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THE
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☞See advertisement on last page.

Poetry.

THERE'S ROOM ENOUGH FOR ALL.

What need of all this fuss and strife,
Each warring with his brother?
Why should we, in the crowd of life,
Keep trampling down each other?
Is there no goal that can be won,
Without a squeeze to gain it?
No other way of getting on,
But scrambling to obtain it?
Oh, fellow-men, hear Wisdom, then,
In friendly warning call—
"Your claims divide, the world is wide—
There's room enough for all."

What if the swarthy peasant find
No field for honest labor:
He need not idly stop behind,
To thrust aside his neighbor.
There is a land with sunny skies.
Where gold for toil is given,
Where every brawny hand that tries
Its strength, can grasp a living.
Oh, fellow-men, remember then,
Whatever chance befall,
The world is wide—where those abide,
There's room enough for all.

From poisoned air ye breathe in courts,
And typhus stained alleys,
Go forth and dwell where health resorts,
In fertile hills and valleys;
Where every arm that clears a bough
Finds plenty in attendance,
Up, leave your loathsome cities, now,
And toil for independence.
Oh, hasten, then, from fevered den,
And lodgings cramped and small;
The world is wide—in land beside,
There's room enough for all.

In this fair region far away,
Will labor find employment—
A fair day's work, a fair day's pay,
And toil will earn employment.
What need, then, of this daily strife,
Where each wars with his brother?
Why need we, through the crowd of life,
Keep trampling down each other?
From rags and crime, that distant clime
Will free the pauper's thrall,
Take fortune's tide—the world so wide
Has room enough for all.

Three Weeks After Marriage.

My dearest, are you going out?
Indeed, 'tis very cold!
Let me, sweet love, around your neck
This handkerchief enfold.

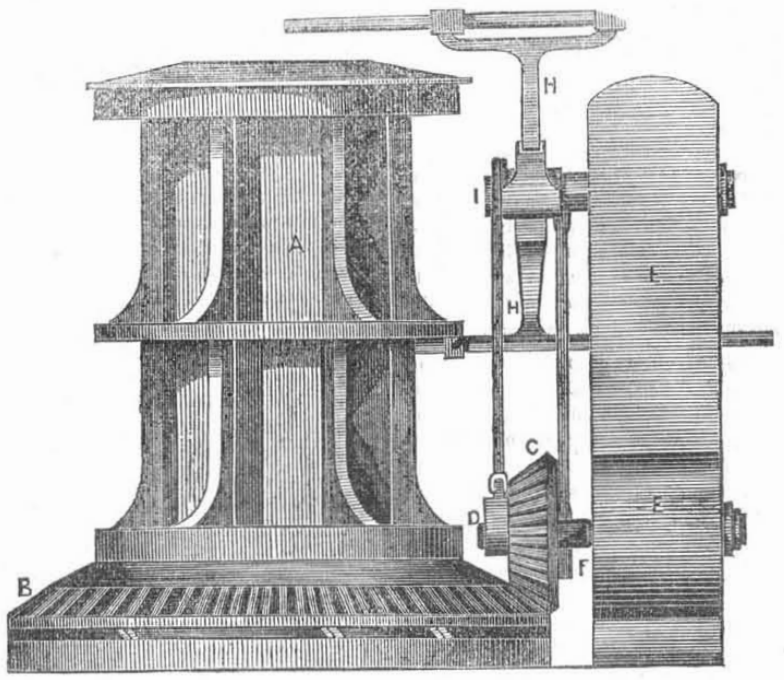
You know how anxious for your health,
My own dear George, am I;
One loving kiss before we part—
Good bye, sweet chuck, good bye!

THREE YEARS AFTER MARRIAGE.

You're going out! why don't you go?
I cannot help the rain,
You wouldn't grieve me mightily,
To ne'er come back again.

Umbrella! I don't know where 'tis—
What'll you want next? I wonder!
Don't pester me about your cold—
Good gracious—go to thunder.

IMPROVED SHIP'S CAPSTAN AND WINDLAS.---Figure 1.



This is an improvement in ship windlases and capstans, by Mr. John Rombley, of Sunderland, England, which is an application of a pinion wheel, which gives motion to a cog wheel, operating the barrels of a capstan or windlas by a ratchet and it is exceedingly simple in construction, although the principle is not new in this country.

FIG. 2.

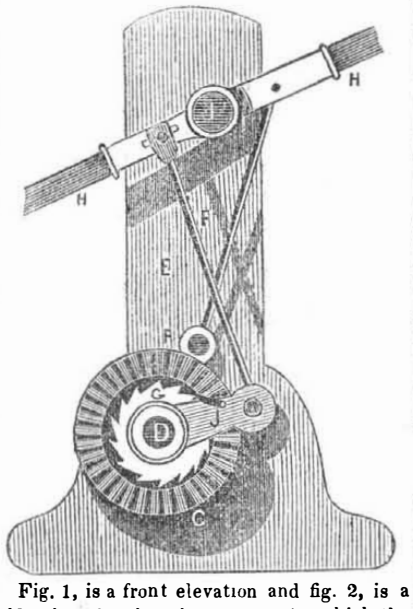


Fig. 1, is a front elevation and fig. 2, is a side view showing the manner in which the apparatus is worked. The same letters indicate like parts on both figures. A is the capstan with concentric bevel wheel B, or plinth, and C is a bevel pinion which gears into it. D is a shaft in the standard E on which the pinion and ratchets, fig. 2, revolve. The standard E carries the motion gear, with which is two clutch head ratchet rods F. G, fig. 2, is the ratchet wheel, H H, the motion lever, with cross ends vibrating on a shaft, I. When motion is communicated to the lever H, the ratchet J J (one on each side fig. 2,) are operated by the rods F F, to take into the ratchet wheel, as seen in the end view, and move it in the required direction operating the capstan by the bevel plinth wheel B. The capstan is therefore operated by a reciprocating motion, by ratchet rods which work loose on the shaft D, and catch into the fixed ratchet wheel moving the bevel pinion and shaft to turn the capstan. This capstan is a combination between the principles embraced in the improved Windlases of Mr. C. Leavitt, page 188, and Mr. E. Hallock's, page 196 vol. 3 Scientific American.

Various improvements on capstans and windlases have been brought before the public, but it is no easy matter to introduce improvements in machinery on vessels, unless the captain or owner happen to be the inventor. No class are so strongly embued as our nautical men with predilections for what is old and well tried in preference to what is new although it may be far better.

Windings of the Ohio.

There is a town called Burlington, eleven miles from Cincinnati, in the State of Kentucky. The steamer which leaves Cincinnati and descends the river to the distance of fifty miles is often as near as six and never more than twelve miles form Burlington, the river with a sort of remarkable affection, encircling it in its eccentric twistifications. Patriot, Ind., is fifty miles from Cincinnati by the river, yet there is a cross county road, through Kentucky which brings you to a point opposite Patroit, after a pleasant ride of only twenty-two miles. By land, Louisville is distant only 91 miles, while by water it is 150. These singular and eccentric peculiarties are abundant on both the Ohio and Mississippi rivers—in fact on all the rivers of the West.

The salt found in the great salt lake in California, is superior to any now in use, for preserving butter, beef, &c. It is the strongest ever yet discovered. Three barrels of water make one of salt.

Is the Bee the Pioneer of Civilization?

The author of "A Tour on the Prairies" says the Indians regard the bee as the harbinger of the white man, as the buffalo of the red man; and say that in proportion as the bee advances the Indian and the buffalo retire.—The wild bee is said to be seldom met with any great distance from the frontier. When the honey bee crossed the Mississippi, the Indians with surprise found the hollow trees of their forests suddenly teeming with honey; and nothing can exceed the greedy relish with which they banqueted for the first time upon this unbought luxury of the wilderness. At present the honey-bee swarms in myriads in the noble groves and forests that skirt and intersect the prairies, and extend along the alluvial bottoms of the rivers.

A very curious matrimonial alliance was formed several years since in Illinois, by the marriage of a father and son to a daughter and mother. Each couple had issue, two of whom intermarried a year ago, and now have a child.

RAILROAD NEWS.

The New-Haven and New-York Railroad Co. have published their terms for yearly commuters on that road, and have put the rates very low in order to induce persons to settle along the line of the road. To New Rochelle, for instance, the yearly commutation is $50.

Southern Railroad.

The Railroad from Jackson, Miss. to Brandon, is nearly ready for the laying of the rail. The ships chartered to bring the iron from Wales, have arrived at New Orleans; and locomotive engines are being made in Philadelphia, and will, it is believed, be finished by the 1st of April next.

The Michigan Central Railroad.

The Central Railroad Company, as we learn from the Detroit Daily Advertiser, have made arrangements to run two daily lines from Buffalo through to Chicago and Milwauke, during the ensuing season of navigation. The cars will leave Detroit for New Buffalo, every morning and evening, and steamboats will run in connection with them, from Detroit to Buffalo, and from New Buffalo to Milwauke and Chicago. The competition between this route and the Lake line will no doubt be spirited, and as usual, when there is competition, the public will be benefitted.

It is contemplated by the railroad lines between Buffalo and Albany, to make the time from one city to the other in 31 hours, and arrive in the latter in time for the New York boat.

It is stated that Mr. Robert Stephenson is now in Egypt, at the instance of the British Government, to survey and report upon the practicability of making a railway across the Isthmus of Suez.

The first telegraph despatch communicated on the line between New Orleans and the Balize, was received at the former place on the 30th ult.

Massachusetts Enterprise.

Since 1846 about $57,000,000 have been invested in public enterprise by the people of Massachusetts. The dividends to be made on these invesments the present year will exceed $10,000,000. The valuation of the State is over $140,000,000,

A Mr. Forbes, from Aberdeen, Scotland, has become possessed of one of the richest quicksilver mines in the world in California. 1500 flasks, of 75 lbs. each had been got in a very short time, at an expense of ten to twelve dollars per 100 lbs.

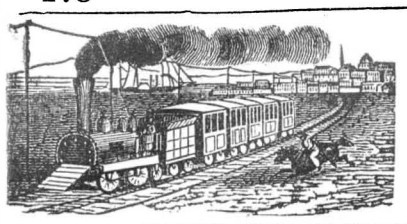
Terrible Accident.

Mr. John Gutz, a German, engaged in Mr. Bell's planing mill, on Duquesne Way, Pittsburg, was horribly mangled on Tuesday afternoon last week. He was attempting to put the circular saw belt on the drum, when his hand was caught between the belt and drum, and carried up over the drum to the ceiling of the shop. His arm was broken in three or four places, above and below the elbow, his hand broken and shattered, three or four ribs broken, with serious internal injury to the lungs and pleura. Dr. Walter, who dressed his wounds, considers the unfortunate man's life in imminent peril, from the internal injuries.

Mr. Emmons whom we mentioned before as having been injured at Mr. Snowden's Planing Mill, Philadelphia, has since died from the injuries received.

People should be very cautious and careful about machinery.

An explosion took place in a coal pit in Wakefield, England, in which 83 persons out of 110 were killed.



Magnetic Clocks.

Dr. John Locke, of Cincinnati, does not claim to be the first inventor of an electric clock, but his can perform what no other can do or has ever done before, especially its combination to register by telegraphic marks astronomical observations. The following are its peculiarities not belonging we believe to any other magnetic clock :—

When atmospheric or other causes interfere temporarily with the action of the time-scale marked on the Morse register fillet, at a distance, as soon as those causes cease, the true time will again be registered, in exact accordance with the clock.

