese mountains to get their fill of it. The horses are kept in good condition, the stages clean and well fitted up, but such jostling thaking, bouncing, internal twitching I neve felt, enough to grind a hole in a fellow's shir with his shoulder bone, and there are a few other disagreeables which I cannot here des cribe. We crossed the mountains during the aight, at timps the full moon shone with splen dor over taem dark extending outhines, al bowe clear and beautiful; at other times the
rain poured heavily upon us. At 7 o'clock
in the morning we reached Uniontown, at the other side of the mountains, having been 12 or 13 hours crossing them, and here took good breakfast sharpened by the mountain breeze. I have no time to say more at pre sent. Yours, \&c

## BRAMBLE BRAE.

## The Perlis of Mining.

A remark in No. 42 of the Scientific Ame ican regarding the common windlass struck me so forcibly, that I send you the account of an accident to which I was a witness, hoping hat it will not be unsuitable to your columns. In the coal districts of Scetland there are ome mines dangerous to work in, from their near connection with old waste pit that are generally filled with water. In 1830, the wa ter from a waste (old pit,) broke intu another where 3 miners were at work, in the middle of the night. Two of them rached the bottom and were drawn up, the other named Morton. perished, leaving a wife and three children to lament his loss. In four hours the water had risen 6 fathoms in the pit which was 13 fathoms deep and 4 feet square, and he mine 2 feet square and one fourth of a mile long. No sooner was the mournful event made nown to the other miners in the distric Barrhead)than they all left work and crowded to the pit where the accident had occurred nd for all the great amount of water which had accumulated, with such good will did they work and relieve each other, that in the urse of 24 hours, just by the common windlass and bucket, all the water was discharged and the body of the lifeless miner recovered. Fall River.
J. REED.

The Women of California.
Of the women, with their witchery of manner, it is not easy, or rather it is not possible or a stranger to speak with impartiaiity, inasuuch as our self-love is naturally entisted in favor of those who, in every look tone and gesture, have apparently no other end in view han the pleasure of pleasing us. With regard, however, to their physical charms, as istinguished from the adventitous accom pishments of education, it is difficult even for a willing pen to exagerate, Independent$y$ of teeling or motion, their sparkiling eyes nd glossy hair are in themselves sufficent to negative the idea of tameness and insipidity; while their sylph like forms evolve fresh graes at every step, and then eloquent features eclipse their own inherent comeliness by the igher beauty of expression. Though doubtless fully conscious of theirattractions, yet the women of California, to their credit be it spoken, o not "before their mirrorscount their time," eing on the contrary by far the more industrious alf of the population. In califomia such a tining as a white servant is absolutely un nown, masmuch as reither man nor woman will barter freedom in a country where provis ions are actually, a drus, and cist hes almost a superfluity; and accordingly in the absence of intelligent assistants, the first ladies of the province, particularly when treated, as they seldom are, by native husbands, with kindess and consideration, discharge all the lightr duties of their households with oheerfulness and pride. Nor does their plan and impledress savor much of the toilet. They wear a gown sufficiently short to display their neatly turned foot and ankle to their white tockings and black shoes, while perversely enough they bandage their heads in a handerchief, so as to cenceal all their hair exept a single loop on either cheek; round heir shoulders, moreover, they twist a shaw!, hrowing over all when they wall, or go to mass, the "beautiful and mysterious manIf Si
If Sir George Simpson is correct in the a bove description, we hope that when Califora comes into the possession of the United States, that the dignity given to labor by the matrons of the west, will not give place to the insipid prejudice with which labor is ooked upon by too many of our republican dames.

Spontancoub Combuation
The Unted States stean ship Mississipp took fire a short time since at Vera Cruz. It was occasioned by the spontinious combusion of ner coal and was only extin, uished by ge greatest exertions of the cic w

