

world, and in fact greatly hinders the mental and material progress of the human race. But it can be readily overcome, in every individual case, by a determined exercise of the will. We hope that our correspondent will turn over a new leaf, let us hear from him more frequently, and so set a good example to his fellow men in general and to other correspondents of our paper in particular, who are afflicted in the manner he describes.

#### STEAMSHIP NOTES.

Among the multitudinous shipping of New York harbor there is always occurring more or less of current interest from an industrial or technical standpoint. We cannot afford room for extended mention of all or even much of this, but some of the items are worthy of note, either as indices to commercial or engineering progress or as illustrations of the way things mechanical are sometimes managed. Of the kind last indicated is an incident that recently occurred to the *Great Western*, an English bluff bowed iron freight steamer on her first trip from Bristol to New York, laden with railroad iron. She had a four bladed propeller, but broke three blades on the voyage, and steamed into Gowanus with rather dilapidated propelling machinery. She carried the usual spare propeller, and on her arrival here was taken to the Erie docks to have it put on in the place of the old one. The usual method of removing a screw from its shaft is to drill a line of holes in the boss and then split it open. But in the present instance, the plan was adopted of removing the keys, taking off the nuts, and driving it off. While doing this, the other propeller was being hoisted out of the after hold. While being swung aft, the lashings broke and the ponderous apparatus fell, one blade going through the dock and another breaking off. This left the parties with a one bladed screw on the shaft and a three bladed one in the mud. All things considered, it was thought best to cut off the one blade of the former to correspond with the diminished length of the broken ones thereof, and so the vessel has started back with her jury screw. Had the affair been under Yankee management, possibly the spare screw would not have been broken, but if it had, there would have been ingenuity enough somewhere about the shop to have lengthened the broken blade with a wrought iron plate.

Nevertheless, however much we may justly claim superiority for inventive skill and adaptiveness, we have to make painful mention of British energy, shown in the progress of iron shipbuilding in England, a branch of industry which we hope to see returning to our own shores. For example, the Anchor line, hitherto almost wholly devoted to freight between New York and Glasgow, is about to increase their previously limited passenger traffic by the addition of new and superior steamers. The company is now building, on the Clyde, seven new vessels which, with those now running, will aggregate forty-three.

While upon the subject of steamers, we may speak of a pair of what may be termed historic marine engines, one of which is lying dismantled at the Continental Iron Works, while the other is doing duty in the *James Adger*. These engines were splendid examples of marine steam engineering, and drove the paddlewheels of Commodore Vanderbilt's famous steam yacht the *North Star*, in which he voyaged along the coasts of Europe a score of years ago, and which, if we remember rightly, so alarmed the officials of the port of Civita Vecchia that they ordered her off. These engines were of the vertical beam variety, of about 1,000 horse power each, with sixty inch cylinders and ten feet stroke. The one at the Continental Iron Works has some of the smaller portions missing; the bright parts are painted over, and it will doubtless some time find an obscure use as a stationary motor. The *James Adger*, in which the other was placed when removed from the steam yacht, will be remembered as the vessel employed in laying the first cable between Newfoundland and the mainland.

The Erie Railway is having built at Chester, Pa., a new iron ferry boat, said to be the first ever designed to cross the North river. The following are the dimensions: length between perpendiculars 180 feet, over all 190 feet. Beam over hull, 36 feet. The depth of the hold 13 feet 6 inches. The power will be furnished by a beam engine with a forty six inch cylinder and eleven feet stroke. The diameter of the paddlewheels is 22 feet and their faces 8 feet, 4 inches. The keel instead of being brought up inside the rudder to form a stern, as in the usual method of construction, is extended beyond the ends of the hull and made to form a rudder guard at each of the ends. The plates at the water line have a thickness of nine sixteenths of an inch, increased at the bows to ten sixteenths. The vessel is to have watertight bulkheads up to the main deck, and is to have iron paddle beams, that is, those supporting the guards at the ends of the paddle boxes. The spring beams which support the outboard bearings or ends of the paddle shaft are also of iron. The keelsons are box keelsons of heavy plate iron, arranged to distribute the weight of the engine upon the bottom. The carriage ways on deck are eleven feet in width. The bows are to be protected by extra framing as well as by the increase herein before referred to in the thickness of the plates. A drop return flue boiler will be put in, as is the case with nearly all or every ferry boat in New York waters.

