September 18, 1869.]

tongue; when mixed with water it should give a white milky has been erected at the easterly end of the Rink, 200 feet flickering of the flame, so as to render the light steady, also fluid, without any particles of dirt floating on the top, and long by 50 feet wide, for the exhibition of machinery driven to cause a more perfect combustion of the carbon. It consists should settle down quickly, forming a solid hard mass at the by steam. Two engines, of 90-horse power each, furnish the of a metal piece having several openings, through some of bottom of the fluid. As a trial for its thickening powers a quantity may be boiled with water in the usual manner; two there are pumps, engines, a file cutter, lathes, planing ma. which mixes with the gas. It appears to be a modification proportions should be taken, one thicker than is generally required, and another thinner-for instance, one trial at one pound to the gallon, and both boiled with the usual precautions. The manner in which it behaves on boiling, as well as its appearance when boiled should be observed. A good starch will thicken gradually and evenly throughout, not in lumps; it will keep smooth all the time with only a moderate | also placed here, and is in constant operation. There are gether by joints in the usual way or by any other means betamount of stirring, and when boiled will be of a clear, transparent, gelatinous appearance-not milky and opaque, nor breaking off short when lifted with a stick. At two pounds per gallon it ought to be pretty stiff while hot, to pour out | teresting one, and will doubtless be largely attended. slowly, and for the most part adhere to the sides of a gallon mug, when this is inverted for a short time; at one pound per gallon it should flow smooth and oily, without appearance of water or breaks in it. When cold, the thick trial should be very stiff; and feel tough and solid in the hand; the skin should be of a tough leathery nature, and no water should be floating about-it will not be so clear as when hot, but still should be partially transparent; the thinner trial should be also of increased consistence, and not show any water; it should be smooth and not containing lumps. There are besides these characters a great number of others, too minute to record, which are combined in forming the opinion as to the quality of a sample of starch. It is a practical question, and nothing but a number of trials, upon all kinds of starches, will enable any one to form a correct opinion upon this matter.

"Starch is sometimes adulterated with mineral substances. as gypsum, sulphate of baryta, or mineral white, China clay, etc. The existence of these substances make a starch boil rough and opaque; they can be discovered by burning some of the starch in a proper manner-if much earthy matter be left as a residue, it will be a sign of adulteration. It is sometimes understood that starch for finishing contains mineral matters, and a proportionable reduction in price is made, but oftener there is only one party cognizant of it ; at any rate a starch containing added mineral matter ought not to be used in mixing colors, however good it may be as a finishing starch. Inferior qualities of starch, under the names of seconds, slimes, and hair powder starch, are extensively used in the trade, and may be economically and easily employed in numerous cases; for it is not necessary, in making colors, that a starch as pure as is required for domestic purposes should be used ; what is required is a good sound article, free from adulteration, not injured by acids or fermentation, and, if otherwise good, it does not matter whether it be in powder or in crystal, perfect white or a little grayish. Starch is sometimes injured by some of the gluten of the flour being left in it. Such a starch does not keep well, soon goes watery, or putrefies, emitting bad smells. By scattering a little of this kind of starch upon a red hot iron plate the gluten makes itself apparent, by giving off a disagreeable animal smell, like burning woolen, or leather, or the hoofs of hor-This kind of starch has never a good color, and, if in crystals, has a flinty hardness. Good starch does not contain more than ten or fifteen per cent of water; the latter is the largest quantity it should lose in drying, at moderate tempe ratures."

THE EXHIBITION OF THE AMERICAN INSTITUTE.

The annual exhibition of this association is to be held in the Empire City Skating Rink Building, corner of Sixtythird street and Third avenue, New York city. The building was opened for the reception of articles and machinery to be exhibited on the 1st September, and is now well stocked with a large variety of things, comprised under the following departments, which will be more fully noticed in subsequent issues of our paper.

1. The Department of Fine Arts and Education, consisting of paintings on canvas, glass, etc., engraving, lithographs, photographs, sculpture, musical instruments, specimens of printing and bookbinding, philosophical instruments, etc.

2. The Department of the Dwelling, comprising apparatus for warming, lighting, cooling and ventilating, cooking stoves, kitchen utensils, carpets, oil cloths, tapestry, cabinet furniture, table furniture, ornaments for parlors, building accessories, mantels, grates, etc.