The Morse register may even be stopped and the graduating of the time-scale be thus interrupted, yet, when it is started again, the time-scale will not begin where it left off and be thus behind hand, but it will indicate the then time of the clock.

It will print, at any telegraphic distance, an exact time-scale of seconds, or any other unit on the running fillet of the telegraph.

It will mark on the time-scale the periods of every five minutes, 10, 15, 20, &c.

It will mark on the time-scale the commencement of every hour.

It enables an operator at any part of a telegraphic line to print down on the time-scale the occurrence of any event, to the hundreth, or, if need be, to the thousandth of a second.

By this seventh property, it enables the astronomer, by a touch of his finger, to enter on the time scale a legible and permanent record of his observations.

Mr. Bain was the first who constructed an electric magnetic clock and we are not aware, although it has been stated, that Professor Wheatstone can lay any claim to its invention. In the month of September 1847, Mr. H. Hatcher, C. E. took out a patent for valuable improvements in electric clocks. It is only for signalling, not registering like Mr. Locke's, but it can play on different bells to signalize and let the operator know what hand is moved, if for telegraphic purposes, and one hand can be made to move in one direction, and the other in another direction. Mr. Hatcher's Rheotom for breaking and closing the circuit, is new we believe. It consists of mercury contained in a hermetically sealed glass tube through which platina wires fused to the glass protrude and are connected outside with the batteries. The Rheotom is fixed upon an axis, can be set vertically and break the connection, as the mercury does not fill the tube. By enclosing mercury in the tube in this manner it is kept from oxidising.

The above remarks are elicited from us in answer to some inquiries made by letter. It is the understanding we have of the matter, but there may be other information connected with magnetic clocks which has not come into our possession.

Telegraph Round the Globe.

The proposition of Dr. Jones the telegraph reporter, this city, is to run the lines of wires from St. Louis, Missouri, to the Western side of the Rocky Mountains, there branching North and South to Oregon and California. The Oregon branch he would have continued to Behring's Straits, where the wires should cross to the Asiatic side, and so proceed through Siberia to St. Petersburg, whence lines might be constructed to all the principal cities of Europe. He considers the project before the Senate, for a submerged line across the Atlantic, visionary; but Behring's Straits being only 30 miles wide and 30 fathoms deep, the wires may be sunk with anchors—the governments of Europe and America to unite in the project.

In such a project, the governments of Europe, Russia at least, will not be likely to engage—the language of freedom would too often travel along the iron wings, to suit the policy of a *one man* government.

The trade of China with the United States is said to be worth $10,000,000 a year.

LITERARY NOTICES.

We are indebted to De Witt & Davenport, Tribune Buildings, for the splendidly embellished March number of Sartain's Union Magazine. The first engraving represents "The Moment of Suspense," described by a pathetic poem from the pen of Eliza L. Sprout. The last verse perhaps will paint the scene to the imagination of the reader :—

"The dead—the dead ! oh pray to God
That sight thou ne'er mayst see—
A blue dead hand, a stark dead face
Beside the lonely sea,
And young hearts writhing 'neath the stroke
Of their first agony !"

The Magazine is one of much merit, and we take pleasure in recommending it to the community.

The Laws of Life Health and Happiness.

This is a very useful essay on the above interesting topics, by Robert J. Culverwell, M. D., published by J. L. Redfield, Clinton Hall. We consider this to be a work that should be read by every man, and when read, responded to, by compliance with its teachings.

Bourne's Catechism of the Steam Engine.

Messrs. D. Appleton & Co., No. 200 Broadway, this city, have republished this exceeding useful and sound catechism of the steam engine. It is not as many may suppose, a superficial work on a severe science for a young beginner, but it contains matter instructive to both the young and old engineer, and this too in a simplicity of style and plainness of expression, which makes it doubly valuable in comparison with too many works on the steam engine. Every young mechanic should have it.

Comparative Embryology.

This is a work comprising the 12 lectures of Professor Louis Agassiz, the greatest living naturalist, delivered before the Lowell Institute in Boston in the months of December and January last. It is published by De Witt & Davenport of the Tribune Buildings, and is the cheapest and best scientific work of the kind published. It is illustrated with numerous engravings presenting to the most common minds a knowledge of this science so interesting to all.

Prevention of Smoky Chimneys.

We see it stated in one of our exchanges that Sir Henry Hart, Commissioner of Greenwich Hospital, England, has recently patented an invention for promoting the draught of chimnies, so as to prevent all smoking and promote ventillation in apartments. The apparatus consists of a fan wheel in the centre of the cowl or chimney top, the axis being horizontal immediately on a level with the orifice. One half of the wheel projects above and is open to the influence of the wind, while the lower half is shielded from it and it is therefore made to rotate very rapidly and acts like a screw to force up the smoke or vitiated air from below. There is a diaphragm placed across one half of the chimney to prevent any air being forced downwards and the smoke therefore is confined to one half of the chimney.

Many improvements of chimney caps have been tried and suggested to cure smoky chimneys, and there is not a year passes away without many *new* chimney caps being brought before the public. A very excellent chimney cap has lately been introduced into our city by Mr. S. Bull, which is superceding many other kinds of caps. The invention of Sir H. Hart, appears to be a good one, but if we mistake not a design for a chimney cap on the same principle, termed the Archimedean Chimney Cowl, was registered in England by a Mr. Allan in 1847.

Discovery of a Marble Quarry.

An extensive bed of the finest marble has been discovered in Calloway county, near Fulton in Pa. It is of a light cream color, and beautifully variegated. In the same neighborhood there exists an immense bed of coal, said to be thirty or forty feet in thickness near the surface of the earth. It is now said, that recent discoveries of iron ore have been made in the same neighborhood.

There have been great freshets along the banks of the Mississippi lately, also in the valley of the Susquehanna, Pa.

A New Rig for Ships and Other Vessels.

Capt. Forbes, of Boston, has published a pamphlet describing a new rig for vessels, which he has invented :—

Without reducing the surface of canvass necessary to propel the ship, he has so arranged it, that the topsails and maintop-gallantsail have only a single reef in each, which, when once in, the ship is as snug as if under close reefs of the old rig, and this is accomplished by having long lower-mast heads upon which the first topsails are set. His rig, in fact, has two topsails upon each topmast, one above the other below the cap.

The nautical reader will therefore perceive that the upper topsail can always be carried to the last moment, simply because it can be easily taken in, and then, without reefing at all, the ship is at once equal to one of the old rig, under double reefs. His yards too are so arranged that, with a single exception, those on the fore and mainmast are of the same dimensions, an advantage of no ordinary importance in the event of disaster aloft. But we must refer to Captain Forbes' pamphlet itself. It clearly illustrates all that we have faintly shadowed forth. The rig has been fully tested in the auxiliary steamship Massachusetts, the bark Edith, and lastly in the fine bark Samoset, on a voyage around the world.

Captain Forbes, in his pamphlet, also recommends the use of lightning conductors, and various improvements in the working of chains, pumps, &c.

An American Palace for Sale.

The elegant mansion of Wm. R. Rensselær, in the country of Rensselær, about one mile from the borders of Albany, New York, is advertised for sale. This house is one of the most expensive ever erected in America. Its whole cost was $140,000. The walls and ceilings are painted in piece by Bragaldi, and the whole house is warmed by Perkins' hot water pipes. There are two miles of wrought iron pipes laid down in the house for the purpose. Attached to this house are extensive pleasure grounds containing a variety of trees and shrubbery, and five miles of winding carriage road. The whole estate contains 500 acres; 300 of which are enclosed by a substantial board fence thoroughly painted.—The house stands on the banks of the Hudson, 200 feet above the river, and commands a view of unsurpassed beauty and extent.

A Lost Miner.

A miner at Plymouth lost his light, and missed his way in coming out of the level of the mine, and for seven days was unable to find his way out. A party of his fellow miners went in search of him, and at last found him in an old vein that was past working.—His feet were blistered by walking to and fro, in endeavoring to escape from his confinement, and he was nearly exhausted, having been seven days without food and drink, but it is believed he would recover.

A Horse at Sea.

A short time ago a horse went to the Lake to drink at Chicago, and was blown away on a cake of ice. He was picked up on the lake by a steamer, nearly 75 miles distant from his place of departure, and brought to Buffalo

Rapidity of Growth.

Towns and villages spring up in the western wilds "as suddenly as the flowers of the tropics." It is but recently that we recorded a cession of a tract of land in Wisconsin to our government by the Menominee Indians, and yet, since the conclusion of that treaty, the country between the Fox and Wisconsin rivers, which forms a portion of the territory, has been settled with emigrants, and Yankee log cabins dot the fair expanse of that delightful region where before there was nothing but the wigwam of the red man. So rolls westward the tide of Anglo-Saxon civilization.

Wear of Rails.

The Syracuse and Utica railroad is fifty three miles long, forming part of the central line from Albany to Buffalo. The track was originally laid with flat iron, two inches and a half wide by three quarters of an inch thick. This iron after being in the use nine years was taken up and sold, and was found to have lost in weight, by wear, 800 out of 2000 tons.

Lucky Escape.

A young man named Edward Greiner, was engaged in cutting cedar on the bluff, about nine miles North of Prairie-du-Chien, Missouri, when his foot gave way, and he was precipitated over the precipice, falling a distance of over two hundred and fifty feet into a bed of loose sand. He fell perpendiculary, touching nothing on the way, so his fall was not broken in the slightest degree. His left leg, from his knee to his ankle, was badly broken, and that was the only injury that he received by his fall.

Paper Windows.

It appears that the first houses built in New England had no window glass—oiled paper being used for this purpose, as it was in many parts of Europe a century ago. Edward Winslow, writing from Plymouth, in 1621, to a friend in England, who was about to emigrate, says, "bring paper and linced oyle for your windowes."

Paupers of Great Britain.

The number of paupers in Great Britain is about 4,000,000, or a seventh of the population of the whole empire—in Ireland, 2,300,000; England, 1,500,000; Scotland 200,000. Since 1816, the people of England have paid £200,000,000 for the relief of the poor.

Plaster of Paris in Cherokee.

The Cassville Ga. Pioneer of 24th ult. states that Col Shackford of Cass, has discovered a bed of gypsum, (Plaster of Paris) in the county of Walker. Its situation is immediately on the Western and Atlantic Railroad near Ringgold. The bed has the appearance of being an acre, and is, eight feet thick near the out crop, and lies so as to be quarried from the surface, only removing the soil.

Curious Disease.

A singular malady has been prevailing in the neighborhood of Uniontown, Pa., and has caused twenty deaths out of fifty cases in two weeks. Its ravages are mainly among the young. It is supposed to be cholera, but the symptoms as described differ widely from that disease—the first indications being sometimes spasms in the fingers and limbs, fever, headache, followed by vomiting and diarrhea. Some of the patients break out with spots like the meazles, and after death the body and face are covered with large black spots, the legs and arms assuming a black color.

It is firmly believed by many, and there are facts to sustain the belief, that posts set in the earth with the tops downward, will last considerably longer than if put down in the position in which the tree they are made from naturally grew. This is an important fact, if fact it is.

The journeymen candle makers of Paris have just struck work, in consequence of the refusal of their employers to continue to pay them, as was agreed in March, ten centimes upon every hundred weight of tallow entering the factories

The Free Church in the Canton of Vaud, cradled amid storms of infidel persecution, we rejoice to hear is advancing in numbers and strength. She has more than fifty ministers, about forty churches, and others being formed, and more than three thousand communicants. Already she has planted her school of theology, and has embarked in a work of foreign missions.