#### BRIGHT'S DISEASE.

The medical profession generally divide this terrible disease of the kidneys into two forms, the acute and the chronic. The acute form is a simple congestion of the filtering tubes through which the kidneys perform their organic duty. The chronic form occurs when, through neglect or repeated at-

tacks of congestion, granular degeneration, bringing with it structural alteration of the organ, has supervened. The first is curable; the second, though it may be temporarily alleviated, is fatal.

The *New York Times* publishes some valuable statistics, extending over a period of three years, which show that the disease is more rife in certain sections of this than in other countries, especially in New York city. During the first year covered by these statistics, the ratio of deaths from Bright's disease to the total number of deaths taking place in that period was as 1 to 66, the following year as 1 to 55, and the third year as 1 to 42. Comparing these figures with the ratios in other cities, we find that in Boston it is as 1 to 93, Rochester as 1 to 73; and in the old world, in London as 1 to 89, in Glasgow as 1 to 142, in Paris as 1 to 266.

It is considered that the prevalence of the disease in this country is due to two leading causes, climate and intemperance. The experiments of scientific men have shown that alcohol is partly cast off from the system, unchanged, through the kidneys. When alcohol is taken to excess, the circulation in the kidneys is disturbed and irritation and congestion ensue. Wine and beer, although exercising no beneficial effect on these organs, do not tend invariably to injure them, but rather to induce gout. Few are aware of the immense quantity of alcoholic liquors yearly consumed in New York. From the 1st of May 1870 to the 30th of April 1871, 7,440 licenses were issued for the sale of intoxicating liquors, the annual fees on which amounted to \$340,141.91. Estimating the population of the city at 1,000,000, there is one liquor saloon for every 134 inhabitants, men, women, and children. If all the liquor saloons in the city could be placed side by side they would extend a distance of 26 miles; or if situated on Broadway, they would reach the whole length of the street from the Battery to the end of the island, covering both sides of the way. Deducting the women and children who do not drink, an enormous quantity of liquor must be annually consumed by the remaining men in order to support 7,440 saloons. Whisky is the ordinary beverage drunk, and its effect on the kidneys is shown above. The records of the New York Hospital show that over fifty per cent of the cases yearly admitted for treatment were caused by intemperance in the use of alcoholic beverages.

The trying nature of our climate is another prolific cause of this disease. It has been demonstrated that the malady is confined to that part of the earth in which the change of seasons is most marked, and where the annual mean temperature of the air ranges between 46° and 57°. In the extreme northern part of this continent, where cold is the normal condition of the atmosphere, and in the Southern States, where heat is the normal condition, the disease is but little known. In Bombay, the proportion of deaths is 1 in 2,800; in New Orleans it is 1 in 329, and in Providence, where cold is more prevalent than in New York, 1 in 173.

The acute form of Bright's disease may be produced by any sudden chill of the system, undue exposure, or rapid change of temperature. Unseasonable changes of garments and rapid checking of perspiration both tend to bring it on. It is also induced to a certain degree by gout or disease of the heart; one or two trades are particularly liable to it, especially those who work in lead.

A careful study of the causes of the disease, together with the consideration by the facts advanced above, show plainly that vast numbers of persons who now suffer and die under it need never have known such an affliction. Care in keeping themselves warmly clad, avoidance of sudden chills and reckless exposure, and the observance of the simple rules of temperance, would have saved hundreds from premature graves.

#### THE BLACK ROCK BRIDGE OVER THE NIAGARA RIVER.

For three years past, both American and English engineers have worked to lay the foundations for the international bridge for the Grand Trunk and Great Western Railroads, at Black Rock, 4 miles below Buffalo, across the Niagara River, to Canada. The entire length of the structure is to be 1,400 feet, consisting of iron spans resting on eight abutments. The tremendous current in the river which rushes toward the falls has rendered the work one of unexampled difficulty. Caissons and foundations have been sunk and immediately swept away by the torrent, while the river banks below are strewn with the debris of wrecks, showing a loss of millions of dollars.