Foreign Items.
Pope Pius IX. on the 15th ult gave an audience to the son of the Liberator of Ireland and made a eulogy on Daniel O'Connell, in terms which must have excited the gratitude and admiration of the young member for Dun dalk. At the moment at which the visit arose, after having kissed the feet of the holy father. the Pope said to him : "Since I am deprived of the happiness so long desired, of embracing the hero of Christianity, let me t least, have the consolation of embracing his son !" And at the same time the holy father pressed him twice to his heart.
A correspondent of The Times proposes that the flour of the horse chesnut should be used for the stiffeaing of calico, \&cc., instead fflour obtained from wheat.
Such is the rage for emigration in Germany that a new word, Europamude, tired of Eurone, has come into fashion, to express the discontent of the people wlth their native land.
In the High Court of Justiciary, at Edin urgh, many a juryman, who had attended the court in a state of intoxication, was fined $£ 20$.
A singular old gentleman, conceiving himself overcharged in a surgeon's bill, sent word by the servant of the practitioner to his mas ter,"That for his medicines he wrould pay but as for his visits he wonld return them."
A respectable bookseller, of Birmingham has received an intimation that he has rendered himself liable to fourteen year's transportation, by exhibiting for sale valentines, \&c., whic y the case, in England.
A little church, of
A little church, of a pretty Gothic design, says the Jerusalem correspondent of the Daily $\mathcal{N e w s , \text { , }}$ is waiting for the roof, which though of timber, is to be brought from Eng land. The highest point of Mount Sion crowned with an English church is an inter esting object for contemplation.

Singular Aceident to a Snipe.
A dead smipe was found lately in one of the Castle meads, Hertford, England. It had evi dently been starved to death with food in its break. The upper part of its long bill was jammed into a piece of hollow reed about an inch long, and in the lower part of the bill towards the point was enclosed a small beetle The bird had no doubt been boring into the reed of the bectle, and the stump of a reed had broken, leaving a portion fitting so tight ly round the upper part of the bill as not to be removed by any efforts the bird could make The bird has been stuffed by Mr Knight with the beetle within, and the reed around its bill, as a curiosity.

## Walking and Riding.

Walking is the best of all exercises. It is better than riding. It gives motion and exer cise to the whole body. Look at the indian He can walk farther in a day than an enfeeble white man ca! ride. He can in a few day tire out the best horse. Ear'y rising, with mornigg's walk of half a mile is the best of medicines for persuns of sedentary habits The use of the horse has created a disrelis for walking. Ladies and gentlemen now make hot house phants of themselves and must be moved rouad, ratlier than move them selves. President Jefferson was of the opin ion that we bave lost more by the use of the horse than we have gamed

Meroism in a chind.
Two little children of Robert Donnell, of Montgomery, Alabama, were severely scalde on the 25 th ult., By the upsetting of a tea kettle. One of them, a little boy, died in a ew hours. The Journal relates of the little sufferer, only seven years old, that when the servant rushed to remove the kettle from on him, he cried out, " Let me alone and save sister;" and throughout evinced great patience and equanimity, until death closed the scen of suffering.

New Waterfall.
There has been a new waterfall discovered in the river of St. Louis. This cataract falls into the western part of Lake Superior, which has never yet beendescribed by the geograph ex. It would appear that this new wonder is second only to the Fullis of Niagara. The of tiae fall is filty feet.

Extraordinary lniand City.
out the time Col. Doniphan made hie reaty with the Navijos, a division of hiscom mand was entirely out of provisions, and the Navijos supplied his wants with liberality. A portion of the command, together with Co Doniphan, went to the city of the Sumai In dians, living on the Rio Piscow, which is sup posed to be a branch of the Gayla, made a treaty of peace between the Sumai aird Na vijo, and then returned to the Rio Del Norte These Sumais, unlike the Navijos, live in city, cortaining probably 6000 inhabitants who support themselves entirely by agricul ture. This city is one of the most extraord nary in the world. It is divided into four solid squares, having but two streets crossing its centre at right angles. All the building are two stories high, composed of sunburn brick. The first story presents a solid wall to he sreet, and is so constructed that eac house joins, until one tourth of the city may be said to be one building. The second sto ries rise from this vast solid structure, so to designate each house, leaving room to walk upon the roof of the first story between each building. The inhabitants of Sumai en ter the second story of their buildings by lad ders, which they draw up at night as a de ence against any enemy that may be prowlin about. In this city was seen some Albino In dians, who have no doubt given rise to th strry that there is living in the Rocky Moun tains a tribe of white aborigines The dis covery of this city of the Sumai will afford he most curious speculations among those who have so long searched in vain for a city of the Indians who possessed the marmers and habits of the Aztecs. No doubt we have a ace hereliving as did the people when Corez entered. Mexico. It is a remarkable tac that the Sumaians have, since the Spaniaras left the country, refused to have any inter course with the modern Mexica:s, looking upon them as an inferior people. They have also driven from among them the priests and ther dignitaries, who formprly had power o ver them, and resumed habits and manners of their own, their Great Chief or Governo being the civil and religious head. The counry round the city of Sumai, is cultivated with great deai of care, and affords food not only or the inhabitants, but for large flocks of cat le and sheep.