The Fairfax Tract of land, in Virginia, consisting of upwards of 700 acres, has been purchased by a northern firm, who intend to erect thereon a saw mill and iron furnace.

Prof. Thompson of Glasgow, the celebrated Chemist, esteemed by those who knew him to be more profound than Ure, has died of cholera.

A fall of chalk from the Shakspeare Cliff, England, has lately taken place, detaching the enormous quantity of 100,000 tons.

It is the opinion of Dr. Webster of Cambridge, that there is a wide spread disease among dogs at present, which terminates in many cases in hydrophobia.

William C. Bond, Director of the Observatory at Crambridge, Mass, has been elected a member of the Astronomical Society of London and the Philomathean Society of Paris.

For the Scientific American.

The Mineralogist.—The description and locality of every important Mineral in the United States.

ACTYNOLITE.

This mineral occurs in masses which may be split into thin plates Its color is green, but when heated it turns deep brown, afterwards ash gray. It is found in the towns of Hawley, Middlefield, Bolton, and Chelmsford, Mass.; in Brunswick, Me.; in Concord, Pa.; Litchfield and Canton, Ct.; and in Windham, Vt Also on the Island of New-York, and in the vicinity of Philadelphia, of New Haven, and of Baltimore.

ADULARIA, (MOONSTONE.)

Occurs in rolled masses and in crystals. Colors, white, sometimes with a tinge of blue, green, yellow, or red. Its lustre is pearly, and melts into a transparent glass. It is 2½ times heavier than water. Its localities are, Ticonderoga, N. Y.; Conestoga creek and Germantown, Pa.; Lyme and Haddam, Ct ; Oakham, Southampton, and W. Springfield, Mass.; in the vicinities of Baltimore and New-York; also on the margin of Lake Champlain, at a place called Split-rock.

ALMANDINE, (PRECIOUS GARNET.)

Occurs in crystals, also in grains. Color, red It has a shining vitreous lustre. It is brittle, nearly transparent, and scratches glass. It melts into a black globule. Compared with water, it is 4 times heavier. This beautiful mineral is cut and polished for jewelry, and is found in Hanover, N. H.; Goshen, Ct.; Newlin, Pa.; and Bethel and Royalton, Vt.

ALUM ROCK.

Colors, white, yellowish, or whitish gray; taste, sweetish and astringent. Found at Navesink hills, N. J.; Cape Sable, Md.; Catskill, Mt., and 12 miles from Catskill, N. Y.; Leyden, Mass.; Pownal, Vt.; and at Bolton, Ct.

ALUM SLATE.

Colors, bluish or greenish black, also iron black. Its structure is slaty, its lustre glimmering or dull; and when broken presents an uneven or earthy appearance. When heated, it turns red, falls in pieces, and melts. On exposure to the air, its surface is covered with a white powder, which is alum. It is found in the counties of Washington and Frederick, Md., and western counties of Pa. Also in the town of Pownal, Vt. and vicinities of Zanesville, Ohio, and New Lebanon Springs, N. Y.

AMBER.

Occurs in roundish masses, of various sizes. Color, wine yellow, greenish, or yellowish white, or reddish brown. It is compact, transparent, or nearly so, with a lustre resinous, and bears a high polish. By friction it acquires electricity, so as to attract light substances.—Burns silently with little smoke. It will dissolve in the oils. Occurs at Cape Sable, Md.; also near Trenton and Camden, N J. It is usually found among sand and gravel.

AMETHYST, (VIOLET QUARTZ)

Occurs in crystals, which are generally grouped. Color, deep or pale violet blue. Nearly transparent; scratches glass. Fine specimens occur at Mt. Tom, and Belchertown, Mass.; Farmington, Wallingford, Berlin, and East-Haven, Ct.; Ludlow and Westminster, Vt.; Hampton Falls and White Hills, N. H.; Chester Co., Pa ; Pacquenack Mt., and Patterson, N. J.

AMIANTHOIDE.

Occurs in long hair-like portions, very elastic. Color, olive green, or greenish white. Lustre, shining and silky. Melts with difficulty. It is found at Topsham, Me.

AMIANTHUS.

Occurs in long threads or plates. Colors, white, yellowish, silver gray, reddish, and greenish. Lustre, silky, somewhat soapy to the touch; soft and elastic. By heat, becomes white, brittle and opaque, then melts into a white enamel. Occurs at Hoboken, N. J.; Mt. Holly, Mass.; Staten Island; New Milford and New Haven, Ct.; and at Kellyvale, Vt. The specimens are uncommonly beautiful.

ANALCIME.

Occurs in six or twenty-four sided crystals. Color, white, gray, yellowish, or deep red. Lustre, shining and pearly. Scratches glass By friction attracts light substances. It is 2 1-5 times heavier than water. Found at East Haven Ct.; Paterson, N. J.; and at Deerfield, Mass.

ANDALUSITE.

Occurs massive, with a slate structure. Color, reddish. Easily broken. Scratches glass; and 3 times as heavy as water. Does not melt. Found at Redfield, Me.; and E. Bradford, Pa.

(To be continued.)

Water Drinking in Childhood.

It is particularly with those who have been accustomed to water drinking in childhood, that it will show its good effect in after life. During the first nine months, the infant is to be nourished by its mother's milk, which serves as food and drink; it is gradually accustomed to other sustenance during the period of weaning. After this is accomplished however, the infant should have fresh water as well as milk. By water drinking in childhood and youth, the foundation of a durable stomach is laid, and thus of a healthy body throughout life. The nerves and blood system are over excited by taking viands, spices, beer, wine, chocolate, coffee, &c. and thus a constant artificial state of fever is maintained, and the process of life is so much accelerated by it, that children fed in this manner, do not attain perhaps half the age ordained by nature. Besides this, experience has taught that they become passionate and wilful having neither the will nor the power to make themselves or others happy. Furthermore, too exciting and nutritious food gives rise to many diseases to which they fall a sacrifice in early years. Parents should weigh this well; they should throw aside their prejudice against water, which they look upon as weakening, ignorantly considering that the tender organism of children requires far more nourishing diet to bring it to maturity than the already perfected body of the adult. This is a wrong notion; children thrive best upon a simple, moderately nourishing vegtable diet —on milk and pure water; we see this confirmed in the cottage of the peasant.

Books.

D'Israeli, in his Curioseties of Literature, estimates the whole number of different books printed in the world, prior to 1816, at 2,640,000; but Mr. Preston, in a recent report to Congress, estimates the number at only 600,000. From these and other data, we would estimate the total number of books printed, down to this date, at 1,000,000 volums in the German language, 800,000 in the French, 600,000 in the English,—including 25,000 American, and 600,000 in all other languages; making a total of 3,000,000 different volumes, or say, 2,000,000 different works. Allowing only twelve hundred copies of each work to have been printed, and supposing all the volumes to be of an average size, they would form a solid pile larger than the Egyptian Pyramid, although it is 500 feet high, and 690 feet square at the base covering eleven acres of ground.

Of the books in our own language, after deducting those which are obsolete or worthless, there still remain, probably, fifty thousand volumes, which would repay a perusal. Supposing, then, a person to read one hundred pages a day, or one thousand volumes a year—which is more than could well be retained and digested—it would require five hundred years to read all the books worth reading in the English language alone.

Keeping Apples.

Mr. Pell, of Ulster county, the celebrated exporter of apples to Europe, recommends that apples after having been carefully hand picked in baskets, should be laid on the floor by hand, without pouring them from the baskets, until they are 12 or 18 inches deep, and be left to dry and season three weeks ; when again equally carefully packed in clean dry barrels, they may be kept without rotting any reasonable length of time, and safely sent to any part of Europe or the West Indies

It is stated that if a horse be shut up in a pasture where there is no water, he will at certain times of the day, make it a practice to stand in those situations where water is nearest the surface, and thus indicate the best place for digging for it. Those who allege this to be the fact, say that horses have the faculty of smelling the water, like the camel of the African desert, or the camel of the South American "pampas."

Congress has been memorialized on the subject of establishing a university in California

Daugurreotype, Gold Watches &c.

PHILADELPHIA, Feb. 14, 1849.

There seems to be a little doing in the line of new inventions. Mr. Wingers of the City of Mexico is here, and has recently finished some beautiful machinery for making silk cord. It combines some improvements for giving the "variegated thirteen twist," which I have never seen before. It is to be seen at No. 29 Vine Street.

Another new application of electricity called "The Magneto Photogenic Engine," is attracting some attention among the Dauguerrians. This is a French improvement and is used to coat the plate with silver and after it is coated and buffed, another application is made which renders the plate Electro negative to floating atoms of dust, while at the same time, it is rendered sensitive to the chemicals. I yesterday witnessed some experiments with the instrument at *Simons'* celebrated Gallery, and saw a group of children taken in two seconds and the picture was rather light, four seconds completely solarized or burnt the plate. I must say in all candor that the Philadelphians excel in Photography. A visit to the above Gallery will well pay the trouble just to see the large collection of distinguished heads. Mr. M. A. Root has one of them also in successful operation.

Gold Washing machines, are not as abundant here as in New York, but as silly in their construction. I have not seen one yet, that in my opinion would answer the purpose. Four years since I visited the North Carolina mines and saw the *modus operandi* of getting gold from the sand and rock, and from what I can learn, the process is the same in Mexico.

There are three methods of getting gold. When it is found in the sand near a stream of water, a rocker is fitted up with 8 or 10 rifflers. The rocker is a thorough dug-out like an Indian's canoe from 15 to 20 feet long, and with excavations made in the bottom crosswise, cut down straight on one edge and standing up on the other, so as to form a pocket for the quicksilver. One end of this trough is elevated so as to give the water a current to the other end, which is open. The sand is put upon an iron plate perforated with holes about three eights of an inch in diameter, and two of these to the square inch. The stream of water is constantly flowing upon this plate. The rocking motion is given by hand and this keeps the quicksilver rolling from side to side. The water passes through the iron plate and runs over the rifflers (little dams) and the gold falls by its specific gravity into the quicksilver and amalgamates. After the washing of the day is over, the mercury is taken out and put in a buckskin pocket without any seam, and is pressed with the hand until the mercury has all passed through the pores of the buckskin. If any gold has been collected, it will be found in the pocket in the form of a white mass called "the amalgam." This is then placed in an iron still or retort with a tube leading under water, and heated until the quicksilver is volatized passing through the tube in the water and condensing in a proper receptacle. The gold dust is then fused in a crucible and cast into ingots. The independent gold miners who go over the gold region and work by hand, merely use an iron pan without the handle. They find what is called a deposit mine (the washing of the hills) and fill their pans with sand, then take it to the stream and shake it under water until the sand has floated off, and whatever gold may have settled to the bottom (which is covered with quicksilver,) they take out and strain through a buckskin pocket as before stated.

Another method, which is employed at Gold Hill, N. C is to grind the *ore* under two revolving stones like the old Bark Mills.—These stones are placed near the shaft and have two motions, viz. turning on their axis and describing a small circle, which gives the edge a concentric motion, crushing and rubbing the gold rocks at the same time. Mr. Bissel made some experiments in fluxing the quartz ore in Mecklenberg Co., N. C., and partly succeeded. Had he lived to complete his experiments, those mines would doubtless have been rendered more valuable.

Yours, &c. S. N. B.

There are 1,316,980 bushels of wheat in store at this moment at the ports on Lake Michigan.

Modern Workmen's Dwellings.