The entire past year has been unsuccessfully devoted to attempts to erect the three middle piers in a depth of from thirty-five to forty feet of water. Mr. Otto Meyer, of New York, who last winter was engaged to prepare and sink coffer dams, has finally, however, succeeded in sinking one dam so that the work on its enclosed pier has been commenced. The length of this dam is 125 feet, width 32 feet, and depth, to suit the river, 36 feet. It is sharp on both ends, has double sides, closing at the bottom, forming a space three feet wide around the sides for depositing stones, leaving the center of the dam open for the caisson in which the pier is afterwards built. Eight of the largest anchors and chains from New York and Montreal being secured, one the 13th instant the "ship without a bottom" lay formerly moored six feet above the position of the pier to be built.

Preparations were then made for sinking several hundred tons of stones, which were thrown in the apertures on the sides of the coffer dam until it had sunk to within eighteen inches of the river bed. A number of barrels had been arranged previously under water and fastened on the woodwork, their buoyancy lifting the structure about two feet; these were all held by one rope, which being cut, caused the barrels to float and submerge the coffer dam deep enough to strike the

bottom. Six very heavy iron-pointed posts or "spods," running through sheaths or sockets, three on each side, were hoisted and ready to drop.

Everything being ready on shore and on board, the craft was quietly let "down stream" by her anchors until the engineer on shore signalled "in position." The flag was raised "all right," and with the order "cut away," the barrels floated up, the iron spods dropped, burying themselves in the river bed, and with a light shock the coffer dam rested securely on the bottom of the Niagara, on a deposit of gravel and stones. The gravel and stones have to be removed by a dredge, there ready for the purpose. Below the gravel the solid rock is found on which the piers are to rest.

Three divers from the new Blackfriars Bridge, London, are clearing away the obstructions around the shoeing. They now and then come in contact with pieces of wreck and sunken logs. Until the bridge is finished, the large steam ferry, near Buffalo, continues taking the trains across Lake Erie to the Canada landing.

#### THE AMANIANS.

The Amania Society is the name of a very flourishing community in Iowa, consisting of fifteen hundred members. They own everything in common, and present an admirable example of the success of the co-operative plan when intelligently administered. These people were formerly known as *Ebenezers*, and lived near Buffalo, N. Y., where they possessed six thousand acres of land. They sold out some fifteen years ago for the sum of five millions of dollars, and moved to Iowa. They are located near Homestead station on the Rock Island and Pacific Railroad, where they own thirty thousand acres of the choicest lands. They have seven distinct settlements, and their affairs are managed by fifteen trustees or fathers. The society is incorporated under State laws. At convenient distances in the settlements they have restaurants, to which the various families resort for food.

The Amanians cling to their good old German ways in dress and general habits, and are not in bondage to the outside world. All have an equal interest in the property; individuals are not allowed anything for their services, or furnished with money for their private use. Each settlement has a store, and all are allowed to draw a certain amount yearly from it for their private wants. A man with a family is allowed from \$50 to \$70, with \$20 for his wife and \$10 for each child. This is expected to keep them in clothing and household furniture and supply all their little personal needs. When persons find that the amount appropriated is not sufficient for their actual expenses, the matter can be laid before the Board of Trustees, who will exercise their judgment about making an additional appropriation.

They are a temperate, industrious, religious people, but it is difficult to define their theological views.

A leading principle of the society is that all will get along well together if every one will do right; and in this spirit, everything is managed harmoniously. There is no better theology than this, after all.

It is their custom to meet every day in small companies, about the settlement and in rooms provided for the purpose, to devote half an hour to religious exercises; on Wednesday they meet in the middle of the day; Sundays they all come together in their meeting house for religious services. They do not appear to specially favor marriage, and many of them are living single. When young people wish to marry, they generally receive the consent of the society if they have a reputation for good behavior. If the parties have not succeeded in commending themselves, they are not allowed to marry.

The society owns the whole settlement, and carries on all the business, including that of the lumber yard, store, hotel, etc. They hire considerably on the farm and in their factories, and claim that even in Iowa, with their 30,000 acres of choice land, farming operations do not pay. About three miles from Homestead, on the Des Moines river, they have a fine water power, flouring and woolen mills, and manufacture an extra quality of yarns and fine flannels in colors. The latter goods stand high in market, and are mostly bought up by a few first class retailers in the large cities. The Amanians have a high reputation for uprightness in all their dealings with the outside world, and are much respected.

[Special Correspondence of the Scientific American.]