## Wealth of the Bay State.

In 1790, the whole real and personal prop erty of the State of Massachusetts, was estimated at $44,024,347$. In 1809 it had increaed to $97,949,616$. In 1830 , it was $\$ 205,856$ 422 , and in 1840 , it a mounted to $\$ 299 \cdot 880,358$. The average in 1840, was $\$ 40650$ to each res esident of the state, the number of inhabi tants being more than 700,000, and in 1847 it will amount to about $\$ 3,754,000$. From hese facts it appears that wealth increases in Massachusetts, three times faster than the population. Were the whole property of the State equally divided, every family consisting of five persons, would have an estate worth $\$ 2,032$. But the cost of living has kept pace with the increase, for the average sur plas over consumption is only about ten dol lars per head.

> Carmen.

The Court of Common Pleas at Boston, has given judgment against the owners of a truck, or $\$ 150$, in favor of the parents of a little irl 6 or 7 years of are. The truckman, lef his truck with the shafts propped up by a stick of wood, and the child, while playing around it, knocked down the support and the shatt fell upron her, breaking one of her limbs.

## New Telegraph Lines

Two new telegraph lines diverging from Rochester, are in contemplation. One is to run to Medina, 40 miles, touching at Brock port and Albion ; the other to Danville, 52 miles, with stations at Scottsville, Geneste Avon and Mount Morris.

## TO CORRESPONDEGNTS

c E. G. of Mass."-The amount of effective force together with the proportionate resistance ought to have been explained minutely. The enquiry first made is, when is first impulse applied and in what manner. Your machine is too complex and you will find that it will not operate to any advantage. Experiment may yet lead to something more simple in combination with the gravity as well as the buoyancy of fluids.
"A. W. of New Jersey."-For two run of stones it will take 24 horse power at least.The expense per day would be not less than $\$ 6$. The cost of the engines, their advantages, expense, and all expense connected with them, can be obtained by communicating with Phelps \& Messenger, Lodi Mills, Syracuse. N. Y. They have an engine and water wheel and can tell their relative advantages
"T. D. S. of Mass."-The exact pressure and resistance ought to have been stated in the account of the feeder. If the weight of the water is no more than the effective pressure of the steam in the builer, then their forces are equal. The regulation of these fonces is not definitely explained. The least condensation of steam in the boiler forms a vacuum and the water then will rush into the boiler from a level far below that of the boiler's. The grand desideratum is a continual supply in proportion as the steam is exhausted without the least loss of any steam by the escape. The data to go by is, that whatever period is required to heat a mass of water from $50^{\circ}$ to $212^{\circ}$, six times that period is required with a regular heat for its evaporization. A cubic weh of water expands to 1000 by heat.
" J. A. T of Alabama."-We cannot advise you to get a Rotary Engine for a Girist Mill Some few have operated tolerably well on a $s^{\text {mall scale, but not one has been successful on a }}$ large scale. Get a good parallel engine. We know not of a single Rotary Engine in operation of 20 horse power and there are none of that size made in this city
"T. E. M. of N, B."-We shall answer you by mail.
"S.W. of Mass."-You shall receive the desired intormation soon.
"L. A. of Mass."-Bolton and Watt suppose a hurse able to raise 32,000 pounds avordupois one foot high per minute. Desaguliers makes 27,500 , and Sineaton 22,916. Bolton and Watt, however, in calculating the power of their engines, suppose a horse to draw 200 lbs. at $2 \frac{1}{2}$ miles per hour, or 220 feet per mi nute with a continuance drawing a weigh ${ }^{t}$ over a pulley. Now $200220=44,000 \mathrm{lbs}$. 1 foot per minute, or $1 \mathrm{lb} .44,000$ feet per mi nute. The latter is Brunton's method of calculating horse power. You can examine mo dels of patented machines at the Patent Office free of expense.
" W. B. of Mass.-The institution of which you enquire (using the fashionable term asexpressed here,) we consider a humbug.
"J. H. W. of Me."-Your name was sent as a 6 months subscriber only, and no money received at that. By the way, where is Mr Barrett ?
" R. M. of L."一The capacity and character of Jacobs' machine is unknown here.
"B. W. C. of Mass."-A pamphlet with a full description of Morse's telegraphic alphabet has been published, and is for sale at almost every Telegraph office. It will give you all the desired information minutely
"P. G. of N. Y."-The combination of the wind-mill and water-wheel for a more regular motion than by the wind-mill alone, is good for such a purpose. but it is not new, neither is the steam engrae for such a purpose. A good steam engine would be more economical of itself You will perceive that to have a steam engine, water-wheel and wind-mill, all to do what the steam engine could do alone, would be a very injudicious expenditure.