By an exchange "The Herald" we learn that a building is now being erected in Glasgow for Mr. James Lumsden, from the drawings, and under the direction, of Mr. James Wilson, architect, by way of attempt at some improvement in the construction of dwellings for the industrious classes. It consists of four stories, and contains in all 31 dwellings. The houses on each floor are arranged along a wide central passage, which communicates with the common staircase, and is lighted by a window at each end. The houses are arranged with the view of giving to their one main apartment the utmost value, by obviating as much as possible the necessity for performing any cleansing operations within it, and forming the bed-closets opening out of the same, so that there is no occasion for the occupants creating disorder by strewing their clothes about the room. The bed-bottoms are fixtures, and of rod-iron filled in with hooping, to prevent the propagation of insects, as well as the loss which is so great a grievance to the proprietors of small houses, from the use of the spared bed-bottoms for firewood. Each dwelling has also a scullery opening out of the main apartment, and containing a dresser, sink, coal-box, and press; and likewise a small well-aired larder in the outside wall; a kitchen grate, with oven and boiler; an ash-box, with cinder sieve in the hearth, which is of cast iron, and includes a fender, the latter being cast with it; and opening from the small entrance lobby, is a water-closet, with apparatus of simple and economical construction, with, in one corner of it, a trap covering a shoot into a dust shaft through which all dry rubbish is conveyed to a cellar in the basement Water is to be laid on in the scullery; and a jet of gas, for certain hours, in the main apartments, as well as in the central or common passages and staircases. The ventilation of the houses is provided for by a louvred opening at the top of each window, and of the central passages by a few feet of the floor at either end being omitted, thus permitting a free upward circulation to the roof, where there will be large louvred outlets. There is a wash-house outside, on the ground story, with all necessary appurtenances, including Robertson's rotary drying machine, which will be common to all the tenants in due succession. The rent, which is looked for as sufficient to meet the views of the well-intentioned and energetic founder of this establishment, is $30 per annum—a small sum as compared with the advantages which it offers to the laboring men

There are some things in the above description, well worthy of the attention of our landlords and architects. Permanent grates and iron bedsteads should be attached to every dwelling. Grates, stoves and bedsteads are no small trouble to move. We want to see more iron employed in building.

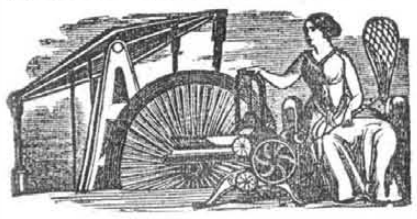
How to Treat Curiosity.

Talleyrand had a confidential servant excessively devoted to his interests, but withal superlatively inquisitive. Having one day entrusted him with a letter, the prince watched his faithful valet from the window of his apartment, and, with some surprise, observed him reading the letter. On the next day a similar commission was confided to the servant and to the second letter was added a postcript couched in the following terms:—"You may send a verbal answer by the bearer, he is perfectly aoquainted with the whole affair, having taken the precaution to read this previous to its delivery." Such a postcript must have been more effective than the severest reproaches.

How to be a Man.

When Carlyle was asked by a young person to point out what course of reading he thought best to make him a man, he repiied in his characteristic manner :—

"It is not only by books alone, or by books chiefly, that a man is in all points a man.—Study to do faithfully whatsoever thing in your actual situation, then and now, you may find either expressly or tacitly laid down as your charge—that is your post, stand in it like a true soldier. Silently devour the many chagrins of it—all situations have many—and see that you aim not to quit it, without doing all that is your duty."



New Inventions.

Improved Molasses Faucet.

Mr. Abraham G. Thurston, of Fall River, Mass. has invented a new improvement on a Faucet, which is very valuable for oil and molasses casks. The valve or stop, is a slide gate connected with the spout and in one piece with it, which by sliding up and down opens and closes the orifice of the faucet.—The faucet has a smooth face plate and the slide valve working on an axis matches to it with a packing between. The slide valve is made to press more tightly against the face plate, when close, than when open, by a slight inclination at the top, so as to prevent most effectually the least leakage of fine fluids.

Direct Motion from a Vibrating One.

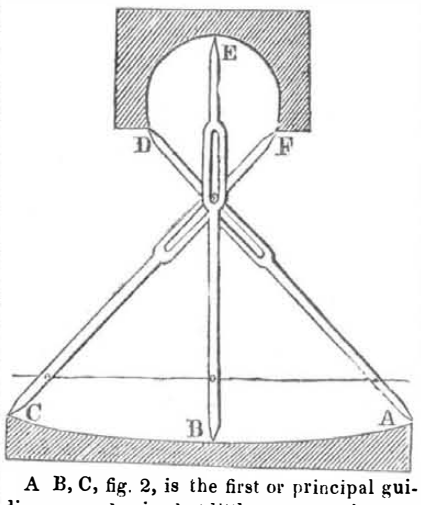
In piston rods of double stroke engines, it is necessary that they should descend in the same vertical line. The parallel motion of James Watt is a beautiful contrivance to accomplish this object. In other engines—direct action—many plans have been employed to accomplish the same thing, such as slides moving in grooves to direct the piston rod. The following is another kind of motion recently brought out in England to accomplish the same thing, (but which will never supersede older plans in our opinion) yet for its novelty it is of some importance.

Fig. 1

Let the straight line *a e* Fig. 1, denote the length of the intended stroke of the engine, or the entire range of the piston rod, according to the conditions of any particular case.—Bisect *a e* in *c*, and through the point of bisection at *c*, draw the straight line E *h*, making the two parts thereof E *c* and *c h* together equal to the straight line whose magnitude is given according to the proposition, the part E *c* being accommodated to the size of the cylinder, the point *c* being directly over the centre. In *c h* the greater portion of the given E *h*, take any point C, having its position regulated according to the conditions of construction, then is C the given point specified in the proposition. Divide the straight line *a e* into any number of parts, equal or unequal, no matter which; but the more numerous the points are the more correctly will the curves be traced; then through the fixed point C, and the several other points *a*, *b*, *c*, *d*, *e*, &c. draw the straight lines A*f*, D*g*, E*h*, F*i*, B*k*, &c., and make A*a*, D*b*, F*d*, B*e*, &c. respectively equal to E*c*, whose magnitude is given. In like manner make *af*, *bg*, *di*, *ek*, &c. respectively equal to *ch*, the other portion of the given straight line E*h*; then through the several other points A, D, E, F, B, and *f*, *g*, *h*, *i*, *k*, and with a fine pen or pencil, and a steady hand, let the curve A, D, E, F, B, and *f*, *g*, *h*, *i*, *k*, be traced, and they will be the curves of the moulds or templates sought, and from which the metal plates that guide the motion are to be cast.

By this construction if the straight line A*f* be made to pass through the given point C, and have its extremities constrained to move in the curve lines A, D, E, F, B, and *f*, *g*, *h*, *i*, *k*, while it revolve from the position A*f*, until it comes into the reverse position B*k*, the point *a* must pass through the several positions *b*, *c*, *d*, *e*, and must consequently describe the straight line *a*. *b*, *c*, *d*, *e*, which is the path of the piston rod.

Fig. 2.

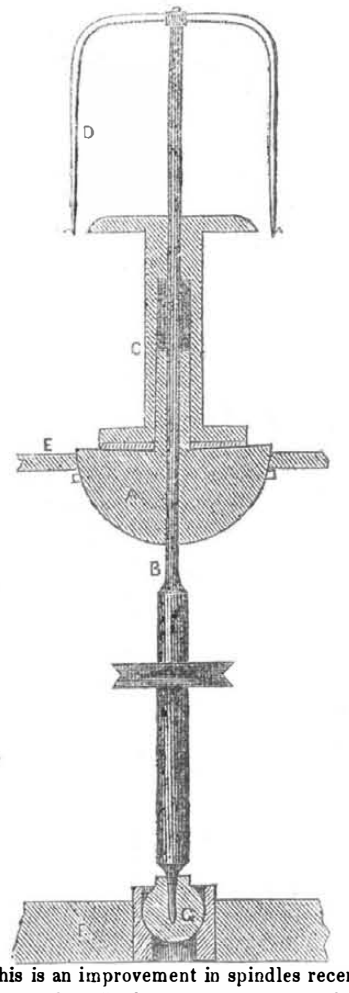


A B, C, fig. 2, is the first or principal guiding curve, having but little curvature in comparison to its counterpart D E F, on the other side of the slot. B E is the position of the revolving bar when the engine is at the middle of its stroke, in which case the connecting link of the bar and the piston rod are in the same vertical line; in this position there is no pressure on either of the guiding curves, the slot being drawn out to its full extent on the left of the retaining pivot.

In making the upward stroke, the revolving bar comes into the position A D, where the connecting link of the beam makes a very obtuse angle with the piston rod, thereby producing a slight pressure on the curve D E F, and removing it by the same degree of intensity from A B C: this by workmen is called the draw of the beam. In this state the slot is drawn out to its full extent on the right and obliquely above the pivot. In making the downward stroke, the revolving bar comes into the position C F, where the several conditions and phases just specified in regard of the upward movement, take place in precisely the reverse order. It will here be understood that throughout the entire movement, the revolving rod and the working beam are parallel to each other.

Improvement in Spindles.

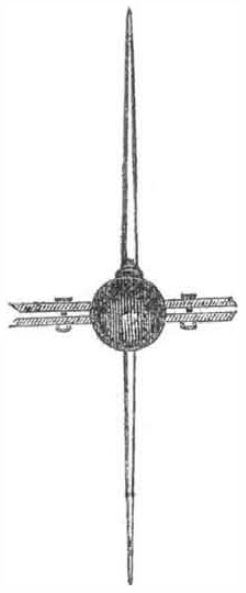
Fig. 1.



This is an improvement in spindles recently patented by Godfrey A Ermen of Manchester, England, and which, we think, will be of interest to our manufacturers and spinners.

Fig. 1, represents a vertical section of the ordinary throstle spindle, having these improvements attached, and supported according to this invention. The spindle, B, is supported by a ball-shaped step, G, carried by the foot-rail, F; the spindle is free to revolve with the step, which at the same time admits of being inclined in any direction by whatever power it may be actuated. The bobbin-bearing or bolster, A, in its original figure is assimilated to that of a globe, the upper part being removed and forming a pipe, which passes up the centre of the bobbin, by which pipe the bobbin carries it round. This bearing or bolster is fitted into the drag-plate, E, which is a plate having a circular opening, the inner surface of which corresponds with that part of the exterior surface of the ball on which it bears; two slits are formed in the drag plate, to admit of the passage of the two pins on the bolster; these pins preventing it rising out of its seat. The revolutions of the flyer, D, and bobbin, C, together with the winding on of the cotton or other fibrous substance, being well understood, it will be unnecessary to describe. Fig. 2, represents a mule spindle, which has the entire sphere placed on it, the drag-plate sustaining it in the same manner, the ball being held in its place by a similar plate, placed in contact with the surface of the ball above

Fig. 2.



its greatest diameter, these plates being connected by bolts or other suitable means, by which the friction may be very easily regulated to suit the twisting of the material under operation.

