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# NEWS. RAIL-ROAD

#### Railroads of the United States. By a circular from the Census Office at Washington, we learn that there are 10,814 miles of railroads constructed in the United States and 10,898 in the course of construction, The cost of the railroad in operation amounts to \$348,000,000. The longest of these is the New York and Erie Railroad, which is 469 miles, with two branches sixty-eight miles in length. The cost was \$23,580,000; \$43,333 per mile. The State advanced \$6,000,000 towards the work and afterwards released the company from the loan; that is, the State made a present to the stockholders of more than one-fourth of their stock.

In the year 1850 Congress passed an act, after a very protracted discussion, granting to the State of Illinois about 2,700,000 acres of public lands to aid in the construction of the Central Railroad. This magnificent donation is reckoned by the company to which Illinois has confided the building of the road, to be worth \$18,000,000. This was the first instance in which the aid of the national government had been extended to a railroad project.

But since the above grant, innumerable applications have been made from all the new States for cessions of land for railroad purposes. Whether such turther aid shall be extended is now a much agitated question in American politics. Bills are pending in Congress proposing to cede for these purposes about 20.000.000.

The rate of speed on our railroads is not so great as on those of England. The ordinary velocity of a passenger train is twenty miles an hour, but on some routes it is as high as twenty-eight and thirty miles. Express trains, on such occasions as the conveyance of the President's Message, frequently maintain for long distances as high a speed as forty-five miles an hour. And on one road, that between New York and Albany, forty miles per hour is the regular rate for all passenger trains.

The fares or rate of passage are not uniform. In New England, the average price per mile for the conveyance of passengers is under two cents; from New York to Boston it is two and four-tenths; from New York to Philadelphia, three and four-tenths; from Philadelphia to Baltimore, three and one-tenth. From New York to Cincinnati, the distance is 857 miles by the northern route, of which 143 miles are travelled by steamboat. The mice of passage for the whole distance is \$16 50, being slightly under two cents per mile. The lines between Baltimore and Cincinnati, soon to be opened, will be 650 miles in length, and the fare will be \$13; that is, two cents per mile. It is very difficult to form an estimate of the average expense per mile of building railroads in the United States. In fact, no average can er from the wheels. be assumed as applicable to the whole country. The cost of the roads in New England is about \$45,000 per mile; New York \$40,000 and in some of the Western States, only \$20,000.

The accompanying engravings (figure 1 a [ The frame work to which the cutters are apperspective view, and figure 2 a plan view of pended, is to be secured to the machine under Wm. Jones, of Bradford, Orange Co., Vt., for of broad endless bands, which move in the diwhich a patent was granted on the 8th of last | rection as shown by the arrows; the longer July (1851.) The same letters refer to like parts.

The nature of the improvement consists, firstly, in the use of rotating cutters on vertical shafts, in connection with the reel which serves to bend over the grain previous to its for the purpose of cutting the grain at any debeing cut; also in the use of two endless aprons instead of one. Secondly, in the use of two steering wheels, instead of one, and an chine by means of a lever, which is fastened adjustable lever, for the purpose of raising and lowering the front part of the machine. Thirdly, in the novel manner of constructing the bundling apparatus so that the bundle shall be opposite directions around the roller, k, at the entirely separated from the grain running into | top of the machine; this roller can be extendthe hopper previous to its being laid on the ground.

The cutters, a a a a, are attached to the flywheels, b b, and rotate in the direction shown to short vertical shafts, and receive their mo-

the bundling chamber, and when the foot is rethe cutters) represent the Harvester of Mr. the reel, g g. ff', on fig. 1, show the position moved, the leaves open and the grain falls at one serves as a band for communicating the power or motion to the front part of the machine, for the purpose of cutting the grain. An adjustable lever (not shown) serves to elevate and depress the front part of the machine sirable height. The front, or steering wheels, are turned so as to vary the course of the mato the axletree at one end and at the other end are attached the cords,  $j \, j$ , which run up on each side of the machine, and are wound in ed to the hinder part of the machine and be operated by the person standing there. The bar, l, passes between the horses, and serves to press forward the foot part of the machine, by the arrows; these fly-wheels are secured thereby lessening the strain on the sides. The bundling fly, n, and the hopper, S, are contion either by bands or gears from the hori- structed of sufficient length to admit of the zontal shatts, c c, by the bevel gears, d and h. grain being laid straight, with the heads to-

improvements of the general arrangements here described, in addition to his previous patent. More information may be obtained by letter addressed to him as above directed. Ozone---What is it?

shown.]

The discoverer of ozone is Schonbein, the inventor of Gun Cotton. Ozone is produced when the electrical brush passes from a moist wooden point into the atmosphere, or when phosphorus acts at common temperatures on a moist portion of the atmosphere. To produce ozone, take a clean piece of phosphorus, about half an inch long, which has been recently scraped; put it into a clean quart bottle, at a temperature of about 60° Fahr., with as much water as will half cover the phosphorus; close the mouth slightly, so that if inflammation takes place, no harm may happen, and leave it. The formation of ozone will quickly occur, being indicated by the luminous condition of the phosphorus, and the ascent of a fountain-like column of smoke from it. In less than a minute the test will show ozone in the air of the bottle; in five or six hours it will be comparatively abundant.

are closed, and the grain is thereby secured in

once upon the ground and is ready to be bound

into bundles. [The treddle levers are not

Mr. Jones has taken measures to secure the

Ozone is a gaseous body of a very peculiar smell; when concentrated, it has an odor like chlorine; when diluted, it possesses what is called "the electric smell." Atmospheric air charged strongly with it, renders breathing difficult, causes unpleasant sensations, and produces catarrhal effects. It is insoluble in water. It discharges vegetable colors like chlorine. It does not unite with nitrogen under ordinary circumstances, but it does when lime



Figure 2.



wards the back end of the machine. The | of the machine, and by the use of bands or bundling fly keeps the grain from falling into gears, the motion may be communicated to the bundling chamber, t, and may be operated the reel and cutters.

The reel bends down the grain and brings by the hand or by the horse power. The leaves, o o, of the bundling table are it under the action of the apron; the grain is constructed on levers with circular ends; on then carried between the aprons nearly to the which rests a treddle bar, and the table is ope- top of the curve, thence on the top of the longer apron to the place of bundling, and is The anchor ice has formed; and along the rated by these, either with the foot or by powdeposited in the hopper, then by one revolu-OPERATION-As the machine advances, the tion of the bundling fly, a sufficient quantity motion is transmitted to the small wheel, r, of grain for a bundle is dropped into the bundto which is attached the shatt or drum over ling chamber, and at the same time the foot of which the longer apron runs, the power or the operator being pressed down upon the

motion is thereby transmitted at the front part treddle, the leaves, o o, of the bundling table of a spring freshet.

water is present. It acts powerfully on metallic bodies; it peroxidizes lead and silver very quickly. It is one of the most powerful oxidizers that has ever been discovered. It acts upon almost all salts, and is very nearly related in its effects to chlorine.

The Bangor Whig says that the ice in the Penobscot appears somewhat as it did six years ago, prior to the great spring freshet. river is twenty-five feet deep, not solid, but compacted like a snow-ball. The channel of the river is not choked up as it was six years ago, but still the fact of there being so much anchor ice leads to some fears as to the effect

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# MISCELLANEOUS.

Geology of the Lead Mines-No. 4.

It is hardly necessary for us to advert to the manner in which mining is prosecuted in this section; yet we will do so for the information of those who "are not to the manor born.".' With us, it is almost universally the united effort of from two to four individuals their capital, a set of mining tools, worth some five dollars, and stout hearts and willing hands to labor After having made a verbal agreement with the owner of mineral lands, for permission to dig, and agreed upon the amount of rent, (generally one-fourth or onefifth of all the mineral raised) they proceed to work. If successful they continue their operations; if not, they either sink a new shaft, or abandon the ground altogether. No capital is employed; so far from it, that in many, very many, cases with us, the hardy miner is dependent upon his daily success for his daily bread. No companies formed-no systematic united effort of capital and labor to develope our mineral resources. It is merely individual efforts to acquire the wealth that lies near the surface.

In England a lease is taken for ground for a definite period, and with a view to extensive operations. A company formed-shares sold -a capital provided, and rules and regulations adopted for their government in all their operations-experienced men to supervise in all departments, and mining commences. Should, at any time, any shareholder be disposed to withdraw from the concern, he can do so, and dispose of his shares in any way that he wishes. Statements, similar to the following, are made every two months to the stockholders

"At the ordinary two monthly meeting of shareholders in Bomin Wheal Mary Consols, on Wednesday, the accounts showed :---Balance from last account, £89 13s. 10d.; call of  $\pm 2$  per share on 824 shares,  $\pm 1,648$ ; ores sold (less dues), £133 15s. 10d.-£1,871 9s. 8d. Cash due to purser from last account,  $\pm 163$ 15s. 9d.; March and April cost, including £300 paid on account of engine, £1,035 15s. 10d.; leaving balance in favor of adventurers, £672 18s. 1d. A call of £1 per share was made to pay the balance (£697) owing on account of the 50-inch cylinder engine. A report from Capt. Kernick was read, which stated that an important discovery had been made on No. 1 lode. An ancient level, supposed to have been driven 100 years ago, has been cut into, and upon examination it is tound that the old miners had driven on the side of the lode, and the water having crushed and broken down, the level in many places is full of valuable ore; there is a vast quantity altogether in sight."

Upon a comparison of the two systems operating? The only matter of surprise is, that we have continued to produce the quantities we have, under all our disadvantage; and had not our lodes been rich, and our whole

The method of mining in Cornwall, is thus: party will immediately make a lower bid. At a recent meeting of the Glasgow (Scotin forcing air into furnaces. The iron and -With the exception of a small number While the price continues high, the competiland) Philosophical Society, Dr. Penny commanganese are retained in scoria in the furnaof individuals, employed as superintendents, tion goes on briskly; but when it approaches municated the important discovery, made by clerks, &c., who are paid stated salaries, the what is known to be a fair rate, the bidders himself, of the presence of a considerable become more cautious, the competition slackquantity of potash salts in the soot from blast labor is performed by contract, made at reguiron. We have described the process of malar short intervals-generally every eight ens, and at last, ceases altogether. The capiron furnaces. The soot experimented upon king the white oxide-it is a beautiful and inweeks. These contracts are made publicly, tain then throws a pebble into the air and dewas obtained from the Coltness Iron Works, genious one. Of course it would not answer and very similar to auction; work being the clares the last bidder to be the taker of the where it leads into the flues that lead the eated gases and other products of combus some other kinds of zinc ores. A patent article bid for—men the purchasers or ' work at the last price named. The ' ta was granted for it to S. T. Jones, and the claim kers," and the price is regulated by their own then comes forward, and gives his name, with tion, from the top of the furnaces to the airbids. There is, however, this peculiarity, that of his pair, or party, who engage to perheaters and steam boilers. Dr. Penny gave was published in our list a few weeks ago. The white oxide of zinc is mixed with oil, that the work is always started by the "Capthe particulars of a careful analysis of the soot, form the work, and their names and terms are like white lead, by grinding, and then packed tain." at a price much higher than it is really and exhibited specimens of the potash salt, publicly registered in the Letting Book, upon in casks for market. We can speak from worth, and this price is gradually reduced to a which had been extracted in large quantities the spot. In this manner business proceeds, knowledge, and say that it is far more beautifair one by competition among the men. by Dr. Quilan, of Hurlet. The salt has been until all the different pieces of work, or barful than white lead. It is our opinion that a pronounced by competent judges to be a good This system has been pursued in Cornwall for gains, have been taken by the men. Thus, in minute quantity of chlorine gas, which passes ages, and so well is it adapted to the interests marketable article, consisting chiefly of carboa couple of hours, work is disposed of which off with the air, helps to give the beautiful nate and sulphate of potash, with a small adof both employers and employed, that strikes. amounts to several thousand pounds sterling, white color to the zinc. The sales of the and insures certain employment to hundreds so prevalent in mining and other branches of mixture of soda salts. According to the re-Company amount to seven tons of paint per industry, are unknown. Work in these mines sults of experiments described by Dr. Penny, of persons for the next two months. All day, and in a few years it will amount to it appears that soot will yield 50 per cent. of is principally of three kinds, tutwork, tribute, waste of time and dispute are thus avoided; twenty tons. We believe that the ore from and dressing. The first is excavations, which and what is of far more consequence to both this marketable salt, containing 43 per cent. which the New Jersey zinc is made, is the have for their ultimate object, the discovery the workingmen and proprietors, the price of of pure potash. It has been found that the only kind yet discovered which is free from of ore, and are not made, as with us, for the labor is, by this system, continually adjusting amount of potash in soot procured from other sole object of obtaining it. Shafts, levels, itself to a fair standard, and which no com- iron works is subject to variation, arising, no arsenic or sulphur.

