

### THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

### **VOLUME 6.**]

SCIENTIFIC AMERICAN, Published Weekly, at 128 Fulton, street, N. Y., by MUNN & CO.,

At \$2 a-year; \$1 for 6 months---in advance

## Rail-Road Mems

New Style of Railway Car. Herapath's Journal furnishes the following description of a car of the kind used by the Great Northern Railway Company in England. If the material used, "teak-wood," has the qualities here imputed to it, for resisting the weather and can be kept polished and in good repair for a cost so much less than the painted carriage, it would be well for our car manufacturers to turn their attention to it. A saving likewise of some two hundred dollars on the first cost per car, is worthy of being taken into consideration ;-

The carriages are most peculiar in their appearance. At first sight a stranger would hardly know what to make of them, whether they were in a perfectly finished state or not. But on a little closer inspection he would soon discover his mistake. They are made of an Indian wood called "teak." It is not painted, but well polished and varnished, so that the naturally fine grain of the wood is its ornament. The carriages, therefore, present very much the appearance of finely polished oak, instead of being handsomely and expensively painted. The advantages of this "peculiarity" are many, and it will be seen not unimportant. In the first place the "teak" wood is harder, stronger, more durable, and less susceptible to the expansions and contractions of heat and cold, and being also an oily wood, more impervious to wet than railway carriages made of the ordinary material. The next advantage is that when an injury, in the nature of a scratch or a chip, takes place, it can readily and at little expense be repaired. With the ordinary carriages there is often much expense incurred by having to repaint the whole carriage to repair a scratch. When the paint of one part becomes injured the whole must be painted. The "teak" carriages of course require nothing of the kind. There is no paint to spoil. A scratch is readily polished out, and a little varnish put over that part renders it like the rest. The last advantage of the use of the "teak" which we need name is that it costs-in the first or capital charge, something like £40 a carriage less. That is a saving of some amount. The merit of the introduction of this material for railway carriages is due to Mr. Williams, of Goswell street, the principal carriage builder for the Company. The carriages are very commodi--they afford more convenience and com fort than we generally find in railway carria ges. They are higher-a man of six feet can stand up in them. There is a good ventilation at the top, without producing draft, an improvement of some importance to invalid Instead of pulling up the windows by means of bands, as in other carriages, they slide up and down at the touch of the finger, arising from the sash of the windows being nicely balanced by weights. Cotton Trade of the City of Glasgow. The first steam engine was erected in 1792; in 1793 the first power-looms were introduced from England, and in 1794, 40 looms were set up at a place called Milton; in 1831 there were 15,137 power-looms in the city, and at the present moment, 1850, there are 25,000, which average 625,000 yards of cloth per day. There are 1,800,000 spindles running, and the cotton consumed amounts to 45,000,000 required size, the rollers being so combined by if revolving vertically they are designed to break 臣 lbs., or 120,000 bales.

### NEW-YORK, OCTOBER 5, 1850.

BATTIN'S COAL BREAKER.---Fig. 1.

termed "Battin's Coal Breaker." This is the machine which has caused no small amount of litigation in Pennsylvania, and is one about which no small amount of difficulty is experienced. The views which we here present are taken from a model, and we have had the patent during the past week to examine, and to give our opinion about its legality, both by those who believe it to be invalid and those who believe it to be good. Upon such considerations-those of both sides-we will endeavor to give an impartial opinion.

Figure 1 is a perspective view, figure 2 is a plan view, and fig. 3 an end view of the breaking rollers. The same letters refer to like parts. A is a frame constructed in any common way; B is the coal box, or hopper; C C are the cog wheels of the breaking rollers. The axle or shaft of one breaking roller, is the main driver, which, by the cog wheel, gives motion to the other roller; D is a large grooved pulley, from which a band ,0, proceeds around a pulley on the screen, E, to rotate the said screen on its bearings, F F F, and screen the broken coal; H H are the breaking rollers-



FIG. 2.

they are formed with projections on their sur-

We here present three views of what is rections and with the required velocities, to retain the relative position of the teeth of the two rollers, as described."

The first patent was granted unto Mr. Battin in October, 1843, then an additional improvement was patented in January, 1844. Afterwards these letters patent were surrendered, and a re-issue granted on the 4th of last September, 1849. The improvement was surrendered, but not re-issued, it was cancelled.

The claim of the first patent was-" the manner in which I have arranged and combined with each other the breaking rollers and the screen, the respective parts being formed and operated substantially as described." The improvement claim which has been cancelled was, "the addition of a smaller roller placed above the other two."

We have now given the three claims of Mr. Battin. The Pottsville Mining Journal of the 31st August contained the following article:

"The Coal-breaker suit is to come on again in October. Mr. Battin, finding his patent untenable, surrendered it and took out a new one entirely. Upon this new one he now brings suit against three firms in Tamaqua. Our Colliers should know the nature of the present claim, in order to guide their defence. He had three patents before, claiming the



combination of breaking rollers and revolving faces; these projections are of a tapering screens; but disclaiming the invention of square form, and are cast or made on the cir- | toothed rollers, which he acknowledged to have cumference of the rollers with spaces between been long in use for breaking up similar sub**INUMBER 3.** 

mechanical necessity that the teeth of one shall work into the interstices between the teeth of the other; else there would be no breaking up, for three-fourths of the lumps would pass through the ample continuous channels, untouched by the breaking points, There never was a pair of rollers fluted or pointed (the principle being the same in both) that could have been set or worked otherwise. And we conceive that the issuing of letters patent for the alleged novelty of so clear a mechanical necessity, is a disgrace to the patent office and a proof of either gross neglect or shameful incompetency.

We ask the opinion of our highly competent friends of the "Scientific American." And we would remind them that every body was willing.to pay Mr. Battin handsomely, patent or no patent, and that they only resisted his claims because of exhorbitancy and the taxiform and inquisitorial shape he persisted in giving to his collections."

The patent which we have examined, of last year, does not speak of any more than two previous ones: if there is a fourth we have not seen it. The Register is perfectly correct about the action of the rollers-they could not work otherwise and perform the same work ; but then the question hinges on this point-"Could the teeth be arranged otherwise and perform as well?" Of course the revolving in opposite directions, and the equal motion of the two rollers, is all old and used in all crushing rollers, but that is not the point; it is the arrangement of the teeth in combination with the roller motion. For example-if the teeth of one met the teeth of the other, and acted like breaking scissor levers, then it could not be Mr. Battin's arrangement or invention; and if one roller had one half the teeth of the other, but revolved twice as fast, it could not be Mr. Battin's arrangement nor invention. Now the questions to be asked are these, and they are the test questions of every patent: "Is Mr. Battin the original inventor? were rollers such as he claims, employed two years before he made application for a patent? and, are they useful ?"

We have had a good long search to discover whether the said rollers were in any mechanical work in our possession, -we could not find them. Having seen a great deal of machinery in our life, there is an impression on our mind that we have seen the like before, but where, and for what purpose, (although we think it was for breaking bones before grinding into dust,) we cannot positively say. We must give it as our opinion, then, that the claim is legal. To prove the legality of the claim, the question is one of fact, and there may be witnesses who have seen such rollers used before 1843; if so, the patent will be void,—if not, it will be sustained. If the only difficulty in Mr. Battin's way has been his too exhorbitant demands, we advise him to be moderate in this respect, it is the most profitable way in the end. His first patent claim, however, was a very poor one : it was tantamount to saving . the rollers are old, and the screen is old, but they never were combined before," whereas the same combination is very old-that is, belt and pulley.

them, like the checks on a chess board; G is stances.

the fly or driving wheel, it drives the main axis, which gives motion to the whole machinery. A spout from below the rollers conveys the broken coal to the screen. The screen is placed like a set of bolters in a grist mill, and is operated in substantially the same manner.

The claim for this invention "is the arrangement of the teeth on the two rollers, substantially as herein described, so that in their rotation the teeth of one shall come opposite the spaces between the teeth of the other, with sufficient space between to hold lumps of the | necessarily revolve in opposite directions; and

Now, his specification makes claim not to the combination, but to toothed rollers so arranged as to revolve in opposite directions with the teeth of one playing in the open spaces between the teeth of the other ! This is in fact exactly what his third patent claimed before and could not maintain : except that he now omits the acknowledgment therein made of the antiquity of toothed rollers for breaking other frangible substances. We have only to say, that if a pair of rollers is intended to pass any thing through them, they must gearing as to make them rotate in opposite di-|up| any substance into lumps, it is equally a ed.

### Balloon Snow Storm.

On Saturday afternoon before last, Joshua Pusey ascended with a balloon from Reading, Pennsylvania. He started at half-past four o'clock, and descended at Haddington, a few miles west of the Schuylkill river, about halfpast seven. He says that during his voyage, and when at an altitude of two miles, he was overtaken in a snow storm, and, what was strange to him, and will be so to every body, was the fact that the snow flakes ascendn

18

# Miscellaneons.

British Association for the Advancement of Science.

### WELDING IRON.

Mr. Nasmyth explained his improvements in forging iron. In forging shafts for the paddle wheels of steamers, for example, it was of most essential importance that the shaft should be sound from the surface to the centre. The common plan by which the section was alternately elongated in different directions, could not effect this object. It did, in fact, effectually cripple or disintegrate the central parts of the shaft, just as by heating a rod of wood would separate the central fibres and thereby weaken it. To prevent this elongation Mr. Nasmyth forged his shafts in a hollow wedge, thereby giving rise to three forces converging upon the centre, and thus securing a complete consolidation of the metal. Mr. Nasmyth then explained his method of welding, showing that a weld was in general so much weaker than the other parts, because of the weld being made from the extremities toward the centre, thus enclosing within it all those omdated and disintegrated portions which, in fact, kept the solid forces of the metal from coming in contact. He proposed that one of the surfaces to be welded together should be slightly convex, that the welding should begin at the centre when the surfaces were in contact. and proceed outwards, thus squeezing out those loose portions, and allowing the two surfaces to come in complete contact with one another. Several members having expressed their high opinion of these excellent improvements,-Dr. Robinson said they bore upon them the impress of mechanical genius, addressing themselves, as all such things did at the forms of the waves were less regular than once, to the understanding and approbation of all, and each wondering that they were not found out before.

[Mr. Nasmyth is the inventor of the celebrated steam hammer.]

#### PROPELLING VESSELS.

Mr. Ruthven, of New street, Edinburgh, read a paper on improvements in propelling steam vessels The President, Dr. Robinson, in communicating the thanks of the section to Mr. Ruthven, requested that his model might be left in the room till the close of the day, for the inspection of those who desire to satisfy themselves as to the construction and working of the engines. A very important fact was mentioned by Mr. Ruthven, as operating in his hydro-propulsion-namely, that supposing the vessel to be progressing with ten horse power, immediately on being checked, which in the case of necessity can be instantaneously done, totally irrespective of the engine, there is a double or 20 horse power communicated to check and give the vessel a retrograde motion, incalculably valuable in many cases, which gradually decreases as it is answered by the vessel, until it again obtains the 10 horse power.

(Mr. Ruthven has patented his invention in America.]

### A FUSED DIAMOND.

J. P. Gassiot, Esq., F. R. S., the well known electrician, read a paper on a peculiar form produced in a diamond under the influence of the voltaic arc. He showed to the section a diamond which had been exposed to the intense heat produced by the voltaic battery when ranged as in the device for the electric light. The diamond had been fused but instead of changing to coke, as in such circumstances diamonds generally do, it had by removing the diagonal mirror, and placing become a glassy mass, and seemed to consist | it at the trunnion. The method of mounting of a multitude of small crystals adhering removes the inconveniences attached to that together. Mr. Gassiot produced the fused used by Newton, Herschel, and others. Mr. diamond, which, from its peculiar appearance, Nasmith exhibited a drawing of a portion of produced much amusement.

vations were great. The latter was acted on the Edinburgh Observatory," a model of which so as to roll before the wind, so that her he exhibited and explained to the section. position was not level in the trough of the sea. | The polar axis of his method has the form of In a large steamer the paddle-boxes tend to bring back the ship to a level, when rolling, so that in the Cambria he was quite sure that a perfect level was maintained for several seconds. He had three places of observations-1st, the ordinary deck; 2d, the top of the saloon or cuddy; and, 3d, the paddle-boxes. The height of the saloon or cuddy was 234 feet above the line of flotation of the ship in calm water, and the height of the observer's eye on the paddle boxes, above the same line, was  $30\frac{1}{4}$ . His observations were made in lat. 51 deg. N. long.; 38 deg. 50 min. W., and the wind W.S.W. Most of the waves were above 24 feet, and at least one half were up to the level of 30 feet above the trough of the sea. After it had blown hard for 36 hours and after the storm had subsided a little, he still saw 10 waves more than 26 feet above the trough. His mode of measuring, depending upon the distance of the waves, and the angle of elevation, could be quite depended upon. He also noted the periods taken by the waves in overtaking the ship, having reckoned 20 waves to have passed in  $5\frac{1}{2}$  minutes. The average of several was 164 seconds. He also found that the time of a regular wave passing from stem to stern of the ship (220 feet long) was 6 seconds. The height of the highest crest was 45 feet from the trough, and the distance of two crests (that is, the length of a wave) was 600 feet. The form and character of secondary waves are modified by the inequality of the power producing the wave, viz., the action of the wind, for neither the direction nor velocity of the wind ever remain the same. Thus the inequalities are produced, especially in elevation. During the height of the gale after a little subsidence. His observations referred entirely to waves in deep water, not to those on shores or in shallow waters, and he found that the average velocity was rather above 32 miles an hour. In regard to this paper, the Marquis of Northampton took occasion to remark on the importance of the Asso ciation, from its bringing together philosophers either to correct or corroborate one another. The latter was the effect in this instance, for he found by a paper on the same subject, communicated to the Association in 1845 by Mr. S. Russel, that that gentlemen had calculated the velocity of the waves to be between 30 and 31 miles an hour. TELESCOPES.