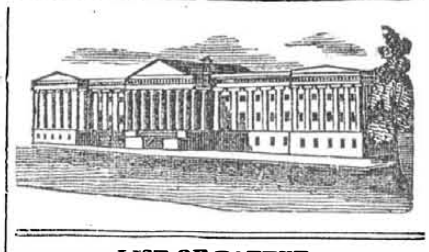
The inventor claims what he considers to be new in this as the improved construction of the bearing, bolster, or step, and its application to the purposes of spinning, doubling, and twisting cotton and other fibrous substances, which bearing, support, or friction-plate shall have the property of inclining horizontally at right angles to the central line of the shaft or spindle, which revolves within its centre by the mere impulse of the spindle or otherwise, which property is imparted to the said bearing or drag-plate by assuming its original figure to that of a ball, which ball is either furnished with a plate at or above its upper pole, at right angles to the centre line or perforated centre, or which ball may have been deprived of some part of its upper hemisphere, by which means the plate or bobbin bearing is formed, and which ball is supported in or by any point, line, or place, or points, lines, or places, betwixt its lower pole and its greatest circumference.

Improved Tail Block for Saw Mills.

Mr. Timothy Jones of Otis., Berkshire Co. Mass., has invented a new improvement on the tail and head blocks, whereby the log to be sawed is regularly moved at both ends by the tail block, the required distance for every fresh cut. It is therefore self acting and it holds the log firmly during the whole cutting of the board or plank without any hand labor.

Improved Churn.

In these days of so many improvements on churns, we notice that Mr. G. R. Nebringer, of Shepherdstown, Pa., has invented a double rotary paddle churn which has been highly spoken of by all those who have seen it operate.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending February 13, 1849.

To Henry Jenkins, of Pottsville, Pa., for improvement in Wire Fences. Patented Feb. 13, 1849.

To Thomas K. Anderson, of Painted Post, N. Y., for improvement in apparatus for heating by vapor of alcohol. Patented Feb. 13, 1849.

To A. McKenney & D. Tyler, of Clarksfield, Ohio, for improvement in self acting Cheese Presses. Patented Feb. 13, 1849.

To Amos Call, of Springfield, Mass. for improvement in Door Locks by which one key hole serves for two distinct keys. Patented Feb. 13, 1849.

To Asa Hill & S. G. Blackman, of Norwalk, Conn. for improvement in composition for filling teeth. Patented Feb. 13, 1849.

To Linus Yale, of New Port, N. Y., for improved combination revolving Tumbler Lock. Patented Feb. 13, 1849.

To Jacob Muzzy, of Eddington, Me., for improved Nipper Saw Set. Patented Feb. 13, 1849.

To Louis Montgilion, of Elk Ridge, Md., for improvement in apparatus for removing Animals from Railroads. Patented Feb. 13, 1849.

To F. H. Clark, of New York City, for improvement in setting teeth. Patented Feb. 13, 1849.

To James Trees of Salem, Pa., for improvement in Water Wheels. Patented Feb. 13, 1849.

REISSUE.

To Abraham Sanburn, of Hamilton, Co. Ohio., for improvement in Bee Hives. Patented Feb. 13, 1849.

Electro Magnetic Engine.

It is reported in Washington that Professor Page of the Patent Office, has discovered a new mode of applying electro magnetism as a grand motive power to propel machinery and supersede the use of steam.

It is well known that the speed of electricity is almost unlimited, but as a *motive power* it has hitherto been very limited. It is true that engines have been propelled and a paper was printed on a press driven by a galvanic engine in this city; but in no case has steam been equalled as a motive power, by electro magnetism. But we have no scepticism in relation to new wonders resulting from new discoveries in electric science, we are almost ready to accept any wonder said to be newly discovered by it, and we hope that Mr. Page has discovered what has long been a grand desideratum in propelling machinery, viz. a safer, a more convenient and portable motive power than water and fuel.

Improvement in the Manufacture of India Rubber Cloth.

Messrs H. G. Tyer and John Helme the conductors of the India Rubber Works of Horace Day, Esq. at New Brunswick, N. J. have discovered a new vulcanizing material for india rubber, far superior to the oxide of lead now used in combination with sulphur for that purpose.

The new substance which they use is a preparation of zinc, which after numberless experiments has resulted in the production of a superior fabric of india rubber—a fabric said to be insoluble, almost indestructible in wear, not affected by cold and as little by heat, it being able to withstand a temperature of 350°. As no lead is used, the preparation of the india rubber by this process is more healthy than by the old.

Robinson's Ship Ventilator.

Mr. Warren Robinson, now of this city, has invented a new ventilator for ships, which is to be placed in the bulwarks of the vessel and by a valve there is a free admission and egress of the air to the cabins in all kinds of weather.

NEW YORK, FEBRUARY 24, 1849.

Results of Machinery.

The enlihtened statesman, the man of science, the intelligent workman and the kind hearted philanthropist, look with delight and admiration upon the changes which have been brought about in all classes, during the past century especially, by improvements in machinery, and its application to the purposes of domestic labor. Yet while all those who have particularly studied the progress of civilization and the gradual advancement of the laboring classes from the condition of *serfs* to that of *men*, and have noticed and ascribed the effects produced, in a great measure, to improvements in machinery, still there are others who see nothing in machinery but opposition to labor, and denounce all present suffering in the working classes to the employment of machinery in the performance of that kind of labor which used to be performed solely by human hands. We are too often compelled to allude to this subject because ignorant demagogues are continually leading the working classes astray by appeals to their passions against what they call "*over production by improvements in machinery and the arts.*"

No person who is acquainted with what the drudgery of the factory was a hundred years ago, can, for a moment, doubt the benefit conferred even upon the factory operatives by improvements in machinery. It is not long since we saw it stated in a contemporary paper, that "before the steam engine and the power spinning jenny were invented, the labor in manufactories was 12 hours per day, and agricultural labors 10 hours." This is not true. We know an old man who spun with the hand jenny before the *throstle* or *mule* were invented, and often has he told us, that "he wrought in the factory 15 hours per day and his labor was the deepest kind of drudgery to which mortal man ever was subjected." The hours of agricultural labor are now as they ever have been and ever will be, irregular and bounded by the seasons and weather.

It is true that machinery has increased manufacturing products a thousand fold, but hand labor is no less respectful on that account and no less sought after than of yore. There are as few idle people in the world new as in any era of its history, and if the present general elevated condition of our race, is not much indebted to improvements in machinery and the arts we must be blind observers indeed.—What were our forefathers when Cæsar landed in Britain? Painted savages, living in caves and huts no better than those of the miserable inhabitants of *Terra del Fuego*. What are they now? Look at their condition—compare it with the past, and who will be so rude as to denounce those improvements in machinery and the arts which enable a mechanic at the present day to wear a garb richer and more costly than was worn by King Arthur, or Fergus. The houses in which the working classes live now, are palaces in comparison with the palaces of our rude forefathers. Yet for all this we hear people often complaining of the "improvements of the nineteenth century and talking of a *life of nature*, as being preferable to what they are pleased to term "an *artificial life*, in civilized society." In the name of common sense what is to hinder any man now from assuming the garb of the hunter and roaming with his bow and spear the dreary forests of Canada or the wild plains of the distant West. Those who desire to escape the evils of civilization and the improvements of the nineteenth century, can easily gratify their barbarous ambition, but they must leave the rifle and gunpowder behind, as these happen to be modern improvements.

There cannot be an over production of the comforts and necessaries of life. There may be an unequal distribution, but that is not the fault of improvements in machinery and the arts and every intelligent man knows this to be a fact.

We might fill column after column and page after page, contrasting favorably the condition of *all classes* now, with the condition of all classes in days gone by, and proving effectually, the great benefits, and no evils, conferred upon mankind by improvements in the arts and sciences, but we only can draw the outlines of the picture, and are satisfied that every one of our readers at least, can fill it up with light and shade.

Meteorological Statistics.

We are indebted to Mr. John E. Randal, of Ontario, Wayne Co N. Y., for a valuable table in manuscript of his Meteorological Observations in that part of the country for 18 years, viz. from 1831 to 1849. There is a record of the amount of rain and snow which fell every month during that period, showing that Mr. Randal is not only a patient but an enthusiastic and careful observer. We should like to publish the whole table but owing to the size of our columns we could not do it justice, but we publish the following yearly fall of snow and rain, which will be of much interest to many.

1831.	Snow	11	feet	6	ins.	Rain	1 foot	10 ins.
1832.	"	10	"	4	"	"	1 "	0 "
1833.	"	9	"	8	"	"	1 "	8 "
1834.	"	5	"	10	"	"	2 "	0 "
1835.	"	10	"	0	"	"	2 "	2 "
1836.	"	9	"	11	"	"	1 "	3 "
1837.	"	8	"	6	"	"	2 "	0 "
1838.	"	8	"	9	"	"	2 "	3 "
1839.	"	8	"	4	"	"	2 "	3 "
1840.	"	8	"	0	"	"	2 "	5 "
1841.	"	10	"	5	"	"	2 "	5 "
1842.	"	8	"	8	"	"	3 "	0 "
1843.	"	7	"	6	"	"	2 "	0 "
1844.	"	9	"	0	"	"	1 "	4 "
1845.	"	8	"	5	"	"	2 "	0 "
1846.	"	8	"	10	"	"	2 "	8 "
1847.	"	8	"	3	"	"	2 "	10 "
1848.	"	6	"	11	"	"	1 "	11 "

Snow 161 feet 9 ins. Rain 37 feet 9 ins.

The total includes the fractions of an inch which were registered, but not in our table—and the whole table shows, as far as it respects the fall of snow and rain, that there is no perceptible change created by improvements in agriculture or other causes during the past 18 years. We have heard many observations made in regard to the winter seasons being more mild now than they were some 20 years ago. This table throws some doubt over these opinions—plain facts are indisputable.

Mineralogy.

We claim the particular attention of our readers to the article on Mineralogy, on another page, which is the first of a series from the pen of a gentleman whose knowledge of this important science enables him to present his views in a clear, condensed and instructive manner; which must be profitable and pleasing to all, no less from the usefulness of the knowledge which he disseminates, than from the terseness and chastity of the style in which it is conveyed.

Hot Blast for Furnaces.

At Messrs. Blair & Guthrie's establishment on Deer Creek, Ohio, they have a tubular heater (the tubes extending through each end of the heater,) into which a portion of the exhausted steam from the engine is admitted, which heats the air in its passage through the tubes. At one end of the heater is attached a receiver, with a pipe leading to the ash-pit—the ash-pit being closed in front;—by this means the furnace is supplied with hot air instead of cold, which is of itself a matter of very great importance as regards the saving of fuel. It is well known that the same amount of fuel will give more heat with hot air, than with cold; but in addition a column of steam is thrown in, by which the draft of air can be increased to almost any degree, and at the same time the steam becomes decomposed by the heat, and a large addition of the inflamable gases—oxygen and hydrogen, is added, which is so much fuel supplied.

It is said that they save about 30 per cent of fuel. This plan has been laid aside in a number of places that once had it in operation, especially in Germany, owing to the oxidization of the pipes, by which they were soon destroyed.

Inventors and Pirates.