for by the lineal or cubic fathom, as the case may be. When substances extracted become of any value, the miner then receives, in addition to his bid, a certain proportion of the value of the mineral so taken out by him. It is thus made his interest to save everything that will pay. The price of this kind of work varies from 10 to 200 dollars per fathom. Tribute includes all excavations from which ore is obtained, and which are made solely for the purpose of procuring it. As the quantity and quality of ore is extremely variable, this kind of labor is paid for by a certain proportion of the actual value of the ore, when brought to the surface and reduced to a state fit for the operation of the smelter to whom it is generally sold. In executing this labor, from two to four men generally work together: but, as it goes on night and day, without interruption, it is requisite that the party that takes it, should consist of three times as many as are actually employed at a time, as they relieve each other in succession—a part working but 8 hours in the 24. Such a set of men, although varying in . number from two to twelve, are always called a pair. In making the contract, there is only one person, who, having agreed with his pair as to the terms on which they will work, closes it; he is called the taker. Dressing consists of processes which the ore undergoes when brought to the surface, separating it from all impurities, which they are compelled to do, before it is offered for sale. It is generally performed under the same contract with the tribute, but sometimes, by other persons. The poorer part of ores, called halvans, which would not pay for dressing under the original contracts,

are again let to other persons at a higher price. A few days previous to the survey, as the auction is termed, the captains or superintendents of the mine, examine every part of it and determine what works shall be carried on for the next two months. All of this work is accurately specified, and registered in a book kept expressly for this object, and opposite each kind of labor, is marked the rate which, in their opinion, is a fair remuneration for performing it. The captains are selected from the most intelligent working miners, and are well qualified to form correct opinions; as the labor upon which they set a value, is of a kind which they are practically acquainted with. The survey is always held in the open air before the office, where the business of the miner is transacted. In front of the building there is a porch, corresponding in height to the first story. About noon the captains of the mine take their station on this platform, and commence the business of the day. By this time, the miners employed in the mine, as well as others who may be desirous of obtaining employment, are assembled. One of the lect and idleness, and all other regulations of the mine. The name and descriptions of the first piece of work is then read, and this is immediately bid for by any person who, with his pair, may be desirous of obtaining it. The

change. It requires but little examination to premise that by the plan we have been describing, the interests of both men and employers are effectually combined. Tutwork differs but little if any from piece work, so generally adopted as a system in large manufactories. And by the tribute, the wages of the men and the profits of their employers are so regulated, as necessarily to keep pace with each other; for it is evidently the direct interest of the miner to send to the surface and render saleable, as large a quantity of ore as possible, at the least cost, for production; and this is precisely the interest of their employers. Mining, in almost all cases where thus systemized has proved a profitable investment, or at least paid a fair interest upon the capital employed. To some such system, with modifications to suit our position, will we be compelled to resort, if we ever expect fully to develope our mineral wealth.

In compiling these sketches, it has been no part of our design to refer to all the resources of this section. When speaking of a mineral region, one is apt to associate with it, a rocky, sterile soil. Not so ours. These mines are in a fertile country; the surface produces as abundantly, and in as great variety, as any other in the same latitude. Our's is as rich in mineral resources. It is no uncommon thing for us to see diggings on lands under cultivation. In many locations, one may stand in a field, bearing upon its surface as good a crop of wheat, corn, or potatoes, as can be produced upon an equal area, in any part of our valley, and hear the miner tearing the rock asunder far beneath him. The farmer's plough and the miner's pick, both developing wealth from the same spot of earth. These facts, although they may seem strange, are no less true. We have good agricultural and mineral land combined, and farming and mining are often carried on with us by one person on the E. H. B. same piece of land. Galena, Ill.

[This concludes the series of articles on the lead ores of the West. They will be of great use for reference to many of our readers, and when bound up with the volume, will take their place as standard articles of a scientific character.

#### Telegraphing.

Telegraphing, with us, has reached that point, by its great stretch of wires and great facilities for transmission of communications to almost rival the mail in the quantity of matter sent over it. It has become indispensable to many business transactions, and an interruption of the communication between cities is severely felt by the business community. Nearly seven hundred messages, exclureceived five hundred communications, exclu-

#### Potash in Soot.

cross cuts, &c., are of this kind, and are paid bination, of either shareholders or miners, can doubt, from the use of different coals in the blast-furnace. From the well-known value of potash salts, there is every reason to expect that this discovery will prove of considerable importance to those who are interested in these commercial products, and also to ironmasters, who will now be enabled to turn to account a substance which has not hitherto been applied to any practical use.

> Here, in this discovery, we have the cause explained of the well-known value of soot for agricultural purposes.

# The New Jersey Zinc.

In many parts of the world there are large strata of zinc ore; that is, zinc in the form of an oxide mixed with other metallic ores. The ore of the sulphuret of zinc is quiteabundant in various parts of the world, and this is generally combined with arsenic, cadmium, iron, and some other mixtures. The sulphuret of zinc is very fractious, and expensive to manufacture, especially to bring it to the white oxide for the purpose of paint. In Sussex Co., N. J., and one or two other counties, we believe, large veins of zinc ore have been known to exist for a great length of time. These zinc ores are mixed with franklinite (an ore of iron) and manganese. It is not a sulphuret, nor is it mixed with arsenic or other volatile metals. For many years, we know, the economical reduction of this ore was a problem. Many eminent chemists-such as Dr. Ure and others,-were consulted, but they afforded no satisfactory information to work it profitably. Some years ago an association, named "The New Jersey Zinc Company," was formed for the purpose of manufacturing the zinc ore into paint, But as white lead is the head, front, and basis of almost all our paints, it was discovered that unless the zinc ore could be reduced to the white oxide. the company would fail in one grand object of its organization. Why? Because white lead is an unhealthy and dangerous paint, to use, both for painters and those who have to dwell in newly painted houses, while white zinc is a more beautiful paint, more enduring than white lead, and is quite healthy to use. The Company, about two years ago, erected works on the Passaic river, near to Newark, N. J., for the manufacture of the ore into white zinc paint, and various shades, from a light cinnamon to a cinnabar color. The Company has learned much since it first commenced operations; many difficulties have been overcome, and new inventions (elicited by that profitable teacher, necessity) have at last crowned all the efforts of this Company with well-deserved success, and now it is on the high road to become one of the most prosperous associtionsin the world.

The ore is taken from a distance of about sive of those for the press, were sent on thirty miles to the works, which are built on Thursday last, over the Morse Albany Line. the Passaic for the convenience of getting captains commences by reading aloud a print-ed form of rules, and prescribes the conditions The Bain Line at Boston, on Friday, sent and cheap fuel, &c. The ore is slightly roasted, should we be surprised at a decline of producthen stamped in a stamping mill, and placed tion in our mines? Or can any estimate be on which work is to be taken, fines for negsive of reports for the press. These facts show in reducing furnaces, submitted to a certain made of the increase of lead, if we were thus how important an agent the magnetic teledegree of heat, and then the zinc, being volagraph has become in the transmission of comtile, passes away through pipes into bags of munications. It is every day coming more twilled cloth, which retain the white zinc, and more into use, and every day adding to its while the air, being more subtle, passes through power to be useful .--- [Philadelphia Ledger. the pores of the cloth. To perform this opesection abounding, as it is, in mineral wealth, price is, however, generally much higher than ration, exhausting machinery is placed in the we would have abandoned mining long since. there is any hope of obtaining, and some other reversed position to that which it is employed ces, but the iron ore is very good, and makes a far stronger metal than the best Swedish

# Scientific American.

# Scientific American.

#### The Municipal Fire Telegraph. [Concluded from page 219.]

The signal stations of Boston consist of castiron boxes of great strength fastened to the outside of buildings and connecting with the wires above by means of insulated conductors, enclosed in an iron gas pipe. Each of these boxes contains a signal key for police communication, and also for some uses of the Fire Department-an electro-magnet included in the circuit, and having an armature carrying a hammer, which raps against the side of the box, as a means of return communication by sound from the central station,-a discharger of atmospheric electricity, which has already been mentioned, and a signal crank, by which the existence and location of a fire is made known to the centre. The signal crank carries a circuit wheel, either on its axis, or at a slower rate by means of gearing, which wheel has the proper number of teeth or cams on its periphery to lift a spring and break the circuit in such a manner as to signalize the number of the Fire District, and also the number of the station, to the centre, at each revolution. The number of the Fire District is given in dots, that of the number of the station by a combination always of dots and lines. Thus the record produced at the central station, by each rotation of the crank in the box marked District No. 3, Station No. 4, might be as follows: ...

The name of the person keeping the key of each signal box is marked upon the door. In case of fire the box is opened, and the crank turned half a dozen or a dozen times. The locality of the signal boxes is carefully chosen usually opposite to a gas lamp. The central station in Boston is the City Building, from a bracket on the roof of which the wires radiate in all directions. Here the receiving instruments connected with the signal circuits the transmitting instruments connected with the alarm bell circuits, the testing instruments, and the batteries for the whole system, are placed. An operator or watchman, the only one required for controlling the whole system, is also stationed here.

The instruments receiving the communica tions, either of Fire or Police, from the signal boxes, consist, first, of three receiving magnets mounted on the same stand and connected, one with each of the three signal circuits and, second, of a triple office alarm or call and a Morse register, with three electro-magnets levers, and pen points, marking side by side on the same strip of paper, which alarm and register are operated by the receiving magnets and a local circuit. The office alarm consists of three powerful electro-magnets, each striking a blow by means of a hammer connected with the armature on a bell of a tone different from the others. A separate alarm and record is thus obtained for each signal circuit.

The signal of a fire having thus been received at the central station, the operator turns at Howard & Davise for the city of Boston .completed momentarily at suitable intervals, nization of the Police body throughout the once to the transmitting apparatus connected For striking the large church bells they are at which is best effected by means of the district whole Municipality. with the alarm bells, which consists of the dispresent carried by weights of about twelve. key-board. The fly-wheel of the clock-work The expense of the system, completed, in trict key-board. This instrument, in its simhundred pounds, and raise a hammer of 45 is shown at h. The hammer represented in Boston, may be estimated at \$15,000. For ple form, is a circuitcylinder, carried by clocklbs. on a handle four or five feet long. The the figure is usually placed in a belfry above, small towns a similar organization might be work, with keys marked with the district connected with the hammer lever by a wire. effected for \$1500 or \$2000, and for the larghammers strike through an arc of from two to numbers, which bear upon the cylinder when three feet, with a force equivalent to 800 lbs. As part of the bells in the Boston system est city, as New York, the work might be depressed, and complete the circuit at intervals, are also rung for other purposes, an automatic talling one inch. constructed in the most perfect and elaborate so as to produce the district signal on the The frame is a most substantial casting. shut-off or switch is connected with the bellmanner, bringing every building, as in Boston, bells with proper pauses, so long as the key is frames, so that the battery current is diverted The electro-magnet will readily be recogniwithin fifty rods of a signal box, for about held down. The district key-board may also zed, with its armature attached to an upright from the coils of the striking machine when \$50,000. be constructed in a way similar to the striking the bell is in motion, and strikes a little elec-The government of the city of Boston delever at c. The legs of the electro-magnet motion of a common clock so as to comserve credit for the liberally with which they consist of half-inch soft iron, surrounded with tro-magnetic call to inform the sexton that there is an alarm of fire, to which he should plete the circuit the requisite number of times have thus brought a new application of scicoils of insulated copper wire No. 23, which when the key of each district is depressed by are three inches long and two inches in diagive precedence, by ceasing to ring. ence to the test of construction. Great crethe action of a gathering pallet. This gives An apparatus has been described by Messrs. dit is also due to Mr. Farmer, the superintenmeter. a is a falling arm, weighted at the less numerous surfaces of electrical contact, Channing and Farmer for furnishing a contop, which is supported in an upright position dent of construction, in addition to his original and is theretore preferable, and has been adap stant supply of condensed air by m of th by a horizontal lever, resting on the top of th ntributions, for the practical direction by ted to the system at Boston by Mr. Farmer. armature lever at b. When the armature is water under pressure in the pipes in cities, which the parts of so extensive a system have It has seven keys for the fire districts, one key which may be applied either to carry a bell attracted to the magnet, the weighted arm, a, been brought into harmonious action. for continued blows at two seconds interval, falls over until stopped by the adjustable rest hammer, by means of an air engine, or, still Disease by Bank Notes. The Cincinnati Enquirer, in noticing the or fast ringing at the commencement of an better, to operate an air whistle, by means of in front of it. In falling, a little lever, seen alarm, and one key which gives the signal the telegraphic circuit. The water metre of attached to the same axis, raises the latchstatement of Dr. Buckler, of Baltimore, that one, one-two for "all out," which is always to shaped detent, d, by means of the pin connec-Huse, or other water engines may also be used small-pox is often communicated by means of be struck upon the bells, when a fire is extinted with it. The arm carrying the pin, e, atto lift the bell hammers. The advantage of bank notes, says :-guished, to allow the engines which have not tached to the same axis with the cam, g, and such an application is the constancy of the "The teller of one of the banks of Columbus, reached the fire to return home. There are connected with the train of wheels of the stripower without the necessity of winding up an estimable young man, contracted the disand consequent limit of force and number of also two spare keys not yet appropriated. king machinery, is thus liberated, and comease by handling a batch of bills which had For the sake of economy in battery power. mences to revolve on its axis. In so doing blows. been transmitted from this city, where the the cam, g, swings forward the bar, f, attachthe current is thrown on to the three alarm The experiments recently made in Boston small-pox was then quite prevalent and in circuits, separately, but in rapid succession by ed to the axis of the falling arm, a, which is show that the signals are instantly received at malignant form. The young man died-and the arrangement of the key-board. The efthus raised to its original position; the horithe central station from the most distant sigby such a seemingly harmless communication, zontal lever catches again at b if the armature fect of this upon the synchronism of the bells nal boxes, and that a reply is at once given on was that loathsome pestilence the cause of a is inappreciable, when compared with the ef- has been released, the detent, d, talls, and the the bells with precision and certainty. The family losing their main stay in life."

bells.