#### LETTER FROM PROFESSOR R. H. THURSTON.

PITTSBURGH, Pa., July 2nd, 1872.

*Construction of Iron Bridges. Works of the Keystone Bridge Company. Manufacture of glass ware. New iron works. The coal and iron fields. The Siemens furnace.*

At the upper part of the city and near the bank of the Allegheny, are the works of the Keystone Bridge Company, where are made a large number of the finest bridges in the country, and where is now in progress the superstructure of the great St. Louis bridge over the Mississippi. About three hundred men are employed here, and an immense amount of bridge work is turned out. The character of the work done at this factory has secured for the firm a reputation that can hardly be affected by anything that we may say; they are everywhere known as the builders of one of the best forms of bridges in use, and as giving the best possible work.

Many tools in use here were designed especially for their work, and are remarkable both for their ingenuity of design and for their simplicity and effectiveness.

In all the bridges built by this company from their own designs, the bolts and links are "upset" at their ends to take the thread or to form the eye; and this work being done

in a powerful machine at a single heat, the utmost economy of material and greatest possible strength of connections are obtained. This is one of the most noticeable peculiarities of their bridge.

## THE ST. LOUIS BRIDGE.

The work on the St. Louis bridge is going on finely and is well done. Every piece is carefully tested before it is put into the structure, the fits are well made and a careful inspection finally insures the rejection of any piece faulty in either construction or material. The "skewbacks" are very awkward shapes to forge and are very heavy. They are furnished by several of the larger forges of the country. Those that we examined were made by Lazell, Perkins and Co., of Bridgewater, Mass., and were well executed.

## MANUFACTURE OF GLASSWARE.

As was remarked in an earlier letter, the glass manufactures of Pittsburgh are very important and extensive. A large number of firms are making window glass, and the remainder are generally making a lime glass of such excellence that it requires an expert to distinguish it from flint. It is sometimes called a flint glass, but is made without lead, which was formerly supposed indispensable in the manufacture of a very clear glass. This lime glass lacks the weight and the metallic ring of true flint glass, but, if well made, compares very favorably with it in other respects.

We visited the establishment of W. A. Hamilton and Co., who were making druggists' prescription bottles of a good quality of lime glass, and we were much interested in watching the operation. The great beehive-shaped furnace, with its ten glowing pots and the forty or fifty men and boys clustering around it and hurrying to and fro, was a novel and entertaining spectacle. The skill displayed by the workman in taking from the liquid mass just the right quantity of melted glass upon the end of his hollow iron rod, in blowing it up to just the proper form and size to fit the mold and the rapidity with which the work was done were equally remarkable. The reheating of the necks of the bottles at the "glory hole" and nicely finishing the lip formed an appropriate side show.

A large proportion of the furnaces are now blown out for repairs. This requires some weeks, and the furnaces being rebuilt, their fires are lighted and are not extinguished until another year brings around again the season for repairs.

The O'Hara Glass Works, conducted by Messrs Jas. B. Lyon and Co., were formerly noted as the makers of the best flint glass manufactured in this country. They are now making a lime glass and are sustaining their reputation by the excellence of the new product. These were among the earliest glass works started in the United States, and were established by General Jas. O'Hara and Major Isaac Craig, in 1795, first making window glass. They began making flint glass in 1802. They have made their reputation, and are sustaining it, like the best iron masters of the place, by steady attention to the choice of the best materials and by doing the best possible work upon them, and then by a thorough system of inspection which prevents any, except perfectly satisfactory products, going into the market. Some of the cut ware made here is very beautiful. This work is done by grinding, the work being held in the hand of the workman; and the skill displayed in cutting the most delicate patterns is frequently perfectly marvelous, and appears the more astonishing when it is noticed that the work is done by no more elaborate apparatus than a little metal wheel, running with emery as the cutting material.

The molds in which the pressed articles are formed are quite remarkable specimens of metal work. They are cast frequently in several pieces in order that the article may be withdrawn from them when made, and the ingenuity displayed in concealing the joints, and the patience and the skill exhibited in giving their inner surface a perfection of polish, are equally notable.