3. The Department of Dress and Handicraft, includin wearing apparel for both sexes, sewing machines, artificial limbs, wigs and hair-work, jewelry, trunks, umbrellas, etc.

motive power for the machinery on exhibition, among which chines, Merrill's tilt and atmospheric hammer and drop press, | of the ordinary Bunsen burner. spinning machines, steam hammers, a Bullock printing press, Lyall's positive motion loom, and many other of the newest inventions for divers uses. The steam boilers for driving this mass of machinery are located in the rear of the new also many minor mechanical improvements on record, which will be noticed more in detail hereafter. The exhibition is likely to prove a very successful and in-

Editorial Summary.

WARMING CHURCHES BY GAS .- The following method has been patented in England. A brick chamber is made beneath the floor of the building, and a grating is placed over it to allow of the passage of hot air. Beneath this chamber an air flue in connection with the flooring, and covered with an iron grating, is introduced. By these means a current of air is made to pass into the building, and this air is brought into contact with a ring gas burner, which is supplied by an ordinary main by means of a spanner, by which the amount of heat can be regulated. Underneath this ring-burner is placed a small cistern made of fire-clay, filled with water; the heat from the gas burner acts upon the water, steam arises, and this is passed through pumicestone contained in a cylinder above the cistern; the use of this vapor is to moisten the atmosphere contained in the reservoir. Around this is a circular cylinder made of fire-clay, to contain heat. The whole is covered with a dome of fire-clay. This dome is worked by a lever for the purpose of lighting the ringburner. By these arrangements, it is said that a pure heat, free from smell or smoke, is obtained, and that with a very small consumption of gas.

A NOVEL NUT CRACKER .- Two inventors in England have taken out a patent for cracking palm nuts, in order to remove the shell previously to submitting the kernels to the action of the press for extracting the oil; but it may also be used for the purpose of cracking any other kind of nuts that are required to be cracked in large quantities. A revolving fan is used for producing a blast of air which throws the nut with sufficient force against an iron or metal target to crack them without injuring the kernels. The fan is inclosed in a sheet of iron, or other suitable case, having an entrance passage, provided with a hopper for the introduction of the nuts, and a discharge pipe through which they are driven by a current of air, and discharged against the iron target, by striking which they are broken.

STEAM ENGINEERING AT THE FRENCH EXPOSITION .- We are indebted to the courtesy of William S. Anchincloss, C. E. Honorary Commissioner to the French Exposition of 1867 and author of an able work on "Link and Valve Motions,' recently noticed at length in this journal, for a copy of his re port on Steam Engineering, as illustrated by the Paris Uni versal Exposition of 1867. An extract entitled Transmission of Power, published in another column, is one of the many good things we find in this interesting work. It is to be regretted that so limited a number of copies of this report have been published, as the information it contains is of high value to American Engineers. We shall make some other extracts from this valuable report.

TARPAULIN.-A new method for making a durable and useful tarpaulin, consists in boiling gas tar, one hundred, weight, until it becomes hard, and at the same time boiling and the limited facilities for supplying the domand, and contends that the in a steam-jacketed pot fourteen gallons of Stockholm tar spirit, ten pounds of American resin, and one gallon of resin oil. When these ingredients are completely dissolved, they are mixed together, and in about ten minutes after, two ounces of oil of vitriol are added. This compound is found to ber. preserve tarpaulins, sail cloth, and other fabrics. By the addition of proper pigments it can be made to receive different fountain for the Central Park, New York. An immense bronze basin is to tints of dark colors, such as reds and browns.

on the tongue, or at least an absence of bad taste, and, be-fore dissolving in the mouth, shows an adhesiveness to the width, giving an area of 59,500 square feet. A new building burner, the object of which is in part to do away with the which gas issues, and through the others atmospheric air,

> STEEL FISHING RODS .- It is proposed by an English inventor to make fishing rods of iron, steel, or German silver, instead of pliable wood or cane. He constructs the rods as building. A large blacksmith's forge of new invention is follows-either in one or several pieces, connecting them toter adapted for the purpose. He uses either solid or tubular metal with the view to obtaining lightness and flexibility.

NEW PUBLICATIONS.

THE AMERICAN ENTOMOLOGIST, for August, completes the first year and the first volume. It has been admirably conducted, and is worthy of the most extensive support. The present number contains a fine colored plate of the Royal Horned Caterpillar and Moth, life size, together with about twenty other engravings. Commencing with the new volume the work is to be enlarge 4 from 24 to 33 pages, the price remaining the same; namely, \$1a year. Monthly. R. P. Studley & Co., Publishers, St. Louis, Mo.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The quarry property at Cromwell, Conn., is now valued at \$100,000. Three earsago it could be bought for \$30 000,

Ground has been broken at Portland, Maine, for the construction of the Portland and Ogdensburgh Railroad.