An alarm bell register is connected with the district key-board, having a dial for each alarm circuit. This is so constructed, by means of an electro magnet armature and ratchets that a hand on each dial is carried forward one-thousandth of a revolution each time that the battery current is sent out to the alarm bells. It is consequently known in the office how far the various striking machines have run down, and if it is necessary to wind them in anticipation of their usual weekly time.

The testing apparatus consists either of a common clock or an electro-magnetic clock, so arranged as to send the current of a testing battery over all the circuits, once an hour, or more frequently. Each circuit communicates with an electro-magnet having an armature carrying a hammer, and striking a bell when the circuit is completed. At the City Building, in Boston, an electro-magnetic clock thus

fect of distance upon the sound of different chime of six bells of different note, at the regular striking time of the clock. The battery employed is purposely so feeble that it will not set off the striking machines in the alarm belfries.

The keys upon which the clock operates as above, are attached to a single board, and are also finger keys, by which the circuits may be tested at any intermediate time. The three testing keys of the signal circuits have also the important function of police communication. By means of these communication can be held backwards and forwards between the central station and the 40 signal boxes. The

signal battery connected with the closed signal circuits, at the central station, is about twelve Grove cups. The battery connected with the alarm circuits, and sufficing to fiberate the hammers of all the bells, is about 35 Grove cups, though a smaller number may easily be used. This battery, in the south circuit of three and a halfmiles, liberates nine bell hammers at the same instant.

tests the continuity of all the circuits by a There are nineteen alarm bells included in



action at will by means of the electric current. In the beliry of 'each of these is a powerful striking machine which will now be described. This resembles the striking movement of clocks, made, however, to strike only one blow, and having, as its chief peculiarity, the very beautiful secondary electro-magnetic apparatus for the liberation of the detent, contrived in 1848, by Mr. M. G. Farmer, and for which, or its equivalent, in a weightor spring, he has applied for a patent in its application to machinery. The figure represents the precise form of instrument as well constructed by

the three alarm circuits, which are called into pin, e, is arrested at the end of one revolution. This occupies two seconds, and in the meantime the weight of perhaps 2000 lbs. has fallen an inch, and a single blow has been struck by the hammer. If the armature were not released from the attraction of the electromagnet, the horizontal lever would not catch at b, and the machine would continue to strike, until the circuit, influencing the electro-magnet, was interrupted. This indefinite and undesirable mode of striking would be produced by holding down the alarm key at the central office. To obtain single blows, for the purpose of definite alarm, the circuit must be

striking machinery is not yet adjusted so as to develope the whole amount of sound which can be obtained from the largest bells. As alarms are given by tolling hammers in New York and other cities, no difficulty will be found in bringing out any required amount of sound, in accordance with simple mechanical laws. The telegraphic and electro-motive part of the system, which is the novel part, is perfect and unerring in its action. It is worthy of notice that the circuits in Boston have not been interrupted by any casualty during this winter of unprecedented severity, since they were first completed in December.

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To show the operation of the system, let us now trace the alarm of fire which, in describing the signal box, we supposed proceeded from district No. 3, station 4. The operator at the central station on receiving the signal immediately passes over to the district key-board and holds down the key for fast ringing. All the nineteen bells immediately begin to strike two-second blows. After a minute or two the operator raises his finger, and then depresses the key marked 3. The bells now strike the district signal of three blows at intervals of two seconds and them pause six or eight seconds and repeat, as long as the key is held down. Very soon a hurried signal is received over one of the signal circuits. This comes from the random rapping of an engineer on the key in one of the signal boxes, and is understood by the operator as an inquiry for the number of the station from which the alarm proceeded. This the operator immediately communicates by counting four raps by means of his testing key, on the electro-magnet in the signal box from which the inquiry came. The engineer now knows the locality of the fire within fifty rods, and heads the engines directly to the spot.

Meanwhile the fire is perhaps easily extinguished. The engineer in command sends to the nearest signal box, and taps one, one-twoone, one-two, on the key. The operator at the centre receives the communication, and forthwith depresses the corresponding key of the key-board. The nineteen bells at once strike the signal a few times, and the engines in all parts of the city turn back.

By a multiplication of signal stations, and a suitable provision of bells, the Telegraph Alarm system becomes instantaneous, universal, and definite in its operation. The experienced gained in the construction in Boston, will make the application in other cities and towns comparatively easy. In cities like New York, where there are a few large alarm bells, the telegraphic machinery can be applied with great advantage, so as to strike a blow of any required force, and to bring the bells into operation separately or together, so as to limit or extend the alarm. Only one person is required at the centre to wield the whole of such a system, which provides also for a vital orga-

# NEW INVENTIONS.

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Improvement in Slat Doors. Mr. William Rippon, of Providence, R. I. has taken measures to secure a patent for an improvement in doors. The invention deserves the attention of that numerous and intelligent body of our citizens, "the carpenters." Its nature consists in the arrangement of loose adjustable slats in grooves, along the front, top, and back edges of the door; all these slats have spiral springs attached to them. The springs are for the purpose of adjusting said slats by the circular edges of the door as it is being thrown wide open, in either direction, in or out. These are vertical slats arranged and working in grooves along the front edge of the door, and have attached to their top and bottom ends, horizontal connecting links, which connect the slats to horizontal rods united together by a vertical one, and working on fulcrum pins, passing through their centres. By means of these levers, springs, &c., the loose vertical slats, when the door is being opened or closed in either direction, are, by the friction of the circular edge of the door, made to move horizontally back and forth in vertical longitudinal grooves cut in the frame of the door, and thereby allow of the door being opened in both directions, inwards and outwards. When the door is shut these slats spring or adjust themselves along the edges of the door, and keep the wind from passing through the crevices, which are left between the top, front, and back edges of the door. They also keep the door firmly locked in its place when shut; the door cannot be opened without force being applied to the rods to operate the springs of the slats. The horizontal slats turn loosely on hinges, which are fixed to a cross piece, turning on a rod secured in the frame of the door. To the sides, near the back end of this cross-piece, a cord and weight is attached. The cord and weight, with the spiral springs, operate on the cross-piece and horizontal slats, in a similar manner, when the door is being thrown open, as the levers and springs before described operate on the vertical slats.

#### Improved Printing Press.

Mr. Henry Underwood, of Canandaigua, N. Y., has taken measures to secure a patent for a useful improvement in the hand printing press. The object of it is to afford a most excellent press to many printing establishments in the country, where there is not enough of work to employ a large power press, its price of construction being very little more than that of a common hand press, while the work which it performs is much greater and equally good. It performs nearly double the work of the present hand press, for its operation is not suspended while the sheets are being put in and taken out. The type bed is stationary a reciprocating carriage is furnished with friskets at both ends for holding the sheets consequently, when one sheet is receiving the impression, another sheet is being put on; so from side to side the sheets are fed, printed, and delivered.

#### Improved Spring for Carriages.

Mr. John Lamb, of McDonough, Chenango -[Exchange. [Some people may doubt the above, but we Co., N. Y., has taken measures to secure a paknow of a stronger case still. We once tent for an improvement in springs for carriaknew a man over 40 years of age, who weighges and other vehicles. Vulcanized india rub-Ig 1g ed 180 lbs., was active and well built-a farber springs are employed; one end of each is mer-who had never partaken of what we secured in the top part of standards which are Muchanananananananananananana call solid victuals, from the time he was nine attached to the bottom of the wagon; the years of age. His principal food was milk other ends pass over friction rollers secured in without sugar, and sometimes soups. His the top part of standards which are attached to the axletrees; they run down and are sename was Whitelaw. cured fast in the lower parts of the said stanpivot, o. O is the saw, which is secured be-| bringing it down between the teeth of the On Thursday last week an explosion of a dards. These springs have sliding clamps on tween the clamps, P P' by the screws, qq; saw. W is a spiral spring at the end of the boiler at the paper factory of Messrs. Demar, them for regulating their expansion and conthe inner clamp, P', has a groove or recess cut | frame, to which a cord is attached, and con-Muir & Kay took place at Trenton, N. J. traction for light and heavy loads. in it, in which the rest, R, works. The clamps | nected with the lever, V; this spring is for One man was killed. The boiler was used with the saw move forward on the rest, R. S | the purpose of elevating the file. The rod, I, Improvement in Drying Stoves. for boiling rags with potash and lime. In Mr. Nathan Buchanan, of Johnston, R. I., is a rack attached to the under side of the with the arms, J J, constitute a swinging some way or other, we have no doubt, but an has taken measures to secure a patent for a clamp, P'. The pinion, T, meshes into it. U frame. On the back of the frame is a bevel explosive compound was formed, which provery excellent improvement in drying stoves. is a ratchet wheel, which is turned by the gear, X Z, which gives motion to a smoothing duced the lamentable result. pawl, w, which is attached to the lever, v. revolving burr, Y, on a small shaft, to level The invention is a most excellent one for drying staves and timber of all kinds. The na-When this lever is depressed, the pawl catch- the teeth of the saw before the file acts. The We see it stated in some of our exchanges es into the teeth of the ratchet wheel, turns, pulleys behind G give motion to the burr. who are posted up in the conciences of the ture of the improvement consists in constructing drying stoves so as to dispense with the use it, and also the pinion, T, and as this pinion The saw, O, is placed between the clamps Senate, that the committee on patents in the meshes into the rack, S, the clamps and the rotation of the pulley, G, gives a recipro-Senate, have reported unanimously in favor of of a chimney entirely, and employing the prothe extension of McCormick's patent for the ducts of combustion mixed with heated air for saw are moved forward to file tooth after tooth. cating motion to the file. The swinging drying purposes. This invention, as applied, V is a lever for depressing the file, K, and frame being attached to the rod, C, has also a reaping machine.

# Scientific American.

timber is rendered more enduring by the substances which heat and dry it. By the manner in which the furnace or furnaces of Mr. Buchanan are constructed, a perfect combustion of the fuel is certain, so that what is termed "the smoke" is consumed. Where wood is used for fuel, a portion of pyroligneous acid escapes in vapor, but this has preservative qualities. A low heat can be employed as desired, so that for smoking and drying great improvement.

economises fuel, and, at the same time, the fish and hams with suitable fuel, the improvement is as useful and applicable as for drying timber.

#### Improvement in Telegraphs.

Mr. John M. Batchelder, of Boston, has invented a new improvement in chemical telegraphs, whereby the paper prepared with the prussiate of potash is not used at all, but the common ink tissue paper which can be purchased at the stationers. It is stated to be a



The accompanying engravings represent the Saw-F.ling Machine of Mr. Thomas M. Chap- | on the frame. This plate has two projections man, of Old Town, Me., for which a patent | on its lower part, with holes in them, through was granted on the 3rd of last September.

a side elevation. The same letters refer to like parts. The nature of the improvement | F is a connecting rod attached to the said in this machine consists in attaching a swinging frame to a horizontal rod, having a reciprocating motion; the horizontal rod is so arranged as to turn in the direction of its axis. and the swinging frame has consequently an up-and-down motion, and, being connected to and have holes through them at their outer the horizontal rod by joints, it also moves back- | ends; these holes form the bearings for a rod, wards and forwards. The file is attached to I, which works freely in them, and may be the swinging frame, and is so arranged as to worked backwards or forwards. J J are arms turn on its axis, and is adjusted or kept in any desired position by a handle. The saw to be | arms support the file, K. the handle, L, and filed is placed between clamps and secured by screws; the clamps are moved by means of a rack placed under them, in which a pinion | moving, when the file is in motion, by the works; on the shaft of the pinion is placed a ratchet wheel, which is operated by a pawl lower part of the frame; its upper part has and lever. By the improved arrangement, the a slot in it, which works in a recess in the end same motion is given to the file by mechanical devices as is given by the hand.