Mr. Nasmyth (inventor of the Steam Hammer,) read a paper "On a new arrangement of the Reflecting Telescope, by which great additional comfort and convenience are afforded to the observer." He first explained four figures or diagrams, exhibiting the construction of the Newtonian, the Gregorian, and the Cassegranian telescopes, and in one of which he (Mr. Nasmyth) has combined the Newtonian and Cassegranian. The Nasmyth telescope reflects the rays from the smaller mirror, which is convex, upon a diagonal mirror, placed near the larger speculum, by which they are sent off through the trunnion. The telescope is mounted on triangular supports, and on one side is placed a chair for the observer, the whole being fixed to a turn table, and so constructed that it can be turned in any direction by the observer without removing his eye from the glass. Such a degree of steadiness is thus attained, that the observer can have a star or other object in view for a whole hour. The teleso

his telescope, presenting appearances like the

a shell or mortar. The hole through the centre of it is the declination axis. The right ascension circle surrounds the shell longitudinally. The telescope is mounted in the middle of the polar axis. The declination circle is formed by the circle or rim of the shell, the observations being read off through apertures in the frame of the telescope. The whole is kept in constant motion by means of clockwork, by which the telescope, when directed towards a star, keeps it constant and steady in view.

#### COOLING ROOMS.

Professor Smyth was then heard "On a Mode of Cooling the Air of Rooms in Tropical Climates," which he illustrated by means of a drawing. The result is effected by means of a double-acting forcing pump worked by mechanical power.

Mr. Taylor mentioned a large copper-mine in Cornwall, which men worked at a temperature of 90 deg. or 100 deg. or upwards, and stated his belief that the apparatus described by Professor Smyth might be applied.

Dr. Robinson thought that the principle might be applied also to atmospheric railways, in the case of one of which, near Dublin, the temperature produced in the engine house by compression of the atmosphere, is 130 deg. or 140 deg.

Mr. Rankin gave the result of his calcula. tions regarding the amount of mechanical power necessary for working the apparatus of Professor Smyth. One-horse power for one hour would be sufficient to lower the temperature of 9,000 cubic feet of atmospheric air, to the extent of 20 degrees Fahrenheit.

#### ROMAN MOSAIC PAVEMENTS.

A paper from Profs. Buckland and Voelcker. was read, about the "Singular Changes which have occurred in the very beautiful Mosaic or Roman Tesselated pavement, discovered a year ago at Cirencester." From their account, it appeared that the Romans were in the custom of preparing a beautiful ruby glass, which they colored with the red oxide of copper exactly as is done in the finest cathedral window glasses of the present day. They were, however, unacquainted with the application of gold to produce a ruby red. It is worth the attention of those interested in staining glass windows, which are now so popular, to notice that the ruby red copper glasses are liable to become green after long exposure to the atmosphere. In the Cirencester pavement a head of Flora occurs, with a wreath of green leaves, and in addition with green flowers. All the other colors harmonised most beautifully, but the green flowers destroyed the effects of the Mosaic. Professor Voelcker, however, discovered that the flowers had been originally red, and had only become green, in consequence of the red oxide of copper being changed by the action of the air exerted on it during centuries, into the green carbonate, better known to our readers as verdigris.

#### FLUORINE IN MILK.

Dr. George Wilson then made a communication, stating that he had established incontestibly the presence of the remarkable element of fluorine in blood and milk. In the case of blood, twenty-six imperial pints of that from the ox were employed. The liquid was boiled down and burnt to ashes by a process which occupied a month, and thereafter being washed with hot water to remove the common salt,

show that carbonic acid occurs in blood in a peculiar state of combination which has not hitherto been observed.

#### NATURAL HISTORY .- PRIMITIVE RACES IN SCOT-

LAND. The communication next laid before the section by Mr. Daniel Wilson, was entitled an "Inquiry into the Evidence of the Existence of Primitive Races in Scotland, prior to the Celtse." He showed, by a series of results established on carefully sifted data, that evidence may be produced to prove the existence of two primitive races in Scotland, differing decidedly in cranial characteristics from the Celtæ, but also differing remarkably from the two earliest races of Scandinavia, the primitive race of the north of Europe, apparently corresponding to the second race of the Scottish Tumuli. An interesting collection of crania was exhibited from various Scottish cairns and barrows, and a large diagram was shown in illustration of their measurements and relative capacities. The communication excited much interest, and led to an animated discussion on various points referred to, in which the author was acknowledged to have opened up an entirely new field of inquiry, in relation to primitive Scottish Ethnology.

#### NEW ZEALANDERS.

Two papers were then read, the first from the Rev. J. F. H. Wahler, a missionary in New Zealand, being remarks upon the present state of the natives of that island; and the other from Dr. Thomas Hodgkin, upon the religious rites and the assumed practice of cannibalism amongst the New Zealanders, or the natives of the Southern Islands. There was no authentic case of the human body having been eaten, though it was true that it had been consumed by fire. At the same time, many narratives broadly stated that the practice existed. Mr. Black, when strictly interrogated by the late Sir John Barrow on the subject, admitted that henever saw a single instance of the eating of the human flesh, though he was present on several occasions when bodies were roasted. No doubt European vices had been introduced amongst this class of people, and in consequence their habits had deteriorated. Hence any instances of cannibalism were rather acts of vice in the parties than the result of continued practice.

A gentleman in the body of the section stated that he had accounts from Swansea, in Australia, of a race of natives hitherto undescribed, who were undoubtedly guilty of cannibalism. It was not practised from enmity or revenge; in the case of relations it was done as a mark of respect to the individual. He had no doubt that the Teutonic race would ulfimately supplant the original people of the country; that in fact from all accounts they could not be improved in their habits, and that consequently they were unfit for civilization.

Mr. Graham, from Australia, confirmed this statement, relating an anecdote of a girl who was taken charge of by the Governor of South Australia, and after all the tuition that could be given her, returned after a few years to her savage habits. He also stated with regard to the natives of Australia, that it was impossible to keep them to work for any length of time.

### ARTIFICIAL PRODUCTION OF LIMBS.

Dr. Simpson then read a paper on the re-production of limbs after amputation in the human subject, with several curious specimens. Dr. Simpson showed that the power of re-producing

# Scientific American.

ATLANTIC WAVES.

(p

The Rev. Dr. Scoresby read a most interestcraters of volcanoes, surrounded by terraces siing paper on "Atlantic waves-their magnimilar to those observed on our own planet. Mr. tude, velocity and phenomena." These obser-Nasmyth protects the speculum by screwing vations were made on board the steamer Camon a disc of zinc, so as to render the whole air bria, in March, 1848, on her passage between tight and water tight. Ψ Liverpool and New York. The advantages of Prof. Robinson was then heard "On a new a steamer over a sailing vessel for such obser- form of Equatorial at present constructing for celebrated chemist of Holland, was devoted to sociation.

which is largely present in all blood, was and repairing lost parts was the greatest in the a few seconds be changed into a Newtonian moistened with oil of vitriol, and gave off, when lowest classes of animals, and decreased as we so treated, hydro-fluoric acid, which can be ascended higher and higher the scale of animal made to etch glass. In illustration of this life. He further pointed out that the human embryo approached in this as in other respects paper, pieces of glass were shown to the section, deeply etched by the acid vapor evolved from the physiological life and powers of the lower the ashes of blood, and also from the ashes of animals, and consequently when the arm or the lunar surface as lately seen by him with | milk and cheese. leg was amputated verily in embryonic exis-

tence, as not unfrequently happened from Dr. Anderson next communicated the results bands of coagulable lymph, and the results of of a very elaborate research on the combination of codeine, one of the crystallisable sub- disease, the stump structures reproduced a small rudimentary hand-as the crab or lizard stances contained in opium, and showed the section crystals of a very beautiful compound does. He showed various casts and drawings which this body forms with iodine. of cases of hands thus reproduced; and two A communication by Professor Mulder, the living examples were exhibited to the As-

#### For the Scientific American. The Voltaic Battery. NUMBER III.

We have already seen what it required to form a battery in general; we will now inamine their different parts and attend some-Grove, Daniell and Smee.

Let us again recur to our primary experiment :- we saw that the battery must con- | will require several times to be amalgamated. tain a compound fluid, one element of which | But local action may begin at any time, and must combine with the zinc. For the sake of the prudent operator will amalgamate every illustration we supposed this fluid to be muri- | day, for much zinc will be thus saved, and in atic acid. But this is not the only compound fluid capable of giving up one element to the zinc; water, which consists of oxygen and should be saved, and the mercury obtained by the zinc; but if we use water to excite the amalgamation will not exceed two cents per battery, we shall find the action extremely feeble at first, and soon to cease altogether. If we now inspect the zinc we shall find it covered with a hard and insoluble white crust, -hence it is evident what caused the deficient action: the oxide of zinc formed by the oxya flint stone.

But if we can render the oxide of zinc soluble, so as to remove it from the zinc as soon as formed, it is obvious that we may employ water for the battery. Sulphuric acid will combine with oxide of zinc and form sulphate of zinc, which is very soluble; now we will add some sulphuric acid to the battery containing only water, and whose action has ceased, and we see immediately a copious plate.

It must be borne in mind that it is not the acid that excites the battery, but the water; the acid serving merely to form with the oxide of zinc a soluble substance, which, being dissolved by the water, allows the zinc to be continually in contact with the water, and thus oxide to be continually forming.

Here it is manifest that the water performs two offices; first, to form oxide, and afterwards to dissolve this oxide when combined with sulphuric acid. Now, as a given quantity of water will dissolve only a certain quantity of sulphate of zinc, it will be useless to add more acid than will make sufficient of the sulphate to saturate the water, for if the acid sulphate will be made than the water can dissolve, and so the battery action will cease. Practically, the acid should never exceed onefourth the bulk of the water.

We have now made one change in our ex-

도분면

So possibly might we at Niagara Falls, with pure, and as such is very expensive; let us | acid necessary for the zinc, it has to be conbeing cut up. The hams should be salted with as much water as we pleased, free of cost. try a piece of ordinary zinc in its place : now | fined in a bag or porous cup, for it is necessabloom salt, with a portion of red pepper, and But B. A. has not told us how much it has we see there is constantly a torrent of gas from ry for the second body of the battery to be in about a gill of molasses to each ham. Let cost to erect flumes, race-ways, wheel pits, the zinc, whether the wires are joined or not, contact with the compound fluid. The hydrothem remain in salt five weeks; then hang &c., and to construct foundations for his mill and in a short time the zinc is all gone. This gen here is not evolved, but enters in combithem up, and smoke with hickory wood for five -probably quite as much in proportion to the shows rather a poor prospect for the use of ornation with the oxygen of the oxide of copper or six weeks. About the first of April take power used, as the sum of \$25,000 set down dinary zinc. But Mr. Kemp, of England, and forms water, while the copper is precipitathem down, and wet them with cold water, as the cost of the steam engine of 300 horse made the important discovery, that by smearted on the conductor. and let them be well rubbed with unleached power. He also puts down the sum of \$6,500 ing the zinc with quicksilver it would act pre-This battery is generally constructed of a ashes. Let them remain in bulk for several as the cost of water-wheel, bulk-head and cisely like pure zinc, thus suffering no loss exleather or other porous cup, containing a cydays, and then hang them in the loft again for We should very much like to see ત્રો cept when the battery is in action. To amallinder of amalgamated zinc and acid, and the use." this apparatus for 300 horse-power at that gamate a zinc plate, it is only necessary to porous cup placed in a copper vessel, filled cost. Water-wheels, &c., must grow sponta-MAMMOTH CYLINDER. immerse it for a few moments in dilute acid, with a solution of sulphate of copper; crysneously in that country, and be endued with The largest cylinder in the world was cast and pour a little mercury on it, and spread it tals of the salt are added from time to time, and being first dissolved, and afterwards demagic powers; they are probably accompanion Saturday, the 21st ultimo, at the West over the whole surface with a rag. ments to natural rock dams,-nature must | Point Foundry, Cold Spring. Its outside diacomposed, their metal is precipitated on the Let us now attend to the difference between copper, which at length becomes so thick as to have formed that site for a cotton mill, and semeter is 17 feet and its depth 11 feet; the pure and common zinc :- ordinary zinc is concured it by patent. The science of mechanics bore is to be 14 feet diameter. This cylinder unfit it for use. There is a great trouble from taminated with about five per cent. of charand improvements in mechanical labor, have is for a rotary engine, the invention of Henry the blue salt leaking through the porous cup coal and iron; if we rub a piece of pure zinc not yet reached that point of excellence at G. Thompson, Esq., of this city, and is inwith iron filings or coal dust, and then immerse to the zinc, and also from the deposition of Lowell and Lawrence. Our friend would do tended to work, it is said, with low pressure copper on the porous cup. But the operator it in the acid, we find that it behaves precisewell to repair thither, and give them a few lec- steam, and expansively at the same time. It ly as the impure-each particle of zinc giving need not trouble himself about these defects, tures on wheels, bulk-heads and races. Some is intended for a new steamboat, 340 feet long, off a stream of gas; hence it is evident that for the battery costs more than one of Smee's of the wheels there cost \$20,000 apiece, for to run on the Hudson. We shall see what the iron or coal performs an office to the zinc of the same size, in the first place, and more Ц 150 horse-power, and there are few, it is this rotary will do; if it be like its predecesprecisely similar to that of the silver of the than twice as much to maintain its action, believed, which have not cost three, four or sors, it will be an entire failure. battery, only the voltaic influence is not con- and will do only one-fifth of the work. -10