The Supreme Court of Nevada has decided that the telegraph is a branch of commerce, and, as such, is under the control of Congress.

The navigation regulations of the Suez Canal state that the canal will be open for vessels of all nationalities with a draft of less than 246 feet.

The quantity of amber lately found at the Kurische Haff in Eastern Prusia, is said to be so great that the market price of the article has fallen.

The new iron bridge over the Cape Fear river, to connect all the railroad lines centering in Wilmington, North Carolina, was opened on the 28th of August.

The Imperial Insurance Company of London has paid 100,000 losses f 'r the whiskey destroyed at the late Philadelphia First street fire, and will soon pay \$200,000 additional.

Illinois is to have a new Capitol at Springfield. The plans, specifications, and estimates of the Commissioners have been officially approved. The cost, exclusive of foundation, is limited to \$3,000,000.

The colossal bust of Humboldt, which was modeled by Professor Blüser, has been successfully cast in bronze by Howald, in Brunswick, Germany It is intended for New York and will cost about 17,000 thalers.

The English papers complain of the continued emigration of Cornish miners, which is not caused by want of work, but by the low rate of wages paid them. The men who have left are of the best class of miners.

The exhibition of the Pennsylvania State Agricultural Society is to be held in Harrisburgh, opening on Tuesday, the 28th of September, and con tinuing until the 1st of October. The premium list amounts to \$10,000.

The oil excitement at Parker's Landing and about the mouth of the Clarion riverstill continues to increase. Twenty-three derricks are up on the Clarion county side, and many more on the Armstrong side of the Allegheny.

It is said that the town of Warren, Jo Daviess county, Illinois, offers a bonus of from \$2,000 to \$3,000 to any responsible person who will go to that town and erect and run a custom steam grist-mill, which is needed in that place.

The dome of the Invalides at Paris, is at last completed, and presents a magnificent appearance, sparkling with gold. It was gilded for the first time by Louis XIV., for the second time by the first Napoleon in 1806, and now forthethird time by Louis Napoleon.

A California paper says that 50,000 tuns of wheat were lying in sacks along the banks of the Sacramento river, in Tehama, Butte, Sutter, Colusa, and Yolo counties, on the 1st of August, and that 60,000 more were to follow, making 110,000 tuns as the yield of five counties.

A crib 300 feet long, being one section of the whole length of 900 feet, to be used in the construction of a wharf at North New York, for the Harlem River and Port Chester Railroad, has been towed to its position. The balance of the crib is progressing rapidly, and a steam dredger is constantly at work deepening.

The present production of the White Pine mines is about \$86,000 a week, and for the whole district about \$100,000 a week. In a month or two the production will be increased to the rate of six millions ayear, and the yield for 1870, it is confidently believed, will reach ten million dollars.

A Chicago paper says that there are over 20,000.000 gallons of water consurned daily in that city. It discusses the estimated future consumption lake tunnel will be inadequate to supply the city five years hence

A heavysnow storm prevailed at the summit of Mount Washington, on Aug. 31. The telegraph wires were broken in several places by theice, which accumulated to the thickness of two inches, or more. The thermometer stood at 28deg. The Times says it snowed in this city on the 1st of Septem-

The Ames Works, in Chicopee, Massachusetts, are engaged on the bronze be cast, which will rest on sixteen columns. The whole is to be octagonal in shape, and a number of curious jets and streams will be worked into the design at various points.

4. The Department of Chemistry and Mineralogy-soaps, toilet preparations, acids, leather, furs, india-rubber and gutta-percha preparations, paints, dye stuffs, sugars, confectionery, minerals, ores, apparatus for making gas, natural stones used in building, etc.

5. The Department of Engines and Machinery-machines for making wood, metal, and all tools used by artisans or in factories, not otherwise provided for.

6. The Department of Intercommunication, containing locomotive engines, cars, carriages, wagons, sleighs, models of ocean or river vessels, electric telegraphs, etc.

7. The Department of Agriculture and Horticulture-specimens of plants and flowers, fruits, vegetables, butter, cheese, plows, cultivators, mowers, reapers, churns, cheese presses, which he examined, and which did produce such effects, did hemp, flax, cotton, etc.

groups, articles of like nature being kept together. In addition to this there is the display of the National Association of Wool Manufacturers.

