## Stientifio

## Scientific American CIRCULATION 16,000

At 128 Fulton street, N. Y., (Sun Buildings), BY MUNN \& COMPANY. Hotchkiss \& Co., Boston.
Dexter \& Bro., Ne: York City. Dexter \& Bro., New York Oity
Stokes \& Bro., Philadelphia.
Gooke \& LeCount, San Francisco, Cal.
G. S. Courtenay, Charleston, 8. G. So Courtenay, Charleston,
John Carruthers, Sarannah, (ta.
M. Boullemet, Mobile J. Boarruthers, Savannah,
M. Boullemet, Mobile, Ala.
Sidney Smith,

Sidney Smith, St. Louis, Mo.
M. M. Gardissal \& Co., Paris.
Responsible Agents may also be found in all the
principal cities and towns in the United States principal cities and towns in the United States.
Terms $\$ 2$ a-year- $\$ 1$ in advance and the remain Terms- $\$ 2$ a--
der in 6 menths.

## 

Ventilation of Railroad Cars, sec.
Although a great deal has been said upon the subject of ventilating railroad cars, and although a number of patents have been taken out, for the purpose of effecting this object, the evil, so far as the cars and their owners are concerned, is just as ugly and glaring as ever. There is not a single railroad connected with this city that is fit to travel on so far as cleanliness and ventilation are embraced as objects of comfort. During the past month there has been a general drought, and the roads are no doubt dusty enough for that reason, but the same evils have always existed every summer, and always will exist unless a complete revolution is effected in some way or other. We do not care what plans are selected and adopted to get rid of the evil, only let them be no shams, but real complete remedies. It is really afflicting to ride on the Hudson River Railroad at present. The pas look as if they had been working all day in a plaster mill; their clothes are spoiled, and in every sense of the word they look as if they had been doing some dreadful penance. Every person who travels by the railroad, speaks of the want ot comfort, the disagreeable dust, the abominable sparks, smoke, \&c.; in short, in dry summer weather, people should travel as little as possible by railroad until the companies abate the nuisances of dust, sparks, and panies
smoke.
We prefer the railroad for speed, punctuality, and uniformity of price, to the common trickery of steamboat companies, but there is no comparison between the pleasure of sailing in a steamboat and travelling in a railroad car. There appears also to be a great deal of carelessness and mismanagement on some of our railroads. There is a want of good and prompt action, or arrangement, or something else, for emergencies. Last week, a portion of the Hudson River Railroad was covered with the Hudson River Railroad was covered with a bank of sand, caused by a stream after a
heavy shower flowing over it; one train from heavy shower flowing over it; one train from
Albany was stopped on its way down, and Albany was stopped on its way down, and
the passengers had the miserable comfort of sitting on the rail during the night, owing to the blundering management of another train. which ran right across the track, and stuck there until it was driven off by two or three locomotives, which had to be brought into action for the purpose of pushing it into its proper place; such things should not be.

Hard Cement.
A cement which gradually indurates to a stony consistence may be made by mixing 20 parts of clean river sand, two of litharge, and one of quicklime into a thin putty with linseed oil. The quicklime may be replaced with litharge. When this cement is applied to mend broken pieces of stone, as steps of stairs, it acquires, after some time, a stony hardness. A similar composition has been applied to coat brick walls, under the name of mastic.

PATENT FLAX-DRESSING MACHINE.---Figure 1.


The accompanying engravings are views of has all to be removed, and the plans for doing machine for uch like substances. It is the invention of consequently expensive. To produce a oo of the fax, in a more perfect manner, and L. S. Chicester, Mer解 nt y, 1852.
wether it is owing to bad machinery or not, we cannot tell, not a single yard of good linen Flax is a substance which produces that has yet been manutactured in the United beautiful fabric, linen, but the material as it States. If we could make good and cheap is brought from the field looks as much like linen, a great benefit would be conferred upon hay as a substance for making cloth. The our people. This machine has been invented parts which are useful, and which are employ- and constructed tor the purpose of facilitating d for making thread, cords, rope and cloth, the flax manufacture, by an improvement in re contained in the outside of the stalks; the the breaking or separating the inside woody inside is a hard, woody, brittle matter. This from the fibrous parts.

Figure 2.


Figure 1 is a side elevation of the machine; $\mid$ tion is a very simple one, and embraces and figure 2 is an enlarged view, partly in most excellent feature. It is well known that section of one of the cylinders so as to repre- if we take a few threads of flax and hold them ent its principle of action clearly. The same
letters of reference indicate like parts on both
small distance apart and give them a rubbing em a rubbing pair of teed rollers (one $\mathrm{H}^{\prime}$ only seen) and then figures. The principle of the machine's ac- doubling up and down motion, we can break carried between the other pair of cylinders

A, fig. 1, is a strong frame made of wood or ny other suitable material. B is the feed table, the rough flax being fed in under a roller; C C are likerin or fluted teed rollers; E E E E are dressing or breaking cylindersthe flax is made to undergo a double operation in this machine, and it can be increased indefinitely by the addition of like cylinders in the same machine. These cylinders are peculiarly constructed. The ends, E E, are iron flanges; the breaking bars, slats, or ribs, are made of metal and secured in the cylinders, but are free to act by pressure up and down. The ribs or slats, $a$, are pushed upwards, and the ones $b$-or pressure slats-are pushed downwards. Each cylinder is alike in construction. The ribs, $a$ and $b$, are opposed to one a nother in opposite cylinders. The ribs, $a$ are tied together at the outer ends by a band, $F$, of india rubber, to kef $p$ the shoulders of the bars to the cams and to make the machine operate without noise. The ribs, $b$, are secured by coiled springs, $c c$, in wooden flanges inside. The inside of each cylinder is hollow, as shown in figure 2. There are slots in the ends of the cylinders to allow the slats to work up and down. The outer ends of the ribs project below their acting edges on the cylinder.
D D D D, are iron cams made fast to the frame, A. These cams guide and direct the ribs or slats to make them act upon one another, and to act upon flax in the rubbing manner described. There is a projection on each cam of the upper cylinders, and also of the lower cylinders, set opposite one another ; the notches in the Jower cams are set a little in advance of the upper ones. As the cylinders revolve the cams, D D, act upon the shoulders, $G$ G, and push the slats, $a$, against the spring pressure slats, $b$. As the flax is moved forward between the cylinders, it is rubbed and twisted or angled, between the slats with considerable pressure, and thus he pith or woody parts of the flax are broken
and acted on in the same manner, and is then discharged on the back table or endless apron. Motion is given to the several parts of the machine as follows:-The crank lever has shatt, $I$, which has a pinion, $K$, on $i t$, on the opposite side. The pinion, $K$, meshes into the wheel, $L$, which has pinions not seen on its shaft, $M$, which mesh into the cogs on the ends of the lower cylinders. The end of each cylinder is formed with a cog rim, so that they all mesh together, and impart motion one to the other. The front feed rollers, $\mathbf{C} \mathbf{C}$, receiv motion from the wheel, $L$, through the pinion, $N$. The centre feed rollers receive motion by bands passing over pulleys, $H$ (one not seen) from a pulley on shaft, M.
By operating the crank lever, $J$, the way motion is communicated to all the parts of the machine will thus be rendered plain. The materials of which this machine is made are not expensive, nor are they of fine, delicate, and intricate workmanship; if they were farmers and others might well object to it. It makes very little tow; and produces beautiful broken flax. It can be operated either by hand, horse, water, or steam power. We cannot say how much flax it can break in an hour or a day; that depends a great deal upon the way in which a machine is attended, and the power applied to operate it; it can at least break one ton per day. We have seen the machine operate, and it produced very excellent work.
More information may be obtained, by letter or otherwise, of Mr. Chicester, No. 57 Chambers street, this city.

## MIECELHANEOUS.

## To Make Hard Water Soft.

Wishing.-Dr. Playfair, of England, asserts that the cost of washing is about one-twelfth of the income of a family of small means.He erters into a computation based on one dozen shirts. Suppose the dozen to cost $\$ 18$. If only two of them are washed each week at 64 cents each, the bill for the year will be $6 \frac{1}{2}$ dollars; and in three years the washing will have cost more than the shirts. So that aecording to this computation a garment will have doubled its cost by washing by the time it is worn out, and some articles much more. Dr. P says for every 100 gallons of Thames water, 30 oz., of soap are entirely lost before the hardness of the water is overcome. Prof. Dewey, in this country, has shown that by the use of uns.
How to Soften Hard Water.-A half ounce of quick-lime dipped in nine quarts o water, and the clear solution put into a barre of hard water, the whole will be soft wate as it settles clear. This is a practicable and practical recipe or direction. But the precipi tate will not be chalk, as the Scientific American states, unless the hardening substance is lime or chalk, which is seldom the case. Common hard water contains gypsum, as well as carbonate of lime or chalk, both o well as carbonate of lime or chalk, both of
which will be removed by the solution o which will be remove Dewey.
lime as above--[Prof. De
[The above two paragraphs we copy trom the same paper. It shows us how careles mere newspapers are about correct news The reason of this is the general ignorance respectingsuch questions.
In the first paragraph above, it is stated Prof. Dewey discovered that unslacked lime renders hard water soft. In the second paragraph, Prof. Dewey gives credit to the Sci ragraph, Prof. Dewey gives credit to the Sci-
entific American, which gives the proportions entific American, which gives the proportions
of quick-lime, for rendering hard water soft. of quick-lime, for rendering hard water soft.
The discovery was made by Mr Clark, an The discovery was made by Mr Clark, an
English chemist, and he has applied it extenEnglish chemist, and he has applied it exten-
sively in the bleaching, printing, and dyeworks in Machester, England. So far as the precipitate being chalk, we referred only to waters containing the carbonate of lime in solution, and not to those containing the sulphate of lime.
There is another method which we consider superior to the one described for precipitating lime and rendering hard water sott; it is by the use of salts of soda, which are sold by all the druggists. The way to employ it is to dissolve the soda in warm water, at the rate of one pound to 50 gallons of the water
to be made soft, and stir this among the water
to be purified, and then let it settle for five or to be purified, and then let it settle for five o
six hours. For the domestic purpose washing, this is the best way to use soda, the common plan is to mix the soda with the water in the wash tub, by which plan the precipitated lime, \&c., (carbonates, chlorites, and sulphates) contained in the water re diffused through the clothes; by precipitating these substances and using only the clear soft water, these impurities are kept out of the wash tub.
To precipitate water that is greatly impregnated with the carbonate of lime, fo drinking purposes, the quic
the best substance to use.

## New Galvanic Battery

The following is an account of a new galvanic battery described in the London A the neum:-
"On the 24th ult., a party of scientific"genlemen were invited by Mr. Martyn Roberts, to witness a voltaic battery of new construction, and professedly of great economy, which he has at present in action in the neighborhood of Great Portland street. The battery consisted of fifty plates of tin about six inches by four,-each plate being adjusted between wo plates of platinum of the same size. These were placed in stone-ware cells about wo feet deep, which were filled with diluted nitric acid. The object of these deep cells was, to obtain a marketable product which should be sufficiently valuable to cover the cost of the agents employed to effect the development of electricity. The upper stratum of nitric acid acts on the tin, and forms with that metal an oxide, which falls off from the plate the moment it is formed, and is precipitated as a hydrated oxide of tin to the bottom of the cell. This oxide is combined with soda ; and as stannate or soda is extensively employed in dyeing and calico-printing; it is stated that this product will yield a profit of 20 per cent. on the cost of the battery but his is a point which we are not at present in a position to determine. The electrical action of the fifty pairs of plates was considerable. The current was employed to exhibit the electrical ight, and the effects produced were certainy very brilliant. It was not possible to compare it with the result obtained from Grove's battery, but we judge their powers to be nearly equal. An experiment made n the decomposition of water gave about 27 cubic inches of the mixed gases, oxygen and hydrogen, per minute. We cannot but regard this very ingenious arrangement as an im provement on the ordinary batteries, as far a conomy is concerned, where an electric curent is required, since the stannate tormed must always be of considerable commercial value. It is curious, too, that the stratum ot fuid in the immediate nieghorhood of the voltaic plates is kept unitormly of the same specific gravity, notwithstanding that the pecific gravity, notwithstanding that the rapidly removed. The oxide of tin ormed takes down water with it, and at the same time establishes a current by which resh acid is applied to the plates. We wer intormed that the battery continued in most uniform action for sixteen hours."