The American Art Union now numbers about 1500 subscribers, being an increase of 200 per cent during the past year. This evidence of its success is very gratifying. The institution is doing much for the pronation
of the fine arts in our country, and we hope it will yet receive the most ampl cacouragement.

It is a singular coincidence that St. Paul's Church in Philadelphia and St. Paul's Church in Rochester, N. Y., were both destroyed by fire on Sunday last. The former was struck by lightning, fired and totally consumed. The congregation had barely been dismissed when the accident occurred. The building cost $\$ 28,000$, was nearly new, and insured for $\$ 17,000$. The origin of the fire which des troyed the latter is unknown. At two o'clock in the morning the belfry was discovered to be on fire, and in less than an hour the magnificent edifice was a heap ofruins. It was built in 1829 at a cost of $\$ 30,000$, ald was insured for $\$ 10,000$
The MSS. and scientific books leit by the late Prefessor Hassler, of the Coast Survey, were destroyed by fire at his son's residence in Philadelphia, a few days ago. $\$ 30,000 \mathrm{had}$ been offered by the United States Government for them.

The roof the large building in Roxbury, Mass., occupied by the Boston India Rubbe Belting Co., and a hosiery knitting establishment, was struck by lightning. one day last week, causing a loss to the occupants of abou $\$ 3000$.
The woolen factory of Meacham \& Taylor Marcellus, Onondaga Co. N. Y., was destroyed by fife on the evening of the 20th instant, with about 10.000 lbs . of coarse wool. Loss $\$ 10,000$-of which $\$ 4000$ only was covered by insurance.
The extensive tack factory of Campbell \& Chess, in Birmingham near Pittsburgh, with several adjoining houses, was consumed by several adjoining houses,
fire on Wednesday week.
A destructive fire occurred at Ripley, Ohio on the night of Tuesday week, which destroy ed ten or twelve buildings, including the warehouses of D. Every, J. Pennington ond Pazton \& Collins.

## Making brick by Machinery

In one yard near Boston, there are now at work twenty machines, of which ten are at work one day and the other ten on the next. These are operated each by four men. A steam engine is employed to prepare the clay. This establishment has made one hundred thousand bricks a day for many days past, and that is a regular day's work, ending at $40^{\circ}$ clock P. M. each day. The machines are of the patent of A. Hall, Perth Amboy, N. J.

## Wyeth, the Artist.

We were invited to this gentleman's rooms a few days since to examine some specimens of oil paintings by this artist, which we took great pleasure in examiniag. It is evidert to every one that is acquainted with Mr. Wyeth's ability as a painter that he is a most talented artist, and for correctness of likeness in his portraits, we never have seen a professor of the art that represented life so perfectly as this gentleman, His rooms are at the Temperance House, 63 Barclay street, where he would be pleased to exhibit his specimens to any who may be disposed to favor him with a call.

## Literary Notices.

The Phonographic Reporter's First Book No. 1; and the Phonotypic Reader, for the use of schools and families, are works just published by Andrews \& Boyle, Nassau street, over the Sun office. This science is worthy of much attention.

Colambian Magazine.
The August number of this splendid monthly has made its appearance and is truly an elegant one. It contains three beautiful engravings and is composed of matter from some of the most talented authors of the day.Ormsby \& Hacket publishers, 116 Fulton st.

## Unlon Magazine.

Number 2 of this splendid Magazine has made its appearance, and like the former number, is a beautiful specimen of A merican lite rature and art. It is published by Israel Post, 140 Nassau st.