A is a metallic plate attached to block B which the horizontal rod, C, works. There Figure 1 is a perspective view, and fig. 2 is is a button attached by a set screw to the rod C. This button fits in a recess in a block, E. block and to the pulley, G; when this pulley revolves it gives a reciprocating motion to the rod, C. H H are arms firmly attached to the ends of the rod, C; these arms extend outwards from the rod, project a little upwards. attached to the rod, I; the lower part of said shaft, M. The file handle and shaft turn on their axis. The handle, L, is prevented from arm, N, which is attached by a screw on the of the handle. The shaft, M, passes through the centre of the handle. The file rests on a

Figure 2.



reciprocating motion. The file is brought down edgewise between the saw teeth by the lever, V, with the left hand; the rod, C, is adjusted to suit either the front or back of a tooth, by turning the handle, L, with the right hand. The front part of a saw tooth is nearly vertical, while the back forms an angle of about 45°. The necessity of having the file turn on its axis, so as to accommodate itself to that angle, is obvious. The swinging frame having a motion towards and from a person, allowing him to stand before the machine, greatly assists to the perfect adjustment of the file to the teeth. The handle, L, does not move with the swinging frame in its reciprocating motion; it is secured by the arm, N; the shaft, M, moves through the centre of the handle. The file is kept in its proper position, while filing the front or back of a tooth, by having the right hand placed on the handle L, the left hand being engaged in holding down the lever, V, and thereby keeping the file down between the teeth of the saw. The saw is moved forward, as each tooth is filed, by working the lever, v. The swinging frame of the file is raised to allow the saw to be moved forward. The improvement is a good one, and should receive general attention.

More information may be obtained by letter addressed to Mr. Chapman, the patentee.

#### **Revolving Last Holder.**

Mr. H. G. Dewitt, of Napanock, Ulster Co., N.Y., has taken measures to secure a patent for a very useful improvement for boot and shoemakers' use. It consists of a holder to retain boots and shoes on lasts, while making. The holder is an apparatus placed on a bench, in which the last, with the boot or shoe on it, is fixed, so as to turn round, or change its position in any way for the operative to work on the boot most conveniently, and which will enable him to stand and work at the bench, and at the same time afford him every facility for operating the shoe or boot that he now has by sewing or pegging it on his knee. This apparatus, to all the shoemakers who use it, will tend to promote health and lengthen out the years of life. It is a philanthropic invention in every sense of the term. It will relieve those shoemakers who suffer from pain in the chest, and the holder is so fixed that it can be let down, and when the operator may be tired of standing he can sit down and work.

#### Improved Ship Block.

Mr. C. H. Platt, of the city of New York, has taken measures to secure a patent for a good improvement in ship blocks. He secures the cheeks of the blocks the required distance apart by metal plates attached to the cheeks of the blocks by transverse bolts, hoops or bands.

#### A Singular Diet.

A correspondent of the Chicago Tribune tells of a little girl ten years of age, whose only subsistence since infancy has been sugar and milk-some obstruction or disease of her throat having led her always to retuse any thing more substantial. She is stated to be as large as children usually of her age, and as healthy, bright, and active as those whose food would be considered more invigorating.

### American. Scientific

# Scientific American

#### NEW-YORK, APRIL 3, 1852.

#### The Known and Unknown.

Great though man is, intellectually, still all the knowledge which he possesses is as vanity, compared to the great mysterious unknown-that which he does not know. He makes the lightning his messenger, and sends words of hope, love, or fear to distant places on its fiery wings. He takes iron from the mine and wood from the forest; of the one he makes his steed, and the other his driver, and away he roars on the iron track faster than the eagle cleaves the air. He throws his iron bridge over the sea; and his iron cords span the yawning chasm, where Niagara's waters run dark and deep. The ocean billows are smoothed by the wheels of his steamships; he pierces through the Alps with the chisel and drill; he makes his pathway beneath great rivers, and walks dry-shod beneath the keels of huge ships. All this he does, and much more, by the force of his splendid mind-that constructive faculty implanted in him by his great Creator. But great though man is intellectually, and vast though the powers of his mind are, to comprehend and plan; extensive as is his knowledge of things in earth, water, air, and sky, still all this but teaches him that he knows nothing in comparison with that which is far beyond his ken.

The astronomer hath constructed his telescope six feet in diameter, and with it he seeth clearly five hundred times farther than he can with his naked eye; with it he hath made many discoveries in the starry heavens, for he can tell the height of the mountains and the depths of terrific craters in the moon; he hath counted other systems beside our own solar corner of the universe; but these things only impress more strongly upon his mind the simple fact, "he is but a babe in knowledge." He sees double, triple, and quadruple stars; one red, another blue ; one crowned with revolving rings, and another oscillating like a pendulum; and viewing these immensities, the conclusion is forced upon his mind, that this earth, in the universe of worlds, is like a cork on the great ocean, and himself like a butterfly which dances in the sunbeam.

It may be acknowledged that man can know but little of those immensities which are so far removed from the sphere in which he dwells, but it is different with those things ,which are brought under his strict observation. There is some force in this remark, still the knowledge which man has accumulated in all the generations of his existence, forms but a small mound in comparison with the unknown. No machine hath vet been built which can cleave the air like the swallow, or dwell continually amid the storms of the ocean like the "petrel." No steam or other engine ever constructed, can give out such an amount of power every day, with three pounds of fuel, as the human machine, which, in a full grown man, consumes only three pounds of food. In apparently very simple things we know comparatively little. Who can detect that influence in a bank note which carries disease and death from an infected person to another, hundreds of miles distant. Plagues and fearful diseases are carried on the wings of the wind but no chemist, by the most refined analysis

Friday last week, a lamentable accident lls us there are substances floating in the at the knowledge of the farmer must be obtained some of frizzly quality. Among the nations of occurred near this city, on the East River, mosphere which have been cast off by the by experience and careful observation. His Europe there is every variety of color, al- near Hurl Gate. Mons. Maillefert, who has rustling rose and geranium, to give pleasure to business is a practical one; not that of a though some nations are more distinctly uni- been operating for some time on the rock the mind; but those substances cannot be dreamer or speculator; his eyes must be open form than others. What are termed the named the "Frying Pan," intended to make 4 seen by the eye, heard by the earn, or felt by to see and his hands always ready to do-never blasts at low water, and had made one; while "Celtic, Scandanavian, and German races," the hands; they are too fine for the scale of afraid to try an experiment, and never too have every variety of color, such as fair, red, attempting the second, the accident occurred. the chemist-his weights and measures are hasty to adopt a theory without experiment. and black, but at the present day none of Each charge is a cannister of 125 lbs. of powyet far too coarse to weigh an atom or cirthese races are to be found pure, except it may der, and several of these cannisters are taken Experiment alone can determine the value or cumscribe its dimensions; and here may lie fertilizers, and the best mode of farming-such be in a few small spots, such as in Finlard, into a boat, and one at a time is let down upon some of those secrets which, for want of a as the best modes of applying fertilizers-the Saxony, and the Highlands of Scotland, and a rock. When one is let down, M. Maillefert better term, chemists give the name of "isotimes, soil, and seasons most suitable to do so. yet in those places, we believe there are takes the end of the wire which is attached to meric compounds." In the organic cell of the It is our opinion that every farmer should have mixtures. Among the Anglo-Saxon race the cannister and rows off, paying out the loftiest and lowliest known existences, there a few acres of his farm set off for model expethere is every variety of color, but the Anglowire. When away far enough from danger, is a world beyond the search of the most pow-Saxon race is not a type, but a mixture of the he closes the electric circuit of the battery, rimental agriculture; and this period of the ertul microscope that has yet been construct- year, we believe, is the proper time to com-Angles (Scandanavians), Saxons, Celts, and and the cannister explodes. The cause of the ed. If there is in an overpowering sense of mence such a system, hence our present re-Romans, and yet of the Celts there are various accident was owing to his touching the wrong man's ignorance, derived from an examination | marks. distinct tribes. It is generally supposed that wire.

of the immensities of the universe, as strong a sense of our ignorance is derived from the contemplation of a single molecule of matter, -the universe of a drop of water-a single organic cell.

It is not to be supposed, however, that because many things are now hidden and secret to us, they will always remain so. There is a limit to the mental grasp of man-beyond it he cannot go, but the world is tull of wonders yet to be discovered-nature hath already revealed many of her secrets, and she will tell us many more. The qualities of a great and good discoverer and inventor, are, a good judgment,-common sense-reflection, industry, observation, and arrangement. Newton was pre-eminently distinguished for those qualities; and by the falling of an apple, his observing mind took up that which, to all others had, since the world began, excited no curious emotion, and it led to the discovery of that Pharsalia. All the nations in a savage state law which binds the sweet influences of the Pleides, guides the planets in their courses in the stellar heavens, and which, as hath been well observed by an eloquent astronomer .conveys the thrill of the thrush's song to the remotest star in the universe." Every man, then, who has the least ambition to extend the borders of our knowledge-and oh what a field there is before us still,-should observe, reflect, arrange, and gather up facts, -tor science is but a collection of well-arranged facts.

# A Few Words for Farmers.

As we have always a practical object in view in our disquisitions, we now wish to direct the attention of our farmers, for a tew moments, to the subject of agriculture. The great discoveries yet to be made in agriculture will be the result of strong good sense, close observation, and study of natural phenomena. One very eminent chemist (Liebig), who has devoted nearly his whole attention to agricultural chemistry, has changed his opinions more than once on certain questions relating to agriculture, especially fertilizing substances. Although chemistry is of vast importance to the farmer, a most excellent chemist would make | This custom was in vogue during the Ameribut a very poor farmer if he did not pay attention to more than the mere chemistry of his business. A plant, for example, is analyzed, and is found to be composed of silicon potash, carbon, lime, and nitrogen; one says, " I shall make my fertilizers of such a compound;" he does so, and fails to obtain satisfactory results: why? Because he has not been a profitable observer of nature's operations. The human body is composed of nitrogen, carbon, water, phosphorus, lime, silicon, and some other substances; carbon, nitrogen, the phosphate of lime, but especially water. are the principal substances of which it is composed, and carbon and water form the greatest portion of its nourishment, as the carbon is the main substance of that low combustion which keeps up the heat of the body yet who would be so foolish as to prescribe anthracite coal, phosphorus, lime, and nitre for his daily food ? No one. We cannot tell why it is that man must plow, sow, and reap grain and why he must slay the ox for his food. when the same substances of which his body is composed, can be dug from the dust beneath his feet; we only know that such is the fact. The grain of wheat requires sunshine, moisture, and the blanket of mother earth, to make it germinate, grow up, and come forth again in certain results we are acquainted with, and

Since the custom of wearing long hair and beards has been adopted by so many of our people, during the past two years, and since the Seer Davis' has had revelations on the subject from the Spirit World, it may not be uninteresting to take a look backwards to other days. Among the early christians the custom of wearing long hair among men was denounced, and yet, strange to say, the Roman painters, in all the pictures of the Savior, depict him with long waving ringlets. In very ancient times long hair was a mark of beauty among men, as we read, in the case of Absalom, the son of Israel's Shepherd King. Among the Greeks and Romans the dandies wore long hair, and this trait distinguished the patrician Cohort of Pompey the Great, which was routed so terribly by the short haired veterans of Cæsar at the battle of -the men-wear long hair. The hair was part of the covering of the ancient Irish, at least this is recorded by the old chroniclers. It was esteemed a peculiar honor among the ancient Gauls to have long hair. Julius Cæser, after subduing them, made them cut off their hair as a token of submission. The keepers of our State Prisons do the same now to their prisoners: they like to follow in the footsteps of great predecessors. In France it was long a peculiar mark and privilege of kings and princes of the blood to wear long hair artfully dressed and curled. All others were obliged to cut their hair in accordance with their rank and condition. In 1096, the Christian Church passed an edict importing that such as wore long hair should be excluded from coming into the church while living, and not be prayed for when dead.

The Hair.

In Queen Elizabeth's time it was common for the ladies to wear false ringlets of various colors, a mixture of fair, brown, and black. This was certainly a curious custom. In the reign of Charles II., all the dandies wore wigs powdered, and for a long time afterwards, both old and young, men and women, powdered their hair with fine flour. can Revolution. It was an abominable one certainly. In England all who wore powdered hair had to pay a tax (it may still exist) to government. The ridiculous custom of the English chancellor wearing a wig while on the wool-sack, is a relic of the old times. An engraving of Sir Edward Sugden, the new Lord Chancellor of England, appeared in a late number of the London Illustrated News he had on his robes of office and his ponderous ugly wig. All the portraits of the leading characters in the Augustan Age of English literature would lead us to believe that such men as Addison, Newton, &c., were perfect Absaloms.

The monarchists, named Cavaliers, in the reign of Charles I., wore long hair : the Puritans wore short hair, and were called whigs. During the time of the United-men in Ireland, the revolutionists wore their hair short, and were named " Croppies." The cut of the hair also distinguished the band of young Parisian Frenchmen who had vowed hostility to Robespierre. At the present day the cut of the hair is followed by every man after his own fashion. It neither indicates rank nor religion, but it oftentimes proclaims the peculiar temperament of the man.

The most difficult question connected with has been able to detect the subtle destroyer, the golden harvest to gladden the heart of the hair is the different color in different peowhich tells man "he dwells in a cottage of man. These operations of nature to produce was a complete tempest. ple. The Africans, Hindoos, Chinese, and clay and is crushed before the moth." American Indians are, in respect to their hair Terrible Accident. We enter the flowery garden, and one sense have learned the facts by observation. All all black. Some are lank, some curled, and

the fair and red races are Finnic and Saxon. The Danes were esteemed the red race in olden times, but the custom among some races in the East to color their hair red, at the present day, is an evidence that they are descended from the Finnic race which at one time conquered Egypt, and whose likenesses are portrayed in the old tombs. It is not possible to classify the European nations by the color of the hair, for they are all a hotch-potch of mixtures, although there are great varieties of language among them.