ducted by the wires but confined exclusively to the vicinity of the impurities. This is what is termed "local action;" and it is a great trouble and loss in large electro-metallurgical operations. As the zinc is dissolved away by spect the different kinds of batteries, and ex- the proper battery action, the impurities are brought to the surface, and combining with the what to the chemical operations going on in mercury, deprive the zinc of its protecting inthe instrument. By this course we may ar- fluence : local action will then commence and rive at a clear conception of what it is that rapidly eat up the zinc plate. In general, one makes the difference between the inventions of amalgamation will last for the depth of onetenth of an inch on each side of the plate, and a plate of one fourth of an inch thick the end no more mercury for the spongy compound formed on the surface of the plate hydrogen, will readily give up its oxygen to distillation. In this way the ultimate cost of

pound. In forming our primary battery, it was supposed that we used any convenient silver plate -say a dollar hammered out to extend the surface. Let us now take this rude plate and polish it until it is as bright and smooth as a gen of the water and the zinc, has excluded mirror. On restoring it to the battery we find the water from contact with the zinc, for as it it no longer performs its office of throwing off formed on the surface of the zinc it remained the hydrogen, but the gas adheres to it in large there-the oxide of zinc being as insoluble as bubbles. We now find that taking away the roughness of the plate injured it, and if we again roughen it by well rubbing it with fine sand-paper, we find it to perform even better than at first.

If we look at the sand-papered plate with a magnifying glass, we see the bottom of each scratch smooth; now Mr. Smee, to take the utmost advantage of the roughening principle, after roughening with sand paper, attaches it to the zinc of a battery, and so uses the stream of hydrogen bubbles from the silver plate to decompose chloride of platinum; the metal is reduced on the silver in the form of a black powder. If we now look at this platinised plate with the magnifyer, it appears as a bed of points. A plate so prepared will evolve the gas in torrents.

We have now converted our experimental battery into a Smee's battery, and such an instrument, formed of a dollar hammered out and a piece of amalgamated zinc, both suspended in a tumbler of dilute acid, will be as good a battery as we can obtain : a better one cannot be purchased, though bigger ones may be had. Let this be borne in mind, that the mechanical form of the battery does not affect the battery action.

This adhesion of the hydrogen was a great exceeds one-fifth the weight of the water, more obstacle to the battery action, and the different methods of overcoming it is what constitutes a Smee's, Daniell's or Grove's battery. By our first definition of a battery, it must consist of two bodies capable of eliminating the elements of the fluid the zinc eliminates one

This battery is called the "constant batte- five times as much as he states, to say nothry," and "sustaining battery." As the cop- ing of the other matters named.

per is abstracted from the sulphate the acid is set free, and this leaking through the porous cup supplies a small but steady stream of excitant to the zinc, but the amount of action obtainable in this way is very small, but it answers well for the kind of telegraph used in England, and also for some other purposes

### (To be Continued.)

#### For the Scientific American. Steam and Water Power.

In compliance with a call in the columns of vour journal, for information as to the comparative expense of water and steam power, a writer who signs himself B. A., appeared in the Scientific American of the 24th of last August, with the intention of clearing away all the knotty points of the question, to make the subject as clear and plain as the light of the mid-day sun: and thereby putting the controversy at rest forever. B. A. seems to know, or assumes to know, so much about the subject, that it may possibly be deemed presumptuous in me to question any of his statements, or try to shed any further light on the subject than has flowed from his pen; yet I must beg leave to do so, even at the hazard of being

written down an ignoramus. B. A. commences his statements with "Steam power in cost is nearly uniform, and except as to location, a trifle in the cost of fuel, is much the same everywhere; but that of water has no fixed value, its cost depends on location and other local advantages." He then gives as "a comparatively extreme case," a water power "within five miles of the tide waters of the Hudson River," with a "natural rock dam," and "estimated constantly at 300 horse power in the driest time that water runs." This water power and natural rock dam, he puts down at a cost of one thousand dollars. B. A. says, "steam power in cost is nearly uniform," &c. Well, the location is something-indeed it is so much that we will agree to erect a steam mill, in an Atlantic city, that shall save all that he gains by his cheap water power, in the expense of transportation alone and heating the mill; and will also engage to furnish steam to run and warm the mill, in some locations I could name, at less cost than he can warm his with, on his cheap water power. He speaks also of the difference of a trifle in the cost of fuel. Well, he puts down coal at \$5 per ton, or \$6,260 per annum, to generate 300 horse steam power; but there are hundreds of sites for cotton mills in the United States, where both cotton and coal may be had in abundance at the very doors-the cotton at two cents per pound less than he can purchase it for at his cheap water power, and the coal at 60 cents per ton. The saving in the cost of cotton would be more than \$30,000 per annum, and, in the cost of coal, above \$4,000 more-an aggregate per

perimental battery by substituting, in the place element in all three batteries. In the Daniell's Mr. Nathan White, of Montgomery county, annum quite as large as the profits he can of muriatic acid, water and sulphuric acidbattery the second element is eliminated by Maryland, gives the following as the recipe make at his cheap water power; and this is this acid being cheaper than the other, not using sulphate of copper in the place of the by which the prize ham at the late Fair was not "comparatively an extreme case." He is silver of our battery; but as the sulphate of poisonous, and free from any unpleasant smell. cured : But the zinc we supposed to be chemically copper would commingle with the water and fortunate enough to find a natural rock dam. "The pork should be perfectly cold before

MANUFACTURER.

#### Scientific Memoranda.

STAITE'S ELECTRIC LIGHT.

We had thought that Mr. Staite or his "electric light, was dead, but it seems that he is as lively as a kitten, and has been recently illuminating some of the cities of old England. At Sunderland he exhibited his electric light from the Light House,-thousands thronged the quays and piers; and many took trips to sea to witness the effect of the light several miles from the land. The apparatus was erected upon a temporary platform, raised a few feet above the light-house, on the South pier-the galvanic battery being placed in a shed below. We learn by the Sunderland Herald that at ten o'clock exactly the anxious spectators were gratified by the first glimpse of light, which was shown by a parabolic reflector.

At Ryhope, three miles off, a lady was enabled to read a letter which she had never opened; and at Whitburn, two miles distant, in an opposite direction, the Herald was read on the sands by several individuals, when the reflector was in such a position as to cast a beam of light in that direction. The iron bridge which crosses the river Wear, threequarters of a mile from the pier, was crowded : and indeed, almost everywhere that it was known the light was to be exhibited, parties were eager to obtain a glimps of it. At halfpast ten o'clock the commissioners proceeded out to sea, a distance of seven miles, in the Sea Horse steamer, at which distance the pier light was invisible; while the electric light shone clear, bright and effulgent as ever; and a captain might have brought his chart on deck and consulted it with ease.

#### EXTRAORDINARY SUBSTANCE FOUND IN THE STOMACH OF A HORSE.

A short time since a horse belonging to a Mr. Moates, of Spalding, Eng., died and was opened, when a stone about the size of a man's head, or rather in shape and appearance exactly resembling the wig-block used by barbers, was found in the stomach. It weighed eight pounds, and seemed as a flint-stone, and extremely polished and beautiful. Another stone, of the shape and size of a horse's foot, was found in the stomach. These wonderful formations are produced in the stomach, no doubt much in the same way as stone in the bladder, a nucleus being first formed. The polish would be caused by the motion of the stomach in the course of digestion, or perhaps by the friction of one stone against the other. How any animal could live and work with such productions within its stomach is most astonishing. A very large sum is offered for the productions.

#### MONTGOMERY PRIZE HAM.

9616 Scientific American. 20 horses that, aided by the composition between Pavements.

## Inventions. Mew

Another Important Discovery. The Pittsburg Post thus announces another new and important discovery in the manufacture of Ircn, made by a young man by the name of Adams, the Assistant Manager of the Brady's Bend Iron Works, in Clarion county, in the manufacture of railroad and merchant bars from Coke metal. "By the old method the rails were made with Charcoal pig, and would crack very much and break with one or two blows. By Adams' process, Iron can be made eight dollars per ton lower, and of a superior quality. The process is not mentioned, but the quality of the iron produced, is spoken of. The writer was shown a rail that had been put to the severest test, by putting it, while hot, into cold water; after which they tried to break it with a sledge hammer weighing 80 pounds. Forty blows were given by six men alternately, and they could not even crack it. The Charcoal Iron of the company costs from 18 to 22 dollars per ton; their "Coke Metal" costs only from 9 to 11 dollars per ton. The discovery had caused quite an excitement among the workmen, for they were under the impression that the works would have to suspend on account of the low price of Iron.

We have seen the above in a number of papers : so many discoveries in the manufacture of iron have been reported lately, that we are half inclined to set them down as reports only. It is stated that Mr. Renton, of New Jersey, has just discovered an improvement to cheapen the manufacture of iron, and Salter's process, which has been patented, has been set forth as one of great merit-one which reduces the price of manufacture a great deal, and now we have this process of Mr. Adams. By the above extract, if his process means the substitution of coke for that of charcoal, then it is not new, and with what reason it is called "Coke Metal" we cannot divine.

#### Marine Salinometer.

We were shown a few days since, says the Baltimore Clipper, at the brass foundry of Wm. Peters, Esq., Pratt street, near the Bridge, an apparatus which had recently been invented by Mr. Wm. Sewell, of Portsmouth, Va., called the "Marine Salinometer," designed to indicate at all times the exact degree of saltness in the boilers of sea going steamers. It is well known that sea water contains a certain quantity of salt, in propertion of 1 lb. of salt to 32 or 33 lbs. of water, and that when used to generate steam this salt is left in the boiler, as all the water evaporated is fresh. The salt, if left in the boiler, it is equally well known, would soon work its destruction .-Hence the necessity which exists of blowing out, at intervals, a portion of the partly saturated water from the boilers of steam vessels at sea, or plying on salt water. One of the greatest difficulties with which an engineer on a sea going steamer has to contend with, is that of maintaining the water in his boiler at a uniform density. As water will not hold in it is necessary, to prevent its deposit in the boiler in the form of scales, to keep the water at a given degree of saltness, by blowing off a portion of the salt water. In vessels not supplied with Salinometers, or some such indicator, the engineers are compelled to blow off at random-sometimes not enough, and at others too much. In one extreme, the salt accumu-

#### it, the ground is first prepared with a covering small and wearing a little rounded, prevents of lime, sand and coal-tar, to prevent an upwater from entering into the wood and causing ward tendency of moisture. The pavement is

decay, as is the case with blocks of larger surcomposed of long and short wooden blocks set face. Should the wood shrink, the composion their ends, alternately a long and short | tion will expand by the pressure of horses' feet block. The spaces over the short blocks are and wheels of carriages. This also prevents then filled with broken or small stones, sand or water from penetraing into the work, and inlime, and hot tar is poured over the whole sursures durability to the pavement. The Tranface, and finally a covering of sand. The woodscript says, a street paved in this fashion ten en blocks are each about three inches square on years ago exhibits yet no evidences of deterithe surface ends, and so nearly fit the feet of oration.