DAUGERRIAN GALIERY. GURNEY'S
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No. 189 Broadway, N. Y.

## ADVERTISEIMENTS.

This paper circulates in every state in the Union, and is seen principally by mechanics and
manufacturers. Hence it may beconsidered the best manufacturers. Hence it may be considered the best medium of advertisin, for hose who import or man and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.
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ating siketches, "Whittings, jokes, scraps, News
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##  



Plumb and Level Indicator.

 duced to engage in the mantifacture of them to a
large extent. It is understood from the engraving arge extent.
that the proper position of the instrument is is vertica,
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in a perpendicular position, so that either the botom
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vertical or oblique urarace the index will show ita
inclination, (if here be any) in degrees. nclination, (if there be any) in degrees.
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Assnying Metals．
This process is very often spoken of in the papers，but many persons，perhaps，do not know yet would like to know how it is man－ aged
The miners grind the gold rock ine，keep－ ing it wet constantly？and cs it becomes fine， it washes off．They have a kind of hard stone for grinding．They thenmix quic＇rsilver with it，and that collects the gold dust．It is wash ed our，dried，and yors through some heating process．The gold dust is then usually sold ti the superinteadent of the niat．Sometimes the winers melt the dustand cast it into a bar befire offering it at the mint．Tor find the value，each parsel has to be assayped．The assaying is the most curious and scientific or all the business in the mint．The melter take the gold dust，melt it，and csst it into a bar，when it is weigned accurately，and a piece s cut off for the assayer．He takes it，melts t with twice its weight of silver，and several tines its weight of lead．It is melted in small cups made of bone－ashes，which absorb al the lead；a large part of the silver is extrac ted by another process，and the sample is then rolled out to a thin shaving，coiled up and put in a sort of glass vial called a mattras with some nitric acid．
The mattrasses are put on a furnace and the acid is boiled some time，poured off，a new supply put in，and boiled again．This is done several times，till the acid has extracted all the silver and other mineral substances， leaving the sample pure gold．I he sample is then weighed，and by the difference between the weight before assaying and after the true value is formed．All the silver over and a－ bove five pennyweights for each lot，is paid for by the mint at its true value．The gold after it has been assayed，is melted，refined， and being mixed with its due proportion of alloy，（equal parts of silver and copper，）is drawn into long strups，in shape not unlike an uron hoop for a cask；the round pieces cut out with a sort of punch，each piece weighed， and brought to the right size by a file，if too heavy，when it is milled，or the edge raised， and put into a stamping press，whence it comes forth a perfect coin．

## electric Incandescercharcoal Points

The most spleadid phemomenon of this kind is the combustion of charcoal points－ Puinted pieces from gas retorts answer best If two such points are put in immediate con－ tact with the wires of a galvanic battery and brought together，they will begin to burn with a dazzling white light．Professor Bunsen ob tained a similar flame from a battery of four pairs of plates，its carbon surface contamm 29 feet．The heat of this flame is so intense， that stout plativum wire，sapphire，quartz and lime are reduced by it to a lijuid form．No combustion，singular as it may appear，take place in the charcoal itself，when sastains on Jy an exceedingly minute loss in weyght，and becomes rather denser at the points．The phenumenon is attended with a still more vi vid brightness if the charcoal points are pla－ ced in a vacuum，or in any gas which is not supporter of comberstion Instead of two charcoal points one only need be used if the fullowing arrangenent is adopted：lay the prece of charcoal on some quicksilver that is comected with one pole of the butery and complete the arcuit from the other pole by a strip of Watham．Professor Peschell says that wher he has used a piece of well burned coke in the manner described，he bus obtained light intulerable to the eyes．

## Daguerrotyping Lightnang．

The St．Lours Revelle says that an antist in that city has，after repeated exireriments，ac－ tiantly succepsled in Daguerrot！ping a streak of lightuing，a gentestreak of the real smake order．Soperfect and instantiauesus was the operation that mariads of intervening drops on rain wete transletred with sundernin dis． tiacturss to the plate，every drop setainats its ghabular torm，stawing that no appreciable b，maco of time sam consumed in tate operation．