The wooly heads belong exclusively to Africa, but Smith says, in his work on the Human Races, that there is also a wooly-head race in the East Indies.

No person can account for the differences in the hair of different nations; we know that such and such races have such head marks, and we know also, that they are distinct and characteristic, for a mixture of races is sure to produce a corresponding change in the hair.

We presume to state that as no man has the choice of his own hair, when born, he must just take it as it happens to come, and make the best of it, according to circumstances, to suit his fancy, if he can; and it he cannot, to bear it like a philosopher.

Recompense to the Reirs of Woodworth. We have seen it stated that the heirs of the Woodworth Patent do not receive remuneration for their father's invention. Well, then, whose fault is it? Are the people of the United States to be taxed to support a great overgrown monopoly-keeping up a number of noble famalies in our land, because the heirs of Woodworth have been so foolish as to sell their rights at a low price? That is a queer way of bringing up arguments for the perpetuation of evils. A number of fortunes will be made out of the Woodworth Patent yet in the four years which it has to run. There can be no doubt of this, we believe. It is not true either, that the heirs of Woodworth have not been remunerated.

#### Equinoctial Storms.

At the late meeting of the American Association for the Advancement of Science, which was held in Albany, N. Y., last summer, Prof. Loomis, of this city, read a paper on Equinoctial Storms; the conclusions arrived at were that the common opinion respecting regular storms at the equinoctial seasons, was erroneous, that it was like the vulgar notions of planting potatoes at full moon-and all such nonsense. He had kept a record of the kind of weather which had occurred during these seasons for a number of years, and that was the data for his conclusions. One or two members of the Association corroborated his view, but Dr. Hare, of Philadelphia, expressed a different opinion. He always expected, and always experienced, rough weather du-ring the equinox terms. On sea he had experienced it, and the general opinion, he believed to be correct. The present equinox has been a stormy one, and affords testimony in favor of vulgar opinions about the storms. It is true that on the 22nd of March, last week, we had no rain in New York City, but we had plenty on the 23rd. We have noticed that, what are termed equinox storms, do not take place on the very days (22nd March and September), but generally before that particular time in March, and after it in September. We had a great deal of stormy weather within the past two weeks. On the 17th inst. (St. Patrick's Day) we had a most terriffic snow storm,-it

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# Scientific American.



Reported Officially for the Scientific American LIST OF PATENT CLAIMS

#### Issued from the United States Patent Office FOR THE WEEK ENDING MARCH 23, 1852

OMNIBUS STEP-By Josiah Ashenfelder, of Phila-delphia, Pa.: I claim the application of the inclined covering or protector, to the outside of the omnibus covering or protector, to the outside of the omnious door, as described, to prevent persons from standing, laying, or sitting on the steps, in combination with the brush, or broom, secured to the bottom of the covering, or protector, so as to open and shut there-with, for the purpose of cleansing the step or steps, each step, if more than one, requiring a brush or broom attached, together with a back board, to pro-tect the inside of the step, as described.

SHOP AWNINGS-By W. H. Bakewell of New York, N. Y.: I claim the method of protecting the awning by the construction and arrangement of the cylin-rical sheathing, or covering, in combination with the slat, in the manner and for the purpose as fully of forth

MACHINES FOR STAMPING ORES-By Wm. Ball, of Chicopee, Mass.: I claim the combination of the washing basin, or contrivance, with the stamp rod and its bearing, so as to operate in the manner and for the purpose as specified. I also claim the deflective plate in the entrance spout or hopper, as combined with the same, and the mortar and stamper, and used for the purpose as specified.

specified. I also claim the improvement in the stamp head, or the making of it with a greater stamping surface, on one side of its axis of rotation, than it is on the other, the same being for the purpose of preventing packing of the charge, as specified. I also claim the mode of applying the stamp head to the stamp rod.viz., by means of the circular arcs, or curves, of the sides of the universal dovetail con-nection, with the wedge key, as described.

PLOWS-By E. Ball, of Greentown O. (assignor to PLOWS—By E. Ball, of Greentown, O. (assignor to Isaac N. McAbee, of Canton, O) —I claim connecting the beam to the plow irons, by means of a pivot and stay bolt, and adjustable standard, the whole being constructed and arranged as described, so that the front end of the beam can be set towards either side, or either extremity raised or lowered, without chan-ging the height of the other, or both extremities raised simultaneously and equally, or unequally, sub-stantially as set forth.

FRICTION PRIMERS FOR CANNON-By Wm. FRICTION PRIMERS FOR CANNON-By WM. Ball, of Chicopee, Mass. I claim the combining with the discharging string and tube of the primer, a cylin-der or plug of leather, or other like substance, in-serted and secared in the upper end of the primer, and having the exploding string passing through it, as setforth, the said plug or cylinder serving the purpose of a breech, to confine the charge; when exploded, as a protector of the sand paper and pri-ming, against the absorption of humidity and as a bearing for the string to draw over, when pulled.

MACHINES FOR FELTING CLOTH-By George G. Bishop, of Norwalk, Ct. Ante-dated Sept. 23, 1851. I claim the method described of hardening the bat by alternate steaming and jigging, substantially as set forth, whereby one section of the bat is jiggered while an adjoining section is steamed, preparatory to being jiggered. I also claim the process of steaming and jiggering two or more bats simultaneously, whereby much la-bor and time are saved, and the texture of the cloth is improved. I also claim toorstructing a machine for jiggering

is improved. I also claim constructing a machine for jiggering felt bats, in such manner that it will subject succes-sive portions of the bats to equal amounts of jigger-ing and then stop, whereby a greater uniformity of texture is secured in the cloth.

texture is secured in the cloth. I also claim the arrangement of the steam pipes and adjutages in the steam chamber, substantially in the manner and for the purpose set forth.

MARINE SIGNALS.-By Thos. H. Dodge of Nashua, N. H.: I claim the employment for signalizing or indicating the course of a vessel, of two lights of different colors, attached to or hung in a cylinder or disc, which is capable of revolving on a fixed axis, so as to change the position of the lights : the posi-tion of either light, relatively to the other, being made to point the course, in any manner substantial-ly as described. ly as described.

forth

Post Office, as the 24 cents for each letter substantially as described. neatness and accuracy, entirely superseding is the cock; G is the trigger guard; H is the SWINGLE-TREES-By Chas Howard, of Madison, Ill.: I do not claim the ring and link; but I claim the flange, as set forth, wrought or cast, in combina-tion with a ring and link, for the purpose of forming attachments, substantially in the mode set forth. now. The increase of letters would be so the shot-bag and powder flask, and in the pur- cap nipple communicating with the breech great that it would cover all expenses. A ten suit of game, with competitors in the field, the chamber; I is the sight of the barrel; J is cent ocean postage, might be tried. we believe, sportsman can load and fire much faster, and the chamber of the breech to receive the without the least risk; it would be a great without that nervous excitability consequent charge, enlarged at its outer end to receive the blessing to men of business and millions in MACHINES FOR MAKING CORDAGE—By Wm. Jos-lin, of Waterford, N. Y.: I claim the application of the fan in combination with the pulleys, belt, gear, and bobbin, as a drag or take up, as described. on hasty loading with the ramrod. The spiend of the barrel, B; when closed in with the our country. Let the Senate wake up to rit of invention cries "onward !" and even the breech, D, it is secured firmly to the butt, C, cheap ocean postage; that is the intervention by bolts,  $a \ b \ c$ . K is the bar for supporting we want just now, along with any other useschool of the soldier must give way to the FLOUR PACKERS-Nathan Kinman, of Lewiston N. Y. : I claim the friction roller clutch, constructed and arranged in the manner and for the purpose as set forth. march of improvement; the day is not far disthe barrel, bolted firmly to the under-side of ful measure. tant when the old-fashioned method of "ramthe butt, and projecting horizontally forward set forth. SMUT MACHINES—By Thos. H. McCray, of Madi-sonville, Tenn.: I claim the formation of a series of corrugated recesses within the periphery of the cy-lindrical casing of my improved smut machine, sub-stantially of the forms represented, when the said cylindrical casing is combined with a rotating beatinto the case or sheath, L, let into and secured An experimental trip has been made by a rod cartridge," will be an obsolete idea. The following description is taken from the to the stock, whereby the barrel is permitted mall locomotive weighing only three tons, on to move from and towards the breech; this the Lowell (Mass.) railroad. It ran at the Letters Patent: Fig. 1 represents an elevation of the ordina- bar, K, is provided with a spring catch, M, to rate of 26 miles per hour, with 50 passengers.

er which has its beating surfaces, &c., arranged in position which incline obliquely to the radii of the beater, for the purpose of throwing the smut and kernels of grain into the said series of corrugated recesses in such directions that they will, in entering and rebounding therefrom, be brought in contact with their active surfaces, and thereby produce so great an amount of friction action, as to break up the smut and white caps, and polish the kernels of grain, without breaking the same.

CRACKER MACHINES—By John McCollum, of New York City: I claim the use of the bed plate, resting upon or supported by springs, or their equivalent devices, so that a yielding or receding action is ob-tained in the bed plate, while under the pressure of the cutters; or while the cutters are pressing down, for the purposes and in principle of construction and operation, as set forth.

ARTIFICIAL TEETH-Wm. S. McIlhenny, of Phila-delphia, Pa.: I claim the formation of an artificial tooth, or,teeth, from spar, silex, clay, sand, glass, or any material used for the purpose, into a suitable condition for the finishing furnace, by the simple operation of moulding, thereby avoiding the tedious and uncertain process of enamelling.

PAGING BOOKS-By S. E. Parrish (assignor to E. B. Clayton & Sons), of New York City: I claim, first, the use of the type plates, having channel ways and springs in their faces, and holes in them corres-ponding to the ten subdivisions of their peripheries and their inner circumferences divided into the equal sides, in combination with a barrel having stop pins in its circumference, for the type plate, and a chang-ing plate attached thereto, and ratchet wheel, cap plate, and pawl, and bent lever, for the purpose of operating a series of number plates, the said combi-

nation of parts being entirely distinct from any known mode for producing the same result (that is, counting), which I lay no exclusive claim to, the principle being well known, and I therefore limit my claim to combination of parts, substantially as set forth. Second I claim the use of the rod layer inking

forth. Second, I claim the use of the rod, lever, inking roller lever, and arm, in combination with the type wheel, substantially for the purposes as set forth. Third, I claim the use of the inking roller frame and rod attached thereto, and rotating ink plate, in combination with the lever, slides, and type wheel and levers operating the same, substantially as set forth. forth

Fourth, I claim the bed, with guides attached thereto, in combination with the table and type wheel, substantially as set forth.

wneel, substantially as set forth. JOINTING SHINGLES—By Wm. Stoddard, of Low-ell, Mass. I claim the arrangement of the horizon-tal sliding boxes, which carry the jointing knives, by which they will cut the edges of any width of shingle, itself operating the devices for holding the boxes firmly, and in the proper position, while the shingle is being cut, as set forth.

AIR-HEATING STOVES-ByJ. M. Thatcher, of Lan-singburgh, N. Y.: I claim the combination of the in-verted domes or frustums, and plate, with the short tubes connecting them, substantially as described, for the purpose of effecting the connection between 'the lower end of the fire or draught flues, and car-rying the air through them, to the spaces between the cylinders or tubes.

PARAFFINE OIL—By James Young, of Manchester, England. Patented in England Oct. 7, 1850: I claim the obtaining of parafine oil, or an oil containing parafine from bitum nous coals, by treating them as described.



useful and widely circulated journal, to draw the attention of manufacturers and others to the valuable improvement in fire-arms of C. V. Nickerson, of Baltimore, Md., and to make a few remarks on guns of that description. The peculiar uses and advantages to which fire-arms made for loading at the breech can be applied, are various and important and may be defined under several heads as follows :viz., for riflemen in bush fighting and mountain warfare, they are invaluable, as they can avail thamselves of any obstruction barely sufficient to screen the body, load and fire with great rapidity, without unmasking, as is the case in using the ramrod. Mounted men, whether in the chase or fight, can avail themselves of its great facilities, without alighting or interfering with the management of the horse. In light infantry drill it often becomes necessary for troops to extend their

Permit me, through the medium of your | ry fowling piece; fig. 2 is a vertical sectiona view of the same, the barrel having been moved in a position to insert the cartridge into the breech chamber. Figure 3 is a vertical section, showing my improvement as applied to a musket, the barrel and stock having been moved forward in a position to insert the charge into the breech chamber. Figure 4 is an inverted view, showing the projecting bar with its spring catch, of the butt of the stock. Figure 5 is a view of the underside of the stock showing its grooved socket case. Where the same letters of reference occur on the above figures they indicate the same parts.