## A Yankee over the Crater

A correspondent of the "Boston Tran script," writing from Naples thus describes an amazing interview with a live Yankee:"The other day, on reaching the top of Uesuvius, I discerned a man sitting astride of block of lava. I don't know why, but I marked him at once for one of my country men. As I advanced toward him I could no help noticing the cool manner in which he and Vesuvius were taking a smoke together His long nine was run out like a bowsprit and he took the whole aff air as calmly as one would look at a kitchen fire at home. As Hallo I came up with him he bawled out You aint tuager out yet-be ye? On You aint tuckered out yet-be ye? On my he replied, 'Yaas! but I burned my trowsers, though, I tell yew.'
He turned out to be a man from New Eng land, who came up from Marseilles to see th volcano.

Recent Erected Houses
The London Medical Times directs at
occcurring in consequence of newly built houses being too quickly inhablted. He says,
that in various parts of the outskirts of London, a large number of new dwellings are constantly being erected, and scarcely are they completed before they are occupied. Five cases of cholera which proved fatal to persons who had recently taken newly built houses, came under his superintendence, which he considered were produced by the exhalations trom the damp walls and floors and the fresh paint. We believe that newly built ouses, when too quickly occupied, exert a very baneful influence on the health of the
occupants. From the fresh materials which occupants. From the fresh materials which compose the dwellings, deleterious exhala-
tions arise, contaminating the air. Houses ought not to be inhabited for a certain period after their completion; and our medical brethen should caution those withir their influnce, of the dangers to which families are exposed by living in houses recently erected.

## Sclentific Memoranda.

Dr. Krapf, and G. Robmann have received silver medals for the discovery of a new snowy mountain in Eastern Africa three degrees south of the equator.
A new respirator has been invented in Engand for the benefit of coal miners. It con ists of a cylindrical vessel for puryfying the air; it contains caustic lye composed of lime and soda water.
Liebig is going to leave the University o Giessen, which has been rendered famous by his labors. He will take up his residence at Munich. He has written to a gentleman in London about the adulteration of pale ales with strychnine as a substitute for hops.He denies the imputation of the poison in English ales, and says the English brewers are better than those of the continent of Euope. The employment of strychnine would at once be detected by its speedy ill effects, nd the adulteration by such a drug would not be resorted to.
Mr. Mayal, in London, produces daguerreoypes of full life size.
McCosh, the author of the celebrated metaphysical work on the Divine Government, o well known in this country, was a candiEdinburgh University. He has withdraw his name, and says he expects to find much pleasure in his situation in Belfast College.
Mr. J. R. Hind has discovered a planet which he describes as the fifth discovered du ring his systematic examination of the zodia cal heavens. He writes, under date of June 25, to the "Times:"
"At 12 h .30 m . mean time, last night, $I$ discovered a new planet on the border of the constellations Aquila and Serpens, about $5^{\circ}$ ast of the star Tau in Opinchus. It shines as fine star of between the eighth and ninth nagnitudes, and has a very steady yellow ight. At moments it appeared to have a disc but the night was not sufficiently favorable for high magnifiers. At 13 h .13 m . 16 s . mean me, its right ascension was $18 \mathrm{~h} .11 \mathrm{~m} .58: 8 \mathrm{~s}$. and its north polar distance $98^{\circ} \quad 16^{\prime} \quad 0.9^{\prime \prime}$.The diurnal motiou in R. A. is about 1 m . 2 s . towards the west, and in N. P. D. two o three minutes towards the south."
A French gentleman states that he has been enabled to prevent incrustations in steam boilers by placing 2 lbs . of the proto-chloride of tin daily in a boiler which works 12 hours per day, at a pressure of the atmo
evaporating 1,500 quarts of water.
The best solvent of india rubber is a mixure of 100 parts of the sulphuret of carbon with 6.8 parts of alcohol free from wate The india rubber liquifies rapidly, producing a clear solution which may be precipitated again by the addition of twice its bulk of alcohol. The precipitate treated with a fresh quantity of sulphuret of carbon re-dissolves, yielding a purer solution. India rubber paste is obtained by feeding 95 parts of sulphuret of carbon with five parts by measure of common alcohol. The india rubber is steeped in this ntil it becomes a paste. India rubber thread cold, and double that when heated to $212^{\circ}$.

Home sweet Home.
We see it stated in a great number of our
exchanges that John Howard Payne, who reently died at Tunis, Africa, was the author of the beautiful song, Home Sweet HomeWhy the song was old a hundred years before he was born.

## Fire-cract

The Fourth of July is signalized by more tolerable nuisances to sensible people than any other day in the whole year. Crackers, pistols, cannons, \&c., are employed that on day or the independent action of all those who have not sense enough to know how to use hem in decency. All quiet persons flee the city that day as they would a plague. It is high time that parents were becoming more sensible in the teaching of their children how to keep Independence Day, and it is high time or all grown up people to throw off their tor all grown up people to throw off their
children's clothes on that day as well as on children's clothes on that day as well as on
other days. Let Independence Day be celeother days. Let Independence Day be cele-
brated in a sensible manner, and not in the bsurd, toolish, and noisy manner in which it is usually kept.
(For the Scientific American.)
Iron Structures $-\cdots$ Oriental Style.
In your excellent paper, which I read very egularly, in our office here, I find an article " "Iron Structures,"一you express surprise hat the valuable improvements of Mr. Bogardus are so little appreciated. I think you might suggest a change of construction in conection with the use of iron, which, if not suitable to New York (though I doubt that), might be well suited to the "Sunny South." Coolnes is to be obtained most readily by Coolnes is to be obtained most readily by
shade, and by abundance of water. Why not bild houses after the Eastern fashion, but higher, one room deep round a court or smal garden, with galleries to each floor, of iron A fountain or two should decorate the centre, with water ever flowing: and jets, at the side nd corners. For the richer classes, delicious residences might be thus constructed, lightand graceful in architecture, cool and ref reshing in the hot season, and fragrant with the choicest lowers and shrubs; while vases and statuary might show their graceful proportions by the range and the lemon, and prove the taste and discrimination of the owner. Balls and fetes in such residetices would be everything that ne could desire. I do not see that in such tructures we feed cling to the Grecian or Roman in architecture-an ample field for the ingenuity of American architects would be pen, and the architectural riches of the East would furnish an almost inexhaustible store of ight and graceful designs.
C. L. A.

Washington; D. C.
Lepidopterous Insects.
The pine forests of Germany are exposed to he ravages of various lepidopterous insects, such as smerinthus pinastel, and in particuar gastropacha pini. Now, a pine tree once stripped of its leaves, or needles, as the Germans term them, does not recover like an oak or sycamore, but dies. Many hundred acres of the finest are thus often destroyed in one district. It is an interesting sight to any but the owner, to visit a forest under the infliction of gastropacha pini; the thousands of caterpillars, eagerly feeding, produce a distinct crackling sound as the hard dry pine leaves yield to their persevering jaws. The large moths fluttering lazily about, or perched on the leafless sprigs, a wait the approach of evening, when the gamekeeper kindles large fires in the open spaces. Into these multitudes of the moths fall and are consumed; but this, with all that are destroyed by hand or devoured by birds, would avail but little, but or the services of various insects. Among hese the Calosoma is one of the most active ; both larvæ and beetle mount the trees, and slaughter moths and caterpillars far more than is requisite to satisfy their appetite.Those seasons in which the pine moth is most numerous are also remarkably tavorable to the calosoma, and to several kinds of Ichneumons, which also prey upon the Gastro-pacha.-[Jones' Natural History of Animals

Erratum.
In our notice of the pneumatic method of basting rocks in our last number, it should have stated that the vitriol is to be placed only at each cell; the pressing of the air bag only at each cell; the pressing of
deposits the acid on the charges.

On Plastering.
The modes of rendering the insides of dwellings vary in different countries with the materials most commonly found. Wherever the sulphate of lime occurfs in large quantities, it is the material exclusively employed; when it becomes too dear, a combination of lime with sundry other materials is substituted for it; or
used.
The sulphate of lime is met with in large formations known under the commercial name of gypsum.

The sulphate of lime is irsipid, or of a slightly bitter flavor; it is colorless and indecomposable by heat. It is soluble in water whether hot or cold, 1,000 parts of water at any temperature between $10^{\circ}$ and $100^{\circ}$ of the centigrade scale dissolving 3 parts of plaster. Its specific gravity is $2 \cdot 31$; it contains in its natural state 20.9 per cent. of water of crỳstallization, which is given off at a temperature less than $200^{\circ}$ of the centigrade scale ( $392^{\circ}$ Fah.)

The gypsum from the best quarries is nearly as hard as the calcareous stones; after its water of crystallization is driven off, it be comes pulverulent and like flour. If fresh water be presented to it in this state, it com-
bines with the normal quantity of water and bines with the normal quantity of water, and re-assumes the form of a hydrate, which it had
lost by the burning, crystallizing around the materials presented to it , and recovering its maiginal density and strength to a very great original density and strength to a very great
degree. It is this property which has led to its use in buildings; when the plaster is burnt it is dishydrated; when gauged, or worked up, the precise quantity of water it had lost is restored to it.
After the calcination, the plaster is reduced to powder, either by hand or in a mill; in this state it absorbs the humidity of the atmosphere with avidity, and requires to be covered up very carefully, to secure it from contact therewith, directly it is crushed. There is also, from this reason, a very great objection to transporting the plaster in its manufac tured state for any great distance.
Plaster is far from having the tenacity of mortar, which, as it is well known, increases with time. Rondelet found that if two bricks were joined together with this material, they united with one-third more force in the commencement than if they had bee:i joined with lime; but that they subsequently lost their force ot adherence. A very useful application of plaster was made by Smeaton in the construction of the Eddystone Lighthouse, where he covered the fresh cement joints with it, to give them the time necessary to harden.
In France it is largely used for the construction of walls, both internal and external, as well as for "rendering" them afterwards. If proper precautions be taken to cover the surfaces exposed to the weather, and if it be painted as soon as dry, the plaster is eminently useful in such positions; and replaces very advantageously the natural cements for all common purpses. But it is utterly incapable of resisting the action of water
The coarser kinds of plaster are used for the ordinary works, such as the "rendering" of walls and partitions; the finet qualities are reserved for the ceilings, cornices, and other decorative works. A difference is to be observed in the quantity of water to be mixed, according to the position and nature of the work to be executed.' Thus, for walls, the plaster must be gauged stiff for the first coate, and more fluid for the setting coat. For cornices worked out in the solid, the core is made finer material, and lastly finished off with plaster laid on by hand about the consistence of cream. Practice only can ascertain the precise degree of stifness to be given, espeprecise degree of stifness to be given, espe-
cially as every burning yields a different quaciall.
lity.