## COAL AND IRON DEPOSITS.

An excursion by the Monongahela to McKeesport, where a Boston firm are erecting extensive works in which to make iron tubes, afforded an opportunity to enjoy the beautiful river scenery above Pittsburgh, and some of it was very picturesque, and also to explore one of the coal mines from which comes the Pittsburgh coal. The deposits are usually several feet deep in thickness—averaging perhaps four feet and over—as level as a floor, and at sometimes a considerable height above the river level. The mining is easily and safely carried on, the veins being of good height and the rooms having a good floor and roof. The coal is loaded into cars where the bed outcrops on the river bank, and is let down inclined planes and dumped directly into the boats and barges which carry it down to the city or to ports lower down the river. It would be difficult to imagine how Nature could have more conveniently arranged these great deposits for the use of man. None of the expense and danger is incurred here, that attends the sinking of deep shafts and the hoisting of coal to the surface that is generally necessary elsewhere, and there is comparatively little expense for transportation where, as here, the coal is dug from the river bank itself.

There are 15,000 square miles of these coal fields; \$15,000,000 of Pittsburgh capital is invested in mining and probably \$25,000,000 in transportation, while the total of all interests dependent upon these coal fields cannot fall short of the enormous sum of \$100,000,000.

Neither time nor space will admit of a description of our visit to the mill of Schoenberger and Blair, where we saw the best iron sponge—made directly from the ore by Mr. Blair's process—that we have seen anywhere, or to the Superior Mills, where we found probably the best arranged iron rolling mill in the United States.

## THE SIEMENS FURNACE.

We cannot describe the Siemens furnace that we saw in such common use where high temperature or economy of fuel was desired, nor even refer to the beautiful application, which the inventor has made in it, of well recognized scientific principles and of as well known practical engineering facts; and we must even omit a description of what we saw at the Allegheny observatory, where Professor S. P. Langley has arranged for the regulation of the time of the great Pennsylvania railroad and its branches by electrical clocks connected with his own standard at the observatory—the widest "distribution of time" in the world already, and in a fair way to be much further extended by the energetic astronomer who has commenced the work. The ten days of our visit were quite insufficient to satisfy our desire to thoroughly explore even a small number of the numerous interesting engineering establishments, or to witness the many attractive sights about this great human beehive. We must leave all until our good fortune shall offer an opportunity to revisit this place, and hurry westward and northward to see where the iron ores generally used here are obtained and how they are mined, and to see some of the great deposits of copper which feed our markets. R. H. T.

## SCIENTIFIC AND PRACTICAL INFORMATION.

## FIREWEED FIBER.

A plant, yielding a fiber capable of being spun and woven, called the *epitobium* or fireweed, has lately attracted the attention of manufacturers. It is very similar to the cotton plant, but the seeds are smaller and no ginning is required to separate them from the boll. Wicks, ropes, yarn, and even paper have been made from it, the last named application being especially successful, the product almost equaling the silk-made paper of China and Japan. The most valuable characteristic of this plant is stated to be that it will grow in any soil, and it is said to have appeared spontaneously in evergreen covered lands which have been burnt over.

## PREPARATION OF SILK.

Silk in its raw state, as spun by the worm, is either white or yellow, of various shades, and is covered with a varnish which gives it a stiffness and a degree of elasticity. For the greater number of purposes to which silk is applied, it must be deprived of this native covering, which has been long considered to be a sort of gum. The operation by which this coloring matter is removed is called scouring, cleansing, or boiling. Nothing agrees so well with the nature of silk and preserves its brilliancy and suppleness so perfectly, so far as European experience goes, as a rapid boil with soap and water. It appears, however, that the Chinese do not employ this method, but something that is preferable. Possibly the superior beauty of their white silk may be owing to the superiority of the raw material.

To produce the China white, a little annatto is mixed with the soap water, so strong as to lather by agitation, and the silk is passed through it. As to the other shades, they have only to be dyed more or less with a fine indigo, previously washed in hot water and reduced to powder. After being withdrawn from the bath, the silk is introduced into the sulphuring chamber, if it is to be made use of in the white state. The silks intended for the manufacture of blondes and gauzes are not subjected to the ordinary scouring process, because it is essential in these cases for them to present their natural stiffness. For these the manufacturer selects the raw silk of China, or the whitest raw silk of other countries, which are steeped and then rinsed in a bath of pure water, wrung and exposed to the vapor of water, and then passed through the azure water.