The nature of my invention and improvement consists in dividing the stock at the junction of the barrel and breech, and furnishing the butt of the stock with a horizontal bar or guide blade projecting from the lower portion thereof, fitted into a socket, sheath, or case, secured to the under-side of the stock,

lock the barrel and stock, A, (which are banded together) to the breech where the charge is inserted, by the end thereof entering an opening, N, forward in the case, L; the bar, K, is also furnished with a pin or catch, P, near its outer end, which enters a slot, Q, made in the said case, L, the use of which is to arrest the movement of the barrel, B, from the breech by catching against the end of said slot, Q, (as shown in fig. 3), the slot allowing the barrel, B, and stock, A, to recede toward the breech to be again locked by the spring, M, after the insertion of the charge. The bar, K, is provided with a recess to permit the spring catch, M, to rest from the socket case, L, to move the bar with its stock. The upper portion of the supporting and guide bar, K, is made flat, and the lower portion convex to fit the socket case.

The operation of loading the musket is as follows:-The operator grasps the stock, A, with his barrel in his left hand, and with the fore-finger presses the spring catch, M, inwards, and thus unlocks the projecting bar, K, from the socket case, L, of the stock, and with the right hand separates the butt of the stock with the breech, D, from the other part of the stock, A, and barrel, B, until the pin or catch, P, strikes the end of the slot, Q, in the socket case, L, the cartridge is thus inserted, and the breech and barrel again drawn together, the end of the barrel entering the enlarged portion of the cartridge chamber or breech, D, where they are again locked together by the spring catch, M, entering the opening, N, in the sock-C. V. NICKERSON. et case.

#### Maryland Institute.

On Tuesday evening last week, Walter R. Johnson, Esq., delivered the closing lecture of the season before the institute. The subject was the Social and Industrial Relations of Man in America and Europe. The Baltimore papers (Sun and Clipper) speak in glowing terms of the lecture. The following extract from it is worthy of great attention :-

"In the University of Turin is given by one of its learned Professors a course of chemical lectures specially intended for students of Architecture. It is called chemistry applied to the art of the builder. How eminently serviceable might not such a course be in our country! Had even sp much only of the laws of chemistry as relates to the temperature at which wood is liable to take fire been understood or attended to by the builders of our national capitol, we might probably have been spared the deplorable and discreditable loss of our great Congressional Library. And had something been known of the causes of decay and disintegration of building materials, our public edifices at the seat of government would not have so often required the mantle of charity to be spread over their multitude of sins, in the shape of coats of paint, daubings of putty, and patches of plaster."

### Cheap Ocean Postage.

A resolution has been introduced into the line, and at intervals of several paces lay flat whereby the barrel and stock are supported, [This is a most excellent invention. See engraving Senate, in favor of reducing the postage on leton the ground; after the first fire the operation and allowed to have a longitudinal movement ters carried across the ocean. We go for such on page 145 this Vol. Sci. Am.] PLANING MACHINES-By John Howarth of Salem, Mass.: I claim the reciprocating plane, for scoring the face of the board transversely, and reducing it to an uniform thickness, arranged substantially as de-scribed, in a compound frame, which carries the plane back and forth across the board, by a re-gular and positive motion, and back and forth lengthwise of the board, by a motion dependent up-on the reciprocal action of the board against the planes, in one direction, and of springs against the frame in the opposite direction, substantially as set forth. from the breech for the insertion of the carof re-loading in that awkward position, with a law, heart and soul. It is certainly a very the ramrod, must be apparent to all; whereas, tridge into the chamber, and using a spring singular thing that a letter can be carried catch attached to the under-side of the said with a weapon of the above description, he three thousand miles on land for three or five bar, for interlocking with the sheath or case, may retain his ground and fire at pleasure. cents, but cannot be carried across to England, The ordinary musket can be altered to this whereby the barrel is held securely in its or from it, for less than 24 cents. It is said plan at a trifling expense. Its advantages, place. When closed in with the breech chamthat the expense of ocean steamers is very when infantry have formed to receive cavalry, ber to confine the charge, this manner of great, hence a large postage has to be charged mounting the barrel is designed to be applied are manifest, as no matter how compact men to pay their expenses. This is not good reaforth. I also claim the method of smoothing the surface in gendwise, and operated in such manner, that the endency of one to draw the board towards the side of the machine, to which it is moving is conteract of the machine, these several counter tendencies being thus made to neutralize each other, substantially as described. This is not good rea-to the musket, wherein the barrel is firmly banded to the stock and cannot slide indepen-dently of the latter. A is that portion of the stock in which the barrel, B, is mounted; C is the butt of the stock, in which the breech, D, is mounted; C is the trainer grand accurrent of the carter is designed to be applied to pay their expenses. This is not good rea-to the musket, wherein the barrel is firmly banded to the stock and cannot slide indepen-dently of the latter. A is that portion of the stock in which the barrel, B, is mounted; C is the butt of the stock, in which the breech, D, is mounted; H is the option that an ocean ten cent letter postage, across the At-land postage law. It is our opinion that an ocean ten cent letter postage, across the At-lantic, would bring in as much money to the stock, in which the breech, D, is mounted; H is the stock is the trainer grand accurrent of the carter is designed to be applied to the musket, wherein the barrel is firmly banded to the stock and cannot slide indepen-dently of the latter. A is that portion of the stock in which the barrel, B, is mounted; C is the butt of the stock, in which the breech, D, is mounted; H is the stock is the trainer grand accurrent of the carter is designed to be applied is the accurrent of the carter is designed to be applied is the accurrent of the stock in which the stock is the trainer of the stock in the breech of the grand the stock in the breech of the stock in the

#### TO CORRESPONDENTS.

J. R., of Mass.-You cannot get a tough metal mixed with tin and zinc-it will not do. S. N. P., of Mo .- We have never seen the same

plan of the float and weight, as the one you have sent. The only plans in use are the float inside attached to a valve, so as to pull up the valve when the float sinks below a certain level.

F. C. W., of Ohio.-There is not the slightest chance for you to obtain a patent on the washing machine; similar arrangements of crank levers and driving wheels are and have been common for years, and plans much more simple than yours are in use producing like results. You cannot obtain a patent.

E. S. Z., of Md.-You cannot protect yourself in the manufacture of such an article as you speak of; it would be common to all.

A. S., af N. H .- It is doubtful about your being able to obtain a patent. We have seen matches set upon blocks where no waste of wood took place in the preparation, the blocks, being split vertically, and left to hang together, substantially the same as yours.

J. T. W., of Ohio-We have transmitted your sketch to Mr. Smith for his attention-

R. & S. H., of Ind .- We suppose the Fair of the American Institute will open about the 1st of October; no announcements have as yet been made. There are machines for folding papers, books, &c-You had better send us a drawing of yours, that we may determine upon the difference between yours and others. The model of the brake can be sent to the American Institute.

A. J. G., of N. Y.-A fee of \$30, paid into the Patent Office, covers as many claims as can be made on the machine.

J. M T., of Ill,-We thank you for the information in regard to the reaper; we would use it, but it would involve us in a personal matter, which we al wavs avoid.

C. A. R., of Texas .- We have requested a manufac turer in this city to give such information about the magic lanterns as you desire.

W. M., of Geo.-Reuben Rich's Water Wheel was patented July, 1842.

L. S., of Ohio-We do not know where you can ob tain the publications mentioned in yours of the 18th Mr. H. Bailliere, 290 Broadway, is an importer and publisher of scientific books, and could doubtless supply you. W. P., of Mo.-There is nothing new in your chain

paddle wheel. The plan is well known and has been for many years

P. W. C., of Eastville-We think Mr. Verleger's invention different from Everett's.

B. W. G., of Ct .-- The application of gutta percha to the manufacture of chess-men is not patentable. It could be employed for that purpose, mixed with some non-conducting substance like black lead, as gutta percha softens under slight heat.

A. C., of Ct.-The arrangement for supplying the boiler with water is not patentable, for it has been often done upon the same principle. The principle of Lord Dundonald's Boiler, last week, and Montgomery's this week, in the Sci. Am, embrace that of yours in relation to the circulation of the water.

J. B., of N. J.-If you mean to work the boat by steam, it would be cheaper to propel the boat at once by having the engine on board; but it may not be for the purpose you want it; we shall try and find a plan.

Money received on account of Patent Office busi-

Money received on account of Patent Office busi-ness or the week ending March 27. W. S. of N. Y. 330; J. S. & S. J. M., of Ct., 320; M. & T., of Mass., 310; F. & H., of Mass., 320; E. D., of N. Y., 356; C. W. G., of N. Y., 325; R. F. W., N. Y., 325; T. J. E., of N. Y., 330; V. E. R., of III, 360; J. H., of O., 350; W. McQ., of N. Y., 330; N. B., of R. I., 330; D. S., of N. Y., 320; J. A. B., of N. Y., 320, J. T., of N. Y., 330;

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending March 27:

W. T. P. & R., of N. Y.; J. S. & S. J. M., of Ct; E. H, of N. Y.: C. W. G, of N. Y.; D. S., of N. Y.; J. A. B., of N. Y.; H. G. DeW., of N. Y.

### New Arrangement.

Several of our readers have expressed a wish to subscribe for some literary journal in connection with the Scientific American, not feeling able to take both. We have entered into an arrangement with the publishers of the "American Model Courier," of Philadelphia, and the "American Union," of Boston, which will enable us to furnish either of the two, with the Scientific American, for \$3 per annum. They are literary journals of the first order, and are widely circulated in all sections of the

# Scientific American.

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ZINC PAINTS—THE NEW JERSEY ZINC CO. Zwill supply their pure Zinc Paints at the follow-ing prices:—No. 1, white ground in oil, 9c. per lb.; No. 2 do., 8c. per lb.; No. 3 do. 7c. per lb.; brown and black, 5 1-2c. per lb.; dry white zinc 6c. per lb. White zinc paint after several years use in Europe and the United States, has been found to retain its protective properties longer than any other paint, and for whiteness and brilliancy is unrivalled; it is free from poisons; while the same weight covers from 40 to 100 per cent. more space according to sur-face than the same weight of lead paint. Their Brown and Black zinc paints form a hard metallic coarding upon wood, brick, iron, &c., which defees the corroding action of salt water. Dealers supplied on liberal terms by MANNING & SQULER, 1\* Agents, No. 45 Dey street, New York.

STATE AGRICULTURAL WAREHOUSE-LONGETT & GRIFFING D LONGETT & GRIFFING, dealers in Agricultu-ral Implements, No. 25 Cliff st., (near Fulton), New York. Field and Garden Seeds. Guano and other Fertilizers. 294\*

N. G. NORCROSS'S ROTARY PLANING MACHINE UNEQUALLED—This machine took the first medals awarded to Rotary Planers at the Fair in Boston and at the American Institute, in the Fail of 1850. The Circuit Court. in the Eastern Circuit, held at Boston on the 24th Feb., before his honor Judge Sprague, decided, after a long and te-dious litigation of two years, that the Norcross Ma-chine does not infringe the Woodworth Patent; this was on a motien for a permanent injunction, which was refused without ordering a jury trial. Rights to use this patent are for sale by N. G. NORCROSS, Lowell, Mass. 29 8\*

To LUMBERMEN-E.H. & S. E. PARSONS, in-**TO LUMBERMEN**-E.H. & S. E. PARSONS, in-ventors of the Self-straining and Self-ranging Saw Frames, for saw-mills, combining the advanta-ges of both the muley and gate mills and superior to either, reducing the wear and tear to about one-fourth. The saw will bear as much feed, and is as easily kept in order, and is warranted to saw the same amount of lumber with one-fourth less power. They may be seen in snccessful operation at the Em-pire Works, Binghampton, Broome Co., N. Y., where they are manufactured, and at Frankfort, Ky., and Cass, Tenn, For further particular address (post-paid) Wilkesbarre, Pa. 295\*

DRAUGHT BOARDS, PATENT-23 by 29 Dinches, various scales; also Paper Fasteners, all for quick work, superior to fig. 3 in Sci. Am., No. 2 Vol. 3. \$10, with T Rule. Sent by Express, Direct (post-paid) to H. W. CHAMBERLIN, Pittsfield, Mass. 294\*

**MPORTANT TO IRON FOUNDRIES**—The Galvanic Alloy Manufacturing Co., Nos. 401,403, and 405 Cherry st., N. Y., will furnish the Aerosta tic Fan Blower at \$55, and with patent fitting at \$65, that produce sufficient blast for the longest cu-pola, melting 3 and 4 tons of iron per hour; taking less than one half the power of those now in use, that costfrom \$80 to \$100. The wings, being only about an inch in width (planned upon entirely new and mathematical principles), produce double the blast with half the power of other blowers. War-ranted in all cases, or they may be returned and the money refunded. 29tf.