When walls are to be rendered in plaster,
they require to be first jointed, and then wetted with a broom. The surface is then covered with a coat of thinly-gauged stuff 2aid on with a broom, or at least worked with the trowel in such a manner as to leave sufficient hold for the next coat.This is gauged stiff, and is laid on with the
is finished with a hand trowel, Owing to this, and to the fact that the plaster sets too rapidly to allow any pains being taken with the floating, the surtaces are never so even, or the angles so square and true as with ou common system. But this mathematica nicety is not really of importance in ordinary works, whilst the rapidity with which the plaster dries constitutes a real and very important recommendation in its favor.
The partitions in Paris are generally made solid, so as to prevent sound from passing through them. They are executed with quarters of oak or pine, according to the nature of the building. Upon the quarters laths are wailed every 4 in . apart, and the interior is filled in with plaster rubble. This is made ven and flush with the laths, and the whol is then rendered like any ordinary wall.
The ceilings are sometimes executed with
close laths, but the usual plan is to nail them close laths, but the usual plan is to nail them about 3 to $3 \frac{1}{2}$ in. from centre to centre. A sort of flat centreing is put under them, and what are called "augets" are then formed between in plaster, which finish about flush the joists to nearly their total height, forming a sort of channel, which the workmen often finish by drawing a bottle along the sides.The thickness in this case should be about nch; the ceiling itself is added underneath the floors are either of wood, or tiles upon bed of plaster formed above the joists. Th better description of such floors or ceilings are often made, however, with laths spaced ceiling and floor is then filled up with ligh plaster rubble, and the upper and under surfaces are rendered to receive the ceiling and the tiles. Ceilings executed in either of these wo last-named manners, cost $1 \frac{1}{2}$ time those xecuted either with laths or flat "augets."
In countries like our own, where the price
of plast is pery high, it is replaced by the use of a mixture of lime and sand, to which ows' or calves' hair is added. The mixture is then applied upon close lathing for ceilings or partitions, and in the usual manner upon walls.
The lime generally used for this purpose is the white lime, which is slacked. with a great deal ot water, and runs from an upper basin to a lower one, where the excess of water is
allowed to evaporate. A grating should be placed at the entry of the passage between the two basins, to keep back the core, or any un-
slacked particles the upper one might contain slacked particles the upper one might contain The lime run in this manner is made into mortar with a very fine sand; and the hair is then added. For the first coats coarse hair will be most desirable; for the finishing coat it should be finer.
In well-finished works two coats are given, which are distinguished by the names ot rendering" and "floating." A third coat is then added called the setting coat, which is
made of the pure lime as it is run from the basin. Ceilings are afterwards covered with a very light coat of plaster, gauged thin, and laid on with a trowel. Such plastering is very cheap; and if proper attention be paid to its execution so as to avoid blisters from the use of unslacked lime; to fill the cracks which requently take place in the thicker coats setting; and to allow a proper interval for the whole plastering to dry before the paintng, or subsequent decoration to be added, is applied; the lime and hair may be safely admitted as a substitute for the natural plaster. The superior rapidity with which the latter dries, the much superior manner in which it takes color, and the degree of hardness it at talns, will, however, secure it the preference my oppose its employment.

## Consumption.

Two or three years ago, experiments were made by members of the Londoh Faculty Physicians, in different Hospitals, for the cure of diseases of the lungs, by breathing in warr. medicated vapors. The success of the experiments were so gratitying that an institution, chitis and consumption, was immediately established, and so favorable has been the result of the treatment, that the number of patients of the treatment, that the number of patients
admitted during the past year is between two
and three thousand, and the Hospital Report
shows that full seventy-five in every hundred have been completely cured.

## Ship Navigation to Albany.

A project is on foot to secure a sufficient depth of water between this city and Hudson o enable the largest class ships and steamer to reach our docks. This may be effected by building a ship canal to New Baltimore (on either side of the Hudson) or by deepening the channel of the river. Either plan is easible. The latter would probably be the fequal practical althoug
equal practical utility
Measure are being taken to secure early surveys. A subscription book to procure the ecessary funds is now in circulation, and more than half the amount required is already subscribed. There should be no delay in filling up the amount.
No enterprize more important to the city than this has ever been projected. Albany is he great outlet between the illimitable West and the Atlantic border. The products of all the most prolific States in the Union, conentrate at this point. But, with trifing exeptions, they move forward to New York for trans-shipment to foreign and coastwise markets, doing but little toward promoting the interests or augmenting the population of Albany.
If, however, ocean vessels could reach our docks, Albany would become the point of rans-shipment, because now nearly as much is lost in cartage, storage, and commissions in New York would cover the freight to Liverpool direct from this city. The same is true of impoitations. Millions every year could be saved to both producer and consumer and Albany be made a great mart of foreign well as home commerce
It is unnecessary to point out the advanta ges which would accrue to the city from such revolution. They must be self-evident to every intelligent mind; and our only surprise is that a project so entirely feasible, involving such magnificent results, should not sooner ave attracted the attention and enlisted the nergies of our people. But "better late than ver." We cannot recall the past, but w an improve the present; and we trust that our business men may promptly fill up the subscription for the contemplated surveys,
and push forward the project so that Albany may become what nature has ordained-the meeting point of the products of the old world and new, and the place of trans-shipment for both.-[Albany Evening Journal.
[Albany is not ordained by nature for a reat shipping port. It is too tar inland.Would ships go up to Albany doubling and winding all the points for 150 miles up the North River? No. The man who would Hudson to make a canal on either side of the Hudson from Albany to New Battimore, we
would set down as a person fit to be sent to the asylum at-Utica. There is as much water flowing in the Hudson at Albany every day, as would float a seventy-four. The channel of the river has only to be deepened, and made narrower, so as to direct the water therein, thus giving it a greater velocity, which will assist to keep it clear. It is our pinion if the river were deepened that th trade of Albany might support two propellers of 1,600 tons burden, to run between that city and Liverpool. They would make about three trips per year each way, for they could not go to Albany during three months in winter. The Evening Journal forgot this when it made the remark about " nature ordaining it as the meeting point of the products of the Old World and the New." Mr. McAlpine, the State Engineer, knows how the Hudson can be deepened-the way by which the river Clyde was made from a small river like the Mohawk, into a river which sends ships of 1,800 tons to New York, must be well known to him, as they have been published in the Engineers' Magazine : blasting, dredging, and banking were the plans. The citizens of Albany may have some ocean earnest and perform what they now propose as set forth above. They will find it a much more beneficial project for the city than making a tunnel under the Hudson (after the unwise example of the London tunnel) to
carry merchandise, not from, but past the city. The people must not overlook one tact in 911 their schemes, their city has no natural resources to make it great; it is barren of coals and minerals; its citizens must be cautious and not over speculative about its future commercial prospects.
signal Lights for Mailroads, and Etopping of After a few remarks about the Marine Signal of Thomas H. Dodge, of N. H., illusrated, three weeks ago, in the Scientific American, our correspondent, Chas. McKean, presents the following suggestions, which, in our opinion, are good and well worthy of the attention of our railroad companies :-
"A better signal for the kind of switches sed on our road, would be a square lantern placed on the top of the switch pole that carries the day signal; this pole is about ten feet igh, and has a crank at the bottom, and a hand wheel for turning it, and to effect a change in the position of the switch-the pole with the crank is turned half way round. the square lartern at the top of the pole having two red and two white lights opposite each ther, would show the same signal both ways on the line of road, and would not be subject to the expense or derangement of the cord pulley and box system.
Another thing I would like to mention before closing, is, stopping of railway trains in cases of danger. An advertisement appeared in your paper, not long since, from a person connected with the American Institute, offer ing a reward for some effectual plan to accomplish that very desirable object. I have seen many schemes tor that purpose, such as attaching brakes to locomotives, \&c., but none in actual or successful operation. Our double brakes are so powerful that they almost take the rails along with the train, and there is not nuch chance for improvement in that quarter. have noticed the effect that a little sand left on the rails by the repairer has produced on a train of cars, causing them to drag heavily through it ; and I have thought that sand boxes might be placed under the platform of cars and worked similar to those used on locomotives to prevent their slipping (it will also aid materially in stopping one) ; these boxes could be operated by the brakemen by means of leers placed within their reach: and in cases of emergency, a stream of sand could be poured on both rails in front of each car, as well as the engine, which any one acquainted with the subject can easily see would do much towards stopping a train. I would recommend this idea to the person referred to (not with expectation of gain, however)

Chas. M'K., Engineer.

## New Haven, Conn., June 28, 1852. <br> Telegraph and steam.

On the 8th day of June, an auctioneer in this city, sent on by telegraph to Philadelphia an order to a manufacturer for about $\$ 1,000$ of goods, of a particular description to suit a certain phase of the market here. The manufacturer received the despatch the same day, the goods were sent to New York that afternoon, and placed on the steamship Empire City, which left for this port on the 0th instant. She arrived here but Saturday morning the 19th instant : the goods were delivered up and sold at a satisfactory price, and yesterday morning the proceeds, in the shape of a dratt, were despatched by mail to the manufacturer. Rather quick work all round. - [New Orleans Picayune.
[This is what our inventors are doing for the world.

Neatness in Holland.
If cleanliness can ever be carried to excess, it is in Holland. The very servants have such caps and kerchiefs, and aprons and laces, and so beautifully got up. I can compare it to nothing but a laundress on a pleasure party, taking a day's wear of her mistress's best things. Of course, they have a wash, every week day, besides the grand one on Saturday, when they really wash up everything in the place exeept the water. As an instance of the particularity, at almost every house there is a sort of double looking giass outside the window as if for seeing up and down the street, that the Dutch ladies may watch a friend to see whether he has dirty watch a friend to see
boots or shoes.- Exch .

## NBW MNTMNTRNO

## Improved Seed Plante

Charles W. Billings, of South Deerfield, Franklin Co., Mass., has taken measures to secure a patent for an improvement in Seed Planters. He employs a rotating hopper or hoppers attached to a seed planter, and constructed and arranged in such a manner that another kind of seed may be dropped from the rotating hopper or hoppers, at greater in tervals, while the corn is being planted in hills in the usual way. Corn is ordinarily planted in hills about three feet distant, and pumpkin seed is deposited at about every fourth hill. This machine deposits the corn in the usual manner, and at the same time it deposits the pumpkin seeds in the hills at the eposits he puces by means of the revolving equired anes by mis of reving hoppers. There is an adjustable share attach ed to the machine, the point of which may b elevated or depressed, and consequently it can open a deep or shallow furrow, as may be re quired for different kinds of seed.

## Striking Action of Pianofortes.

R. E. Letton, of Quincy, Ill., has taken measures to secure patent for an improvement in the striking action of pianofortes. One part relates to a stop attached to each key for the purpose of arresting the hammer in its descent, after it has struck the string, and while the key is still retained. The object of this stop is to enable the player to produce a very rapid succession of strokes with the same key. There is also a notch formed in the hammer butt, to receive the point of the key lever when the hammer falls back to the aforesaid stop.

## Spindles for Mill stones.

G. W. Mitchell, of Nashville, Tenn., has taken measures to secure a patent for an improvement in adjusting mill stone spindles which consist in arranging spindles in mill stones whereby the bushing of the spindle in the eye of the stone is dispensed with. The improvement allows of the supplying of the spindle, at the eye of the stone, with lubricating material at all times, which cannot be done but at certain intervals in the spindles of mill stones, as they are commonly arranged and set.

Improvement in Filing and Gumming Saws.
H. O. Elmer H. O. Elmer, of Mexico, Oswego Co., N Y., has taken measures to secure a patent for an improvement in machines for filing, gumming, and setting saws. He employs a cylindrical cutter, having a rotary motion, and which is placed in a frame having a reciprocating rectilinear motion, and in combination with the cutter and frame there is a jointed bed, in which the saw is placed to be operated upon. Both the under and inclined faces of the teeth of the saw are filed perfectly true, and then gummed and set in the proper manner, with great rapidity.

## Smut Machine.

D. Pease, Jr., of Floyd, Oneida Co., N. Y. has taken measures to secure a patent for an improvement in Smut Machines, which consists in spreading the grain in a superior manner to other smut machines, and regulating the spread of the grain by an adjustable top, so as to allow of the machine acting upon the grain in a very superior manner.

Music by the Magnetic Telegraph.
We find in the Jersey City Advertiser the following notice of an improvement in the musical art, by Mr. Levi Wilder, of that city : "This machine's utility consists in being the medium through which any person-especial ly those acquainted with the piano, melodeon, and other instruments constructed on this principle-may have their inspirations written down by touching keys arranged as they are on a piano. The whole affair occupies about one square foot of space. On the back part, machinery of the form and principle of the magnetic telegraph, is completely arranged, and carried or set in motion by a weight similar to that of a clock. On the front part, keys are arranged precisely as they are on a piano or melodeon, and connected with balancing machinery to the telegraphic apparatus. Put the machinery in operation the same as you would a clock, and the te-
legraphic paper moves as on a magnetic tele- the same machinery. This is so arranged graph machine. Then touch the notes, or with an indented wheel that when you make play the tune as the soul dictates, and each the barin your music, it falls and leaves an key you touch, and the length of time you impression agreeably to the notes you touch, keep your finger upon it, are marked upon the to suit your music. The whole aff air is an paper-thus givivg you the notes of your in- ingenious contrivance, and we believe could spirations, and enabling you to write your tune without any difficulty whatever. In connection with the wire points which mark
be brought into universal
notes on the paper, are bar points, carried by by two different persons at once.
ELECTRO-MAGNETISIM TO GIVE ADHESION TO THE WHEELS OF LOCOMOTIVES.---Fig. 1.