TOOTH BRUSHES.—There has lately been introduced into the market a porous form of vulcanized india-rubber, called india-rubber sponge. It is proposed to substitute this material for bristles in the manufacture of tooth-brushes. A piece of india-rubber sponge is fixed to a handle of bone or ivory, and ridges are formed on the surface of the spongy material. Other brushes are made in a similar manner by fixing spongyvulcanized india-rubber to a rigid back or handle; or, in some some cases, the spongy india-rubber is checkered or crossgrooved.

POISONING BY CORALLINE.-M. Landrin has reported experiments to the French Academy, tending to show that pure coralline does not exert any poisonous action on the human skin. M. Tardieu rejoins, that the coralline-dyed stockings not contain arsenic, lead, mercury, or other mineral poisons, Each of the above departments is to be divided into seven but he cannot say whether or not the stockings were colored with coralline only. So the question stands in a position of uncertainty as to the real cause of the mischief imputed to this pretty dye.

From the annual report of the Street Superintendent of San Francisco it appears that city has 102 miles of paved streets and 255,829 feet of sewerage The cost of street work from July 1, 1868, to July 1, 1869, has been in round numbers \$1,520,000; and the average cost has been nearly a million a year for ten years past.

The State Line Lode, Nye county, Nevada, according to the report of the United States deputy surveyor, is a gold-bearing vein, composed mainly of ferruginous and friable quartz. In many places the entire vein is so friable and crumbly as to be easily removed with the pick alone. A working test cases, as for horse brushes, a rigid back only is required. In of 600 pounds gave a yield of \$176 per tun. The improvements on the mine have cost about \$2,000 coin.

> The following is said to be an excellent imitation of the jet black China varnish for boots and shoes. Dissolve 10 grms. of shellac and 5 grms. of turpentine in 40 grms. of strong methylated spirits, having previously dissolved 1 grm. of extract of logwood, with some neutral chromate of potass a and sulphate of indigo, in the spirits. The varnish should be kept in well stoppered bottles.

> New Haven, Conn., is becoming anxious about its water supply. The water is now pumped into the reservoir by water power, wasting ten mil-lions of gallons each day in pumping two and a half millions. The company propose to put in steam pumps, which will enable them to supply a city of two or three hundred thousand inhabitants.

A Belgian has lately had a steamer of diminutive proportions constructed in England. This craft is twenty-four feet long and six feet wide. Her boiler is about the size of a teakettle, and the engine might be put in the pipe beyond the limit of supply through a feed pipe of given size, the feed

mospheric pressure. The friction is also less in a large feed pipe. Under the circumstances you describe, where the feed water has to be raised 20

feet and forced through an orifice of 1½ inches, we think the feed pipe ought to be at least 2 inches. The making the feed pipe of a pump too

small is a common mistake. The feed water is raised only by atmospheric

pressure, 15 pounds, while a much larger pressure is applied to the plunger

of the pump. Under such circumstances the water will not be supplied

to the pump with sufficient rapidity to meet the demand. If the water in

your pump is forced out with great velocity, you may need to employ a

J. P. D. of La.—The breaking of inferior qualities of glass in

in the manner described is not confined to lamp chimneys, although from

the many changes in temperature to which they are subjected, it is more

frequent with them. The difficulty is in the quality of the glass, both its

composition and the annealing, are frequently at fault. The breaking of

these chimney glasses is a great annoyance, and it is to be hoped that

some inventor will give us yet a lamp that will not require a chimney.

The only way to prevent in any measure this breakage, is to anneal the

chimneys yourself before using them by heating them very hot and allow-

ing them to cool slowly, but few have appliances to do this efficiently and

W. C. T., of Ga.—The crystals you send have no value. They

hardest of minerals, and is a constituent of many kinds of rocks. Silica

does not melt under the blow pipe or dissolve in water. The dark colored

mineral appears to be a form of limestone containing iron and other

state the exact constituents of a mineral specimen without making a care-

A. R., of N. J.-The question whether a given amount of

heatwilldevelop more steam in a given time from boiling water than from water before it boils, is yet undecided. Dr. Ure thinks that boiling

favors the escape of steam. We have never seen, however, any experi-

point. Our own opinion is that should any such experiments be tried no

A. R., of Pa.—The notion that a boiler sustains more pressure

at the top than the bottom is an absurd mistake. The reverse is true, as

in addition to the pressure of the steam above the water, there is the hy-

draulic pressure of the water on the bottom. As however, the hight of

the water in a boiler is not generally great, there is not much difference.