A new kind of pavement has been introdu- the long blocks, they have a good foothold and

ced for the streets of Boston. In constructing do not slip. The surface of the blocks being

## SCRIPTURE'S PATENT AXLE COUPLING. Figure 1.



of last July, by Mr. E. S. Scripture, of Green forming a good substitute for a collar. It prevents the admission of dirt, and gives a neat finish to the back part of the hub, and it forms a tight box to retain the lubricating material. The cap nut in front forms an oil reservoir, and it also secures the pipe within the hub, and forms a fender for it. Mr. Scripture states that a journal 7-8 of an inch in diameter, with his improvement, will, without bending, resist the oblique action on the carriage wheel, as long as a journal one inch in diameter-as arranged in the usual way. The inventor was awarded a *first* premium at the late State Fair, at Albany-the silver medal and diplo-

Figure 1 is a perspective view, and figure 2 is a plan view of the attachments and inner end of the hub. The same letters refer to like parts. A is the hub; B is the journal of the pipe or axle box in the hub; E is a top box formed with a tongue running along the top of the axle bar, L; it has its inner end turned up to take into the wooden axletree, K. J J are projecting pins on the flanch of the pipe, C; they run into the hub; H is a washer of india rubber introduced between the solution more than a certain quantity of salt, flanch and the hub. The lower box, E, is a

> Preparation of Butter for Keeping. The following is said to be a good plan for

Into a clean tinned copper pan put any quantity of butter, say from twenty pounds to forty pounds, and place it over a gentle fire, so that it may melt slowly, and let the heat be so graduated, that the melted mass does cates of their drawings, will be pleased to

This is an invention patented on the 30th [half circular box, nearly like the top one, E. G is a nib entering a groove around the end Point, L. I. It secures the wheel on the axle, of pipe C; the chequered groove beside it represents a lubricated gasket; N is a pin or key passing through bars to secure the lower section box, E, in its place. By pulling out this pin, the axle can at once be drawn out of the hub; O is a hollow cup, containing lubricating material; it screws on the box and not on the axle. There is a spiral groove in the axle, so that the lubricating material is carried back along the whole journal of the axle. M is a strap and nut, which connect the wood axletree with the upper section box, E. By the use of the elastic india rubber washer, H, the box, C, is made to take a more even bearing, and it prevents a rattling of the parts The cup, O, holds both the hub and its pipe together, and furnishes an easy way to replace the pipe when worn out. The upper section box, E, entering the hub, prevents dirt, &c., from getting into the axle box. The wheel cannot the axle; L is its continued square part; C is run off the axle at all, owing to the nib and flanches of the section boxes resisting lateral motion. The gasket keeps the lubricating material from coming out. The claim is for he section boxes, E E, as constructed and combined with the axle box.

> Letters addressed to the inventor, Mr. Scripture, will be promptly attended to.

process of cooling there is deposited a whitish cheesy sediment, proportioned to the quantity of butter, which is to be carefully prevented from intermixing with the preserved butter.

#### Notice.

Inventors and Machinists who wish dupli-

drawings of their inventions to their friends at a distance, but we have neither time nor space to devote to it. To those of our friends who desire them, we shall be ready to attend to their wants promptly, correctly, and econoinically.

### Improved Smut Machine.

Mr. Geo. Hathaway of Corning, N. Y., has made an improvement in Smut Machines, for which he has taken measures to secure a patent, and which appears to be a good invention, both on account of its simplicity, effectiveness and durability. He has a set of revolving arms in the inside a slat framed shell, and on each arm there are a number of longitudinal beaters made of iron. These, by revolving, beat the grain against the slatted shell, which is also made of the same iron, and a fan operated in the usual way, blows out all the impure matter, and the grain is delivered below beautiful and clean. In this smut machine, the action is a beating one, not rubbing, hence the parts do not get worn smooth and useless, but it maintains its working qualities till it is wonn out. This machine can be made very cheap, because it is constructed of cheap and durable materials, and any good country blacksmith can make all its parts.

#### For the Scientific American. The Post Office.

A large proportion of the letters transmitted by mail are unpaid letters; to require all letters to be pre-paid, even at a low rate, would have, I think, a tendency to check correspondence. By lowering the rate, undoubtedly more would be pre-paid, and the dead letters would not increase with the increase of letters. Many communications are made solely to acquaint the persons addressed of their interests, or of the fortune or jeopardy thereof. And some would deem it enough to acquaint others of their personal interest, without being necessitated to defray the transmission of the information. It seems to me that the States, individually, might reduce the expenditure of carrying the mails. Before the railroads were built there was competition for the transportation of the mails : now there cannot be; and the railroad corporations may be exhorbitant in their fees for their transportation. Many of the States, if not all, could probably regulate the tolls therefor, as well as tolls on turnpikes and canals. It is true that the rapid transportation by railroad is more valuable to the people than the former modes of transportation, and the proprietors should be well, but not exherbitantly, compensated therefor. As the railroads were not built expressly for carrying the mails, it is not, or should not be, required of the Government to render undue and extra aid to support the railroads, and make them good investments for stock takers. The growth of the country will undoubtedly support the important tracks -and the tracks will increase the growth of the country.

#### A Country Postmaster.

#### Novel and Ingenious Experiment.

A cask of fine hardware and cutlery, says the Charleston Courier, accidentally fell overboard from the line ship H. Allen, lying at Boyee & Co.'s wharf. The contents of the cask were valuable, and r reward of fifty dollars having been offered by the Captain of the vessel for its recovery, it was restored to the ship's deck yesterday morning, through the exertions of Mr. Angus Smith. Mr. Smith provided himself with what he called a diving bell, by saw-

	lates in the boiler to its great injury, and in	not come to the boil in less than about two	learn that we are enabled to duplicate for	ing in half an ordinary oil cask, then placing
	the other case, a great loss of fuel is caused.	hours. During all this time the butter must	them one hundred or more copies of the draw.	it over his head and shoulders, and attaching
	To remedy the difficulty, this Salinometer is	be frequently stirred, say once in about five or	ings which we furnish for the Patent Of-	heavy weights to the edges of the inverted
	intended.	ten minutes, so that the whole mass may be	fice. The charges are moderate-from ten	cask, which being air-tight, prevented the wa-
	[We have seen the above in quite a number	thoroughly intermixed, and the top and bottom	cents per copy, to one dollar or more, accord-	ter from rushing in, his head occupying the
1		change places from time to time. When the	ing to the amount of labor to be performed.	vacuum; then letting himself down, he was
	ment about this instrument to entitle it to be	melted mass boils, the fire is to be so regulated	We are led to believe that the arrangements	enabled to remain under water from ten to fif-
1				teen minutes.
1	the purpose stated, it has no claims to be call-			Iron Carpeting.
1	ed an invention, for the "Marine Salinometer,"	but not necessarily so frequently as before.	they realize the benefits which they will de-	Iron flooring, instead of marble floors or oil
	is a well known instrument.	The vessel is then to be removed from the fire	rive from the gratuitous circulation of their	cloth, is manufactured at Rochester, and used
	The Voltaic Battery.	and set aside to cool and settle, still gradual-	drawings among their friends, or among those	in some of the hotels.
	We request particular attention to the arti-	ly; this process of cooling is supposed to re-	who write to them upon the subject of their	
	cles on the Voltaic Battery; they are furnish-	quire about two hours. The melted mass is	machinery or inventions. A great deal might	Congress has adjourned. The doings of the
L	ed by the best practical electrical engineer in	then, while still liquid, to be carefully poured	be said of the utility and benefit derived by	last Congress, will be felt for a long time.
- 6	the country.	<sup>1</sup> nto a jar in which it is to be kept. In the	inventors, who are able to send duplicate	The end of agitation is but begun.
	7.0			
L	<u> ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ] ]</u>			
1				

# Scientific American

### NEW YORK, OCTOBER 5, 1850.

City Graveyards and Funerals. A false view of religion has been the means of entailing upon many generations an evil of the greatest magnitude : we allude to gravevards in cities. When we boast of a civilization superior to that of the Greek or Roman. our boast should always be modified with some striking exceptions. The old Roman law allowed of no funerals except without the walls of the city. This wholesome law was broken by the professed Christians, in an age when darkness covered the land; and the evil has come down to us, is among us, and it sometimes admonishes us by those stern and terrible monitors-pestilence and death. A law was passed in the late British Parliament, which enacts that graveyards in London shall be closed forever after July, 1851. This law is good-it is only a great pity that such a law was required at this late day. In New York the evils of city interments are well known, but for a fine, the charnel-house will open its portals and gratify the statute-a statute which the rich can set aside-the poor, never. This evil, however, may be said to be so small in the lower part of the city, as scarcely to deserve the same of one. This is no doubt true; but in the upper part of our city, for which a different law has been provided, the evil is a crying one, especially the vault system-it above all, deserves the severest censure. In some churches the gold-getting spirit is most reprehensibly developed. They have adopted a kind of warehousing system, combining part of their churches as receptacles for the dead, where, for certain sums coffins remain as goods in a bonded warehouse. In the cellar of one church, we have seen the coffins of those who died of cholera, piled in rows, beneath the very floor where the members met for worship. What a crying evil.

In connection with interring the dead, it is really grievous to see how much the spirit of mammon enters into every transaction, so as to make the bereaved pay well for the decent interment of the departed. If a new cemetery is to be opened, it will be held up as a philanthropic object, a commendable undertaking worthy of patronage, and so it would be, were it not for the stock-jobbing spirit which envelopes all such projects, for the purpose of coining money out of every turf devoted to cover the remains of our fellow mortals. The working men of our city pay high rents while they live, and they cease not to contribute to the same class of landlordism when they die.

There should be a law made forbidding all city interments for the future, in vault or churchyard, and were it possible we should like to see some means instituted, whereby those in the laboring walks of life would not, as now, be overwhelmed with the tremendous expenses which meet them at every step when fulfilling the last sad rites of sepulture, in decency, to their deceased relatives.

#### Elevated City Railroads.

We have received two communications with-The London Industrial Exhibition. R. Chapman, C.E., one of our ablest corresponin as many weeks, upon the subject which A letter from the Hon. Abbott Lawrence to action continued, however, the flame presently dents. Prof. W. R. Johnson, recently received, makes forms the heading of this article : the ideas grew darker, especially at its upper part which the following appeal to his fellow citizens in in both are somewhat alike. They advocate was evidently loaded with particles of uncon-Telegraph Case. the United States to do themselves full justice the utility and advantages of a railroad above sumed carbon. A piece of glass held over it Last week; before Judge Kane, Philadelat the exhibition in London, in 1851: the side-walks. This subject has been before was soon coated with lampblack. phia, U. S. Circuit Court, the case of Morse's I am happy to inform you that arrangethe public for a number of years; it is now, Suspecting these results to be due to the vo-Assignees against Bain's Assignees, for ints for the proposed exhibition we think, five years since Mr. Ran latilization of a portion of the turpentine oc fringement of Morse's Chemical Telegraph being made upon an extensive scale in France, hibited his "Elevated Railroad" for Broadcasioned by the heat attending the production Patent. The motion was for an injunction to two thousand persons having, as I learn, alway, to be propelled by stationary power, to of the hydrogen, I lastly took a vessel containrestrain the defendants from infringing. The ing merely the oil of turpentine, and having ready entered their names in France as exhibmake one set of carriages run in the one direscase was set down for final hearing on the 11th itors. Every country in Europe will contribute tion, and the other train in the contrary diraised its temperature by immersing it in a of next April. Why don't the assignees of to this great show, and Egypt, Persia, India rection. Mr. Randall's plan was well conceivmixture of sulphuric acid and water, I intro-Morse bring up the case in New York, where ed, and his model, which was exhibited three and China are preparing the products of their duced, as at first, a stream of hydrogen. A the fullest light could be thrown upon the subjet of mingled gas and vapor escaped, which, skill and labor for the exhibition. I believe years ago, developed no small amount of inject. that nearly all nations will come here in genuity, and it worked well. We have seen on being kindled, gave me the same whiteand 1851. no plan superior to his. R. V. De Witt, C. Upwards of one thousand Irish immigrants beautiful light as in the preceding experiment. E., of Albany, constructed a good model of an As I raised still further the temperature of the I cannot but entertain the sanguine hope have arrived at Boston during the past week. elevated railway, which is now in the rooms | turpentine, and caused more of its vapor to that the citizens of the United States will While thousands of the Irish are immigrating avail themselves of this opportunity not only to this country, the Scotch farmers are leaving of the Institute, along with drawings of the pass over with the hydrogen, the combustion their country and emigrating to Ireland, to of exhibiting the various products of our skill was rendered incomplete, and the flame, as bewhole plan. An underground or cellar railway was also fore, became smoke. Allowing the vessel, on and labor, but induce as many men as possitake possession of the good tillage land lying p-oposed about a year ago, but although the the other hand, to cool down to the ordinary ble to come here who possess the ability to waste for want of cultivation.

plan was a good one to save street room, the expense of constructing such a railroad, would be enormous, and subterranean navigation would be anything but agreeable to the denizens of Gotham. We never expect to see either a subterranean or elevated railway in Broadway. Our reason for this opinion is, we do not see any necessity for them. Why make a subterranean railway, or why make an elevated railway? Surely it is more plausible to make an elevated walk for foot passengers, or a subterranean one for the same purpose, but we see no necessity for either. Those who imagine our streets to be very crowded, have different ideas of crowded streets from what have been expected from the amount of light we have. At any rate, all crowding of streets could be avoided by laying the rails on terra firma. We have never seen a good objection urged against a street railroad, and consequently none in favor of an elevated one, so long as the other plan is more feasible, and can be constructed at a tithe of the expense. A number of lines of railway through the different streets, would obviate all the crowding into one general thoroughfare, and we have no doubt but we will yet see lines of railways branching through the city, drawn by unsmoking engines, conveying passengers quietly, safely, conveniently and regularly through every part of our city.