The dull silks, says the *British Trade Journal*, in which the varnish has already undergone some alteration, never acquire a fine white, unless they are exposed to sulphuric acid gas. Exposure to light has also a very great effect in whitening silks, and is had recourse to, it is said, with advantage by the Chinese. The Chinese prepare their silk with a species of white beans, with some wheat flour, common salt, and water in the respective proportions of 5, 5, 6, and 25. It is difficult to discover what chemical action can occur between the decoction and the varnish of raw silk; possibly some acid may be developed which may soften the gummy matter and facilitate its separation.

A RAILWAY tunnel under the Mississippi river at Memphis, Tenn., is projected, to cost five millions of dollars.

A CUBIC foot of air weighs 523 grains. A cubic foot of water weighs 1,000 ounces.

THE POPULAR SCIENCE MONTHLY, No. 4, for August, contains a variety of interesting scientific articles, collated principally from foreign magazines and other publications. To those who cannot conveniently find access to the original sources, these compilations will prove valuable. The editor, Professor E. L. Youmans, is well known as a lover of science, and as an indefatigable worker in the promulgation of useful knowledge.

Facts for the Ladies.—Miss H. W. Terry, Wading River, N. Y., has used her Wheeler & Wilson Lock-Stitch Machine almost constantly for 5 years, on all kinds of family sewing, and broken but one needle. See the new improvements and Woods' Lock-Stitch Ripper.

## Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed four Lines, One Dollar and a Half per Line will be charged.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line. Cheap Engines for Sale by Brady & Logan. See page 93.

In the Wakefield Earth Closet are combined Health, Cleanliness and Comfort. Send to 34 Day St., New York, for descriptive pamphlet.

Callow's New process of Graining Oak, Walnut, Chestnut, Rosewood, &c., with Metallic Therm Graining Tools, patented July 1 1870, does triple quick work, first class imitations, is durable, and makes every man his own Grainer. Address, with stamp, J. J. Callow, Cleveland, O.

Forty-five horse Engine, Lathes, Drills, three inch Shafting, with assorted Pulleys, and other iron working Machinery and Tools, in Brick 4 story Factory, for sale low, with or without Building. Easy rail and water distance from New York. Address Box 1,203, New York.

Lenoir Gas Engine—Wanted, the address of any agent in this country of the Lenoir Gas Engine, or of any person who has one imported within two or three years. Address, F. R., Box 498, Newport, R. I.

Platina Plating—Alb. Lovie, 729 N. 3d St., Philadelphia, Pa. Gear Wheels, for Models; also Springs, Screws, Brass Tube, Sheet Brass, Steel, &c. Illustrated Price List free by mail. Goodnow & Wightman, 23 Cornhill, Boston, Mass.

Brick and Mortar Elevator and Distributor—Patent for Sale See description in *Sci. American*, July 20, 1872. T. Shanks, Lombard and Sharp Streets, Baltimore, Md.

The Berryman Manf. Co. make a specialty of the economical feeding and safety in working Steam Boilers. Address I. B. Davis & Co. Hartford, Conn.

The Berryman Heater and Regulator for Steam Boilers—No. one using Steam Boilers can afford to be without them. I. B. Davis & Co. Hartford, Conn.

Wanted—An Engine Belt 76 ft. long, 19 inches wide; either new or second hand. Address P. O. Box, No. 237, Buffalo, N. Y.

Wanted—Two good machinists used to Lathe, Planer, and Bench work. Steady employment and good pay for the right men. Address, stating terms, age, &c., Oneida Community, N. Y.

Wanted—Melter. Permanent situation, at good wages, to a good, experienced Iron Melter. Address C., Iron Founder, Cleveland, O.

Tested Machinery Oils—Kelley's Patent Sperm Oil, \$1 gallon; Engine Oil, 75 cts.; Filtered Rock Lubricating Oil, 75 cts. Send for certificates. 116 Maiden Lane, New York.

Kelley's Chemical Metallic Paints, \$1, \$1.50, \$2 per gallon, mixed ready for use. Send for cards of colors, &c., 116 Maiden Lane, N. Y.

Kelley's Pat. Petroleum Linseed Oil, 50c. gal., 116 Maiden Lane.

Secondhand Saws and Mandril for Sale—one 46 inches diameter, used six weeks in cutting Georgia Pine Flooring—one 32 inches, never been used. H. A. Crane, foot W. 30th St., New York.