W. F. D., of N. H.-There would be no very material differ-

ence in the amount of friction in water flowing through two pipes of the

same size and form, one made of cast-iron and the other of cement. A

good cement pipe is as cheap as anything we know of equally efficient.

Your other inquiry requires a mathematical calculation, for which you

J. O. L., of Ill.-We do not know enough of the device you

notby any means new, but the method of doing it in this case may be.

T. P., of La.-The species of silk worm you ask about, the

natural food of which is the foliage of the oak, imported to the southern

part of Austria and France from Japan, have not, to our knowledge, ever

been brought to this country. Should any of our correspondents happen

to know of a trial of this species in the United States, we should be hap-

F. K. H., of Ohio.-To make the finest piano finish on walnut

chestnut, or other open and coarse-grained woods, it is usual to use a

coarse kind of varnish called scraping varnish. A heavy coat of this is

laid on the raw wood, and then the surface is scraped with steel scrapers.

It is then varnished with a better quality of varnish, rubbed down per-

fectly smooth with pumice stone, and finally flowed with the best kind of

E. P. A., of S. C.-The advantages of the hydrostatic press

C. W. C., of Pa.-The circumstances which compel the re-

moval of your chimney stack so far away from the furnaces are unfortu-

nate, as they will compel you to run your chimney up higher to get the proper draft. We should think thirty feet additional hight would not

W. H. C., of N. Y .- Simply exhausting a receiver by means of an airpump, can never give any pressure upon its exterior greater than its ustains at all times, both before and after exhaustion. It simply re

S. T. B., of Ga.—One of the minerals you send appears to be a

soft conglomerate of quartz and feldspar, of no value. We find gold in

the other specimen, and it appears to be gold-bearing quartz which may

J. W. C., of Mich.—You can not profitably extract the sugar

from cream sirups which have soured. -The cost of binding the SCIEN-

'Pioneer Maggie."-A correspondent wishes to know the

name of the builder of the above-named yacht. We do not know, but

W. S. P., of Mass.-The origin of yeast is obscure, like the

not new in principle. A patent would not be granted for it.

more than fully compensate for the difference in position.

moves atmospheric pressure from the interior.

be valuable. You should have it analyzed.

TIFIC AMERICAN in this city is \$1.50 per volume.

Henry Steers, of this city, builds first-class yachts.

way in a tall chimney, but it would be at the expense of the draft.

should apply to an hydraulic engineer inclosing five dollars.

still larger feed pipe to obtain satisfactory results.

without risk to the chimneys.

fulchemical analysis.

difference would be found.

py to hear from him.

varnish.

It is not a fact that all boilers burst at the top.

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. . .

pocket of a great coat. She is said to be a fine sca boat, and has made two or three trips, running from Cowes to Ostend, with great speed. The owner ntends to use this little steamer for coasting on the Belgian coast.

The largest span of any truss bridge in the United States is that of the great bridgeacross the Ohio river at Louisville, which is destined to con-nect the Kentucky and Indiana shores. The bridge itself will be, when finished (and the engineer in charge expects to turn over his contract for the building some time in November), one of the most splendid structures of the kind in this or any other country. This last span covers three hundred and seventy feet, and is a marvel of engineering skill.

The Philadelphia Press says that the miners' strike is spreading through out the entire coal regions. At Hazleton, Luzerne county, it has assumed a serious aspect. The strikers are laborers employed by the miners to assist them in loading and removing the coal after it has been blasted. On the and Co., and it is understood that work in this mine is also suspended. The sheriff was called upon, and he proceeded to the mines with a posse comitatus with the determination of protecting the engineers.

It is a well-known fact that, when it is desirable to cover metals, especially brass or copper, with a strongly-adhering coating of tin, this is usually effected by boiling the articles to be thus coated with an aqueous fluid, to which is added cream of tartar, crystallized protochloride of tin, and some lumps of pure metallic tin. Dr. Hillier states that, instead of this mixture. he uses, with very good success, a solution of 1 part of protochloride of tin in 10 parts of water, to which he next adds a solution of 2 parts of caustic soda in 20 parts of water; the mixture becomes turbid, but this does not affect the tinning operation, which is effected by heating the **O** jects to be tinned in this fluid, care being taken, at the same time, to place in the liquid a piece of perforated block-tinplate, and to stir up the fluid during the tinning, with a rod of zinc.