INSTITUTE FOR SURVEYORS AND ENGI-INSTITUTE FOR SURVEYORS AND ENGI-INEERS, West Bloomfield, N. J.—The next session of this Institute will commence May 1st, and con-tinue five months. The course of study embraces Trigonometry, Mensuration of Surfaces and Solids, Heights, and Distances; Navigation. Surreying, Co-nic Sections, Descriptive and Spherical Geometry, Mechanics, Theoretical Mechanics, Chemistry, In-dustrial Chemistry, Physics, Industrial Physics, Me-chanical And Architecture, Steam Engines, Mechanical and Architectural Drawing, &c., &c.— Terms—For board, washing, fuel, lights, and tuition, per Session of five months, \$125. No extras. Refe-Mechanical and Architectural Drawing, &c., &c.-Terms—For board, washing, fuel, lights, and tuition per Session of five months, \$125. No extras. Refe rences—Geo. Gifford, 17 Wall st.; S. R. Parklurst Maj. J. D. Stevens, U. S. Engineer; J. W. Adams, 2? Nassau st. WARREN 110bT, Principal. 29 2\* Refe 25

ECHANICAL DRAWINGS—J. H. BAILEY Mcraughtsmen, agent for the sale of patent rights' inventions, machinery, &c. ; office Tryon Row, Har-lem Railroad Buildings, opposite City Hall. 1\*

BAILEY'S LATHE-For Turning Broom and other Handles, Chair Stuff, straight, swelled, or tapering, warranted to do twice the work of any other lathe. Address L A. SPALDING, Lockport, N. Y. 28 4

MORSE'S AIR DISTRIBUTOR-For Burning Sawdust and Tan to generate steam-no steam saw mill is complete without it. Rights to use it in the State of New York for sale by L. A. SPALDING, Lockport, N. Y; or JOHN A. CAMPBELL, Bulfalo, N. Y.

PORTER'S GRADUATING VALVE TUYERE

Stentee is now ready to supply orders for steam end **STEAM ENGINES AND BOILLERS**—The pa-gines with Ayer's Patent Improved Boiler of any size required. These boilers occupy but little space, can be set up without brick work, and will make more steam with the same fuel than any other boi-ler.s A self-acting feeder furnishes a constant supply of water, preventing thereby, in a great degree, the danger of explosion. Where doubts are entertained as to the superiority of these boilers. I will be con-tent to receive for theright one-fourth of the value of the fuel saved by their use. Portable engines furnished to order. E. AYER, Patentee, Norwich, Conn. 26 7\*

John W. GBIFFITHS—Ship Builder and Ma-rine Architect, 658 Fourth st., N. Y., furnishes models and draughts of all description of vessels, with the computation of stability, capacity, displace-ment, and necessary amount of impulsion. Propel-ling power located and proportionably adapted to the form of the vessel, whether sailing or steaming. Mr. G. also superintends the construction of vessels, and may be consulted upon all subjects pertaining to the various departments of the science or practice of ship building. Draughts forwarded by letter to all parts of the world, and to any desired scale ; all letters must be post-paid. 27 13\*

EONARD'S MACHINERY DEPOT. 109 LEONARD'S MACHINERY DEFUT, 109 Dearles, and 60 Beaver, N. V.-Leather Banding Manufactory, N. Y.-Machinists's Tools, a large as-sortment from the "Lowell Machine Shop," and oth-er celebrated makers. Also a general supply of me-chanics' and manufacturers' articles, and a superior quality of oak-tanned Leather Belting. 27tf P. A. LEONARD.

COTTON MACHINERY-One new Ring and Traverser Warp Frame, 156 spindles, and three new Looms, built in the best manner by the Matea-wan Co., and for sale at 60 Beaver st., N. Y., by 27 3\* P. A. LEONARD.

A. B. ELY, Counsellor at Law, 46 Washington batent Cases. Refers to Munn & Co., Scientific Automatical States and States American. 13tf

CLOCKS FOR CHURCHES, PUBLIC BUILD-INGS, RAILROAD STATIONS, &c., and REGU-LATORS FOR JEWELLERS.—The undersigned ha-ving succeeded in counteracting entirely the influ-ence of the changes of the temperature upon the pendulum, and introduced other important improve-ments in the construction of clocks, are prepared to furnish an article superior to any made in the ments in the construction of clocks, are prepared to furnish an article, superior to any made in the United States, (the highest grade warranted to vary less than two minutes in twelve months). Glass di-als for illumination furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Isl-

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world." -[Scientific American. "Mr. Byram is a rare mechanical genius."-

Jour 26tf. of Commerce.

THE SUBSCRIBER is now finishing four 14 horse engines, with boiler and apparatus all com-plete—price \$1200 each. Several 6 horse engines ex-tremely low: also, several of smaller capacity, com-pletely; also, several power plainers, now finishing. Galvanized chain for waterelevators, and all fixtures —price low—wholesale and retail. Orders, post paid, will receive prompt attention. AARON KILBORN. No. 4 Howard st., New Haven, Ct. 23 10\*

To FELLOE AND SNATH MAKERS-Th TO FELLOE AND SNATH MAKERS—The undersigned having purchased the entire right of A. W. Johnson, for his machine for bending car-riage felloes, &c., are now prepared to sell State or county rights for said machine; having used said machine for several years, we know it to be a saving in timber of 30 per cent, and more expeditious. Per-sons can see one of the machines at work at the ma-nufactory of W. S. Johnson & Co., St. George's, Del. above. WM. G. JOHNSTON & Co., 22 10\* St. George's, Del. 22 10\* St. George's, Del.

A CARD—The undersigned beg leave to draw the attention of architects, engineers, machi-nists, opticians, watchmakers, jewellers, and manu-facturers of all kinds of instruments, to our new and extensive assortment of fine English (Stubbs) and Swiss Files and Tools; also our imported and own manufactured Mathematical Drawing Instruments of Swiss and English styles—which we offer at very reasonable prices. Orders for any kind of instru-ments will be promptly executed by SIBENMANN & QUARTIER, Importers of Watchmakers' and Jew-ellers' Files and Tools and manufacturers of Mathe-matical Instruents, 15 John st. 23 13\*

**TRON FOUNDERS MATERIALS**—viz.: fine pulverized Sea Coal, Anthracite and Charcoal, Black Lead and Soapstone Facings. Iron and brass moulding sand; Core sand and flour; English Fire Bricks for cupolas, &c. Fire Sand and Clay—for sale by G. O. ROBERTSON Liberty place, (near the Post Office) N. Y. 23 10\*

TRACY & FALES, RAILROAD CAR MANU. TFACTORY-Grove Works, Hartford, Conn. Pas-senger, Beight, and all other descriptions of railroad cars and locomotive tenders made to order promptly. 20tf

Post's PATENT SLIDING DOOR FRONTS 

BEARDSLEE'S PATENT PLANING MA-**BEARDSLEE'S PATENT PLANING MA-**chine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F: & T. Townsend, Albany N. Y.; where it can be seen. It produces work supe-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. 764 Broadway; Al-bany. GEO. W. BEARDSLEE. 2245 foundry-or at his residence No. hanv. GEO. W. BEARDSLEE.

PAINTS, '&c. &c.-Américan Atomic Drier, Graining Colors) Anti-friction Paste, Gold Size, Zinc Drier, and Store Polish. QUARTERMAN & SON, 114 John st., 23tf Painters and Chemists.

MACHINERY.-S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Brainer, No. 12 Platt-st. N. MACHINEBY.-S. C. HILLS, No. 12 Platt-st. N. N. dealer in Steam Engines, Boilers, Iron Pla-ners, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Ma-chines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Mor-ticing and Tennoning machines; Belting; machinery oil, Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 26 tf

MALLEABLE IRON FOUNDRY, EASTON, Mass.-The subscriber continuer, EASTON, MALLEABLE IRON FOUNDRY, EASTON, ture castings of every variety, for machinery and other purposes, of the best quality, at the above es-tablishment. We have facilities for making castings 5 1-2 feet in length. Persons wishing castings can send patterns to Eastern Express, Boston, Mass. All letters will be promptly attended to. 2110\* DANIEL BELCHER.

Wood's IMPROVED SHINGLE MACHINE WOOD'S IMPROVED SHINGLE MACHINE —Patented January 8th 1850, is without doubt the most valuable improvement 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 held at the last Fair of the American Institute that an unbought premium was awarded to it in prefer-ence to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHN-SON, Bridgeport, Ct; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

THE EXCELSIOR Sand and Emery Papers. THE EXCELSIOR Sand and Emery Papers. manufactured by an improved process; the paper is made from the best Manilla hemp, and consequent ju is very strong and lasting; the grit is of the sharp-est and most enduring kind, and is firmly attached their freeness from ridges, stripes, and other imper-fections, recommend them to the notice of consu-mers. These papers have been used by many of our first mechanics, and are pronounced superior to all others. Every sheet is stamped WM. B. PARSONS, and warranted. Samples furnished at the office, No. 187 Water street, New York. WM. B. PARSONS, 14 6m\* Sole Proprietor.

P. W. GATES'S PATENT DIES FOR CUT-TING SCREWS-Patented May 8th, 1847.— This Die cuts Screws of any size, V or square thread, by once passing over the Iron. Also, Lead Screws for Lathes, Hoisting Screws, &c. All orders for Dies and Taps, with or without machines, will meet with prompt attention by addressing P. W. Gates, or Gates & McKnight, Chicago; Marshall, Bement & Colby, Philadelphia; Woodburn, Light & Co., Worcester, Mass. References—All the principal machine shops in New York, Philadelphia, and Boston. 13 6m\*

MACHINIST'S TOOLS.---Marshall, Bement & Colby, (successors to E. D. Marshall & Co) Cal-lowhill street, west of Schuylkill Third, Philadelphia, Pa., are prepared to make to order, and keep on hand Machinist's Tools, such as Planing and Compound Planing Machines, on a new and improved plan, Slide and Hand Lathes, Upright and Horizontal Drills, Upright Boring Machines, Improved Screw and Bolt Cutting Machines, with P. W. Gates' Patent Dies and Taps, or with the common Dies, Gear Cutting Engines, Slotting and Paring Machines. Also keep on hand Washburn & Whiton's PatentScroll Chucks, of all sizes. All orders by letter or otherwise will receive their prompt attention. E. D. MARSHALL, WM. B. BEMENT, G. A. COLBY. 21 10 \*

CHAS. W. COPELAND, Consulting and Me-chanical Engineer, Surveyor of Steam Machine-ry, &c., No. 68 Broadway, N. Y., superintends the construction of steam vessels and steam engines, and machinery of every description; specifications and contracts prepared; also general plans and drawings in detail furnished. Steam engines surveyed and valued, and condition reported. Mr. C. also acts as agent for the purchase and sale of steam vessels, steamengines, boilers, &c. 21 10\*

MANUFACTURE OF PATENT WIRE Ropes bridges, standing rigging, mines, cranes, derick, til-lers &c.; by JOHN A. ROEBLING; Civil Engineer-Trenton N. J. 47 1y\*

PATENT CAR AXLE LATHE—I am now ma-nufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price \$600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs, price \$225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m\*

T QGAN VAIL & CO., No. 9 Gold street, New

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country.	day to each fire. For sale, wholesale and retail, at	paid) Wm. POST, Architect, Flushing, L. I. 25tf	Iron Works, have constantly on hand Saw Mill and
Parties cannot be allowed an addition of one	No. 9 Gold st. W. J. & J. H. BURNETT. 284*		Grist Mill Irons, Press Screws, Bogardus' Horse-
of the Literary papers, as above, by remitting a sin	·	NEW HAVEN MANUFACTURING COM-	Powers, and will take orders of Machinery of any
gle dollar after paying their year's subscription to	CHENCK'S MACHINERY DEPOT, No. 64	N pany, Tool Builders, New Haven, Conn., (suc- cessors to Scranton & Parshley) have now on hand	kind, of iron and brass; Portable Saw-mills and
the Scientific American, and money received under	r O Courtland st., N. YHas on hand a great varie-	\$25,000 worth of Machinist's Tools, consisting of	Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast
such circumstances will be credited in continuance	ty of Slide and Hand Lathes, Upright Drills, Steam Engines, of 3 1-2 and 6 horse power, and will receive	power planers, to plane from 5 to 12 feet; slide lathes	or of wrought iron. 11 1y
of the Scientific American.	order for engines of any size; Universal Chucks,	from 6 to 18 feet long; 3 size hand lathes, with or	
	Iron Planers, White's Patent Lathe for turning Rail-	without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill	HAWKIN'S Stave Dressing Machine-Is
An Important Paragraph.	road Car Axles, Hand Punches, and Shears; F. Har- riss & Son's Sinut and Scouring Machines; Fair-		now in operation in the city of Milwaukie, Wis., and will dress from 6 to 8000 staves per day, ready
Whenever our friends order numbers they have	e man's Chuck Lathe for Boring Car Wheels, &c., all	rests. The Co are also manufacturing steam engines.	for the truss hoops, and at one operation. Rights
missed-we always send them if we have them or	n of which I will sell as low and upon as accommoda-	All of the above tools are of the best quality, and are	for States and Counties, and also machines, for sale,
hand. We make this statement to save time and	ting terms as any house in the city. 27 5* SAM. B. SCHENCK.	for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by	apply to WM. HAWKINS, Patentee, Milwaukie, Wis.
trouble, to which we are subjected in replying when	27 5* SAM. B. SCHENCK.	addressing as above, post-paid. Warehouse No. 12	15 20*
the numbers called for cannot be supplied.	<b>N CORTISING MACHINE.</b> —Dear Sirs: I recei-	Platt st., New York, S. C. HILLS, Agent N. H Man'g	1029 TO 1856WOODWORTH'S PA-
The Post Office Laws do not allow publishers to	VI ved the Portable Mortising Machine about 3		1852 TO 1856WOODWORTH'S PA- tent Planing, Tongueing, Grooving, Ra-
enclose receipts; when the paper comes regular	weeks ago; I have used it, and am very well pleased		beting, and Moulding Machines.—Ninety-nine hun- dredths of all the planed lumber used in our large
subscribers may consider their money as received.	with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.	Machines, of the best construction, capable of	cities and towns continues to be dressed with Wood-
Subscribers ordering books or pamphlets are par-	Nashville, Tenn., 1851.	drilling holes from one-eighth inch to three inches diameter, with a suitable feed, manufactured and for	worth's Patent Machines. Price from \$150 to \$760.
ticularly requested to remit sufficient to pay pos-	This machine is simple, durable, and effective, and	sale at the Atlas Foundry, corner of Green and	For rights in the unoccupied towns and counties
tage.	is boxed and shipped for the low sum of \$20. MUNN & CO.	WE AND THE TARGE OF A TOTIN D WADD OF AM	of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 26tf
	MONN & CO.		John Gibbon, Hannig Mins, Albany, N. 1. 2001