There are in the world a few original inventors and an immense number of pirates.—As soon as an inventor has produced anything either creditable or profitable it is partly amusing and partly provoking to see what a swarm of pirates will gather round him. One says, why that is so simple it is really no invention at all. Another says, why I invented that two years ago. Well, what did you invent? Why I invented a lever and this machine has a lever in it. Another says, I suggested that machine. How? I told somebody I wanted a machine to do that very thing. Another says, I was just going to invent that; and another says he is going to invent it *hereafter*. Just give him time and money and he will show the world how that thing can be done in a different way. The meaness of the pirates on inventions is now such that it is with difficulty an inventor can get his work before the public. If it is to be published he will find the pirate has an agent in the printing office to communicate to him the contents. If a model is to be made the pirates swarm the mechanic's shop where it is to be manufactured; and even his papers when transmitted by mail to the Commissioner of Patents, are not secure from the prying avarice of the pirates. They surround the Patent Office and as soon as a patent is issued they seize upon it and commence their conspiracies how they "can get round it" Many who have not talent or principle enough to raise themselves above the character even of a very low pirate, are still very ingenious and cunning at "getting round a patent." Should the matter come to litigation, then the course to be pursued is stereotyped. He must raise the cry of "monopoly!" "odious monopoly." One of this class who has been lately convicted of piracy has invented a process entirely "new," and on that score would be entitled to a patent, whether it will be "useful" or not is another question. He proposes to petition Congress to impeach the Judge for his decision. Some pirates seem to possess a great deal of naivete, which is illustrated by the following facts:—

The writer of this article has not unfrequently been into a mechanic's shop and mentioned some improvement which he had made. In a few days afterwards he has called at the same shop and had his attention emphatically called to a new project which the shop owner had invented, when there has followed a more than self complaisant narrative to him of his own invention now fully claimed by the mechanic to whom he had communicated it, who assumes the attitude of imparting it as a great favor to its real author.

The following was certainly a very fair and honest attempt at pirating:—A gentleman called on the author of this article with a request that he would show him some way by which he could render wood incombustible. He said if that could be done he thought he could take out a patent and make money by it. This was a fair attempt at borrowing an invention as one would borrow a breakfast.

Another act of pirating occurred in the city where the writer resides, which although more ingenious was not quite so fair as the last. A Mr. B. had invented a new mode of cutting laths, which he had in operation in his mill. He invited in a pirate to show it to him. The pirate after looking at it asked the inventor if he had patented the article. Oh no, he replied, I never intended to do that.—The pirate examined it attentively and particularly till he understood it, went home, applied and obtained a patent for the same thing, and when he had got his papers he brought a suit against the real inventor for using *his* machine.

Piratical modifiers constitute a very large class of the worthy craft. They go upon the principle that if they can alter the shape of a machine or substitute one mechanical element for another or add a superfluous part, they can not only evade the original claim, but can themselves claim and obtain a patent. One of the best illustrations of this kind of operation appears in the following historical fact. A pirate after studying a machine which he wished to plunder for some time concluded that it was much better as it was than it could be by any modification. He therefore turned it upside down, used it and even stood a trial by litigation. The jury were puzzled, some of the witnesses admired the thing exceedingly; thought it so superior to the old patent that it ought to supersede it altogether, and the Court, fearful of opposing popular opinion, decided in favor of the new machine. It was appealed, and a lawyer who had himself been a mechanic and an inventor set the the thing on its right legs, when lo! it was the identical and unmodified original.

Yours, &c. ADEPT.

Rocks in the Atlantic.

Lieut. Maury in a letter published in the National Intelligencer says: "A subject which demands the attention of Government is an examination as to the existence and the true position of dangerous rocks, reefs and shoals, which are said to lay in certain frequented parts of the ocean. I have now before me, in an admirable-kept log by Capt. Welsh, of the "Silas Richards," on her late voyage from Baltimore to Rotterdam and back, an account of such a danger. He is one of the thousand observers, and this is one of the many interesting points that they are bringing to light. In his remarks of September 5, 1848, lat. 41° 47' north, long. 59° 34' west, he states: "I firmly believe in the existence of a rock, just awash in rough weather, about the size of the hull of a ship of 500 tons. I have not myself seen it, so as to be certain that I have, though I think so; but a person in whom I have entire confidence assures me that he plainly had, and that he passed it so near that he saw kelp growing on the rock he could have caught with a boat-hook, had he had one in reach, and nerve at such a time to have used it. It was descried by his crew who, at 3 P. M., were double-reefing the ship's (the Forum, of Boston,) fore-topsail.—The helm was put up just in time to clear it. I think I saw it, and am quite certain that there are soundings about there."

It is exactly in the track to and from Europe. It is just below the water's edge, and, therefore, the more dangerous; for it cannot be seen until you get on it, and it is sure to knock a hole into, and sink any vessel that touches it. Who can tell but that the President steamship, and many other vessels that have gone down upon that route, were lost upon that rock? One of the small vessels of the navy, detached for that purpose, would in a few weeks settle the question as to the set of these currents, the extension of the Grand Banks, the existence and place of this rock."

Another Hotel for California.

The Maysville (Ky.) Morning Herald says;—"Dr. Graham the well-known proprietor of the Springs at Harrodsburgh, in that State, is having a three-story hotel made in Louisville, which he intends taking to San Francisco, where he will open tavern for the accommodation of the Californians."

The British steam ship Dee arrived at Mobile on the 31st January. She is the first of the West India Steamers which hereafter touch at that port. A salute by the city authorities and a dinner to her officers signalized her arrival.

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Archimedes.

Having given, in our last, a brief sketch of the life of Archimedes, we now proceed to mention some of those achivements in art and science, which have caused his name to survive the wreck of 2000 years, and which will prevent it from sinking into oblivion, so long as philosophy has any charms for the human mindand the affairs of life require to be transacted by the accuracy of measurement and calculation.

When we contemplate the state of the arts and sciences, at the time that Archmedes appeared in the world; and when we consider the number and variety of his inventions and discoveries, we must be struck, alike with astonishment and admiration, at his genius.—The greatness and splendour of the performances of Archimedes, have procured him the appellation of the Newton of antiquity, as a similar comparison of the genius of the latter philosopher with that of the former, procured Newton the title of the Archimedes of modern times. The names of both, mark most important eras in the history of science, with this difference, that the one is incorporated with its infancy, the other with its maturity. Invention has always been considered as a greater characteristic of genius than improvement, and independent of all comparison if we estimate the intellectual powers of Archimedes by this criterion, we must assign him a place in the very highest rank of philosophers.

As a mechanician, the fame of Archimedes is indeed unrivalled. There, probably, never was a time nor a place in which mankind were totally devoid of all knowledge of mechanics as an art; but history carries us back to a period, when, as a science, they were entirely unknown. Prior to the time of Archimedes, the notions that excited respecting the laws of mechanical bodies, did not deserve the name of science. The opinion of Aristotle on this subject, though entitled to consideration, sunk before the splendid genius of the Syracusan philosopher; and though the former had made some slight advance in this branch of knowledge, it has always been regarded so small that the latter has ever been considered as the founder of the science. The inclined plane, the pulley, and the screw have generally been considered as the trophies of his genius, though no philosophical account of their principles was given to the world, till about five hundred years after he flourished. He was the first that investigated the powers and properties of the level, by making geometry subservient to the illustration of this branch of mechanics. During his inquiries on this subject, he discovered that there is, in every body, or in every system of bodies, a particular point, in which all the force or pressure is concentrated, and that if this be duly supported, the whole mass will be held in equilibrium. This he distinguish-by the name which it still bears, "the centre of gravity." This gave birth to his Treatise concerning equiponderants, a work which is still extant. He is not less famed for his practical, than for his scientific skill in mechanics. The ancients ascribe to him the honor of about forty different mechanical inventions: and the well-attested fact, that he suspended the fall of his native city, for three years, against the attacks of a powerful Roman army, under the command of such a general as Marcellus, speaks wonders in praise of his genius.

Hydrostatics is another branch of natural philosophy, for whose origin the world is indebted to Archimedes. He pointed out the difference between fluids and solids, and what it was that constituted the equilibrium of the former. His investigations on this subject gave rise to his Treatise on floating bodies, and are allowed to have laid the foundation of naval architecture. It is probable that his attention was first directed to this subject by a problem which was submitted to him by his royal kinsman. Hiero had given a workman a certain quantity of pure gold to make a crown. The crown being finished and brought to the king, though not deficient in weight, was suspected by him to be adulterated with some baser metal. To discover this adulteration was a difficulty, for the solution of which the powers of science, at that time, were wholly inadequate; but it proved a fit opportunity for the display of the genius of Archimedes, and the transmission of its benefits to posterity. Having considered this question for some time, without arriving at a solution, the philosopher happened to go into the bath one day, probably with his mind full of the subject; and observing that, as he sunk into the water, a quantity of the fluid was displaced, exactly proportioned to the bulk of his body: the thought immediately flashed upon his mind, that any body of equal bulk, whatever might be its weight, would produce the same effect. Here, then, was a criterion for trying the purity of Hiero's crown. Gold being the heaviest of all metals then known, he inferred, that in proportion to its weight, it must, when immersed in water, displace a less quantity of the fluid than any other metal. Elated with this discovery, to an uncommon degree of extacy, according to report, he sprung from the bath, and ran home, through the city, like one frantic, exclaiming, "I have found it, I have found it." After a series of experiments, he not only ascertained that the king had been defrauded, but to what amount.

It is presumable, from the notice of several ancient writers, that Archimedes was well acquainted with the science of astronomy.—Indeed to this study he is said to have been particularly addicted; and fame gives him the credit of having constructed a glass globe, in which were represented the circles of the sphere, and the motions of the planets. To this machine there are several allusions in the poets of antiquity; but none gives so circumstantial a description of it as Claudian.—The following is a translation of his epigram upon this singular piece of mechanism:—

When, in a glass's narrow sphere confined,
Jove saw the fabric of the Almighty mind,
He smiled, and said, "Can mortals' art alone
Our heavenly labors mimic with their own?
The Syracusan's brittle work contains
The eternal law that through all nature reigns.
Framed by his art, see stars unnumbered burn,
And, in their courses, rolling orbs return:
His sun through various signs, describes the year,
And, every month, his mimic moons appear,
Our rival's laws his little planets bind,
And rule their motions by a human mind.
Salmoneus could our thunder imitate,
But Archimedes can a world create."

(*To be continued.*)

The Snow Flea.

In the National Intelligencer we find a communication from Mr. Josiah F. Polk giving a description of what he calls the Snow Flea, seen by him in the Winter of 1826, in the neighborhood of Grand River, in the State of Michigan. He says: "I have found them to be exceedingly minute, apparently destitute of members, but in constant elastic motion. They would spring up to the height of 18 inches or more. When I first observed them (the latter part of November) they did not exceed in size the point of the smaller needle. I watched them through the coldest Winter I ever witnessed, and carefully observed their progress to maturity till the month of May, when that which in December was a shapeless and scarcely visible creature became a perfectly organized being, with legs, wings and antennæ The body was slender, and more than a quarter of an inch long. The wings were longer. Perhaps the whole length was two to three-fourths of an inch.—When I first saw them the snow was but a few inches deep; and, although it increased to three feet or more in depth, those little creatures, by their perpetual motion, were always on the surface; but how they contrived to maintain their locality amid the furious winds, is to me a mystery. Afterward on Rock River, in Wisconsin, in time of Summer I saw myriads of the flies. Various insects have been known to exist in snow. One kind somewhat resembling a spider, is not uncommon as far north as Sweden and Norway."

A French officer, quarrelling with a Swiss, reproached him with his country's vice for fighting on each side for money, 'while we Frenchmen,' said he 'fight for honor.'

'Yes sir,' replied the Swiss, every one fights for that he most wants.

Transatlantic Astronomy.

The following from the pen of Professor Nichol, in a Scotch newspaper, is worthy of attention, as it exhibits the generosity of men of science in frankly rendering honor to whom honor is due.