THE AKT OF PABLTING
（Continued from No 44．）


In painong the pictures of ste：mbinats，sinus and other vessels，it is convenient to have a variety of outline drawings of veisels of va－ rious kinds，sizts and positions on paper；the backside of these fapers are to be brushed over with dry vepitian red；then by placing one of the papersagainst the wall，and tracing he outlines with a pointed piece of aron，bone or wood，a copy thereuf is transfersed to the wall ready for coluring．The painting of ar－ bors，houses，villages，\＆c．is greatly facilta－ ted by means of stencils，（perforated pieces of paper，descrihed in a former number．）For this purpose several stencils must be made to each other；fur example，one piece may have the form of the front of a dwelling house or other building，cut through it ；another piece may have the furs of the end of the same house，as viewed from an oblique direction；a hird piece may be cut to represent the roof， and a fourth may be perforated for the win－ dows．Then by placing these successively en the wall and painting the ground through the perture with a large brush，and with such colors as the different parts require，the ap－ pearance of a house is readily produced，in a nearly finished state．If the bouse stands on the second distance，the windows are painted
with blue－black；on the third distance，the with blue－black；on the third distance，the lue，used is a minture of the culur last men－ ioned，is used．It has been before remarked hat all the colorg used in representing fizures on the fourth distance，are to be reduced with sky－blue，so as to give them a faint appearance． Trees and hedse－fences，or stome walls，on the
bird and furth distances，are formed by means of the flat bushing brush，before des－ cribed．This is dipped in the required colur and struck endwise upon the wall，in the man－ er io produce，not a full print，but a cluster of small prints or spots，thus：


By adroit vanatums of the motion of this brush，all the variety of trees and shrubs may be represeated in open ground，as well as for－ egts and distant woodlands．The first color ased in trees of the third distance，is a mix－ iure of forest green，blue，and white；the green predominating．This colur is applied the heaviest on the side opposite the light， termed the shade side．The liuht side is then firmed with the same or a sinilar brush，ami with lemon－y ellow，slighly tinged with green The stucks of the trees are first drawn with slate－color，and heightened with horizon red In painting forests，it is common to apply a diversity of colors in the heighteming，such as lemon－yellow，yellow－green，French green， vermillion，yellow ochre，and somerime white．For the trees and moodlands of the courth distance，a pale blue color，slighty changed with green is used．In the illustra－ tion at the head of this article，on variety of trees with fieds and rences，are represented an miniature ；but the culoring will be more ful ly described in our next number．We pur pose giving a dozen or more outline designs， or the use of yount practitioners．

## （Tobe continuedl．）

## Picroscopic wonders．

Upon exambiug tha eibe of a vary shar lancet with a microscope，it whll appear a broad as the back of a knite；roush，a weten mill of noches and farrows．A，excreding winall medle resembles a rongho isonbar．Bun the sthy of a bet，sepll through the sam
tiful polish，without the least glaw，blemish inequality，and it end，in a point to fine to be discerned．The theads of a fine lawn eeem coarser than the yarn with which ropes are appears perfectly smonth and shining，and every where equal．The muallest dot，that can be made with a pen，appears irregular and uneven．But the little specks on the wings or budies of inects are to und to be most ac－ accurately circular．The finest miniafure paintings appear before the microscoperug ged and uneven entirely vord of beauty，eith er in the drawing or coloring．The mos？even and beautiful varnishes wi＇l be found to be mere roughness．But the nearer we examise the works of God，even in the least of his productions，the more sensible shall we be of his wisdom and power．In the number less $s_{1}$ ，ecies of insects，what proportion．ex actuess，uniformity，and symetry do we per ceive in all organs！what prolusion of color－ oring！azure，green and vermillion，gold，sis ver，pearls rubies and diamonds；fringe and embroidery on their bodies，wings，heads and every part！how high the finishing，how in ratable the polish we every where bethold．