Light from Water.

A short time ago we received a short comnunication from Mr. T. Prosser, C. E., of our city, who is an inventor and man of science, in relation to "the Electric Water Light." The article principally directed our attention to the expose of the "Resin Water Gas," of Mr. White, of Manchester, England, and which was exhibited at Castle Garden during the last Fair of the Institute. The expose is by Prof. Fyfe. Professor of Chemistry in King's College, Aberdeen, and published in a late July number of the "London Mechanic's Magazine." In that article Prof. Fyfe states that Mr. White had estimated his olifient gas produced from resin, to mix with hydrogen, at too high a per centage, and that his water gas (hydrogen dropped on a red hot chain or small pieces of metal), was useless to mix with the resin gas for illuminating purposes,-that the water gas was nil-only adding to the quantity but detracting from the illuminating power of the resin gas, which White mixed along with his hydrogen.

Mr. Prosser says, "I have also passed hydrogen through turpentine, and am inclined to believe that it has the effect upon its illuminating qualities described by Mr. Matthiot in the Scientific American, but J cannot believe that the turpentine is not thereby sensibly diminished."

A late number of the Manufacturers' and Farmers' Journal, Providence, R.I., contained a letter from a correspondent; he says:

"I caused the hydrogen to be generated in the vessel containing the turpentine, in such a manner that the particles of the gas might come in contact with the fluid soon after their liberation, while they were yet in their nascent state. On kindling the jet thus obtained, a beautiful white light presented itself, perhaps superior in illuminating power to that produced by the best burning fluid. As the

brightness, until it at length became too faint to be of any practical utility.

It has been stated that the hydrogen does not take up any appreciable quantity of the turpentine in passing through it-that it is merely catalyzed. To settle this question, I weighed the vessel with its contents, both before and after the experiment. In the first case, in which I employed the turpentine cold, I found that 40 grains had disappeared; in the second instance, when I raised its temperature, there was a disappearance of 90 grains -a quantity in either case as great as would produced. I see in these experiments no reason for believing that the hydrogen enters into union with the turpentine, or is in any way modified by it. The vapor of the latter, unaltered, may readily be detected in the jet, both by its odor and by precipitating it on any cold body, and it is undoubtedly to the combustion of this, rendered more intense and perfect by the presence of the hydrogen, that the peculiar brightness of the light should be attributed."

As this is a subject which has attracted a great deal of attention from the statements which have been made about Mr. "Paine's Light," we consider it to be our duty to throw all the light we can-fairly and openly-on the subject. We took the ground at first that hydrogen could not be produced cheaply. We have allowed room for the discussion on both sides-for figures to be shown "to prove all things," and we have seen no reason adduced for altering our opinion. Holding these opinions, we candidly admit that we have had no sufficient open experiments to prove the difference in economy between coal, or resin and the electric carbon, "water carbon," and the hydrogen turpentine lights. It would require a fair competition between an "old coal gas company," and a "new light company," to prove which could manufacture light at the lowest price. We well know what wonders were to be performed by the "olifient gas companies," (making gas from oil) a few years ago, and how thousands were expended, and companies formed but to tumble down; and we are not forgetful, either, of the excitement created by the "Crutchett light," in Washington, a few years ago. All these have failed to compete, in the production of cheap light, with those companies who make it from cheap hydro-carbons-such as resin and coal. We must, however, admit that it is easy for Prof. Fyfe to knock White's house down about his ears, with a few figures all on one column, but there are always two sides to an argument, and when we know that no gas gives out any light until a certain amount of heat is communicated to it, we may also conclude, with the author of the article quoted above, that hvdrogen has some effect in the perfect combustion of the carbon, and assists to produce a brilliant light ; and to show that Prof. Fyfe may be mistaken, we will quote an article next wesk, from the Liverpool Mercury, showing the success of "White's Light." We would publish it now, but this article is of sufficient length upon one subject at once.

temperature, the light gradually declined in profit by what they see produced by other countries. I believe, in a commercial point of view, we may reap great advantages by increasing our exports. To the inventors, mechanics, and skilful men in the arts and productive sciences, it will be eminently useful to come here and examine the products of mind and labor that will be brought together from all parts of the world; and above all, we have the opportunity of impressing upon all nations the extent, resources, and power of our great and favored country. If we present specimens of our minerals, agricultural products, manufactures, and inventions from the various States of the Union, I am sure that we shall make a deeper impression upon the public mind (as a nation) than could be accomplished by the exhibition of fleets and armies. If we come here as exhibitors of the pregress we have made in the industrial arts, pray let it be in our full strength and power. It is one of those occasions when we should do our best. I will suggest the necessity of the early appointment of an agent in London to receive the articles intended for the exhibition.

#### New Muzzle for Rifles.

The muzzle of the rifle, as it is ordinarily constructed, must be made a little larger than the main bore of the rifle barrel, in order that the instrument may be loaded. By making the muzzle larger than the bore of the barrel, practical gunners think that the force of the charge is diminished, and the aim at the mark or object is rendered less certain. Hence, has been experienced a difficulty, and to remove the difficulty has been a great desideratum among gunsmiths. The Boston Cabinet remarks : We have lately seen a new muzzle, designed to remedy the difficulty, at the Rifle Barrel factory of Messrs. Thomas C. Smith & Co., Worcester, Mass. The new muzzle has a bore, tunnel-shaped, partly;—the bore in the bottom of the new muzzle being of exactly the size of the bore of the rifle barrel and the bore in the top of a new muzzle being larger, to receive the charge and ball designed to be introduced into the rifle, to which the new muzzle is applied. The new muzzle, during the process of loading, is fastened to the end of the rifle barrel by means of four dowel pins, which are suited to four holes, drilled into the end of the rifle barrel. When the rifle is loaded, the new muzzle can be easily displaced from the barrel, and may be carried in the gunner's pocket. Not being so much as even an amateur sportsman, we cannot judge of the utility of the invention. And yet we are aware of the fact that Messrs. T. C. Smith & Co., are answering frequent orders for the new muzzle.

[The above we extract from an exchange, and as we have seen it slightly altered in more than one paper, it may be as well to throw some light on the subject.

There is a Patent Loading Muzzle, termed Clark's," which, if not new, is good ; there is no question about that. Mr. E. Wesson. deceased, the famous rifle manufacturer at Hartford, Conn., owned the patent, but since his death it has been bought by Mr. Clark, Jr., we believe. Those who desire to get enlightened on the subject, have but to consult that excellent book, the "American Rifle," by J.

# 22

# Scientific American.



TReported expressly for the Scientific Ameri can, from the Patent Office Records.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office. FOR THE WEEK ENDING SEPTEMBER 24. 1850. To John Batchelder, of Boston, Mass., for improvement in Sewing Machines.

I claim the machinery herein described for making the stitch viz.; the combinations of as described.

To E. B. Bigelow, of Clinton, Mass., for improvements in Looms for weaving Tapestry and Brussels Carpets.

I claim closing and opening the supports or guides as they are raised and depressed to receive and support or guide the wires, and to liberate them in the manner substantially as herein described.

And I also claim the employment of a stopmotion in looms for weaving looped or piled fabrics in which the pile is formed on wires for the purpose of stopping the loom whenever a wire fails to be introduced, substantially in the manner described.

To J. C. Booth, of Philadelphia, Pa., for improve ment in processes for refining gold.

I claim, first, the process of dissolving alloyed gold, for refining it by developing nitric acid, or both nitric and muriatic acids gradually from their salts, in the manner and for the purpose set forth in the specification.

Second, I claim the process of precipitating gold from its solution and removing therefrom the insoluble chlorides as set forth.

Third, I claim the process of refining alloyed gold without the use of silver, so as to form a solution of gold and other metals and a residue of chloride of silver and of other insoluble chlorides, and then precipitating metallic gold upon those insoluble chlorides in the same vessel without transfer, after the solution is effected; and afterwards dissolving out the insoluble chlorides from the gold; or reducing the insoluble chlorides to the metallic state in the wet way, and dissolving out the metals from the gold, all in the manner hereinbefore described. But I do not claim dispensing with the use of silver except as a part of the main process herein described.

Fourth, I claim the process as described of dissolving alloyed gold in wooden vessels which may be made of any dimensions corresponding to the extent of the operation.

Fifth, I claim the process as described of dissolving alloyed gold by blowing steam directly into the solvent liquids all in the manner as hereinbefore described.

[The fourth claim here is one of those curious affairs in which the Patent Office sometimes exhibits a great amount of brightness In all likelihood a poor inventor would have had to pay \$30 extra, for a second patent.]

G. W. Bowers, of Leitersburgh, Md., for improvement in in grain-cleaning machine

I claim the combination of the revolving slotted hollow barrel with the toothed wheels, being arranged and operated substantially in the manner and for the purpose herein set like base metal, for the purpose set forth in forth

gears and stand spindles, on the main laying shaft alone, and combining with the said frame, and the main frame of the machine, the lever, U, or suitable machinery, whereby the said frame of the gears and stand spindles may be either clamped to the main frame, or so fastened as to be prevented from revolving, while the main laying shaft and stand spindles are in revolution on their respective axes, or be unclamped or unfastened therefrom as occasion may require, and for the purpose of enabling the strands to be laid or twisted together without previous removal from their spindles, as heretofore practised, and above described.

Elijah Hall, of Cabotville, Mass., for improvement in stop-motion of Looms.

I claim the manner described of securing the movable reed bar and reed while the filling is the hook, the plyer, and needle, as constructed | being put in and releasing them after the filand made to operate together; substantially | ling is completed by the combination of the levers, having arms, and snecks, and the springs H H and J, the whole being arranged and operated in the manner substantially as herein set forth.

To D. W. Harris, of Yorkshire, N. Y., for improvement in the construction of Threshing Machines.

I claim the threshing cylinders constructed of fast and loose sections the fast sections of one cylinder being opposite the loose sections of another, substantially as herein set forth. Ephraim Howe, of Brooklyn, N. Y., for improve-

nent in Burning Fluids.

I claim the compounding rosin and the essential oil of vegetables or grain (when the same is produced by distillation of whiskey or alcoholic liquors, and thereby become a refuse article) for the purpose of making a material from which to make gas; also for a burning fluid, as set forth herein, whether compounded in the precise proportionate quantities set forth or other quantities which will produce substantially the same result, all of which is ful-

ly set forth herein. To O.S. Leavitt, of Maysville, Ky., for improve

ment in machinery for drawing hemp and parting its fibres.

I claim the employment of two sets of holding and drawing rollers, substantially as herein specified, in combination with a rotating cam or the equivalent thereof, for each sliver, in the manner and for the purpose substantially as described.

To Jason M. Mahan, of Philadelphia, Pa., for imovement in casting stereotype plates.

I claim the employment of the dipper constructed substantially as described in the vertical casting of stereotype plates, in the manner herein set forth.

To R. S. McCulloh, of Princeton, N. J., for proce of reducing gold bullion.

I claim, first, the reduction of argentiferous and other gold bullion, as a preparatory process in the art of refining thereof, into a pulverulent or spongy state, or a disintegrated molecular condition, by the means particularly of fusion therewith, and the subsequent removal by acids therefrom, of zing or other metal baser than silver, which will produce the desired effect, for the purpose of then separating by acids from such gold bullion the silver and other impurities which it may contain, without quartation with silver, or any intermediate process, in order to fit the gold for coinage and other uses.

Second, I also claim, in addition to the above processes, the pulverizing by grinding, crushing or percussion, of gold bullion rendered brittle by union with lead, solder, or other the specification.