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# MUSEUM SCIENTIFIC

### Agricultural Science.

NIGHT SOIL-ITS VALUE.-The best of all manures is one which in our country is almost wasted. In Belgium, where agriculture is carried to great productiveness, they "order things differently." There, the estimate is, by nice calculation, that it is worth \$10 per year for every individual, man, woman, and child. We traverse sea and land, send to Africa and South America to bring elements of fertility which at home we throw away on every farm in the country. What an immense amount is wasted in our cities ! It must be the most valuable, containing the elements of all kinds of food consumed by man, and in returning these to the soil, we return the identical constituents which former crops and animals, had taken from the land. Night soil contains the phosphate of lime, which is indispensable to the growth ot animals' bones' and to the nutriment of plants, and which is not supplied from the atmosphere, like carbonic acid and ammonia. All fluid and solid excretions should be preserved by mixing them with burnt clay, saw-dust, ashes, peat or wood charcoal, &c.

ASPARAGUS .- In reply to the query of a "Lady Subscriber," the American Farmer recommends the following mode of renovating old asparagus beds :---

"The bed should be cleared of all stalks, grass and weeds, and then dressed with 7 parts rotten dung and 1 part ashes; the compost should be forked in between the rows carefully, so as not to injure the crowns of the root, then rake and strew salt over the bed with a pretty free hand. This done, cover the bed with straw, which should remain on until the plants get above ground next spring, when the straw should be carefully removed, and the ground given another top-dressing of similar compost, which should be forked in, and the bed receive another dressing of salt."

SOAP-SUDS FOR VINES .- A. J. Downing' editor of the Horticulturist, says :----" I have seen the Isabella grape produce 3,000 fine clusters of well ripened fruit in a season, by the liberal use of manure and soap-suds from the weekly wash."

The effect of soap-suds on other plants is something surprising. A cypress vine, which had remained stationary for a fortnight, when about two inches high, immediately commenced growing after a good watering with soapsuds, and grew about six inches the first five days.

CULTURE OF RICE.-A correspondent of the Rome Courier, recommends the culture of rice in the low wet lands of the Cherokee country, and gives the following directions for its management:-

"I will endeavor to explain how to prepare the field; take one of our branches the more level the better, with a spring at its head. Cut a ditch on the upper side and keep the water as much on a level as you can To drain it above the field make a band with the earth excavated on the inner side. On the lower side, cut a larger ditch to carry off the surplus water from the drain. Divide your land by cross banks and ditches, so as to have an equal depth of water when the land is flowed. In each field you must have two trunks, one on the upper ditch to take in the water-the other on the lower ditch to let off they have been used in the place of other boithe water. When your land is thus prepared. drill it with hoes, 15 inches asunder, and three

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glass covered boxes, get little rough boxes made of wood and cover them with coarse cloth prepared as follows :- Stretch it and nail it on the top of the boxes, and make a mixture of common white paint and common varnish sold in any painters' shop, and lay it on with a brush. Two coats will answer .-Those who have little gardens can raise early tomatoes or other vegetables for a treat at but a small expense, by using such boxes. Any

man can construct them.



MONTGOMERY'S BOHLER .- The accompanying engravings are a section length through the boiler, figure 36, and a cross section through the tubes, figure 37, of the boiler of James Montgomery, who secured a patent for the same in 1845, while residing in Tennessee. The course of the smoke to the stack is indieated by the arrows in the longitudinal section, but the circulation of the water in the cross section, figure 37.

His claim is the arranging the fire chamber orfurnace of a tubular boiler at the side, so that the heat shall act on the upper half of the tubes, in combination with a diaphragm, or partition, and flue, to carry off the flame, heated air, &c., to act on the lower half of the tubes after acting on the upper half as described.

He also claims the making of the bottom of the boiler of a conical or dished form, with the mud or blow-off valve in the lowest part of the concavity, in combination with the vertical tubes communicating with the bottom, in the manner herein described, to permit the deposit of the sediment, there being a water space surrounding them, (the tubes), to induce circulation of the water up the tubes and down



the surrounding space, to wash the sediment towards the mud or blow-off valve, as herein described. From the annexed engravings the boiler will readily be understood. Its distinguishing feature is the use of the diaphragm, which, being placed about mid way of the tubes causes the fire to act as stated. Several of these boilers have been used in steam vessels of moderate size, and for stationary engines; they have given much satisfaction, causing a considerable saving of fuel, we believe, where lers.

At or about the time these boilers were deinches deep; commence to sow about the 15th | signed, Mr. Montgomery surrendered his pa-

#### CHEAP HOT BEDS.-Instead of expensive the series of tubes, substantially as described, congestion. The full inspirations which are whereby the tubes are prevented from being overheated and unequally expanded to an injurious extent, and the water kept cooler in the jackets than in the series of tubes as described.

Scientific American.

2nd, I also claim as my invention, in combination with vertical, or nearly vertical, tubes and surrounding water space or spaces the employment of a fire chamber outside the series of tubes, and so arranged and located, substantially as described, as to apply the most intense heat at their upper ends and the reduced heat towards their lower ends, substantially as herein described, whereby a greater circulation and evaporation is obtained with a given amount of fuel than by any other plan known to me, thereby not only economizing fuel, but effectually preventing the incrustation of the tubes by the deposit of mineral and other solid matter as described. 3d. I also claim as my invention, the em-

ployment of the diaphragm or partition in the flue space between the series of tubes surrounded by the water space or spaces, and in combination therewith, to divide the same into two parts, that the products of combustion, after passing around the upper ends of the tubes, may pass around their lower ends, substantially as described, and thus more effectually expose the upper end of the tubes to a more intense heat than the lower, as described.

4th, And I also claim the making of the bottom of the boiler of a conical or dished form, with a wind or blow-off valve in the lowest part of the concavity, in combination with the vertical tubes, communicating with the bottom, in the manner herein described. to permit the deposit of the sediment, there being a water space surrounding them to induce circulation of the water up the tubes toward the wind or blow-off valve as herein described."

#### Crying, Weeping, and Sighing.

Dr. James Wardrop, an English medical author of eminence, in a recent treatise on Diseases of the Heart, says that among the means to influence the circulation and relieve the heart, not in a poetical though proper enough sense of "the spirits," are crying, weeping, sobbing, sighing, coughing sneezing, hiccupping and vomitting; that which we suppose to be a mental being in part a mechanical, or at least a physiological action.

Crying, which consists in a succession of violent and long-protracted expirations, will have the effect, by diminishing the circulation in the pulmonary arteries, of unloading the left heart and large arteries, of any surplus quantity of blood, caused by the action of the heart having been disturbed, whether by mental causes or from bodily pain; hence, the relief which those who suffer mental affliction or bodily pain, derive from crying-an act which is resorted to throughout the whole animal kingdom to relieve the heart from the hurtful effects of pain.

From the same cause arise the great langour to the circulation, and even the pernicious effects which have so often been known to follow the endurance of severe bodily pain without crying. A man who had no signs of great suffering during a military flogging, dropped down lifeless.

We see many examples of crying in hesterical women; and the screams which are made from fear or from mental agony, must have a it the first among the many Scientific Journals in powerful influence in unloading a congested heart.

Weeping, also, consists in irregular respirawithout

made in sighing, by withdrawing the venous blood from the head, will assist in restoring the balance of the circulation, both within the head and chest, when it has been destroyed by some violent mental emotion or bodily pain.

## Important to Railroads.

The patent issued to Truscott, Wolfe & Dougherty, March 17th 1838, for cast-iron car wheels, with double plates, solid hub, and chilled rim, on which an extension for seven years, has been severely contested at Washington before the Patent Office, was rejected on the 17th inst., by the Commissioner. The decision of the office being that it ought not to be extended.

Senator Seward lately argued a case under this patent before the Supreme Court of the United States, and the court decided in favor of the patent.

This made the contest for the extension spirited, and about twenty-five railroad companies in Ohio, New York, Massachusetts, and Connecticut, and other New England States, entered their opposition to it.

The counsel on both sides conducted the case with ability. Keller. and Browne appearing for the patent, and Wm. W. Hubbell, Esq., of Philadelphia, for the opposition. The case involved at least a million of dollars. -[Pennsylvanian.

This wheel, we believe, was sold by the inventors and patentees for a mere song-it enriched others-private persons, not the inventors-let the inventors look for pay to those who reaped the benefits of their invention.

#### LITERARY NOTICES.

AMERICAN RAILWAY TIMES-This is a large week-ly journal, issued on Thursdays, well filled with mat-ter concerning every element of the Railway Sys-tem, viz., financial management, construction, depre-ciation, improvements in running and machinery,-and every other subject connected with the general economy of the system, furnished from the pens of the most intelligent engineers and practical railway men in the United States. It likewise contains in-telligence upon all the railway enterprizes of the contry; statistical tables of receipts, expenditures, and income; reports of railway law cases, move-market; prices current of stocks, etc., etc. John A. Haven, Editor. Price \$3 per annum. Haven & Jones, publishers, 27 Devonshire st. Boston, Mass.

THE MASONIC JOURNAL .- This is an able monthly magazine, published at Marrietta, Ga., editod by J. B. Randal, M.; D. and I. N. Loomis, A. M. It is devo-ted to Masonry, Science, and Literature. It is a va-luable periodical to the members of the craft, as it gives the news of the State and progress of Masonry in all the States, and the world.



Will find the SCIENTIFIC AMERICAN a journal xactly 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, Patents, and Patent Laws; Practical Essays upon all subjects connected 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 its views. If success is any criterion of its character, the publishers have the satisfaction of believing the world. Postmasters, being authorized agents for the Sci-

entific American, will very generally attend to forwarding letters covering remittances.

	of April; put two and a half bushels gold ice	tent, and obtained a re-issue, dated August		MUNN & CO.,
	to the acre; cover it with a bat. Then let		fort or voluntary act made to tacilitate the pul-	
	the water on and allow it to remain five days.	"1st, What I claim as my invention is the	monary circulation, and relieve that conges-	128 Fulton street, New York.
	Should the weather be cold you can hold on	employment of vertical, or nearly vertical	tion in the heart which is caused by grief,	INDUCEMENTS FOR CLUBBING.
	for ten days. Then draw it off. Let the rice	water tubes for steam boilers or generators,	Weeping, observes, Haller, begins with a full	Any person who will send us four subscribers for
	remain dry until the plant has four leaves;	that open into water chambers at top and bot-	inspiration, after which follow short expira-	six months, at our regular rates, shall be entitled to
	hoe, clean, and stir the earth deep below the	tom, which water chambers are connected to-	tions and inspirations. It is finished by a	one copy for the same length of time; or we will
	rows, keep out the grass, and put on the wa-	gether by a surrounding jacket or water space.	deep expiration, and immediately followed	furnish— Ten Copies for Six Months for \$8
	ter fourteen days, allowing the ends of the	made singly or in sections, to admit of the	by a deep inspiration.	Ten Copies for Twelve Months, 15
			Hence arise the baneful effects, and the	Fifteen Copies for Twelve Months, 22
			sensation of fullness, "the fullness of heart,"	Twenty Copies for Twelve Months, 28
	it joints, then put back the water, and let it re-	scend in the surrounding jacket or external	and even of pain in the cardiac region, so	Southern and Western Money taken at par for
	main until it is fit for the sickle; occasionally	water space or spaces, and thus, by this circu-		subscriptions, or Post Office Stamps taken at their
	changing it to prevent stagnation and sickness	lation, carry off the heat from the tubes and	not wept when the mind has been greatly	N. B.—The public are particularly warned against
	and by the time the next season comes round,	prevent them from overheating, as described,	agitated.	paying money to Travelling Agents, as none are ac-
11) 11)	you will have a fine rice mill to prepare your	when this is combined with the fire chamber,	Sighing appears also to be a movement	credited from this office. The only safe way to ob-
	crop for market."	placed at the side of the boiler and outside of	employed by nature to relieve the heart from	tain a paper is to remit to the publishers.
10		-		