## Hagic marrors

A late report of the French Academy of Sciences，gives the following account of me tallic mirrors，which are brought from China， and are called Mayic Mirrors．They are said to possess a fanciful and entirely useless pro perty．The back usually presente charac ters which are in relief of cut in，and whic seem to be of a date long back．Those who do not read the Chinese language easily， would imagine that these characters merely represented the merchants＇address．But when the full solur light falls，upon the polished surface of the mirror，and the reflected focus is received upon a screen，it is observed that this focus instead of giving an image of uni－ form intensity，shows a representation，inore or less faithful，of the characters which exist on the back surface of the mirror．What is singular about it is，that in looking directly a the reflecting surface，there is not perceptible in the polish any inequalities sufficient to ac－ count fur the fallacious appearances whichare shown in the direct rays of the sun．This phenomenon is notaltogether destitute of im portance．Well finished mirrors sell in Chi－ na as well as in France，fifteen to twenty fimes higher than others．This is enough to explair why manufacturers who possess the secret keep it closely As to the learned in tho Celestial empire，it seems that in general they are ill informed on this subject．M． Stanislats Julien has discovered bowever，in the wratings of a certain Ou－tsen king ，some antormation referring to it．The Chinese wri－ ter says＂on the buck of a mirror formed of fine copper，is produced，by casting it in a mould，a dragors placed in a circle，and on The other tace of the disc，a second dragonex－ aetly similar to the firss．Aftewards with a kind of cupper a litule more coarse，the deep lines of the engraving are filled up，and this metal is incorporated with the first，which must be of a purer quality，by submilling the mirror to the action of fire，atier which the face of the mirror is sranotied and dressed and a light coat of brass $s_{1}$ sread over $i t$ ．When he polished dise of a mirror thes ：repared i． harned tows ards the sun，and its images reflec ted on a wall，it presents distinelly the Kight and dark shades，which come some from the purer parts of the copper，others from the coarser portions．＂Ou tsen－king affirms that he has seen a mirror on＂this kind broken，and hat the verilied hatraself the exactuess of his descriptiva．

## recipes．

Cement uged by C．oppormanithas mud fina－ ghucers to scemace Johints．
Builed linseed wit and red tean mixed tugeth． er intoputity．The washes of leather or cloth are sineared with this mixture in a past． stase．Rrsin mastic alome is sometimes uspd by jowellers to cement，by brat，campers ut white enmal or culured ylass to a real stione as a ground to produce the appearance of an 0：3 x

Plumbers cement．
Blick rosin w．e．e part，brick duat two parta，

Cement of Dilbal for coating the fronts of
Buitsings．
This cement consists of linsped oil，dried by being boiled wath litharge，and mixed with porcelain clay in fine powder，or plaster of paris，to give it the consistence of stiff mor－ tar．Any color may be given with ground bricks or pottery．A little oil of turpentine aids its cohesion upon stone，brick，or wond it may be applied to sheets of wire cloth，and laid upon terraces，to make them water tight but lead is not much unre expensive．

## Corks．

This cement consists of pitch hardened by dding rosin and brick dust． （rors Rust Cement
Mix Irom 50 to 100 parts of iron borings． pounded and sifted，whth 1 part of sal ammo wiae．When it is to be applied，mix it with water mulficmpit to rive it a pasty cons：stency Another cement of the Same $K$ ind．
Mix 4 parts of tiae burings or fillings of iron with 2 parts of potter＇s clay，and 1 part of pounded poitherds，making them into a paste with sult aud water．If allowed to concrete slowly an iron joints，this cement become very hard．
A BIociding Composition for Making Ax chitectural Orbaments in Reller．
ls furmed of glue，chalik，and paper paste the paper aiding the cohesion of the mass． Even statues have been made with it．

It is said that a bowl，containing two－quarts of water，set in an oven when baking，will prevent pies，cakes，bread，\＆c．，from being scorched Dubatful，very

## THE NEW YORK

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## BY MUNN \＆COMPANY

The SCIENTIFIC AMERICAN is the Ad cote of Industry and Journal of Mechanica and other Impiovements：as such its contents are probably more varied and interesting，than those of any other weekly newspaper in the United States，and certainly more useful．It contains as much interesting Inteliigence as six ordinary daily papers，while for real beneft， it is unequatled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS，illustra． ted by NEW INVENTIONS，American and Foreign，－－SCIENTIFIC PRINCIPLES and CURIOSITIES，－Notices of the progress of Mechanical and otber Scientific Improvements scientific Essays on the principles of the Sci－ ences of MECRANICS，CHEMISTRY and ARCHITECTUBE，－Catalogues of American patents，－INSTRUCTION in various AliTS and TRADES，with engravings，－Curious Philosophical Experiments，－the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA，－Valuable information on the Art of GARDENING，\＆c．\＆c
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