Read,) of New Hartford, N. Y., for improvements in machinery for fulling cloth

We claim the above described mode of fulling fabrics by means of toothed cylinders by power machinery, the fabric being fed between the fulling toothed cylinders by means of feeding rollers through guides with sufficient rapidity to prevent all strain ,upon the fabric, and at the same time to supply the fulling cylinders which receive the fabric, full it and then pass it out between two cleaning rollers, which receive it from the fulling cylinders, prepared for other processes. The movements of the several parts of the machine being produced by a combination and adjustment of mechanism, similar to that herein described and represented, or any other, which may be substantially the same and by which analogous results may be produced.

To Timothy Rose, of Cortlandville, N. Y., for improvement in Water Wheels.

I claim making the discharge aperture of the shutes movable, relatively to the axis of the wheel, or the axis of the wheel movable relatively to the aperture of the shute, substantially as described, for the purpose of varying the effective diameter of the wheel, and thereby increasing or decreasing the velocity thereof, substantially as described.

To George Wright, of Washington, D. C., for im proved machine for forming and charging caps.

I claim, first, the combination of the several motions given to the sheet of metal, by which it is presented to the cutting punch by an intermittent motion from right to left, and vice versa, and when the edges are reached. reversing the direction, and at the same time advancing the sheet, so that the blanks are punched in successive rows across the sheet, substantially as set forth.

Second, I claim the chisel moving with the punch stock, by which the perforated sheet is cut into srips, for removing it piece-meal from the machine, substantially as described.

Third, I claim giving such a form to the slots of the carrying plate, that the cups when lifted from the shaping die, are caught by them and taken on, substantially as described.

Fourth, I claim, in combination with the slots of the carrying plate, the conducting groove, by which the caps are guided transversely in the slots, and made to present themselves accurately under the charger and polisher, and to drop out, when completed, through the holes at the end of the slots, substantially as described.

Fifth, I claim operating the cap holder and the revolving polisher, or pressing punch, by a single cam, in connection with the strong and weak springs, substantially in the manner and for the purposes set forth.

Lastly, I claim the combination in one automatic machine of the several processes, by which the percussion caps are cut out of a sheet, shaped, charged, and the charge polished down, substantially in the manner described.

#### DESIGNS.

Of Walter Bryant, of Boston, Mass., for design for a Blower-stand.

I claim the new design herein above described, for a blower-stand, consisting in forming the two halves of said stand in the form of an ancient lyre frame, ornamented with volute scrolls, as above set forth.

To C. F. Tuttle & J. S. Bailey, of Williamsburgh, N. Y., for design for plates for Registers, Ventila tors, &c.

We claim the particular configuration or

ing of cornucopias and fruits issuing from them, and of vines and leaves issuing from scrolls, as they are delineated in the accompanying drawings, and herein described. I claim the ornaments represented, whether the same are made in open work or in relief.

To J. G. Lamb, of Cincinnati, Ohio, for designs for

To Wm. Savery, of New York, N. Y., for design for Stoves.

#### Another Discovery of Mr. Paine.

GENTLEMEN :--Some time since I selected your paper as the medium through which to announce the discovery of a method of decomposing water by mechanical means, and at a cost of the interest of the machinery used. only. Since the announcement, various public and private exhibitions have proven the truth and success of the discovery to a sufficient number to substantiate the fact, and since the announcement, too, the great mass of the scientific world have denied the possibility of the results claimed, while none have asserted claims adverse to my priority of discovery. I have therefore succeeded in what I attempted, viz.: the establishing of an indisputable claim to the priority of the method or discovery.

While the plan of keeping my own secret has been productive of such desirable results, it has also enabled me to prosecute further experiments with the newly discovered properties of electricity, unmolested and unembarrassed by contentions with others; and I now, with the same views and feelings that I made the first announcement, have the pleasure of stating that I have succeeded in making certain bodies repellent, or repulsive to water, when immersed in it. For instance-the whole surface of a vessel's bottom and sides, (of a peculiar form) from the stern post to the broadest cross-section, has, by a peculiar electrical state, a repulsive action upon the fluid, which buoys it up, and consequently the vessel has an onward motion so long as this electrical action continues. This electrical action is furnished and continued by magneto electricity, and if the vessel's course is in a circle, her motion will be perpetual.

Now I do not ask, do not expect, or wish, that the scientific world should believe this announcement-I only hope that they will deny it, and this hope is predicated of the same feelings of self-interest that have governed my actions hitherto. The nature of my experiments involve at least the possibility of my being suddenly removed from this experimental world, and although I am not particularly ambitious of posthumous fame, yet, as far as that fame may benefit the loved ones I may leave behind, so far am I jealous of my rights; and this is one great cause why I place in black and white in your columns, in advance of their full completion, the discoveries that I am making, so that in after time no dispute can arise as to time and date.

I am aware that I have opened a fine field for learned bodies to practice scientific gambols in, and I have not yet forgotten the insult and abuse which the first announcement brought down upon my head; yet, nevertheless, I shall keep my secret till I accomplish one more undertaking, though the cry of "humbug !" follow me to the mad house. Yours,

HENRY W. PAINE. Worcester, Sept. 9, 1850.

Accidents.

On last Saturday, while the "Pacific" Amer-

		To Joseph Metcalf, of Worcester, Mass., for im-	aesign of open scroll or fret work substantially	ican steamship was preparing to depart for
	To D. S. Brown, of Surrey, Eng., for improve-		as described by the annexed drawing, and al-	Liverpool, the guards of her paddle boxes
	ment in machines for fumigating plants. Patented in	provements in removing electricity from woor in the		came in contact with the unfinished shed on
	England Sept. 13, 1849.	process of manufacture.		
	I claim the combination in apparatus or in-		said designs used by us as a top or front plate	
	struments for fumigating purposes of a des-	fibres, substantially in the manner and for the	of hot air registers and ventilators and for	led, and about 20 wounded. Considering the
	troying magazine containing the fumigating or	purpose herein set forth, but irrespective of		great number of people, who were under the
	obnoxious substance, with a cylinder and ex-	the form, arrangement or construction of the	[There are six claims for six patents of de-	shed at the time, providence tempered mercy
	hausting fan or wheel, whereby the smoke is	apparatus by which such removal of electrici-	signs of Messrs. Tuttle & Bailey. The words	with judgment.
	drawn in at one part of the cylinder and dri-		of the whole six are the same as this one;	
	ven out at another and whereby also the at-		there is, therefore, no use in repeating the	
	mospheric air necessary for the combustion of	ment in heating elevated Ovens.	same thing six times over, although we have	A mixture of chalk and white of eggs, is
	the substance is drawn into it by the said	I claim the arrangement and combination of	paid for the information to the Patent Office.]	said to be a most excellent remedy for burns.
	fan or wheel, both as before described.	revertible flues in elevated ovens of cook stoves	1 To K. J. Blanchard, (assignor to B. P. Learned &	This mixture should be applied from time to
	Henry Evans, of New Bedford, Mass., for improve-	in the manner and for the purpose herein de-	G. H. Thatcher,) of Albany, N. Y., for design for	time on the scald or burn, by dipping a linen
Ę	ment in Machines for making ropes.	scribed.	Stoves.	rag in a cup containing the said mixture, and
6	I claim to support the frame, E, of the	To C. A. Read & T. Cotter, (assignors to Chas. A.	I claim the designs and ornaments consist-	then applying it to the injured part.
φ				
15				
- 4				



#### TO CORRESPONDENTS.

C di

"J. M. C., of N. Y."-Your diameter of pipe is 2 inches, and fall 20 feet : the weight | in your own State, in the form of pyrites ; the of this column of water is 27.26 lbs.; allowing this weight to fall the 20 feet every second (near enough for all practical purposes) you have  $27 \cdot 26 \times 20 = 545 \cdot 20 \times 60 = 32,712 \div 33,000$ which will make about 288-1000 less than one horse power, from which 30 per cent. should also be deducted for friction. This power would be of little value to drive your 8 inch saw. The power of water to produce mechanical effect is as the quantity and fall of the perpendicular height. A horse power is equal to 33,000 lbs. lifted one foot high per minute, or equal to that weight of water falling 1 foot per minute : you will, therefore, see the way to calculate water power. Water falls 16 feet in 1 second, 20 feet in 1.117 seconds.

"H. S., of Ill."-You can make the chain pump yourself; it consists of a number of round plates of thick leather secured on a chain or rope, passing over a roller at the top, and one at the foot in the water. This chain is endless, and comes up through a round wooden box or pipe, in which the discs of leather fit drawing is similar to the pendulum plummet nearly tight. These discs carry up the water; place them about 6 inches apart.

"M. R., of Ohio."-The best cement you can use is plaster of paris and burnt alum, pounded fine and mixed up quickly, and then applied. Common hydraulic cement is the kind generally used, it can be bought ready to be made up.

"J. W., of Tenn."-We have been endeavoring to find such a machine as you want, in order to furnish the drawing's. Hope to be \$30; T. F., of N. Y., \$30, and W. Van A. successful.

"F. L., of Texas."-We have no later information than was published in No. 1. You had better communicate with Dr. Gorrie at Apalachicola.

"A. D. B., of Geo."-We have addressed a line to Mr. H. in regard to your business. As soon as we hear from him we shall write you.

"R. S. M., of Pa."-You will hear from us by letter in a few days.

'R. J. McC., of S. C."-Mr. F. is not in the city. We think he went to Europe about a year since which is the last we have heard of him.

"G. P., of Mo."-A mixture of glue and flour starch is used for the wadding ; glue itself will answer. It is put on by rollers, the same as printers' rollers. See No. 31, our closing one dollar as fees for copying. last volume, for an illustration.

"Tudo, of Ill."-Various acids dissolve va rious metals. Nitric and muriatic acids dissolve gold. It all depends on the strength of the acid whether water is mixed or not; no battery is used to dissolve metals in, except in electrotyping. If you get a good work on electrotyping it will give you all the desired information.

"A V., of Ohio."-We do not know of any plan like yours in use : it is new to us, but we would not advise you to apply for a patent : weigh the matter well yourself; it will cost you \$60, at least. The first thing to be done is to make a neat small model of your improvement, as applied.

"D. McA., of Phila."-The value of a mechanic, which you speak of, is above our valuation, but the wages is from \$1,50 to \$2 per day. A good man was wanted last week, by Mr. Waterman at the Hudson River Railroad, 31st street. N. Y.

"D M. of Ohio"-The lathe is just the thing you want for straight turning. One can be ipped by any regular line via Buffalo.

"A. S., of Mo."-We do not know where, the cobalt occurs except at Mine," La Motte, price we don't know. We are always happy and thankful to receive useful and practical articles on any subject. We never sell anything in the line you speak of, it would not do for us to be engaged in the business. "S. A. W., of Vt."-We are sorry to say

that the numbers you want cannot be supplied. "R. B., of Ark."-Cannot supply you with the back Vols. except Vol. 5.

"A. W. D., of N. Y."-You can dissolve India rubber in turpentine-this is the common substance used. The best way to take the nower from the breast wheel, is to have two rims on it, gearing into two pinions three feet in diameter on a parallel shaft, to transmit the power by other gear machinery. This mode will make all the machinery work steady, and prevent it from sudden jars.

"L.R., of -. "-Your ink has had too much acid in it, for it has become illegible-it cannot now be read; so far as we can judge, your in Vol. 1. Sci. Am.

"J. O. R., of Mass."-You can purchase good Cameras and materials of John Roach optician, 82 Nassau street, this city.

Money received on account of Patent Office business, since Sept. 24, 1850 :-

W. H H., of Conn., \$50 ; A. W. P., of O., \$30; J. A., of N. Y., \$75; J. O., of Conn., \$30; B. D. S., of Va., \$50; B. N., of N. Y., of N. Y., \$500.

#### Bound Vol. 5, Now Ready.

Those desiring Volume 5 of the Scientific American are informed that we are able to furnish a few complete volumes, bound, at \$2,75 each. Also, we can send by mail sets complete, minus No. 1 for \$2. Volume 4, incomplete sets, comprising about 35 Nos., will be forwarded by mail on receipt of \$1.

#### Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years can obtain a copy by addressing a letter to this office; stating the name of the patentee, and the year the patent was granted (adding the month of the year when convenient), and en-

#### Important Notice to us:

Whenever any of our friends order numbers they have missed-we shall always send them, if we have them on hand. We make this statement to save much time and trouble, to which we are subjected in replying, when the numbers called for canno be supplied.