Business and Lersonal.

The Charge for Insertion under this head is One Dollar a Line. If the Notice exceed Four Lines. One Dollar and a Half per line will be charged.

Send for Agents' Circular-Hinkley Knitting Machine Co., 176 Broadway.

Wanted-A competent Sewing Machinist, to take charge of repairing. Address J. F. McKenney, Baltimore, Md.

- Wanted-A Roper Caloric Engine, one or two-horse power. Address C. F. Werner, Orange, N. J.
- Metallic Pattern Letters to put on Patterns for castings, etc. A first-class article. Allen & Brim, Seneca Falls, N.Y.

Excelsior Turbine Water Wheel.-The patentee of this superior wheel desires to enter into arrangements with millwrights and manufacturers with a view to having them manufacture and sell the cheapest, most durable, and powerful wheel used in this country. Full particulars given by circular. Address Isaac S. Roland. Reading. Pa.

Manufacturers of sugar, saw, and grist mill machinery, also of stationary and portable engines, who mayrequire an Agent in New Orleans, La., will please address P. J. McMahon, Belmont Hotel, New York.

Peck's patent drop press. Milo Peck & Co., New Haven, Ct.

The Best and Cheapest Boiler-flue Cleaner is Morse's. Send to A. H. & M. Morse, Franklin, Mass., for circular. Agents wanted.

Minn. State Fair.-To Advertisers. Send for Circular to Post, Rochester, Minnesota.

Wanted-A Partner with capital to bring out a valuable Patent. E. Myers, Creagerstown, Md.

S. S. Pollard's celebrated Mill Picks, 137 Raymond st., Brooklyn.

Galvanizing .- Wanter -A man to take charge of a shop who perfectly uncerstands galvanizing cast iron. Address, with terms and references, Wm. Resor & Co., Cincinnati, Ohio.

Chas. P. Williams, No. 327 Walnut st., Philadelphia, Analytical and Consulting Chemist, and Metallurgist.

- E. Kelly, New Brunswick, N. J., manufactures all kinds of machinery used in working Rubber.
- Materials for all Mechanics and Manufacturers, mineral substances, drugs, chemicals, acids, ores, etc., for sale by L. & J. W. Feucht wanger, Chemists, Drug, and Mineral Importers, 55 Cedar st., New York. Postoffice Box 3616. Analyses made at short notice.
- Ulster Bar Iron, all sizes, rounds, squares, flats, ovals, and half-ovals, for machinery and manufacturing purposes, in lots to suit purchasers. Egleston Brothers & Co., 166 South st., New York.
- Wanted-A second-hand "Index Milling Machine." Send price, etc., etc., to W. F.Parker, Meriden, Conn.
- Cochrane's low water steam port-The best safeguard against explosions and burning. Manufactured by J. C. Cochrane, Rochester, N.Y. Mill-stone dressing diamond machine, simple, effective, durable
- Also, Glazier's diamonds. John Dickinson, 64 Nassau st., New Yo
- Leschot's Patent Diamond-pointed Steam Drills save, on the average, fifty per cent of the cost of rock drilling. Manufactured only by Severance & Holt. 16 Wall st., New York.
- For solid wrought-iron beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.
- Machinists, boiler makers, tinners, and workers of sheet metals read advertisement of the Parker Power Presses.
- formed into wedge or other shapes for point Diamond carbon

Under this heading we shall publish weekly notes of some of the more prom inent home and foreign patents.

VALVE GEAR FOR STEAM ENGINES .- Charles L. Inslee, New York city, and Wm. H. Inslee, Newark, N. J.-This invention relates to new and useful improvements in valves, ports, and operating devices, whereby it is designed to provide a simple and cheap plan of construction, and a more efficient arrangement of the same for operation, than any now in use. The invention consists in an improved arrangement of steam chest passages and pipes, steam and exhaust balance valves, and operating devices.

TRANSPORTATION CASE FOR BACKING CANS.-Edwin Norton, Toledo, Ohio. The object of this invention is to provide an improved packing case for the protection of tin shipping cans, such as are used for shipping oil and other substances, and are sent back and forth, both filled and empty, and are thus subjected to damage from careless handling and other causes. The invention consists in a packing case made of wood, or other suitable sub-stance, permanently inclosing the can, and provided with a sectional lid, cover, or door, arranged to open a sufficient space only at the nozzle, to permit of readily filling or emptying the can, the said cover or door, being arranged at any position in the case, to coincide with the nozzle of the can.