Brown's Coal Yard Quarry & Contractors' Apparatus for hoisting and conveying material by iron cable. W. D. Andrews & Bro., 414 Water St., N. Y.

It is better to purchase one of the American Twist Drill Company's Celebrated Patent Emery Grinders than to wish you had.

New Style Testing Machines—Patented Scales. Send for New Illustrated Catalogue. Riché Brothers, 9th and Coates Streets, Philadelphia, Pa.

Flouring Mill near St. Louis, Mo., for Sale. See back page.

State Rights on improved Cigar Moulds for Sale. Patented June 25, 1872. Inquire of Isaac Guthman, Morrison, White Side Co., Ill.

For Machinists' Tools and Supplies of every description, address Kelly, Howell & Ludwig, 917 Market Street, Philadelphia, Pa.

For 2, 4, 6 & 8 H.P. Engines, address Twiss Bro., New Haven, Ct.

Peck's Patent Drop Press. Milo Peck & Co., New Haven, Ct.

The best recipes on all subjects in the National Recipe Book Post paid, \$2.00. Michigan Publishing Company, Battle Creek, Mich.

Mining, Wrecking, Pumping, Drainage, or Irrigating Machinery, for sale or rent. See advertisement, Andrew's Patent, inside page.

We will Remove and Prevent Scale in any Steam Boiler or make no Charge. Two Valuable Patents for Sale. Geo. W. Lord, Phila., Pa.

For Hydraulic Jacks and Presses, New or Second Hand, send for circular to E. Lyon, 470 Grand Street, New York.

An inducement.—Free Rent for three months to tenants with good business, in commodious factory just built for encouragement manufacturing. Very light rooms, with steam, gas, and water pipes, power elevator, &c. &c. Manufacturers' Corporate Association, Westfield, Mass. Plans of Building, Room 22, Twenty One Park Row, N. Y.

For Marble Floor Tile, address G. Barney, Swanton, Vt.

Old Furniture Factory for Sale. A. B., care Jones Scale Works, Binghamton, N. Y.

Walrus Leather for Polishing Steel, Brass, and Plated Ware. Greene, Tweed & Co., 18 Park Place, New York.

Pattern Letters and Figures, to put on patterns, for molding names, places and dates on castings, etc. H. W. Knight, Seneca Falls, N. Y.

Steel Castings to pattern, strong and tough. Can be forged and tempered. Address Collins & Co., 212 Water Street, New York.

Presses, Dies, and Tinner's Tools. Conor & Mays, late Mays & Bliss, 4 to 8 Water St., opposite Fulton Ferry, Brooklyn, N. Y.

Portable Baths. Address Portable Bath Co., Sag Harbor, N. Y. Extra Heavy Oak tanned Belting—Rubber Belting, Packing, Hose, &c. Greene, Tweed & Co., 18 Park Place, New York.

All kinds of Presses and Dies. Bliss & Williams, successors to Mays & Bliss, 118 to 122 Plymouth St., Brooklyn. Send for Catalogue.

Diamond Carbon, of all sizes and shapes, furnished for drilling rock, sawing stone, and turning emery wheels or other hard substances also Glazier's Diamonds, by John Dickinson, 64 Nassau St., New York.

For Steam Fire Engines, address R. J. Gould, Newark, N. J.

Williamson's Road Steamer and Steam Plow, with Rubber Tires. Address D. D. Williamson, 32 Broadway, N. Y., or Box 1809.

Belting as is Belting—Best Philadelphia Oak Tanned. C. W. Army, 301 and 303 Cherry Street, Philadelphia, Pa.

Boynton's Lightning Saws. The genuine \$500 challenge. Will cut five times as fast as an ax. A 6 foot cross cut and buck saw, &c. E. M. Boynton, 80 Beekman Street, New York, Sole Proprietor.

Better than the Best—Davis' Patent Recording Steam Gauge Simple and Cheap. New York Steam Gauge Co., 46 Cortlandt St., N. Y.

For Solid Wrought-iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., for lithograph, etc.

For hand fire engines, address Rumsey & Co., Seneca Falls, N. Y.

To Ascertain where there will be a demand for new Machinery, mechanics, or manufacturers' supplies, see *Manufacturing News* of United States in Boston Commercial Bulletin. Terms \$4.00 year.