## **ADVERTISEMENTS.**

Terms of Advertising : One square of 8 lines, 50 cents for each insertion 12 lines, 75 cts., " " " 16 lines, \$1,00 Advertisements should not exceed 16 lines, and cuts cannot be inserted in connection with them for any

price. **FOWLERS & WELLS,** Phrenologists and Publishers, Clinton Hall, 131 Nassau st., New York-Office of the Water Cure and Phrenological Journals. Professional examinations day and even-ive 3 6m ing.

				neter, Nu	umber	and	Length
of each a	at da	te :	-				
Inches.			In S	Stock.			Afloat.
1 1-4	-	-	999	7-0	-	-	
1 1-2	-	-	164	10-6	-	-	
1 3-4	-	-	25	10-6	-	•	
2	-	-	215	10-0	-	-	
2	-	-	1052	12-0	-	-	721
2	-		849	14-0	-	-	
2	-		1221	15-0	-	-	
2	-	-	77	4.9	-	-	
21-4		-	758	15-0	-	-	
21-2	-		544	15-0		-	_
2 3-4	-		514	15-0		-	
3	1	-	255	15-0	-	_	
4	-	-	4	15-0	-	-	
5	-	1	1	15-0	-	-	
2	•			15.0	-	-	

TROSSER'S PATENT LAP-WELDED

Patent Office.

128 FULTON ST. OTICE TO INVENTORS.-Inventors and others NOTICE TO INVENTORS.-Inventors and others requiring protection by United States Letters Patent, are informed that ali business rela-ting to the procuration of letters patent, or filing ca-veats, is transacted at the Scientific American Office, with the utmost economy and despatch. Drawings of all kinds executed on the most reasonable terms, Messrs. Munn & Co. can be consulted at all times in regard to Patent business, at their office, and such ad-vice rendered as will enable in ventors to adopt the safest means for securing their rights. Arrangements have been made with Messrs. Bar-low and Payne, Patent Attornies, in London, for pro-curing Letters Patent in Great Britain and France, with great facility and dispatch.

with great facility and dispatch.

## MUNN & CO., 128 Fultonstreet, New York.

AMERICAN AND FOREIGN PATENT AGENCY. WE WOULD remind our numerous friends throughout the country, that we still continue to conduct the business of procuring Letters Patent for new inventions in this such all foreign countries, where the right is recognized. Since making ar-rangements with those eminent strongeneous Mesers for new inventions in this and all foreign countries, where the right is recognized. Since making ar-rangements with those eminent attorneys, Messra, Barlow, Payne & Parken, Editors of the London Pa-tent Journal, we have secured and managed through them, several foreign applications, with the utmost economy and facility. Inventors and others, desiring advice upon this subject, can correspond confidential-ling with the Editors of this naper. ly with the Editors of this paper.

**TO INVENTORS.**...The subscriber wishes to purchase the whole or part of some new, use-ful and patentable article adapted to the use of house-keepers. Some labor-saving machine that can be in-troduced into any and every family; a patented ar-ticle would be preferred. As this article will be sold principally in the States of Ohio, Kentucky and In-diana. it will not interfere with any sales in any oth-er States. Any person having anything new in the housekeeping line, they wish to sell, will please ad-dress WILLIAM BURNET, No. 14 East Fourth st., Cincinnati, Ohio. No washing machines, churns or stoves, of any kind, wanted. No letters will be no-ticed unless the postage is paid. 22\*

**DUPLICATES.OF DRAWINGS...** One hundred or more copies of the drawings required by the Patent Office, can be furnished at short notice, and upon reasonable terms, by MUNN & CO., Scientific American Office, who have made arrangements to duplicate drawings of machinery and inventions, at prices varying from ten cents per copy, upwards.

PATENT METALIC OIL FOR MACHI-PATENT METALLC OIL FOR MACHI-NERY-Warranted not to gum. Manufac-tured under Cumberland Brothers patent (April 6th 1840), by C. E. de la Vergne & Co., Elizabethport, N. J. Transparentmetalic, adapted to light bearings, spindles, &c., will last a quarter longer than pure sperm. For burning will be found superior. Fluid White Metalic, of the consistance of cream, to be used without wick and tube, adapted to the oiling of engines, shaftings, &c. will last twice as long as pure sperm. I. Hard White Metalic, to be used instead-of tallow, will last three times as long; when used in cylinders, the packing must be renewed. Blue Metallic grease, prepared for greasing the inside of boilers when thoroughly cleaned, that the scale which afterwards collects may be removed with one third the usual time and expense. It is also adapted to the greasing of cog wheels; and for the axels of vehicles it has been found to last more than four times as long as any grease ever used for that purpose. KENNEDY & GELSTON, Sole Agents, 50 3m No. 8 Pine st. New York.

50 3m No. 8 Pine st. New York. ATHROP'S PREMIUM BEE PALACE.--This Palace is no patent, and no humbug, but for cheapness, neatness, simplicity, durability and per-fect adaptation to every want of the Bee, and the in-terest and convenience of the owner, it has no equal, It has been tested by hundreds of swarms, and proved completely successful, for three years. thas taken a premium at three Fairs; a gold medial has been awarded it by the Mechanics Institute, of Chicago, Ill. It requires no care nor skill in the use of it-all may use it with success. Millions of dollars may be saved annually in our country, which are now lost, by using this Palace for working that most profitable of all insects—the Honey Bee Engravings, and a specification of this Palace, sufficient to enable any joiner to make it, will be sent by mail, free, to any oneremitting \$1 to the inventor, at La Salle, La Salle Co., Ill. D. LATHROP, 13\*

COTTON LOOMS.---100 second-hand 4-4, have been well used but a short time, modern pattern, and as good as new; they will be sold low to close a concern, and can be seen at any time upon applica-tion to S. C. HILLS, Machinery Agent, 12 Platt st., N. Y. Letters must be post-paid 34 To IRON FOUNDERS, &c.-Fine ground and bolted Sea Coal. to mix with moulding sand.

A LCOTT'S CONCENTRIC LATHES.-We have on band a few of these celebrated Lathes, which the inventor informs us will execute superior work at the following rates :-Windsor Chair Legs and Pillars, 1000 per 11 hours. Rods and Rounds, 2000; Ho Handles, 800; Fork Handles, 500; Broom Handles, 1500, per 11 hours. This Lathe is capable of turning under two inches diameter, with only the trouble of obanging the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does ex-cellent work. Sold without frames for the low price of \$25-boxed and shipped, with directions for set-ting up. Address, (post paid). MUNN & CO., 14tf Authis Office

CARD.---The undersigned begs leave to draw the attention of architects, engineers, ma-chinists, opticians, watchmakers, jewellers, and ma-nufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own ma-nufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very rea-sonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers'and Jewellers' Files and Tools, and manufacturer of Mathematical Instru-ments, 154 Fulton street. 13m.

TO PAINTERS AND OTHERS.-American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age-is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemicallaws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L I., N. Y., by QUARTERMAN & SON, 48tf 48tf Painters and Chemists

**COTTON, WOOLEN AND SILK MANU-**FACTURERS' DEPOT.—ANDREWS & JE-SUP. No. 70 Pine st., N. Y., deslørs in articles for the use of Cotton, Woolen and silk manufacturers, and agents for the sale of shearing, carding, burring, nap-ping, wool-picking, flock-cutting and waste machines, regulators, satinet and jean warps, &c. Weavers' reeds and heddles, bobbins and spools, of every de-scription, made to order. Sperm, lard and olive oils and oil soap. 1tt

W COD'S PATENT SHINGLE MA. Strated and described in No. 23, Vol. 5, Scientific Ame-rican, are offered for sale in Town, County and State Rights, or by single machines. There are three sizes, the first cuts an 18 inch shingle, price, \$100; 2nd outs 24 inch, price \$110; 3rd, 23 inch, \$120. Orders ad-dressed to J. D. Johnson, Redding Ridge, Conn., or to Munn & Co., "Sci. Am." Office, will meet prompt attention. The above machine can be seen in successful ope-ration at P. R. Roach's mills, No. 138 Bank st., this eity. 5lt

**M** ACHINERY.--S. C. HILLS, No. 12 Platt **M** Street, N. Y., dealer in Steam Engines, Boil-ers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle mechines, Woodworth's, Daniel's and Law's Planing machines, Dick's Preases, Punches, and Shears; Morticing and Tennoning Machines, Belt-ing, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 46tf

MATTEAWAN MACHINE WORKS.— M Locomotive Engines, of every size and pattern. Also tenders, wheels, axles, and other railroad machi-nery. Stationary engines, boilers, &c. Arranged for driving cotton,, woolen and other mill. Cotton and woolen machinery of every description, embodying all the nucdern improvements. Mill geering, from prob-ably the most extensive assortment of patterns in this line, in any section of the country. Tools, tur-ning lathes, slabbing, plaining, cutting and drilling machines. Together with all other tools required in machines. Together with all other tools required in machines. Together with all other tools required in machines. No, and the Matteawan Co. Work, Fishkill Landing, N. Y., or at No. 66 Beaver st. New York City, to York City, to 40tf

#### WILLIAM B. LEONARD, Agent.

Woodworth's planing machine W-For sale, the right to use this justly celebra-ted labor-saving machine in the following States, viz. Pennsylvania west of the Allegheny Mountains, Vir-ginia west of the Blue Ridge, Ohio, Indiana, Kentuc-ky, Tennessee, Wisconsin, Iowa, Missouri, Arkanasa, Texas, Louisiana, Florida, Alabama and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway.

**BRUSH'S IMPROVED DOUBLE-ACT-Ing LIFT AND FORCE PUMP.**—From the increased facilities of the subscriber, he is now prepared to lurnish, at a reduced price, the most ef-fectual, powerful, durable and yet simple Lift and Force Pump in use. For a house pump, factories, breweries, railroad stations, or any other purposo where a constant stream of water is required, they cannot be surpassed. The public are cautioned against an article purporting to be Brush's Pump, but are in-vited to call at or address 53 Pike Slip, and get the original. J. A. BRUSH, Inventor. 493m\*

BURR MILL STONES.--We have made ar-B rangements which will enable us to supply all kinds of French Burr, Holland and Esopus Mill Stones of the best material and manufacture, at the lowest Burr Mill Stones made to order and warranprices ted to be of the best quality; Burr Blocks for sale.— Orders addressed to MUNN & CO., post-paid, at this Office, will meet with prompt attention. 41tf

	199 <b>719</b>	Takity, bevenu st., below Cheschut, Thina.] 0 4		٩२ ١٩٩
H	adopted by blacksmiths, as the same plan has ong since been by engineers.	terms. Land, or good trade, will be taken in part payment. Dr. FRANK STEWART, Swaim's Labo- ratory, Seventh st., below Chestnut, Phila. 3 4	\$120, or \$190 for a double one. JAMES WYLIE, Engineer, 51 4* No. 2 Bethune Street, N. Y.	tain and on the Continent: "Le Brewet d'Invention," weekly journal, published by the same firm. 3 4eow*
FIE	heating tyres is no doubt good and should be	United States, for this valuable Lamp, patented July, 1850, are now offered for sale on the most liberal	three, and \$235 for a six horse power. Bollers will be furnished for eachengine, if required, for about	Boulevard St. Martin, Paris, and No. 9 Arthur st. west, city, London. Patents procured in Great Bri-
		<b>D</b> <sup>R.</sup> STEWART'S SAFETY FLUID LAMP —Rights for any of the States, or for the whole	steel piston rods, metalic packing, heavy iron frames, governors and pumps, all complete for \$135 for a	UNITED PATENT OFFICE IN PARIS AND LONDONGARDISSAL & CO., 29
	Charleston steamer.	mises, or to J. W. GILL, Wheeling, Va. 3 8*	proved steam engines of three and six horse power left for sale. They ard made of the best materials—	1tf Treasurer Boston Locomotive Works.
	"L. & J., of S. C."—Your request will be attended to, and the volume sent by the next	new, and if applied for soon, can be made to suit the	T MPROVED STEAM ENGINE FOR	ings; copper work; Van Kuran railroad car and truck wheels, and all kind of railroad machinery. DANIEL F. CHILD.
	received.	tory, 40 by 96 feet, three stories high, with plenty of water power. The driving power is now being made	1am 1v*	notice, Locomotive and Stationery Steam Engines, boilers,—iron, copper, composition and brass cast-
	without delay after the case is examined. \$6		best horse power in the world, upon reasonable	
	"O. W. W., of N. Y.,-We have no advices from your case as yet. You will hear from us		Subscriber, sole agent for the sale of rights to make and sell the celebrated Bogardus Horse Power, will	
	forward.	barrels, for sale by G. O. RÖBERTSON, New York. City Office 4 Liberty Place, Maiden Lane, near the	<b>T</b> O IRON FOUNDERS AND MACHI- nists in the Northern and Eastern States.—The	laws, and information can be had gratis on application JOSEPH P. PIRSSON, Civil Engineer,
		Iron and Brass Founder's superior Moulding Sand, in	lathes are of the first quality. 1tf	ed, by, and connected only with this establishment.— Pamphlets containing a synopsis of Foreign Patent
	week from this office and ought to reach you	coal Foundry Blacking; Bolted Lehigh, Soapstone,	with back gear on iron shears, and legs 7 feet long, swing 20 inches, about 700 lbs. weight-\$75. These	Belgium, Holland, &c., &c., with certainty and dis- patch through special and responsible agents appoint-
	"J. H., of Ohio."—Your paper is sent every	and bolted Sea Coal, to mix with moulding sand,	and hangers. They weigh about 4000 lbs.; the price, boxed and ready to ship, is \$625. Also 12 hand lathes,	In GREAT BRITAIN and her colonies, also France

24

Scientific Museum.