IRON MANUFACTURING APPARATUS .- John Coyne, Allegheny City, Pa .-This apparatus consists of a circular carriage arranged to revolve on a circular table, in a horizontal plane, and provided with receiving and discharging molds, which move slowly past the tap of the furnace, and receive the molten metal flowing therefrom, and convey it to the place of dischargare composed of quartz or silica, which is one of the most abundant and ing as it cools, and from which it is discharged by the dumping of the molds by the attendant.

SHAFT AND POLE HOLDER.-James S. Totten, Lebanon, Ohio,-This invention comprises the application of holding straps of any form or arrangeminerals, and is apparently of no value. It is, of course, impossible to ment, when adapted for ready attachment, to the spring bars and shaft cross bars, by buttons connecting the one, and by buckling or looping around the other.

HOSE-PIPE NOZZLE .- Archibald Williscroft, Wilmington, Del.-This invention has for its object to furnish an improved nozzle for hose pipes, which shall be so constructed and arranged that it may be easily and quickly adjusted to throw a larger or smaller stream of water as may be ments, or recorded results of experiments, which are conclusive on this desired.

MILL BURR.-George W. Wilson, Tolono, Ill.-This invention has for its object to enable the burrs of mills to be conveniently and easily balanced to a perfect standing, or running balance, by means of a device simple in construction and easily applied and adjusted.

PEAT MOLD.-Kingston Goddard, Richmond, N.Y.-This invention has for its object to furnish an improved mold for pressing wet peat into bricks or blocks for fuel, which shall be so constructed as to allow the water to escape while retaining the fine particles of the peat.

PLOW.-Edward Wiard, Louisville, Ky.-This invention has for its object to improve the construction of wrought iron, steel, and cast-iron plows, so as to make them simpler in construction and more efficient in use

PLOW.-Edward Wiard, Louisville, Ky.-This invention has for its object to furnish an improved plow, which shall be so constructed and arranged that various kinds of plow plates may be used with it, according to the particular kind of plowing required to be done.

MANUFACTURE OF ILLUMINATING GAS.-Cleaveland F. Dunderdale, New describe to say whether it contains any points of novelty. The idea of York city.-This invention relates to a new and important improvement propelling a wind wheel by upward currents through a chimney stack is in manufacturing gas for illuminating purposes.

PUDDLING FURNACE.-J. B. Robinson, Duncansville, Pa.-This invention There is no doubt that a considerable power might be obtained in this relates to new and important improvements in puddling or boiling furnaces, whereby they are rendered much more durable and more easily managed than such furnaces has hitherto been.

> WHEEL HUB.-A. S. Woodward, Pepperell, Mass.-This invention relates to a new and useful improvement in metallic hubs for carriage, wagon, and other wheels, and consists in forming a hollow or shell hub east in a single piece

> BAG HOLDER.-J. N. Collins, Menasha, Wis.-This invention relates to a new and useful improvement in the method of holding bags for filling with grain or other articles.

> DIRECT IRON-PRODUCING FURNACE .- William Griffith, Jr., Pottsville, Pa.-This invention relatesto a new furnace for reducing and producing iron directly from the ore by a continuous operation, and has for its object to reduce the expense of, and to economize time during the operation. The invention consists chiefly in arranging a deoxidizing chamber above the welding or puddling furnace, said chamber being heated by the gases that escape from the fire in the said furnace.

over all others known for certain kinds of work, are enormous power in 📒 PIN CATCH FOR BREASTFINS AND SIMILAR ARTICLES.—Samuel Ayres, small compass, with less friction and perfect control, both as to the extent Danville, Ky.-This invention has for its object to so construct breastpins of motion in the platen and the amount of power applied. Your device is and other similar articles, such as badges, etc., that they can be secured to garments by means of an ordinary pin, in a secure manner, and with great convenience.

> REVOLVING SPRING GUN.-Charles Bunge, Geneva, N.Y.-This invention relates to a new spring air-gun, which is so constructed that it can be readily set to automatically place a charge into the barrel, or at least in line with the same; it being provided with a reservoir which contains a suitable large number of charges. The invention consists chiefly in the combination of a perforated revolving feed plate with a stationary supply or reservoirchamber, from which, as the feed plate is turned, the balls constituting the charges, are transferred into the apertures of the feed plate.