"We have just received and read with much interest two important documents sent from Boston, U. S. One is the first volume of the proceedings of the American Academy, containing several abstracts of memoirs on the obscurer points of the history of the Planet Neptune; and the other, three valuable papers emanating from the Observatory at Harvard. These last are accompanied by superb engravings of the Nebulæ in Andromeda and Orion, as seen in the great Refractor—an instrument equalling Struve's at Poulkova, and therefore the largest yet made. The Nebula of Orion, drawn from long continued micrometrical survey by Mr. Bond, director of the Observatory, exhibits several points not previously noticed, and, on the whole, is probably more complete than the elaborate picture presented by Sir John Herschell, as one result of his important labors at the Cape. In fact, the two may well lie side by side,—each manifesting certain features with a distinctness not found in the other. Mr. Bond seems to have made considerable advance regarding the small stars projected over this nebula—several of the smaller having been found by his exquisite glass to be double stars. He would confer a great favor by constructing a map of that region, considered solely as *stellar*, and on large dimensions. The nebula of Andromeda has been studied and figured by the director's promising son, Mr. George P. Bond; and here the ground was untrodden.—The picture brings out accordingly much that is entirely new.

Two features of the nebula proper were noticed by Mr. Bond, although since their discovery we have seen them with a much smaller telescope; they are two trenches—or narrow but deep valleys, straight as an arrow, and with sides quite parallel, lying along the length of the luminous mass—the first one being about half-way between the central light and the edge—as we formerly called it. In the field of view they appear blackish streaks, and are evidently spaces devoid of stars,—openings, like clefts in the bright mass. What shape these extraordinary features betoken, or what Agencies have produced them, are questions lying far beyond reach of the powers of humanity; nor can we hope that they will appear otherwise, even in any more advanced condition of our Race. Mr. Bond conjectures the length of one of these clifts, to be twenty times greater than our distance from Sirius!

Labor and Thought.

Gilbert Burns, a brother of the poet, distinguished as a man of sound sense and extensive information, in a letter to Dr. Currie, respecting the propriety of educating the middling and lower classes, combats with great force the idea that the exercise of the mind is inconsistent with the employment of the hands He observes: "I can say from my own experience that there is no sort of farm labor inconsistent with the most refined and pleasurable state of the mind, that I am acquainted with, thrashing alone excepted." The primitive mode of performing that kind of work, he regarded as "insupportable drudgery," and he suggested that the man who invented the thrashing machine deserved a "statue among the benefactors of his country, to be placed in the niche next to the person who introduced the culture of potatoes."

Gilbert Burns never gathered stones on the Maple Flats or he would have set down the flailing as nothing.

In agricultural life, however, great happiness may be derived from a contemplation of the beauty and harmony of nature, as evinced in the laws which govern the mineral, vegetable and animal kingdoms, constituting one of the strongest incentives to investigation and the pursuit of knowledge; and, in this respect, none have greater opportunities than the farmer.

A valuable vein of lead has been discovered near the James River Canal, Va. It lies four feet below the surface and yields 80 per cent of pure lead and 2 of pure silver.

Limits of the Human Mind.

Newton was one day asked, why he stepped forward when he was so inclined; and from what cause his arm and his hand obeyed his will? He honestly replied, that he knew nothing about the matter. But at least, said they to him, you who are so well acquainted with the gravitation of planets, will tell us why they turn one way sooner than another? Newton still avowed his ignorance.

Those who teach, that the ocean was salted for fear it should corrupt, and that the tides were created to conduct our ships into port, were a little ashamed when told that the Mediterranean has ports and no tides.—Muchemdrock himself has fallen into this error.

Who has ever been able to determine precisely how a billet of wood is changed into red hot charcoal, and by what mechanism lime is heated by cold water?

The first motion of the heart in animals—is that accounted for? Has it been exactly discovered how the business of generation is arranged? Has any one divined the cause of sensation, ideas, and memory? We know no more of the essence of matter than the children who touch its superficies.

Who will instruct us in the mechanism by which the grain of corn, which we cast into the earth, disposes itself to produce a stalk surmounted with an ear; or why the sun produces an apple on one tree and a chesnut on the next to it? Many doctors have said, what know I not? Montaigne, said, what know I?

Recipe for a Gent.

Don't have your hair cut or disturbed by comb or brush: let it hang in matted locks over the collar of your coat. If you have a beard, let it grow whenever it will. Don't wash your face if you can help it; and never use soap. Don't wear a shirt, or, if you have a taste for such an obsolete custom, dont show any part of it Smoke incessantly, without regard to the feelings of any one. By strictly attending to the above rules, you will soon attain your object, and look like a foreigner whose residence in his own country has been dispensed with, and might well be spared in this.

Youthful Bravery.

Two boys of Rahway, New-Jersey named Joseph and Theodore Folsom, the one aged 16, the other considerable younger, on Wednesday last week saved the life of a daughter 12 years old, of Mr. Post, late publisher of the Jersey City Advertiser, who had fallen through the ice into the river. The elder brother seized her after she had sunk twice, and sustained her by treading water, she having grasped him so that he could not swim, while the younger, by direction of his brother procured a rail and extended it over the solid ice so that it served as a means of escape. The heroism displayed by these boys is worthy of the highest praise and we like to publish these things because we are positive that the recited generous actions of the young, tends to elevate their minds.

Minute Animals.

In Lapland, we are told that in certain places there exists a stratum of earth called bergmehl, full of fossil animalculites. It contains four per cent of animal matter, for the sake of which the wretched inhabitants, when hard pressed for food, collect this earth, and mixing it up with a portion of the bark of trees ground to powder, use it as food. The town of Richmond, in Virginia, is entirely built on a bed of siliceous marl composed of these creatures, and on the average about twenty feet in thickness.

A Hiding Place from the Storm.

It was a beautiful turn that was given by a great lady, on being asked where her husband was when he lay concealed for having been deeply concerned in a conspiracy, resolutely answered that she had hid him. The confession drew her before the King, (Charles II.) who told her that nothing but her discovering where her lord was could save her from the torture. 'And will that do!' said the lady.—'Yes,' replied the king, 'I give you my word for it.' 'Then,' said she, 'I have hid him in my heart; there, and there alone, you'll find him!'

TO CORRESPONDENTS.

"Jersey Subscriber,"—Is informed that his invention is not beyond the reach of his creditors, in case they choose to take advantage of it. He has no security whatever.

"A. B. of Tylerville."—Your communications have been received. As soon as the model and funds arrive, we shall give you our opinion fully, in regard to extending the Patent in the manner you propose.

"L. B. of N. Y."—You are perfectly correct in reference to the wires along the Rail road lines, so as to communicate the positions of other trains and thus prevent collisions, but this plan is in use on all the English railways, and it should also be introduced here.

"J. M. Jr. of Vt."—We think very favorable of your improved Hay Rake, and would suggest the propriety of your forwarding a model. All models sent to this office for examination are carefully concealed from public inspection until the application is complete. We are friends and not enemies to mechanics.

"A. J. of N. H."—We have received your letter with the drawing of the steam boiler, regulator, &c., and would inform you that we have no knowledge of any apparatus like it having been known or used before.

"A. J. of R. I"—Your improved Temples shall be attended to as soon as possible.

"J. S. S. of Texas."—We are in receipt of yours of the 3d inst. Mr. K.'s name has been duly entered.

"B. D. S. of Va."—Your invention presents some novelty, but we would not venture our opinion of its value as an operating machine. An experiment, as you propose, would better satisfy you than the expression of any person's opinion.

"E. H. Z. of Pa."—We have seen steam carriages running on the common roads at the rate of ten miles per hour. This was more than 10 years ago. We have doubts of their success to compete with horses for such purposes. The engine and fuel is expensive, and we would advise you not to lay out your money on an experiment. See No. 4 this volume Scientific American, where there is a drawing and specification of Gurney's.

"H. T. S. of Ohio.--Your improvement on the piston rod to equalize the circular action of the crank, appears to be good, but it will require a fair trial, and comparison to test its real merits; be assured that the fly wheel was adopted after many other experiments, and it is a good plan.

"J. M. W. of D. C."—We do not know whether the wires have been laid across the Irish Channel yet or not, but by the Canada steam ship, the news was received that government had given orders and the work had commenced at St. David's Head, but to what point on the other side, we cannot tell. We have seen Chase's Spinner and the thought of its utility for the purpose you describe never struck us before—it is a good one, although we almost forgot its exact operation. Gutta percha and sulphur, is said to be the best composition yet discovered for isolating the wire under water.

"Messrs. D. F. H. & Co. of Ill."—You will perceive by the Scientific American two weeks ago that the same invention was then being exhibited by another person in Washington. We have doubts of its success. It is somewhat old to us as it was proposed some years ago in our paper.

"J. W. C. of Indiana."—Your rotary valve is new to us and appears to be a good invention. Your *arrangement* of the furnace is good, but we do not think it can be patented, but the *forms*, we think can. A model should first be constructed, then the business can afterwards be proceeded with.

"J. M. S. of Mo"—We have answered yours by mail; also "J. C. of Mass."

"N. F. of Mich."—We shall notice the morticing machine next week—your former letter had been mislaid.

"T. J. of N. Y."—We will answer in a few days.

"P. B. L. of N. Y."—Yours have come to hand and we have answered by mail.

"L. R. of Ohio."—We would advise you not to go into any such projects again. You could not secure a patent.

"C. R. of Wis."—We have received yours and your Belt is certainly appreciated, both on account of its reasonable utility and because it strikes at the galvanic rings—which are notoriously constructed against all knowledge of the science. They can be made and manufactured for two years before the patent is granted, by letting people know that you have secured it. We cannot tell the price of 500.—You could get them made cheaper in a country village than here.

"W. E. J. of Mass."—You should use sal ammoniac for your batting, it is better than muriatic or nitric acid. A patent was taken out for it in England last year, but it was public property before that here.

"J. D. of N. Y."—Write to the agent of the Presses, you see their advertisement and know their address.

"E. W. J. of Va."—Your invention is good and you can secure a patent.

"R. T. of Ill"—Write soon and let us know the result of you experiments. There is a substance sold in cakes in this city for kindling fires. It is composed of pitch and saw dust, or some such substances, and is patented.

"W. B. of N. Y."—Get a good steam engine at once. We have two of five horse power for sale at $250, they are first rate engines.

"L. T. McC. of La."—Get your model ready first and send it on, and then we will make the application.

"R. J. of New York"—The *aerial* balloon is not new—it is brought forward now for California.

War of Orthography.

The merits of Webster's orthography have been brought under a discussion which promises to produce some effect. The Harpers have published an edition of Macaulay's History of England, and altered the spelling from that of the author to that of Webster. This is regarded as an effort to force Webster's principles into use, and has raised no little excitement in literary circles; and now we understand that another edition is to be published in Boston, according to the orthography of the author.

It is certainly a war about words, but living authors should not have their orthography mutilated, for according to the spirit of our language they are the standards of their own grammar, be it good or bad—according to Webster, or Walker.

New Whaling Instrument.

N. H. Stickney of Boston, Mass has invented a very novel apparatus for killing whales. It is our opinion that it will yet supersede the use of the harpoon. We hope to be able to present an engraving of it in the Scientific American.

Barry's Tricopherous.

Is an article that we take pleasure in awarding the highest commendations. We do not do it upon the recommendation of others but from our own personal knowledge of its effects upon the hair; while it tends to keep it healthy, soft and glossy, it also removes the Dandruff, prevents gray hair, and invigorates its growth in a manner unequalled by any other composition known to us. A person only needs to use 1 Bottle to be convinced of this truth. Prepared and sold by Prof. Barry, 139 Broadway, N. Y.

In the district of Waldoborough, Me. during the past year there have been built 8 ships, 22 barques, 27 brigs, 28 schooners and 5 boats.