This, invention, to give adhesion to the dri- $\mid$ two oil boxes of the wheels. The box, A , can ving wheels of locomotives, has recently been be raised and lowered by screws, so as to keep patented in France by MM. Amberger and it at the required height above the track. In Cassal, and is now in the course of experiment front of the tender, and within the reach of on the Lyons Railroad. The following ac- the engineer, there is arranged and secured count of its nature, with the illustrations, has the key, H, fig. 3; this key is for breaking been translated for the Scientific American from the " Genie Industriel :"
Figure 1 is a side elevation, in which is shown a portion of the tender of the locomotive, to which the invention is applied. Fig. 2 is a hollow electro-magnetic box, A, placed around the under side of each driving wheel. This box is made of brass, and encloses what may be called an electro-magnetic bobbin; it contains a number of windings of copper wire, and forms a hollow electro-magnet. It communicates with the battery (which is placed behind the tender) by the wires, B N. A si milar arrangement is placed upon both driving wheels, each wheel being surrounded and unning through the hollow magnet, as shown the two supports to which the hollow electromagnetic box, $A$, is secured. $F F^{\prime}$ are the

Figure 2.
Figure 3

cording to the inventors), when the locomotive is desired to ascend an inclined plane, the engineer merely turns the key, H , and by that means the driving wheels are magnetized and he adhesion affected
This is an invention upon the same principle proposed, as was stated in the New York Tribune some time ago, to be applied on some of our railroads. This arrangement is certainly much superior to the one mentioned, which we took occasion to make a few remarks about. We cannot see how this principle can ors. If object contemplated by the attract the wheels around which they are placed, a useful adhesive effect can only be produced by rendering the tread of the wheels and the rails

Deafness and Blindness
recent meeting of the
rew York State Medıcal Society, held in this city on the last days of last month, Dr. Peet, of the New York Deaf and Dumb Asylum, read a most
interesting paper on the diseases under his charge. With respect to the rumber of deaf and dumb persons in different countries, Dr. Peet said, that it bears a pretty certain ratio to the population in all countries and at different periods, being from 350 to 800 to 1,000 ,000 of inhabitants. In some parts of Switzerand, however, there is one deaf mute to every 400 inhabitants, being connected with cretinism. In Baden there is 1 to 500 . In other parts of the continent, and this country, there is about 1 to every 1,000 or 1,900 . There ar at least $1,000,000$ deaf-mutes on the face of the globe. We know but little with regard

Syracuse Salt.
In the "Syracuse Star" of the 2nd inst., a correspondent signing himself Philo, in a letter from Washington, dated June 27th, criticises the remarks we made on page 301, Scientific American, respecting the improvements which had been made in the manufacture of salt by Mr. Howd. He says :-
"It will be news to the Salt Pointers, that no pure salt was made until Howd's works were erected. It has been supposed that by solar evaporation as pure an article of salt could be made as any in the world; and it has been supposed that as pure an article could be made by boiling, as was ever manufactured in Howd's works. If any one will take the analysis made by Prof. Cook, they will see that his salt is no better than the common boiled, nor is it as good for packing purposes, for the reason that it is lighter than any other salt made. It dissolves quicker than any other salt. The crystals are less solid; and although the crystals may be as white as 'driven snow, it does not contain anything like the amount of pure chloride of sodium per bushel as the solar evaporated or boiled.The age of humbug in salt has passed, and people begin to know what salt is without the aid of any newspaper puffs in 'Scientific Journals,' the editors of which know nothing of the subject upon which they attempt to write."
The age of humbug in salt has not yet passed away, nor will it while this critic has any interest in miserable modes of making it. The Africans make good iron, but is that an evidence of their acquaintance with the best modes of making it? No, and yet they believe their's is the best mode. It is so with any process or manufacture. How much information do the men in general possess who have charge of and make the salt at Syracuse? We happen to know something about some of them personally, and happen to know something about different modes of making salt. The very authority, Prof. Cook, to whom we were referred, proves Howd's salt to be the very best quality of salt made. The salt made by Howd's process, Prof. Cook says, is remarkably pure. Now the solar made, and especially the salt made by boiling at Syracuse, no man who knows anything about it could say it was remarkably pure, unless he plainly told an untruth. Prof. Cook makes the following remarks about Howd's salt:"Some interesting peculiarities in the manufacture of salt have been shown this season by the apparatus of Mr. S. B. Howd, of Syraby the apparatus of Mr. S. B. Howd, of Syra-
cuse. He takes brine directly from the wells cuse. He takes brine directly from the wells
and heats it in closed vessels to the temperature of about $280^{\circ}$ without allowing it to boil. (Saturated brine boils at $326^{\circ}$ in open vessels.) By this means the impurities are precipitated to an unusual amount, and with proper apparatus are then blown off. The brine thus purified is then forced through valves into the main or steam boiler, there brought to saturation, then it is admitted to open vats or evaporating reservoirs and the salt allowed to form; the further evaporation of the brine being continued by means of the exhaust steam from the engine. The salt made by him is remarkably pure."
Well, it, according to Prof. Cook, the authority to whom this critic refers, an unusual amonnt of impurities are precipitated, it follows that the invention of Mr. Howd makes a purer salt than any heretofore made at Syracuse. We have no personal interests to subserve; we welcome every improvement and recommend it. The reference given condemns the critic whose audacity of reference is of a very superior stamp to his candor.

## A Good Cement.

I have found gum shellac, dissolved in alcohol, very excellent for joining broken vessels, it makes them nearly as durable as if they were cemented by heat. I have been using: for years, a mortar which was broken and mended in this manner. It was broken in pieces, and could not be then replaced. I applied the gum, and bound the parts firmly together until the cement was perfectly dry. I her put it in use and have continued to use it ever since.
C. B. F.

The National Institute at Washington has been presented with the flag that waved ov Fitch's first American steamboat in 1780

## Scientific $\mathfrak{A m e r i c a n}$

Scientific American
NEW-YORK, JULY 17, 1852.
Sewing Machines.
Machine of E. B. Howe noticed the Sewing Mass., we had a number of communications on the subject, afterwards, from persons wish ing to know where Mr. Howe resided, many of them having written to Cambridge, but got no answer. We did the same, but received no answer, and concluded that Mr. Howe had removed his place of residence, which, we believe, was correct. It would have been well for Mr. Howe had he given publicity to his invention at that time, and had it illustrated in our columns. Like every invention of a useful nature, which we have noticed, our inventors took the hint and commenced inventing sewing machines for themselves. Since that time we have illustrated no less than seven sewing machines in the columns of the Scientific American. The first was on page 145, Vol. 4 ; it was Johnson \& Morey's, agent, John Lerow. It was not a good machine as it performed only by the running link stitch, with one thread. On page 153, same volume, we published an engraving of Magnin's French embroidering machine. On page 1 of Vol. 5, was illustrated Le Row \& Blod gett's Rotary Sewing Machine; on page 73 Wilson's, and on pag 369 Watson's. (On page 216, same volume, we presented engra vings of Lerow \& Blodgett's machine impro ved). On page 58, this Vol., Sci. Am., we presented engravings of Singer's Sewing Machine.

Wilson's Sewirg Machine embraced the principle of a reciprocating motion, and making a stitch during both the forward and backward stroke. It is now three yearssince
we first noticed the sewing machine of A. B we first noticed the sewing machine of A. B.
Wilson, in Vol. 4, page 268; he was then Wilson, in Vol. 4, page 268; he was then living in Pittsfield, Mass., and he sent us a sample of the work performed by it; it was good but when we saw his first model, we had no thought that he would ever have been able to bring sewing machines to that state of perfec tion which he now has. Since then he has
obtained two American patents, and we have obtained two American patents, and we have
just completed arrangements-having made just completed arrangements-having made
the drawings, \&c.-to get his latest improved machine patented in all the importan kingdoms of Europe. All the machines we have spoken of use two threads, excepting the one specified. We have nothing to say against any one of them, but the Wilson machine is, in our opinion, a great triumph of American ge nius. It is no larger than a neat small work box, very portable and convenient, and we have seen fine shirt bosoms and collars stitched by it in a more perfect and accurate manner than any we have ever seen done by hand work When we first noticed Howe's Sewing Ma chine, in 1847, there was not a solitary ma chine of the kind in active operation, in our whole country, if in the world. There are now, we believe, about five hundred in operation, and we have been told by Mr. Wilson that the orders for his machines cannot be supplied fast enough. There are at present a hundred machines about finished at the Com pany's works-Wheeler, Wilson \& Co., Wa tertown, Conn., and these are all engaged.
At present, until the patent is fully secured in At present, until the patent is fully secured in
Europe, we cannotillustrate nor describe this improved machine, which has received the name of A. B. Wilson's Patent Seaming Lathe, and was patented on the 15th of last June, but we will do so, perhaps, during the latter part of this year.
When we look at the progress made in Sewing Machines, we expect them to create a social revolution, for a good housewife will sew a fine shirt, doing all the seams in fine stitching, by one of Wilson's little machines in a single hour. The time thus saved to wives, tailors, and seamstresses of every description, is of incalculable importance, for it will allow them to devote their attention to other things, during the time which used to be taken up with dull seam sewing. Young ladies will have more time to devote to ornamental work (it would be better for them al if they did more of it), and families in which there are a number of children, which require
a continual stitching, stitching, in making and
mending from morning till night, will yet
blessed by the improved Sewing Machine. The Sewing Machine is but on the threshhold of its career; it is but partially known and applied in our country. Private families know nothing about its use, and shoemakers know nothing about iters have not yet tasted its benefits. and saddlers have not yet tasted its benefits.
Mr. Wilson informs us that he is about to make one that will sew boots and shoes with a rapidity that will astonish all the sons of St. Crispin. We suppose that, in a few years, we shall all be wearing shirts, coats, boots, and shoes-the whole habiliments of the genus homo-stitched and completed by the Sewing Machine. We suppose there are now full 200 sewing machines in operation in this city.

## Accidents.

No country in the world has such an unenviable reputation for fatal accidents as ours. Houses falling, steam boilers bursting, railroad trains coming into collision, are among the common news of every-day life. What can be the reason of this? Are our people less reflective, cool, and considerate than all the rest of the world beside? We believe not our people are a thinking people, and they possess much firmness and presence of mind What then can be the reason for so many accidents in our country? One reason for the great number of accidents in our country is arice; and another "whal pralence of that stupid principle, "whatis everybody' bridge is built, as cheap as possible, by a pribridge is built, as cheap as possible, by a pri-
vate company; it is dangerous, to be sure vate company; it is dangerous, to be sure
but this is a free country, and it's nobody's business. A crowd gathers on the said bridge -it falls, and 17 or more persons lose their lives; but then whose business is it? Nobody's. A child is shot by a pistol in the hands of a careless boy, and a physician and colored man are wounded by guns in the hands of others; yet who is to blame? Nobody. All these accidentor took place in and
The steamboat St. James, on the same day while on Lake Ponchartrain, near New Or leans, exploded her boilers, and it is believed that not less than fifty persons lost their lives as the boat was crowded. Among the numthe Supreme Court of Louisiana, and some of the most prominent citizens of New Orleans. Yet who was to blame? Nobody. These things are a disgrace, not to our country but to ourselves as a people. There is too much selfishness prevalent, consequently there is a disregard for the safetv of others by those who are seeking after their own interests and
their own enjoyments. Houses, bridges, \&c., their own enjoyments. Houses, bridges, \&c.,
are built cheap; "this will do," says the conare built cheap; "this will do," says the con-
structor; "this will do," says the owner; "it is safe enough, and I have paid enough for it." Down comes the structure, or up goes the boil--scores of lives are lost-coroners' inquest re held-notes of the events are made in the papers-the matter is passed over, and othe
events of a like nature press on, transpire, and it seems to be nobody's business. Every child seems to stand on tip-toe, with the Declara tion of Independence on its tongue's end, and men seem to act, as if they had no duties to perform to their fellow men in the Republic, xcept to make the most of them. True 1 restraint upon all wrong-doing, and surely where wrong deeds go unpunished, no healthy estraint is there. It would be more to the onor, credit, and happiness of our peo ple, if they would go a-head with a little
more of the ballast of safety, and a more tenmore of the ballast of safety, and a more ten-
der regard for the welfare and general happiness of the whole body of the people.