> SPINNING FRAME.-Wm. H. Brothers, Winooski, Vt,-This invention relates to a new spinning jack, which is so arranged that the mule or carriage will receive its motion by automatic machinery, without requiring any personal attention of the operator or attendant. The object of the invention is to do away with the necessity of working the shipper bar for reversing the motion of the mule, and to provide automatic means for changing the motion. The invention consists in the construction of devices for changing and reversing the motion of the mule for imparting to the thread the necessary drawing and twisting motion, and the requisite tension while twisting, and for operating the whole mechanism.

> PRINTING TELEGRAPH MACHINE.-Charles T. Moore, White Sulphur Springs, West Va.-This invention consists of a set of sending apparatus, a set of receiving operating apparatus, and a set of apparatus for " calling "

ing and edging tools or cutters for drilling and working stone, etc. Send stampfor circular. John Dickinson, 64 Nassau st., New York.

The "Compound" Wrought-Iron Grate Bar is the best and cheapest. Send for circular. Handel, Moore & Co., 12 Pine street. Postoffice Box 5.669.

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For sale by State or County the Patent Right for the best Culivator in use. For terms address Isaiah Henton, Shelbyville, Ill.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek in-formation from us; beside, as sometimes happens, we may prefer to ad-dress correspondents by mail.

PECIAL NOTE.—This column is designed for the general interest and in-struction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, houever-uhen paif for as advertisemets at \$100 a line, under the head of "Busi-ness and Personal."

FAll reference to back numbers should be by volume and page.

S. T. D., of Me.—It will take less power to work a force pump | having a feed pipe larger than a discharge pipe, where the capacity of the pump is sufficient to supply the full capacity of the discharge. The reasons are, that atmospheric pressure can only force water through a pipe of given size at a given velocity, no matter how fast your pump is worked, i J. Douglas, Jr., Quebec, Canada, August 13, 1869.

origin of every other existence. Assuming the existence of a first cause, we maintain that it is not a subject for physical inquiry. Somewhere the mind must stop at a cause uncaused, a subject for faith not demonstration.

E. G. F., of Me.-The crank is to be regarded as a lever only, the fulcrum being the center of the axle, and the resistance being applied at the circumference of the axle, the point of application of the power being the center of the crank-wrist.

Inventions Patented in England by Americans,

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS

2,350.-NUMBERING REGISTER.-G. Sickels and J. H. Thorndike, Boston, Mass. August 6, 1869.

HOLDERS FOR THE CHIMNETS OF GAS BURNERS.--Elliott P. Gleason, New York city. August 6, 1869.

2.378.-MEANSFOR CARRYING OR STORING EGGS.-P. P. Jesef, Buffalo, N. Y. August 9, 1869.

2,392.—TREATMENT OF CONGLOMERATES OF CAST IRON, ETC.—T. S. Blair, Pittsburgh, Pa. August 10, 1869. 2,416.—MACHINERY FOR CHARGING GAS RETORTS.—N. O. J. Tinsdale, New Orleans, La. August 12, 1869.

the office or station to which the message is to be sent, all conveniently arranged upon a stand, and adapted to work in conjunction with similar ma chines at all the stations, and capable of communicating with all the stations simultaneously, or with only one, as required.

PLANTING AND CULTIVATING MACHINE.-Nicholas Whitehall, Newtown, Ind.-The object of this invention is to provide a machine capable of planting and cultivating corn or other grain planted in a similar way, which may be readily adjusted to the condition of a planter or cultivator.

NAIL MACHINE .- F. Davison, Richmond, Va.- The object of the present invention is to provide an improved feeding apparatus, whereby the plates will be self-actingly fed in succession from a feed box containing a number of plates; also, an improved arrangement of vibrating feeding apparatus whereby the plates are so presented as to ensure the disposing of a sufficient amount of metal at the wide ends of the blanks and delivery of them to the griping dies to form the heads which are alternately on opposite sides of the griping dies; also an improved arrangement of carrier guides for conveying the blanks from the cutters to the griping dies.

PRESSES FOR COTTON AND OTHER SUBSTANCES .- John Simpson, Chester, S. C.-This invention consists in an arrangement of two followers to be 2,322.—ADDING APPARATUS.—C. Henry Webb, New York city. August 3, moved toward each other by pinions working into toothed racks upon each 1869.

TACHYPODOSCAPH .- Jules Marie de la Rue, Nogent sur Marne, France This invention is composed, according to the use for which it is intended, of two, three, or more boats or floats, which are connected together by cross bars, and so held apartas to allow the driving paddle wheels to be fitted between them,