Advertisements.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares 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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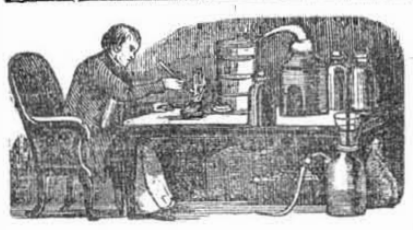


For the Scientific American.

Poisonous Metals.—Lead.

We have already treated on the poisonous qualities of arsenic and copper, and described the tests to detect the presence of these metals. The former we treated particularly because it is most commonly used for criminal purposes, and the latter is often the cause of disease from its extensive use in domestic economy and the arts. Antimony, mercury and zinc are also poisonous in a degree, but we shall notice them again, briefly, as they are not of so much importance.

There is no subject that has excited more attention than "the employment of lead for domestic purposes." Why? Because in most of its combinations, it is poisonous, and because from its cheapness, flexibility and the ease with which it can be formed into so many articles, renders it very convenient for a great number of purposes, but especially for water pipes.

The vegetable acids and fatty substances dissolve the protoxide of lead, forming poisonous salts, and as earthenware vessels employed for culinary purposes, are glazed with litharge, accidents have frequently resulted from food and liquids being heated or allowed to remain for some time in such vessels. Pies that have been baked in lead glazed vessels have become contaminated with the oxide of lead and have proven injurious to persons partaking of the same. Lead can be detected in such dishes by boiling vinegar or caustic potash, which dissolves the oxide. We would advise all housekeepers to do this with brown earthenware vessels and throw away the liquor. After this they may be safely used.—Some earthenware vessels have no lead in their glazing, but others have, and this little experiment will do no harm. No food or vegetables should be kept in leaden vessels. It is true that some vegetable substances, such as those with tannin in them, form with lead an insoluble substance, but not many of such substances are used in domestic economy. In one case related by Dr. Christisson, he states, that the death was occasioned by eating cream which formed on milk kept in a leaden cistern. We have known, however, a large dairy that cooled all their milk in leaden cisterns, and yet never knew of a single accident arising from the same. The cisterns were always well cleaned and thoroughly dried before the milk was put in.

In France at one period a great deal of wines were adulterated with oxide of lead, to remove their acidity, and to give them a sweet taste. The celebrated Fourcroy detected and exposed this abominable fraud. Cider should never be kept in leaden vessels as cider will absorb about 2 grains and a half of lead to every quart—and forms a dangerous poison. Cider should never be boiled in a lead vessel. In Hertfordshire, England—long celebrated for its Cider—a number of very afflicting peculiar diseases were traced to lead vessels and in the manufacture of the liquor.

Sugar of lead is the salt which has been mostly used for criminal purposes, but there are not many cases of poisoning by it. It is not a very active poison, and has been administered to adult persons for disease at the rate of 30 and 40 grains daily. It looks like loaf sugar and has a sweet taste, and dissolves easily in water. It is used extensively in making yellow pigment of chrome, with which it combines at the rate of 3 of lead to one of bichromate of potash and makes a clear and bright yellow but becomes of a greenish tinge with age. It is also used in calico printing and dyeing as a mordant for the chrome to dye yellow and orange colors.

If any person should drink sugar of lead by mistake, the best thing to do is to take an emetic of the sulphate of zinc (white vitriol) at once—this is considered the best antidote. Milk may also be administered in large quantities in country places where the emetic cannot be got. The milk, or melted butter and especially some sulphur, or the sulphate of soda should be administered in large doses immediately.

To be continued.

Pure Oil for Clocks, and Delicate Wheel Works.

This oil should be made to retain its fluidity without being liable to freeze and also free from acid so that it will not act upon the metals.

To make a very fine oil for this purpose specified and with the qualities desired, good sperm oil or an olive oil should be put into a vessel and heated nearly to boiling with 7 times its weight of alcohol. The liquor should then be decanted and exposed to the cold. A precipitate will then be formed of a crystaline appearance,—this is stearine. The clear solution should then be evaporated to about the fifth of its volume—driving off the alcohol, when the remainder will be found to be aline, which should be colorless, without taste, almost no smell, very like white olive oil and not easily affected with cold. Another way, is to pour upon oil a concentrated solution of caustic soda, stirring the mixture, heating it slightly to separate the aline from the soap of the stearine, pouring it on a cloth and then pouring off the clear liquid. The latter process is very simple and good It separates all the acids from the oil and makes a fine oil for machinery. One good quality of Devlan's lucubrating material is, that it is free from all acid—our common oils are not.

Vapor Bath.

A Vapor Bath for persons ill in bed, is easily produced by wrapping a small lump of unslacked lime, in a very damp towel, whereby a copious and humid vapor is disengaged, producing a free perspiration.

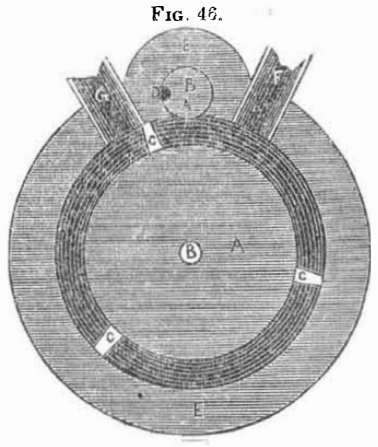
[The above we perceive has been going round for some time, and we hope that no person has been senseless enough to try the experiment. A vapor bath of carbonic acid gas and water, as it must be by the decomposition of the burned lime, is certainly a vapor bath, but not one we should humbly judge, for either the sick or well.

History of the Rotary Engine.

Prepared expressly for the Scientific American.

EVE'S ROTARY ENGINE.

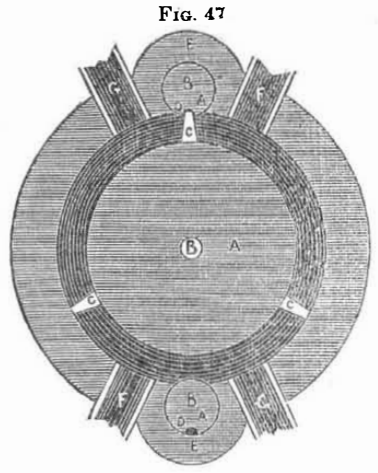
Fig. 46.



This is a rotary engine invented by Mr. Joseph Eve of Augusta, in the state of Georgia, and patented by him in England in 1825 to which place he removed, but whether he returned to the United States, or not, we cannot tell. Mr. Eve's engine possessed some novel features, especially as he combined his rotary to use one by steam for high pressure and the other low pressure, which is described on page 706 of Hebert, but from Hebert's description the interior arrangement could not be understood as the following drawings are not there.

These two figures are end sections and exhibit two different arrangements upon the same principle, therefore the description of one is applicable to both. The same letters refer to like parts. A A, represents the cylinder and a revolving cone, revolving in opposite directions in contact. The cone is one third of the diameter of the cylinder and it has a small groove D, cut or cast on it. The cylinder has three stationary wings or pistons C C C, firmly secured to it, and which revolve in the steam groove or channel, touching the water casing E, of the engine so as not to allow any steam to pass. The steam is admitted through the pipe F, and acts upon one of the pistons C, which causes the cylinder to revolve on its axis B, until the piston passed the exhaust pipe G, when the steam contained between the two wings escaped and the wing C then meshed into the groove D of the cone A, and allowing no steam to escape between them in the back direction. The said wing then passed by F, and was acted upon by the steam, and so on in rotation. In fig. 47 there are two induction and two eduction pipes and it is made exactly like that of fig. 46, yet a double amount of steam is required, by a greater amount of powers nearly double, is attained. This engine is certainly very simple and ingenious, far more so than Masterman's, described in our last, although not so highly complimented by the Author of the "Anecdotes of the Steam Engine."

Fig. 47



Queries for Scientific Men.

In what manner does Diamond act upon Glass so as to cut it? That it does not penetrate its substance is obvious to any one who attends to its operations, for it only divides the exceedingly attenuated pellicle on the surface, and penetrates no deeper. The best cut of a diamond is when it makes the least noise in passing the line, and it cuts in the same manner the thickest as well as the thinnest plates of glass. The Encyelopædia Americana says: "That it is very remarkable that only the point of a natural crystal can be used; cut or split diamonds scratch, but the glass will not break along the scratch as it does when a natural crystal is used." Again the crack is often found to follow the diamond after it has passed several inches. That it does not cut it by dividing the pellicles is clear, because a piece of quartz will do the same by passing in the same line repeatedly, yet it will not break true. Then how does the diamond act? Is it by electricity or galvanism, or the carbon acting upon the compound of which glass is composed?"

Receipt for Washing.

Mix four table-spoonsfull of camphor and spirits of turpentine, equal parts of each, with one quart of soft soap, or three table-spoonsfull of the same with one pound of bar soap; then soap the clothes; then make a suds and put the clothes into it and let them stand twenty minutes; then raise them up and down a few times; then soap them again and put them into cold water and let them stand fifteen minutes; then boil them in the same water, after which they must be sudsed and rinsed.

[We copy the above from an exchange, and we do so just to point out its defects. Camphor is a gum, and can have no earthly effect in removing grease. The spirits of turpentine may, but not in combination with soap. We have tried that and found it a failure. A little soda to soften water is all that is required with soap, and not that with rain water, although it would make clothes much easier to wash were they steeped in warm water for two hours in which was dissolved a little soda On this every person may rely. The soda is an alkali and therefore dissolves the grease in the clothes and separates it.

Fish and Vegetables.

Sir Humphrey Davy tells us that the reason why vegetables and fish should be plunged in boiling salt and water, is, that this solution boils at a higher temperature than plain water, and that the sudden scalding fixes the albumen, mucilage, and other nutritive parts of the viand, instead of their being macerated and sodden, and so partly lost in lukewarm water.

Receipe for making Good Bread.

James Roche, long celebrated in Baltimore as a baker of excellent bread, having retired from business, has furnished the Baltimore American with the following recipe for making good bread, with a request of that it should be published for the information of the public:

"Take an earthern vessel, larger at the top than the bottom, and in it put one pint of milk warm water, a pound and a half of flour and half pint of malt yeast; mix them well together, and set it away, (in winter it should be in a warm place) until it rises and fall again, which will be in from three to five hours; (it may be set at night, if it be wanted in the morning;) then put two large spoonsful of salt into two quarts of water, and mix it well with the above rising; then put it in about nine pounds of flour, and work your dough well, and set it by until it becomes light. Then make it out in loaves. The above will make four loaves.

"As some flour is dry and other runny, the above quantity however will be a guide. The person making bread will observe that runny and new flour will require one-fourth more salt than old and dry flour. The water, also, should be tempered according to the weather; in spring and fall it should only be milk warm; in hot weather, cold; and in winter, warm."

Sulphuric Acid for Rennet.

The Transactions of the Highland Agricultural Society of Scotland, contains some experiments made with sulphuric acid in the place of rennet for curdling milk in cheese making. In one case the acid gave from one pint of milk 144 grains of curd, while the rennet gave 112. Another pint gave with the acid 143 grains, while the rennet gave 104. Another pint, being the "strippings" of the cow, gave 171, while the rennet only gave 112 from the same quantity.

To Preserve Potatoes.

Put quicklime into a hole or ditch in the earth. Slake it; when cool, put in potatoes, so that they may be covered with the lime. Let them remain twelve hours; then take them out, wash them clean, let them dry—and they will keep for years, although they will never germinate.