## The Great Balloon.

On Monday, the 5th inst., Mons. Petin, the daring balloonist, was to have made an ascent
from Bridgeport, Conn., near the country-seat rom Bridgeport, Conn., near the country-seat of the famous $P$. T. Barnum. A splendid large balloon was made for the occasion, it contained 47,000 cubic feet of gas, and was the he numion of all who saw it, ourselves amon ure, along with 15,000 others, in viewing the ascent of sueh a noble balloon. We were dis appointed in our expectations: the balloon with M. Petin in it, slowly arose from th ground at about 3 P. M., but, unfortunately,
legraph, which made it rock and sway, when it reeled over against a barn and was torn to pieces. M. Petin fell out when about twelve feet above the ground. The whole multitude were sadly disappointed at the unfortunate re sult. The ascent of a large balloon always gives us peculiar pleasure; we experience strange sensations at seeing the huge mass rise up grandly, shaking the earth from its feet for a season. From what we have seen of balloons, however, they require, in every in stance, the most skillful management to be successful. M. Petin, although a bold aeronaut, has been very uufortunate in his plans since he came to this country. We hope he will be more successful next time.
The Electrical Properties of Flame-..Light. Prof. Buff, of the University of Giessen, ha recently published an interesting paper on the electrical properties of flame. He has come to the conclusion that gaseous bodies, which have been rendered conductable by strong heating, are capable of exciting other conuctors, solid as well as gaseous, electrically
Two small strips of platinum were intro duced into a glass tube closed at one end ; they were separated by an interval of a thin line of air. The air within the tube could not be heated to a degree sufficient to permit the electricity of two of Daniell's cells to pass through it. When the glass became soft by heating, and both pieces of platinum were permitted to touch it, a strong deflection of the needle of the galvanometer was the conequence
When the strips of platinum were exposed o the direct action of the flame of a spirit lamp, the first notice of the passage of the electricity was obtained, when they were placed at about three inches above its extreme point, and began to show signs of redness. The de flection increased as the strips were lowered in the flame. When the flame was strongest there was a permanent deflection of $70^{\circ}$. The flame current passed always from the hottest platinum strip through the separating interval f gas to the other strip. When the metallic wires or other conductors, connected at one
end, are brought into contact with highly heated gas, it formed an electric circuit. On platinum wire was introduced into the obscure centre of the flame of a lamp, and the ther wire was brought near the outer surace of the flame, a current of electricity im mediately exhibited itself, which passed through the flame from the inner to the exte ior wire. By properly connecting a plati um wire, which was dipped into the centr of the flame, with a condensing plate, the lat ter became charged with negative electricity and hence Prof. Buff concluded that positive electricity is given off by the outer surface of the flame.
It is our opinion that more discoveries will yet be made respecting flame and light. What do we know of flame, excepting this, "it is the exhibition of a certain action of certain substances, such as carbon, hydrogen, and ox gen ?" Flame is an exhibition of these ga es in a certain state. This definition is ex ceedingly unsatisfactory; we are in the dark yet, respecting one of the most common and imple chemical phenomena. There are hopes of some rew discoveries being made, by directing the attention of electricians to this field of investigation. Actinism, and the reent discoveries of the properties of different colored solar rays, are enough to incite philoophers to investigate this subject with grea iligence. We have light, in the particula excited action of some chemical substance;
we do not call light a substance apart and disinct in itself, and yet it has exceedingly pe culiar properties, and produces many exceedingly peculiar effects. We are still ignora of solar light-that is, how it is produced.

## An Amicting Accident

On Monday evening, the 5th of July, a sad ccident took place at Staten Island, near this city. A crowd of those engaged in enjoying the pleasures of that day, collected upon the fall" of the Ferry Bridge, when it broke and no less than 17 persons were drown-d-they were mostly women and children The fall of the bridge was a hinged leaf, supported by a chain. The hinge broke first, and then the chain. There should be no fall-
times of inventive construction. About 12 years ago, a bridge of the same kind fell, precipitating about twenty persons into the basin, at Albany-fourteen were drowned. Such bridges are unsafe, and should not be tolerated. Is there a country on the face of the earth. where there are so many unsafe pub lic structures suffered to exist? Our people are killed by scores every month. The late accident was a culpable one, for what did the women and children know about the safety of the bridge? Nothing :-they should not ave been allowed to crowd upon it as they have

The Climates of Countries.
Although Edinburgh, in Great Britain, is stuated ten degress farther north than the ciy of New York, it has a much warmer climate in winter, and the beat and cold never attain to such extremes. The climate of England is, to the majority of our people, a mysery. The Island is situated between $50^{\circ}$ and $55^{\circ}$ north latitude, and it has a milder climate than we enjoy in the latitudes of 40 and 450 The British Isles are situated in the path of arm ocean currents, which flow across the Atlantic and beat upon and circulate around them. The wild Orkney Islands which are situated in $59^{\circ} 5^{\prime}$, have warmer winters than we have in New York City, which is situated about 170 further south. In the city of Glasgow, the mean temperature in the month of January is $38^{\circ}$, and it has never been below zero hut twice in forty years, and then only $3^{\circ}$ for two days. In Unst, in the Shetland sles, in latitude $60^{\circ} 5 \mathrm{~min}$., the mean tempe rature in January is $40^{\circ}$. In many places of the United States, ranging from New York to Maine, in latitude $45^{\circ}$, the mean temperature $6^{\circ}$ below zero. Unst is only one degree older than Constantinople, in January; and no country in Europe, nor the world perhaps, enjoys the mildness of climate peculiar to Great Britain and Ireland. This must have a wonderful effect upon the health and organi ation of the people. The cause is, as we ave stated, generally attributed to the cur ents of the Gulf Stream; one philosopher however, attributes the genial warmth to mois breezes from Africa, which come over the At lantic, crossing the equator. In Russia, Moscow is on the same line with Edinburgh, yet its mean temperature in winter is at least $13^{\circ}$ ower. The climate of England is moist and wet. To foreigners, accustomed to clear skies, it is disagreeable. The atmosphere is cloudy in summer, and this is one reason why it is ot so warm as in other countries in the same orthern latitude. Were it not for the warm cean currents and the warm breezes, the oasts of England would be ice-bound, and many of the plants which now flourish there evergreens, would be unknown.
On the northern coast of our Continent-in orthern Oregon-the climate is much warm$r$ in winter than in places on the same lines of latitude in our Eastern States. It is believed that currents from the orient flow over the Pacific and wash the Oregon shores, as the Gulf Stream of the Atlantic does the British sles. During the past winter the thermometer ranged at $17^{\circ}$ above zero, and the prairies were green all the time, except when covered by occasional snow storms. The farmer is not compelled, as in the Eastern States, to depend for the winter sustenance of his cattle on hay raised the previous season, his cattle can graze there throughout the whole year, and wild flowers may often be plucked in the months of January and February.

Are Lizards Poisonous?
L. M. Boatner, writing to the Southern Cultivator, says he has examined many snakes and lizards, to know if they were poisonous, and he is satisfied that many snakes are destroyed which are not only harmless but useful. He has examined all sorts of lizards and never found a poisonous one. The large wa"lamper eels."

The Exhumed Macadamized Road
A correspondent writing to us from Some ield, Pa ., inform us that a gentleman from that place has visited the supposed old Macadamized road, at Fairmount. He thinks, from its osition. locality, and the shape of the stones, that it
stream.

Scientific American. $^{\text {. }}$


Reported Oficially for the Scientific American LIST OF PATENT CLAIMS Isured from the United Staten Patent Offle for tee weix endina july 6, 1852.


 right angle, will be divided into two equal parts by
the line which divides the right angle into two equal parts. Seond, the union of the above with the common
"trying square," by means of the bar, as descri-
bed. " tryin
Bridars -Abel Bradmay $\&$ Rlijab Valentine, of
Monson, Mass.: We claim the combination of the
 frame, in nuch manner that, the saide string piecees are
enabled to move longitudinally under the infuence of variations of temperature, or orther causes, with-
out injury to themselves or to the parts with which

 Which can be folded up or unfolded, by means of the
hinged arms. operatigg ase forth, the tur pieces
which constituto the back being held together, when Kine or $r$
ond
described.


required.
And also claim the eylindrical nut, in combina.
tion with the standard and toil holder of the slide
 brought to the proper position to co.operate with
thherth.tern bar and slide rest, substantially as set
forth.
 ferently arranged, have before been used, such, there-
fore, irrespective of their disposition and combination, as specited, I Ido not claim,
But I Ilaim the upper and lower





 and stem, and allowing the iron to be gecured be.
tween the cap and the stem, by means of a wedge Placed eitber bet ween the back of the iron and front
of the stem, betweea the front of the iron and the
 ${ }^{\text {ed }}$ Second, providing the cap with shoulders, which. Then the cap is placed in the stock of the plane, will
fall on suitabie tresing pies,
the stock, asd deseribed.
 asaal patern with a shield, as deseribed, whereby I
am enabled more aesily to draw the core and pre-
and am enabied more easily to draw the core
veat chipping and breaking down thereof.



 claim tho racks, grooves, and pinions, by which the
shaft and beaters are caused to traversed the milk or
or cream, with a compound vertical revolving and reci-
procoting motion, after the manner and for the pur-
pose described.

RALLROAD CAR Braxrs-By Wm, Montgomery, of
Roxbury, Mass. : Ido not claim the mere combina-
 made to rub against the other and consitute a fric-
tion batike $I$ claim is my improved brake, composed of three or any greater number of plates or orisces, ar-
ranged side by side and on a shatt, and having some One or more of them connected dith the shatt, so
as to ber revolved by it , and the others held stations. ry, so as not to be revolved, and the whole, ex cept
one of the outer ones, made to slide end wise on the
 pressing then tomards
tantianty as pecificed.
 or specisiad.
sped

 Honed, as others may be substituted.
We claim thene of aluminate of








rollers, to create a aregular feed motion and equality
of strain, whilst laying or forming in a rope,
 the man
seribed.
 dence, R. I. I I llaim the manner, substantially as
described, of arranging vertical and horizontal ad-


 in the manner set forth


 scribed.


 so constructed and arranged upon a radialial line as to
tive the arms and rubbers a rotary or compound et ive the earman and rubbers a rotary or or ompound
iptical rotary motion, for the purpose set forth.

 cut ter, in in combination with the method substantial-
In as peceifed of finishing and smoothing the thread
by ment of the chase means of the chaser, as set forth.




Prebunatic Sprina-By Elijah Ware, of Roxbury
Iass : I claim Mass. : I claim in an air car spring, in which the pis:
ton oparates upon the disc of rubber or other elastic substance, Which forms one side of the air cham ber,
the combination of the movable diaphragm, con-
 taly ya described, win
he same, as set forth.

forth $\begin{aligned} & \text { alio colaim the combination of the before. claimed } \\ & \text { reducing cutters with smoothing cutters, arranged }\end{aligned}$ reducing e cutters with mo
unbstantially 8 s set forth.






le (assign to the New En Mar - By Cullen Whi


ralko claim the arrangement of the cutter and
blank, in such manner that the adjacent portions of

 may be cut from the groves in the blank from the
bot tom outward, to alluw the chip to be freely dis-
cher charged. substantially as set forth.
$I$ also claim the combination of the pibration feed-
 a blank whil being threaded, an unthreaded blank
may be in the trough pon the driver ready to drop
into may be in the trough upon the driver ready to dropp
into ppace befor it the instant it or drawn thack, to
allow the previous blank to to we withdrawn from the cutter.
or itso claim the combination of the vibrating arm
or

 suring thee
presented
Lastly,
Lis.





Bedstrads-By $\begin{gathered}\text { RE-Tssup. } \\ \text { Nathaniel }\end{gathered}$



 dation of the bed or mattrese by meana of the abore
desci ibed pliances or their equivalents, to wit, the



 springs or stafling, as occasion may require, and the
halves or parts so
united that when together or



Illent no claim to any one of the elements of the
aforesaid or abovedescribed combination, when se.