#### Spectacles

A simple Hibernian, who knew not one letter from another, once bought a pair of spectacles to enable him to read; and we must say that there are thousands who, if they do not buy spectacles for the same object as Paddy, vet they have no more knowledge concerning their nature and true office than him. A pair of spectacles is an optical instrument, which is made from a knowledge of the laws of light. The minutest point of an illuminated object darts out its rays in all directions, like the spokes of a wheel, and strike the eye through the whole extent of its outer surface : millions of points of light are discharged upon the eye and its office is to reduce these rays to order A ray of light bends when it enters a new substance, if that substance is rarer or denser than the substance through which it passed before. The eye gathers, as it were, the spreading rays into a bundle, till they meet in a pcint, like that from which they started. The eye, therefore, bends the rays of light, and brings them to a focus, and the picture of an object must be painted on the retina, at the back of the eye, therefore the rays of light must not be brought together before the retina, nor behind it, but upon it, otherwise the sight will be confounded; it is this confusion of sight which spectacles are designed to correct. In advancing years the eyes lose a part of their bending power, for the ball and crystalline lens get flatter, and their globular shape has a principal share in producing the effect. The rays are not drawn inwards with sufficient force, and arrive at the retina before they can meet in a point. A curved glass operates upon light like the eye itself, but interposed before it does a portion of its work. The rays are bent in passing through the glass, and the eye, which was incompetent to the entire task, is able to complete what the glass begins. When the organ is nearly equal to its duty, a slight curvature, just enough to make good the deficiency, is given to the spectacles, and as the eye fails, their rotundity is increased; an exact proportion is thus kept up between the demand of nature and the supply of art.

Though near objects require spectacles to show them distinctly, those more distant may be seen in perfection without their assistance. Since the rays from a point keep separating as they travel, all which branch out widely, are soon too far asunder to fall within the narrow circle of the eye. The least divergent alone hit it, and these are the easiest reduced to union. But an eye brought close to the object catches the divergent rays at their source, and, if its capabilities are diminished, is unable to master them. Here spectacles are a necessary aid, while the lesser task is readily performed by the naked eye. One of the earliest indications of an alteration in the sight is the holding a book further off than before, to get rid of the unmanageable part of the light.

Some eyes, which are over-round, refract the rays in excess, and bring them to a focus in front of the retina : the result is shortness of sight. The eve must come nearer to what it wants to distinguish, and imbibe those spreading rays which demand an additional bending equal to its own superfluity of power. Hollowed or concave glasses obviate the need for greater proximity. As round or convex spectacles draw in the rays, so these turn themout till their increased divergence is equivalent to

the zinc, and do not use any tallow. The zinc is very volatile, and great care must be exercised, not to let it escape in gas.

#### Patent Safety Spirit Lamp.

This lamp has an improvement in its construction which makes it perfectly safe for the burning of inflammable fluids. It is the invention of Frank Stewart, M. D., of Philadelphia, and a patent was granted to him, the claim of which was published in our list of July 2nd, Vol. 5. The object of this lamp is to provide a remedy for the numerous and afflicting accidents which are continually occurring through carelessness and negligence of servants and children, by filling up lamps, when ignited, with inflammable fluid. The nature of the improvement is in providing an inner stationary tube, to retain the wick, and to permit the cap of the lamp to be screwed on and off at pleasure, but so arranged, that when the cap is taken off, the flame is at once extinguished.



Fig. 1 is a perspective view, and fig. 2 is a vertical section, showing the interior. The lamp may be made of any of the known forms. A is the fixed stationary tube, for retaining the wick: it is secured in a cross-bar. B: this bar may be made of brass, and fitted with a thread, and the lower end of this tube may have a screw to fit into the thread, so as to unscrew the tube when a new wick is to be put in; or it may be made with this tube soldered into the bar, B; D is the cap, or cover, it is made to screw on to the neck of the lamp C is a brass tube soldered into the cap, it is a little wider than the tube A, and is made to slip snugly over it. When the cap has to be removed to fill up the lamp with fluid, it will easily be perceived that by slipping up the cover, the tube, C, will put out the light ; this will prevent the filling up the lamp when ig-



Improvement in the Method of Mounting Teeth.

For several years past a few dentists among our acquaintance have been in the practice of soldering their artificial teeth, for entire lower sets, to the gold plates with pure tin, using the tinman's soldering iron instead of the blowpipe. The manner of proceeding is as follows

First strike up, in the usual manner, a very thin gold plate (No. 30 or 31, will answer) to fit the jaw. When this is done, place the wax upon it and cut it to the right curve and the proper height for the length of the teeth. The teeth are then to be selected and put round upon the wax in the proper position for use; but it does not matter whether, or not, they come down to the plate, provided all that part of them which is exposed to view, when in the mouth, is right, as all below will be filled with tin when the process is completed. Plaster and sand is now to be put on the outside of

the teeth and plate, in the same manner as though they were to be soldered in the usual way. When this is done the wax may be cut away, the teeth removed from the plaster and a thin gold back put upon them. In backing them it will be necessary to bend the platina wires together, over the gold, with a common pair of pliers. The backs may now be soldered to the plate, forming one solid mass of tin as high as the wires, and imitating as nearly as possible the form of alveolus which has been absorbed. When this is done the plaster may be taken away and as much tin put upon the front as will restore what has been lost by absorption of gum and alveolar process.

When the piece is properly trimmed and burnished it makes a very strong and natural set of teeth, while the additional weight given to it by the tin keeps it in place better than those made in the ordinary way. Some use silver plate instead of gold and gild the whole by the galvanic process, and we can see no reason why this metal should not answer just as well as gold. We have put in several temporary sets in the above manner, on gold and all have done remarkably well, giving entire satisfaction. This plan of mounting teeth was first practiced, we believe, by Mr. Royce, about eight years since and has been used by him in very many cases, as he alleges, with perfect success.

Mr. George E. Hawes has lately made an improvement upon the above plan by means of which he dispenses with all metalic castings and plates of every kind, using only the pure tin and the teeth. His plan is, after the first cast is procured, which should be made of plaster with a large proportion of sand, to fit to it a piece of tin foil, or plate, as thick as can well be rubbed down to it with a burnisher, and as large as a gold plate would have to be. The wax is then put upon this tin plate and trimmed to the proper curve and height as in ordinary practice. Next, the teeth are to be placed upon the wax and when properly arranged, a strip of wax is put round the bottom of the front side of the teeth and plate. This wax, and that on the backs of the teeth, is then to be carved to represent the natural gums, or so as to form a smooth ridge as high as is desirable. Care must be taken to select such teeth as have their platina pins low, so that they may remain embedded in the wax.

When this process is completed, the whole It also possesses an original feature not found in is to be placed upon the plaster and sand cast, and more plaster and sand peured over it so as to cover with a thick mass the whole of the After wax and the teeth. It is well known that camphene gives a thoroughly hardened, the casts may be parted, most beautiful light, and that it is far more and the tin plate and all the wax taken away. cleanly than oil or candles, and is generally and the platina wires, and those parts of the preferred on every account, excepting the danteeth exposed, washed with muriate of zinc. A ger arising from its use in the common fluid lamps. This danger is entirely obviated by hole to pour the melted tin into, must now be made at one end of the set and another on the Dr. Stewart, in this his patent lamp. The way to use such lamps is to have a pair-neother side for the air to escape from. When completed thus far it is ready for the pouring, ver to use only one, so that when one is filling and to insure perfect success, the castings the other can be burning. The sale of this lamp has at once become extensive, and the should be securely bound together and the patent is valuable because its use will be uni. whole mass heated to the temperature of melted tin. More information about rights, &c., will be Sets of teeth made in this way and having

the castings thoroughly gilded, are much hand-

somer and more natural in their form than

those which have the long teeth and gold backs, they are also stronger, as they are protected both front and back, can be made for one half the expense of the ordinary sets on heavy gold plates, and, judging from the little experience which we have had in making and testing them, as well as the testimony of Mr. Hawes, are equal in every respect, if not superior to those mounted upon gold backs.

The above is from the last number of the Dental Recorder, a most excellent periodical edited by C. C. Allen, M. D., this city.]

#### LITERARY NOTICES.

HOLDEN'S DOLLAR MAGAZINE, for October, contains an illustration of the "Suspension Bridge at Niagara River," "The Wife and Child of Osceola," "Old Newgate Prison," and "The Monument to Admiral Penn." The matter is entirely original and embraces some fine productions. We heartily commend this cheap publication to the patronage of the community. Messrs. Fowler & Deitz, publishers, 109 Nassau st.

GRAHAM'S AMERICAN MAGAZINE, October number. contains a beautiful line and stipple engraving of 'The Slave of the Pacha," also "The Paris Fashions," " The Way to Church," a rural scene,-and some wood engravings of merit. The contents are as usual, choice and entertaining. Dewitt & Davenport, agents. They have, also, PETERSON'S LADIES' NATIONAL MAGAZINE, which is a very fine publication both in matter and embellishments. The terms of these magazines are \$2per annum

THE FAMILY MESSENGER AND GLEANER, published by A. B. Hamilton, Philadelphia, at \$1. This highly interesting literary newspaper is about to enter upon a new volume. Our friends will find this an excellent family paper.

ARTHUR'S HOME GAZETTE seems to be rapidly rising into popular favor. T. S. Arthur, the Editor, is too well known to the reading community to require our eulogy

"THE LITERATI :"-Some honest opinions about Autorial merits and demerits, with occasional words of personality, together with Suggestions and Essays, by Edgar A. Poe : published by J. S. Redfield .- This is the third volume of Poe's works issued by the same publisher since the author's death, and is put forth in good style. The work, as the title indicates, is devoted to a review of the presentday authors, to the number of about seventy-five, and form a very readable book

Shakspeare's Dramatic Works, Phillips, Sampson, & Co., publishers, Boston ; Dewitt & Davenport, New York, Agents.-This number contains the Third Part of King Henry VI., embellished with an engraving of Lady Grey.



TO MECHANICS, INVENTORS, AND MANUFACTURERS.

MANUFACTURERS. The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the SIXTH VOLUME of this valuable journal, commenced on the 21st of September, offering a favorable opportunity for all to subscribe who take an interest in the pro-gress and developement of the Mechanics' Arts and Manufactures of our country. The character of the SCIENTIFIC AMERICAN is too well known throughout the country to require a detailed account of the va-rious subjects discussed through its columns. It enjoys a more extensive and influential oircula-

rious subjects discussed through its columns. It enjoys a more extensive and influential circula-tion th n any other journal of its class in America. It will be published weekly, as heretofore, in Quar-to Form, on fine paper, affording, at the end of the year, an ILLUSTRATED ENCYCLOPEDIA, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED ORIGI-MAL ENGRAVINGS, described by letters of re-ference: besides a yeat amount of practical informa-Forence ; besides a vast amount of practical informa-tion concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY, — inshort, it embraces the entire range of the Arts and Sciences.

田

or other weekly journal in the country, viz., ar Official List of PATENT CLAIMS, prepared ex-pressly for its columns at the Patent Office,--thur onstituting it the "AMERICAN REPERTORY )F INVENTION: TERMs=\$2a-year; \$1 for six months. All Letters must be Post Paid and directed to MUNN & CO. Publishers of the Scientific American, 128 Fulton street, New York. INDUCEMENTS FOR CLUBBING. Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will formish. will furnish-10 copies for 6 mos., \$8 | 15 copies for 12 mos., \$29 10 " 12 " \$15 20 " 12 " \$28 Southern and Western Money taken at par for subscriptions; or Post Office Stampe taken at their full value. PREMIUM. Any person sending us three subscribers will be en-titled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—now in press, to be ready about the lat of October. It will be one of the most complete works upon the subject ever issued, and will contain about ninety engravings

the superior force of the eye. Thus spectacles are a reinedy for opposite defects. One sees obscurely what is under his nose-another is blind to all that is not.

Ω

To Zinc or Galvanize Iron. Clean the iron well by sulphuric acid and sand, then wash it in clean water; have the zinc melted in a pot, in which should be placed some tallow to keep the zinc from evapo rating. Also, put some sal ammoniac in the zinc, and then dip in the iron for galvanizing; some recommend the use of a separate bath of versal. dissolved sal ammoniac, into which the iron should be dipped just before immersing in the obtained by letter addressed to Dr. F. Stewart. molten zinc. Some put the sal ammoniac in Seventh street, below Chestnut, Phila.

© 1850 SCIENTIFIC AMERICAN, INC