 Dilied, as aforesaid. DEsian


For the Scientifc American
I Thunder Storms, Electrical Phenomena. 1 received the following leter from Pro Henry, of the Smithsonian Institution in reply to the account of my aerial voyage from Portsmouth, Ohio, on the 3d inst., and of which I sent you a copy. The hypothesis here laid down, seems to be strongly sustained by the acts, as I witnesed them during that voyage. I would here remark what I forgot to mention in that account, that the electrical discharges in the lower cloud seemed to me, at the time, to be caused the same way that corruscations are caused on the surface of the Lightning Jar," because the cloud stratum was always broken and imperfect on the upper surface, where these discharges took place -the fluid jumping from one point of cloud to the other. As these tacts must be interesting meteorologists, particularly electricians, and as my account has been published, I will here quote Prof. Henry's letter :-
"Smithionian. Institute, June 16, 1852. Dear Sir-Please accept my thanks for the opy of your account of the phenomena observed relative to the thunder storm which you encountered in your last adventurous aerivoyage
The fact of two clouds, one above the other with a discharge between them, is in accordfects of tmat fects of atmospherical electricity is due to the
inductive influence of the electricity of space around the earth and beyond the atmosphere According to this hypothesis, the atmosphere of our globe is in the condition of a charged Leyden jar, of which the outer coating is the vacuum beyond the air, the inner coating the earth's surface. The clouds in the arr, between these coatings, are affected by induction, thus,

## -

the space without being + and the surface the ground -, then, as a cloud ascends, the upper surface will, by induction, become trongly - and its lower surface + . The sity in in also take place but the sity in the lower cloud, and if the two be suf-
ficiently near, the electricity from the upper will pass to the lower, and this in turn will discharge itself into the earth with loud explosions.
If I could have an opportunity of being with you at starting, with a proper supply of apparatus, I would be pleased to suggesta se ries of observations. There is a gentleman now connected with the Smithsonian Institute, who would be willing, had he an opportunity, to make an excursion with you tor the purpose of observation. Very truly, your obe dient servant, Joseph Henry, Sec. S. I. John Wise, Esq., Aeronaut.'
Lancaster, Pa., June 26, 1852.

## Gal Ammoniac.

A great deal of the sal ammoniac which comes to this city, (New York) is manufactured in Edinburgh, Scotland, out of the refase materials of the gas works.
The Edinburgh Gas-works are situated in the valley of the Canongate, which runs from west to east towards the sea. The chemical works, where the products of the gasworks are turned to account, are distant about two miles from the latter, and the gas-works are at a lower level. The Calton Hill is interposed between the two manufactories and at a tormer period the gas liquor was carted in barrels to Bonnington on the Water of Leith, where the chemical works are situated. Recently, however, the gas liquor has been lifted over the shoulder of the Calton Hill by an ingenious force-pump, and the ditference of level is then sufficient to carry the liquor to Bonnington, which, though higher than the Canongate is lower than the Calton Hill.
The liquor separates into two strata; the lower and heavier being tar; the upper and lighter, an impure aqueous solution of carbonate and hydrosulphuret of ammonia; this is called the ammontcal liquor. It is the less valuable of the two liquids, and is treated as
tar which always accompanies it, , it is subjected to distillation. The distilled liquid is in greater part converted into salammoniac, but considerable quantity is also manufactured into sulphate of ammonia.
The first step in the sal ammoniac process is, the neutralization of the distilled liquor with hydrochloric acid, which as well as sulphuric acid is made at the works. The neutralized solution is then pumped into large caldrons, where it is concentrated till it has reached the crystalizing point. It is then drawn into large vats or troughs, where, as it cools, it deposits multitudes of small feathery crystals, consisting of rows of minute octoherons or allied forms attached to each other. In cold weather beautiful large cubes of sal mmoniac are sometimes produced.
The feathery crystals are transferred from the troughs to a drying apparatus, consisting of a shallow oblong open box, made of stone, and heated by a furnace below: The dried salt, in a state of granulation resembling brown sugar or salt, is then mixed with char-coal-powder, which is intended to reduce any oxide of iron present, so as to prevent a brown color being given to the sal ammoniac when raised in vapor. The salt after this treatment is subjected to sublimation. The subliming vessels are shaped exactly like a man's hat, arranged in the furnace with the crown downwards. They are some three feet in depth, and two and a half in diameter. When charged with salt they contain a quantity of material sufficient to demand a week's unceasing application of heat for its sublimation. Each pot is covered by a metal dome or cupola, which is luted on with clay, and has an aperture in the centre through which the salt is allowed to sublime away, the process. This occasions a considerable loss of material, but no other way is known loss of material, but no other way is known
o' securing a hard, coherent sublimate. There oi securing a hard, coherent sublimate. There
seems reason to believe that the presence of moisture in the imperfectly dried salt, is the cause of its condensing at the commencement of the process as a spongy mass. At all some time. The workmen proceed empirically, and when they judge that a sufficient interval has elapsed, they close the central aperture in the metal dome by a plug of clay, and the sublimation continues for a week. The hemispherical cakes of salammoniac thus produced, are rasped on their outer surfaces to remove any crust or coloring matter, and broken into wedges, which are packed in barrels and sent all over the world.

## Extension of a Patent.

On the petition of Robert Newell, of New York City, praying tor the extension of a patent, granted to him on the 25th of September, 1838, for an improvement in manifold permuation locks, for seven years from the expiration of said patent, which takes place on the 25th of September, 1852.
It is ordered that the said petition be heard at the Patent Office on Monday the 6th of September, 1852 , at 12 o'clock m. $^{\prime}$; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.
Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least tweny days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

Thos. Ewbank, Com. of Patents.
Washington, July 7, 1852.

## Snake Bites.

The tincture of $l o b e l i a$, given in doses of a table spoonful every few minutes, is said to be a perfect cure for the bite of a snake if up his time. The person bitten should tie up his leg tight as quick as possible above he wound. It is well nown thavene or two of our southern correspondents have stated
that if a person is bit by a snake, an antidote for it, is at once to chew a good plece of tobacco in the mouth, lay it on the bite and tie up. Brandy is also said to be a cure for the bite, if a
wardly.

## Ecientific American.

## TO CORRESPONDENTS

E. P., of Tex.-The second half of
came safely by Saturday week's mail.
came safely by Naturay week's mail. M. D. W., of O.-We obtained a patent on the
same invention for B. D. Sanders, of Hollidaysbury Va., in 1849, there would be no hope for you should you apply.
P. L., of
P. L., of B. Island.-You cannot employ a soft
bar of iron in the tube for bar of iron in the tube, for the mercury will perfo-
rate the iron and flow through it . The permeabilirate the iron and flow through it. The permeabili-
$t g$ of metals by mercury is the subject of an interesting paper by Prof. Horsford. It is difficult to make A. J M
A. J.M., of S. C.-You had better keep your back numbers and read them, but if you are not disposed
to do so, return them to our office, and we will credit your account with them.
volumes before yours was received
W. M., of Boston-Have you tried any experi-
ments with the thermometer to ments with the thermometer to proace the ef We do not see how it can operate asanticipated, for the increase of temperature is so small in proportion to the increase of steam pressure, that advise you to make application for a patent until you have tested its merits.
A. R. M., of Ct.-Do you mean the Mitro Bevel?
if so, we have seen a number with a sector arc on them.
A. G., of D. C - It is not our province to enter into a personal controversy with D. E., he has a perfect right to his opinion, although wrong. We make out the contents of ball 6 inches dia., and 2 of 5 inches
dia., to be $249 \cdot 9976$ cubic inches $-a$ very different sum from that presented to us in both cases.
R. H., of Wis.-You can obtain stach information of John Finley, Cold Spring, N. Y.
E. B., of N. H.-The principle upon which you propose to construct a planing machine, is, we think, now employed for cutting out staves and shingles,
and its application to board dressing could not be patented. Perhaps you might send us a sketch and description of it for further examination,
I. H. G., of Iowa-We have no disposition to take
the case out of the hands of jour chosen agents ; they will doubtless manage for you the best they we should judge. $\$ 1$ received and credited.
S. S. B., of N. Y.-Is your gold not too much al loyed? We have never understood there was any difficulty in getting it malleable. Three grains of employed by the beaters. We shall make inquiri on the subject.
A. B., of Pa.-You can solder any piece of iron on another, by taking a solation of the chloride of tin
and wetting the gun barrel with this on the spot you wish to solder, by a hair pencil, then place on found in wood, it becomes potash by burning, whic is effected by the combination of the oxygen with the metal undergoing combustion.
Sash and Blind Machine, and cannot oive the quired information; you had better address the ad vertiser.
S G., of Pa.-Thos. Blanchard, of Boston, Mass., took out a patent for bending wood some two years
ago. A. W. Johnston, of St. Georges, Del., has also patent for the same purpose.
N. F. McC., of Miss.- We think you had better furnish us with sketches and a description of your improvements that we may be able to judge more cor-
rectly respecting them. We should think your gin new and patentable.
J. E., of R. I.-We have carefully examined the
sketch and description sketch and description of your alleged improvements
in stop-motion for power looms, and think it sufficiently novel to warrant an application for a patent There are many different devices for the purpose, and
it is not so easy to decide fully, still we have seen many but none like yours.

## J. N., of Va.- Mr.

J. N. F., of Whes Pateut Office you will find a number of switches operated by the locomotive. If yours is different from any other, a patent can be obtained for it.
rincinal projector Mr. St. John, but the the has more than one head connected with it. G. J. M., of Conn -Overman's Metallurgy is a
good a work in one volume as you can get. It is pub lished by Appleton \& Co., this city
G.\& S., of Ohio-Your assignments we have forwarded to the Patent Office, and your advertisemen you will find under ths proper head. It is not possi-
ble to get up good engravings from a daguerreotype plate; you had better send good drawings or a moD. T., of Canada-We find you were correct; the mistake occurred. With or
S.L. H., of Ill--Your device for converting reciprocating into rotary motion, is one of the oldest
inventions for the purpose on record It inventions for the purpose on record. It is a very demnation many years before your time.
Money received on account of Patent Office busi-



## 

 with the following initials have been forwarded to
the Patentoffice during the two weeks ending Saturday, July 10 :
D. P. G., of In
 An Important Paragraph.
Whenever our friends order numbers they have hand. We make this statement to have them on trouble, to which we are subjected in replying when
the numbers called for cannot be supplied The Post Office Laws do not allow publish enclose receipts; when the paper comes regula subsibers may consider their money as recived. Subscribers ordering books or pamphlets are par-
ticularly requested to remit sufficient to pay postage.

Back Numbers and Volumes.
In reply to many interrogatories as to what back be furnished, we make the following statement: of Volumes 1, 2 and 3-none.
Of Volume 4, about 20 Nos.; price 50 cts.
Of Volume 5, all but 4 numbers, price, in sheets, $\$ 1$. Of Volume 6, all; price in sheets, $\$ 2$; bound, $\$ 2,75$
of Vol. 7, all back numbers at subscription price.

## Patent Claims.

Persons desiring the claims of any invention obtain a copy by addressing a letter to this office ;dollar as fee for copying.

Patent Laws, and Guide to Inventors.
We publish, and have for sale, the Patent Laws of
the United States. The pamphlet contains not onl the laws butall information touching the rules and regulation of the Patent Office. Price 121-2 cts. pe
copy.


Advertisements exceeding 16 lines cannot be ad-
mitted; neither can engravings be inserted in the mitted; neither can engravings be inserted in the
advertising columns at any price. $\underset{\text { serting. }}{15} \mathrm{~A}$

American and Foreign Patent Agency
Mignortant TO INVENTOR -signed having for serveral y yorss been ene-The undernical and chemical inters patent for new mecha-
to inventors upon the most reasesonablet their services to inventors upon the most reasonable terms. All
business entrusted to thir charge is strictly conf-
dential. Private consultations are held with inventers at their office from 9 A. M... until 4 P. M. M. In-
tor
ventors, however, need not incur the expense of
tending tending in person, as the preliminaries can all be ar-
ranged by letter. Models can be sent with safety by
express or any other convenient medium. They express or any other convenient medium. They
should not be over 1 foot square in size, if possible.
Having Agents located in the chief cities of Eu . Heving Agents located in the chief cities of Euunequalled. This branch of our business receives the
especial atteption of one of the members of the frm,
who is prepared to advise with inventors and manuis prepared to advise with inventors and manu-
MUNN \& Co., Scimiting to Foreign Patents.
128 Fultiton American Oftreet, New York.
 A signee's sale of Machinists' ' oons; these to tols
have been in use about four montha, and eonsist of
Planers, Lathes, Drill Presses, and Universal Chucks,


G WYNNES \& SHEFFIELD, Manufacturers of Stave Machinery, Urbana, Ohio-Our maed will
for slack work, called the Mowrey Stave Cutter, will
cut, dress, and joint, at one operation, from the bolt oft, dress, and joint, at one operation, from the bol
of woon, in a perfectanner, at the rate of 80 staves
per minute. more staves in ten hours than 100 men can set up into barrels in the same time, and at small
cost. We are also prepared to furnish the Judson
Stave Dresser, for tight barrel work, and other stave

STEAM ENGINE AND BOILERS-Superior Portable and Stationary Engines, with Ayer
Patent Improved Boilers. of any size required, will
be furnished to order by the patentee be furnished to order by the patentee. These boilers
ocupy but little room, can bb set up without brick-
work, and will make more steam with the same fuel than any o
wich, Ct.
MPORTANT TO IRON FOUNDRIES-The
Galvanic Alloy Manufacturing Co., Nos. 401, , 4ha3,

 that cost from $\$ 80$ to $\$ 100$. The wings. being only
about an inch in width (planned upon entirly new
and mathematical principles), produce double the and mathematical principles, , produce double the
blast with half the power of other blowers. War-
ranted in all cases, or they mas be returned and the money refunded.
$\mathrm{R}^{\text {EJECTION OF Lion, noticed in the Scientific American July } 30 \text {, }}$
 tant to patent
Albany, N.
$\mathbf{Y}$.
N

SHERRY \& BYRAM'S AMERICAN CLOCKS,
 drrave introduced such improvements in the con-
struction of theiriclocks, as to be enabled to warrant them the most durable and accurate (highest grade
to vary less than two minutes in twelve months), of
any others now in use any others now in use. Glass dials for illumination
furnished at short notice. Address SHERRY \& BY.
RAM, Oakland Works, Sag Harbor, Long Island, N. YA. the Oakland Works of Sherry \& Byram there
are made some of the finest clocks in the world." - "Mrientific American.
Mram
C

| ommerce. |
| :--- |
| 417 eow*. |
| [Jowre |

THREE STEAM BOILERS FOR SALE-One for $\$ 650$; one upright tubular six horsere power for
$\$ 275$; one second-hand tubular boiler, four horse

 Presses, Fan Blowers, Lathes, Planers, Artesian
Wells, Chain and Force Pumps, Pipe, Heating Apa-
ratus for Houses, etc.
42
$T$ O INVENTORS-The subscribers willenterinto furnishing Drawings, Patterns, and Models, believing that they have one of the most thorough and sci-
entific men, in that line of business, to be found in
New York. Their object is merely to fill up time, Nhen yot having sumpicient work of the ir on on to keep
him in steady employment, and do not like to him in steady employment, and for fear they could not obtain his servi-
ces when required. Apply at Dunlop's Manufactu(tring Emporium, No. 36 Gold street.
FRASER \& EVERITT.

## 

D inches. Ready sales their best recom-23 by 29
inches. Ready sales their best recommendation.
Cheapest instruments in use. Complete for $\$ 10$. Sent by Express.
CHAMBERLIN, Pittsield, Mass.

MARYLAND INSTITETE FAIR-The Board Fifth Annual Exhibition in the Grand Saloon of the
Institute Building, in the city of Baltimore, comInstitute Building, in the city of Baltimore, com-
mencing on the 4th day of October next. The great
facility thus afforded for a splendid display of American Manuf actures, they hope, will be a sumficient
inducement for the Manufacturers, Mechanics, Ar.
tists Invent inducement for the Manufacturers, Mechanics, Ar-
tists, Inventors, and others throughout the United
States, to contribute such specimens of their industry, skill, and ingenuity, as shall be alike honorable
and creditable to the mechanical genius and refined
taste of the country. The Hall will be open for the
recention of reception of goods on Monday the 27th Sept. nexte
rom Which time to Thursday night, Sept. 30, articles
intended for competition and premium must be deposited. The balance of the week will be devoted to
the reception of articles intended for exhibition on-
ly, free of charge. After which time depositors will
 be open for the reception of visitors. Circulars con-
tianing the regulations and arrangements establish-
ed by the Standing Committee on Exhibitions, can ed by the Standing Committee on Exhibitions, can
be had by addressing (post-paid) JOHN S. SELLBY,
Actuary ofthe Marrland Institute, by whom any in-
formation required will be promptly given. 397
Patent alatm whistle.-Indicators fo Papeaking pipen, for the use of hotels, steamships,
factories, store-hoseses, private dwellings, etc. etc.
This instrument is intended to supersede the use of This instrument is intended to supersede the use of
the belf, being more simple in itsarrangement, more
effective in its operation, and much less liable to get effective in its operation, and much less iabie to ge
out of onder, being directly connected with the speak-
ing ing pipe, it requires no lengthy wires in its use,
which are continually getting out oforder or break-
ing. There have been several hundreds of them fit-
 ress. They can be attached to pipes, which ard
ready fitted up without domage to building, and for
much less than the cost of a bell, and warranted to
operate. The publica are invited to call and examine operate. The public are invited to call and examin
them at the factory of the patentees.
WOOLCOCKS \& OSTRANDER

IRON FOUNDERS MATERIALS-viz. : goo 1 American Pig Iron-grey, mottled and white; No
1 Scotch Pig Iron, of favorite brand. Pulverized
Sea Coal, Anthracite Charcoal, Soapstone, and
Black Lead Facing Black Lead Facings. English and Scotch patent Fi
Brick - plain, arch, and circular, for cupolas. Fi
Sind and Fire Clay. Iron and brass moulding san
Core Sore sand and flour ; always on hand mand for sal
Cor and
by G. 0 ROBERTSON, 135 Water street (corner
Pine), N. Y.
40 6*

CTHES FOR BROOM HANDLES, Etc.-We is adapted to turning Windsor Chair Lags, Pillars,
Rods and Rounds; Hoe Handles, Fork Handles and
Rod Broom Handles
This Lathe ia
diameter, with only the trouble of chang two inghes the dies
and pattern to the size required and patern th 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 excellent work. Sold without frames for the low
price of $\$ 28$-boxed and shiped with directions for $M U N N \& C O$.
At this Office

E LING, for turning in a carkiage coup LiNG, for turning in a small space with larg
fore-wheels (gee Sci. Am.. No. 36, Vol..6). For rights
or agencies to sell the same in the New England and
 sylvania, Ohio, Kentucky, and Tennesee, address
CHARLES EVERETT, Washington, D. C. 43 3eow*

TO STEAM ENGINE BUILDERS, OWNERS, the agency of Aschroft's Pressiure Gauges, Would
recommend their adoption to those interested. They
have but lately been introduced into this country,
hat have been applied to many of our frst-class
river and ooean steamers, and on several rail
roads, on all of which from their simplicity, accu-
rond
racc, and non-liability to derangement, they have
give the utmost satigfaction CHAS. H. COPE-
LAND, Consnlting Engineer, 64 Broadway, N. Y.
 Boards and, for Plank. Thing, Tonguing and Grooving
is now in successful is now in successful operation at the Machine shop
and Foundry of Messrs. F. \& T. Townsend, Albany N. Yound whery it can bessrs. seen. It prownees work sape-
rior to any mode of planing before known. The rior to any mode of planing before known. The
number of plank or boards fed into it is the only
limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed
foundry-or at his residence No No
bany. GEO. W. BEARDSLEE.
Groadway; Al-
23tf

MACHINERYY- - $\mathbf{M .}$ C. HILLS, No. 12 Platt-st. N. Schmidt's and other Pumps; Johnson's Shingle Ma-
chines; Woodworth's, Daniel's and Law's Planion machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery
oil, Beals patent Cob and Corn mills; Burr mill and
Grindstones; Lead and Iron Pipe dc. Letters to be be
noticed ment

W OOD'S IMPROVED SHINGLE MACHINE the most valuable inpprovement ever made in this branch of labor-saving machinery. It has been
thoroughly tested upon all kinds of timber and so great was the favor with which this machine was an unbought premium was awarded to it in prefer-
once to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHN-
SON, Bridgeport, Ct.; WM. WOOD, Westport; Ct.,
All letters will be promptly attended to.
22tf

THEODOLITES, RAILROAD TRANSITS, AND LEVELS-Drawing Instruments, Micros-
copes, Telescopes, Electro-Magnetic Machines, Gal-
vanic Batteries, Daguerreotype vanic Batteries, Daguerreotype apparatus, Barome-
ters, Thermometfers, \&c. Manufactured and for sale ters, Thermometiers, \&c. Manufactured and for sale
\#holesale and retail by JOHN ROACH, Optician,
79 Nassau st., N. Y.

PAINTS, \&ec. \&ec.-American Atomic Drier


CHARLES F. MANN, FULTON IRCN WORKS, Troy, N. Y. - The subscriber builhs Steeam Engines
and Boilers of various patterns and sizes, from three horse power upward; also, his Portable Steam En-
gine and Boiler combined, occupying little gine and Boiler combined, occupying little space,
economical in fuel, safe, and easily managed; Double
Action Lift and Force Pumps Action Lift and Forree Pumpps, Fixtureagend Appara-
tus for Steam or Water; Tools for Machine Spops tus for Steam or Water; Tools for Machine Shops;
Shafting and Pulleys for Factories. Brass Castings
and Machinery made to order at short notice. Steam
engines form engines furnished cheaper
where, of the same quality.

J OHN W. GRIFFITHS-Ship Builder and Mamodels and draughts of all description of vessels,
with the computation of stability, capacity, displacement, and necessary amount of impulsion. Propel-
ling power located and proportiopably adapted to
the form of the vessel. whether sailing or steamin Mr. Grm of the evessel. Whether sailing or steaming.
Gnd may
antends the construction of vessels, to the various departments of the science or practice
of ship building. Draughts forwarded by letter to all parts of the world, and
letters must be post-paid.

1852 TO 1856...-WOODWORTH'S PAbeting, and Moulding Machines.- Ninety-nine hun-
dredths of all the planed lumber used in our large dredths of all the planed lumber used in our large
cities and towns continues to be dressed with Wood-
worth's Patent Machines. Price from $\$ 150$ to $\$ 760$. For rights in the unoccupied towns and counties
of New York and Northern Pennsmlvania, apply to
JOHNGIBSON, Planing Mills, Albany, N. Y. 26tt
L. EONARD's MACHINERY DEPOT, 109 UParl-st. and 60 Beaver, N. Y. Y Leather Banding
Manufactory, N. Y. Machinists's Tools, a alarge as-
sortment from the "Lowell Meshin or celebrated makers. Also a general aupply of me er celebrated makers. Also a general supply of me-
chanics and manufacturers' articles, and a superior
quality of oak-tanned Leather Belting.
Pitf
P. A. LEONARD.
PATENT CAR AXLE LATHE-I am now ma-
 weight, sengine screw lem lathe, for turning and chucking
patent
tapers, cutting screws and all kinds of common job

MANUFACTURE OFPATENTWIRE Ropes bridges, standing rigging, mines cranes, derick, til-
lirs \&c.. by JOHN A. ROEBLNG; Civil Engineer-
Trenton N. J.
B. ELY, Counsellor at Law, 46 Washington
Aatent., Boston, will give particular attention to
Pases. Refers to Munn \& Co., Scientific TRACY \& FALEE, RALILOAD CAR MANOsenger, freight, and all other descriptions of railroad
cars and locomotive tenders made to order promptly.
 Grist Mill, IIrons, Press Screws, Bogardus' Horse-
Powers, and will take orders of Machinery of Powers, and will take orders of Machinery of any
kind, of iron and brass, \& Portable Saw-mills and
Steam Engines, Saw Gummers of approved and cheap
kind, \&c. Gearing Shafting, large and small, cast
Gro
 $\$ 25,000$ Worth of Machinist's Tois Tols, consish hand of
power planers, to plane from 5 to 12 feet side power planers, to plane from 5 to 12 feet; slide lathes
from 6 to 18 fet long; 3 size hand lathes , ith or
without shears; counter shafts, to fot all sizes and kinds of universal chuck gear cutting engines; drill
presses, index plates, bolt cutters, and 3 size slide presses, index plates, , int cutters, and 3 size slide
rests. The Co are also manufacturing steam engines:
All of the above tols for sale at at 25 per cont. cent less the the best quality, and are
the market. Cuts and lher tools in


## SCMPNTTPTC MMOMTM

## Source of the Nutritious

The nourishing property of corn, wheat and other grains is owing to the gluten contained in them. And this gluten consists, in great part, of nitrogen. It is of course an important object with the farmer to increase the proportion of gluten, and that is done by supplying additional nitrogen in the aliment of the plant. Carbonic acid and water are the chief sources of growth. Nitrogen is the principal element constituting the nutritive quality. The atmosphere contains a large quantity of nitrogen. It is not supposed to be taken up by vegetables, however, from the atmosphere, in its simple form, but by combination with hydrogen, in the form of ammonia. By the digestion of the ammonia, the nitrogen is afterward separated in the plant and used to constitute the peculiar product, and used to constitute the peculiar p
gluten, to which its nutrition is owing.
Ammonia is produced by the decay of most animal substances. In this way it is that the application of manures is so beneficial to plants; by the supply of ammonia furnished, which being digested in the plant, results in a separation of nitrogen, which enters in the tissues of plants and produces their nutritive quality.
Ammonia is readily absorbed by water, and the rain and dew become impregnated with it, and it is thus administered to vegetables in small quantities. This may be sufficient for their existence and ordinary growth. But a greater supply of ammonia is necessary to some plants on account of their peculiar economy. This is the case with all plants containing much gluten. And this substance may be greatly increased by a liberal supply of manures from which ammonia is more abundantly provided.

Chemistry and Medicine
A distit:guished medical gentleman told us, the other day, that he would not give that, (snapping his finger) for all the benefit that chemistry had ever bestowed on practical medicine. And he was nearly right; for, though it is one of the most interesting and useful of the sciences in general, and has done some good to medicine, it has, in this practice, been the innocent instrument of a thousand times more harm than good.- [Botanico Medical Recorder.
[The distinguished medical gentleman spoken of above must have been an exceedingly ignorant one. The physician who is ignorant of chemistry cannot move a single step out of the circle of a few receipts which many wothe circle of a few receipts which many wo-
men practice upon with far more success than men. For example, if a person be troubled men. For example, if a person be troubled
with an acidulous stomach, your physician, who is ignorant of chemistry, would not, and could not know what remedy to apply, while the chemist would prescribe weak lime-water, or the bicarbonate of soda. In the discovery of antidotes for poisons, have the chemical labors of Taylor and Christisson done nothing for practical medicine? The distinguished medical gentleman above might snap his fingers as long as he lived, and say what he pleased against the value of such chemical labors, but he would only expose his own ignotance and want of good sense. No man can be a good physician and be ignorant of chemistry.

A Botanical Curiosity
Messrs. Editors-In the midst of a dense forest, on the declivity of a hill, in this county, stands an elm sapling, three inches in diameter, around which entwines a vine, called poison vine, or poison oak, in the following order: it springs up on the south side, and passes straight up about eighteen inches, then it makes one revolution from the sun, or to the left, then it turns its course, and makes two revolutions with the sun, or to the right, then turns and makes one revolution from the sun, again turns and revolves once with the sun, then turns and revolves twice from the sun.
Thus it makes three revolutions with the sun, Thus it makes three revolutions with the sun,
and four from it in passing to the height of 12 feet. The vine is about the size of a man's little finger, and is two or three years old. The sapling stands on the north side of a large tree, up which, and on the side adjacent to
the sapling, at the distance of two feet, apart,
runs the parent vine, the small one seems to be a sprout, from the root of the large one. Will some of the savansin Gotham, or some of your learned correspondents explain this mystery? $\quad$ B. W. White. Giles county, Tenn., 1852.
[Mr. White has sent us some specimens of the blossoms of the yam vine, which are rare sights, and possess peculiar interest to us.

## (For the Scientific American.) <br> Electric Batteries.

Your paper, No. 26, contained an extract from an article by Prof. Page, in the March number of Silliman's Journal, describing two forms of voltaic batteries invented by him in the year 1838 ; and also stating that I had adopted the same forms in some of my experiments, and that I thought very highly of the improvement. In the succeeding number of your paper I denied the identity of the apparatus described by Prof. Page, with that which I had exhibited to him in use, and claimed the priority of introduction for James Green, of your city, and myself. I had never published a full description of the apparatus I claimed, because I did not think it of interest to a sufficient number of the readers of a. scientific paper, to warrant it to occupy that space which we always expect to contain useul matter; and also because I greatly dislike to be continually blowing my trumpet into the ears of people who care nothing tor my music. But as I have claimed the origination of the apparatus I use, I feel a necessity to offer a full description of it; and as the voltaic battery has, within a few years, been introduced in many useful arts, with its application extending daily, I think I may now offer many of your readers useful and interesting inormation, in a description of my reservoir and voltameter batteries.
These batteries contain the improvements of Smee and Kemp, having a platinized negative plate, a mercurial flood containing bits of zinc, and are excited by dilute sulphuric acid alone. I here wish it distinctly understood that I do not claim to have added Mr. Smee's improvements on to Mr. Kemp's, for that was done by Mr. Smee himself, in his " Odds-andends Battery," but I have contrived things by which Mr. Kemp's mercurial flood battery is made of practical use to the manufacturer. This was aimed at by Mr. Smee in his Odds-and-ends Battery, but it is well known to electro-metallurgists that the form proposed by him is of little use.

Fig.


Fig. 1 represerts a vertical section of the eservoir battery; A is a water-tight box, made as the electrotypists usually construct
heir vats, which is by placing one box within nother, so as to leave every way an interval of half an inch between them, and pouring melted pitch in the space between the boxes. In the engraving, the inner box is seen projected above the outer box, the dark space between the boxes representing the pitch. C C
is a box an inch less in the sides than the inis a box an inch less in the sides than the in-
terior of the vat; it has no bottom, being a mere platform for supporting the mercury near the top of the acid water, and for guiding the sulphate of zinc to the bottom of the vat, the top is let in the sides about a quarter of an nch below the edge; in the centre of the top is a hole, $\mathbf{O}$, having a raised edge a quarter of an inch higher than the edges of the box ; this ox is represented more fully in fig. 3 , where it is represented with small legs, not seen in
fig. 1 ; the legs should not be longer than two nches, and the whole height of the box such as to bring the amalgam within an inch of the top of the acid water. B B is a frame ot such size as to slide easily into the vat, and having a piece of muslin tightly stretched over the bottom; the muslin is first wetted and secured in its place by small tacks: after it is dry it
must be cemented in its place with shellac paste, and every part of the frame well varnished by repeated coating with the shellac paste; atter drying, the tacks may be taken


Fig. 2 shows the frame, B B, with the musin bottom, and also with small feet, which stand on the mercury support when the apparatus is in use. The muslin is designed to prevent any amalgamated particles from coming in contact with the negative plate, and also to serve as a support to the plate, which it admits of being placed very close to the mercury and defends it from touching. A sheet of brass gauze, coated with copper by the electrotype process until the meshes are nearly closed, and then heavily electro-plated, and afterwards platinized, will answer well for the negative plate, but a sheet of silver foil, perforated with small holes as close as they can come together, will answer much better; in making the perforations, the metal must not be removed, but driven up to a bur. All the burs should be on the same side, and the burred side used uppermost.


The battery is charged by putting the box, $\mathbf{C}$, in place, then pouring on the quicksilver, and placing some pieces of zinc in it; the vat may then be filled with a mixture of 3 parts of water and one part of sulphuric acid; the mixture may be made in the vat. The muslin diaphram must not be put in until the mixture is cold.
Contact is made with the positive part of the battery by means of a stout copper wire or ribbon, leading from the mercury up between the sides of the vat, and the frame, B, when it bends over and is made fast to the vat, and terminates in a binding cup. Contact is made with the negative plate by means of a stout wire tipped with silver, or terminates with a silver button, the silver merely resting on the gauze plate. Every part of the connecting wires must be well coated with gum, where the metal may be exposed to the action of the acid.
The utility of the peculiar arrangements described above cannot appear from a mere description of forms, because the uses of the parts do not then appear; the functions of the galdo not then appear; the functions of the gal-
vanic battery are of an occult nature. To show the advantages derived from these contrivances, it will be necessary to view the circumstances which led to their introduction. Shortly after the appearance of the electrotype art, I was engaged with Mr. James Green in endeavoring to make a profitable applicaion of it to manufacturing some parts of mahematical instruments. Success did not atend our labors, for the use of the battery as a end our labors, for the use of the battery as a oxtremely uncertain troubtions, and proved extremely uncertain, troublesome, and expensive. The amalgamated zinc plates used in galvanic batteries are constantly decreasing in quality by the action of the acid, this arises from the absorption of the mercury, which eaves the plate encrusted with a peculiar compound not acted on by the acid. At length the plate decreases in size, leaving a fragment of the plate in which is all the mercury, but in a useless form. As a general thing the mercury and zinc are here lost. Two successive diminutions in the quality and size of the zinc plates, is a diminution in the power of the battery and the loss from residues is almost equal to the zinc consumed in maintaining the battery action. In place of a zinc plate, Mr. Kemp substituted an amalgam of zinc. His battery consisted of a wooden box or trough containing the acid water; in the bottom of he box was placed a flood in the bottom of
some fragments of zinc, and above the amalgam, and parallel with it, was placed a copper plate perforated with many holes to permit the gas to escape. In this plan there evidently cannot be any diminution of battery power from decrease in the size of the positive plate neither can there be any residues of zinc or loss of mercury. All electricians have admired the beauty and simplicity of Mr. Kemp's arrangements, yet in practice it has been found ineffective, and has been wholly superseded by the amalgamated plate battery, subsequently introduced by Mr. Sturgeon.

George Mathiot.

## [To be Concluded next week.]

How to Pack Firkin Butter.
Mr. Josiah King, before the Allegheny County Agricultural Society, gave a few par ticulars of the manner in which firkin butter was packed for use in the United States Navy. It was putin small firkins, made, if possible, of bass wood, that having been found preferable as freest from pyroligneous acid. The firkins were then placed in a cask, and brine so strong as to float an egg poured over them. It is this way butter could circumnavigate the globe, and yet be fresh at the end of that time.

LITERARY NOTICES.


Mechanics and Manufacturers Will find the SCIENTIFIC AMERICAN a journal exactly suited to their wants. It is issued regularly every week in Form suitable for binding. Each number contains an Official List of PATENT
CLAIMS, notices of New Inventions, Chemical and Mechanical ; Reviews, proceedings of Scientific Societies; articles upon, Engineering, Mining, Architecture, Internal Improvements, Matents, and Pa nected with the Arts and Sciences. Each Volume covers 416 pages of clearly printed matter, interspersed with from Four to Six Hundred Engravings, and Specifications of Patents. It is the REPERTORY OF AMERICAN INVENTION, and is widely complimented at home and abroad for the soundness of ts views. If success is any criterion of its character, the publishers have the satisf action of believing it the first among the many Scientific Journals in the world.
Postmast
Postmasters, being authorized agents for the Sci-
entific American, will very generally attend to forentific American, will very generally
warding letters covering remittances.

## MONN \& CO.,

128 Fulton Scientific American,
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 one copy f
furnish-

> Ten Copies for Six Months for
Ten Copies for Twelve Months,
> Fifteen Copies for Twelve Months,
> $T$ wenty Copies for Twelve Months, $\$ 8$
15
22

| ths, |
| :--- |
| taken at par for | unbscriptions, or Post Office Stamps taken at their full value.

N. B.-The public are particularly warned against paying money to Travelling Agents, as none are ascredited from this ofice. The only safe
tain a paper is to remit to the publishers.

