

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 information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 50 cents a line, under the head of "Business and Personal."

WASHING MACHINE.—J. S. Gochnauer, Goshen, Ind.—This invention relates to a washing machine which is composed of a yielding bed of conical rollers in combination with a corresponding conical roller rubber consisting of two wings which are hinged together and to which a revolving motion can be imparted by a vertical shaft which catches over the rod that unites the hinges of the two wings.

MODE OF TREATING INDIA-RUBBER.—Stephen Bourne, Headstone, Drive Harrow, England.—The object of this invention is to deprive india-rubber and the goods or articles into the composition of which it enters of the odor attaching to india-rubber itself and the various solvents or other substance or substances with which it is combined. And for this purpose, the invention consists in exposing the india-rubber or its various compounds to contact with charcoal and heating them together to such an extent as the different descriptions of goods may bear without injury; charcoal especially animal, having the power of absorbing the offensive smell or odor usually pertaining to this material as well also as its ability to impart flavor to liquids and other substances with which it may come in contact.

WHEELS FOR VEHICLES.—Jacob F. Morris, Lansingburgh, N. Y.—This invention has for its object to furnish an improved means for oiling the axles of vehicles, by the use of which the vehicle may be run for weeks with one application of oil, and kept at all times properly lubricated without the waste of oil.

COVERING OF HOOP SKIRT SPRINGS.—William S. Ryerson, Philadelphia, Pa.—This invention has for its object to protect the covering of the hoops or springs, and preserve them from becoming worn, and thus promote the durability of the skirt.

SMUT MACHINE.—William E. Tickler, Ezra T. Marshall, and Daniel M. Marshall, Pierceton, Ind.—This invention relates to improvements in smut machines, whereby the work of cleaning grain is executed in an efficacious and rapid manner.

DUST AND DIRT RECEPTACLE.—Chesmon Butterfield, West Waterville, Me.—This invention relates to a dirt receptacle to be used in the floor of a room, which receptacle is provided with a cover or slide, in connection with a bottom, so arranged and connected together that when the one is opened the other may be closed.

BOILER FURNACE.—Thomas H. Clark, Indianapolis, Ind.—This invention consists in causing the products of combustion to be equally distributed under the boilers set in a furnace for the purpose of generating steam, and in preventing them, when several boilers are set in an arch, from passing away diagonally from those boilers which are most remote from the chimneys.

CONSTRUCTION OF PAPIER MACHE FOR CASTING STEREOTYPE PLATES.—William Nelson, Boston, Mass.—The invention relates to the construction of papier mache matrices for casting stereotype plates, whereby a superior matrix is obtained for the purpose.

WAGON JACK.—Charles T. Close, Brooklyn, N. Y.—The wagon jack embraced in this invention consists of two legs pivoted together at one end, with a cam lever handle pivoted to the lower end of one leg, so that if the jack, by one leg, be properly placed under the wagon axle, by swinging the handle up the axle will be lifted.

TENT BEDSTEAD.—Rev. A. D. McCoy, New Orleans, La.—This invention consists principally in the combination with a camp bedstead of an upright framing for the reception of a canvas covering, this framing being so put together as to be readily set up and taken down.

FLOATING ANCHOR FOR KEEPING A VESSEL'S HEAD TO THE WIND.—George L. Baker, Astoria, N. Y.—This invention has for its object to furnish an improved apparatus, by means of which a vessel that has lost her rudder or become otherwise disabled or unmanageable in a gale of wind, may be held with her head to the wind, and thus prevented from getting into the trough of the sea and foundering.

BEE HIVE.—C. P. Lloyd, Portsmouth, Ohio.—This invention relates to a bee hive of that class which are provided with removable boxes, and it consists in having the sides of said boxes of glass, and each box provided with a slide and a series of movable comb frames, whereby any one of the boxes may be removed from the hive and the condition of the bees examined without any risk of being stung or without killing or injuring the bees.

BEE HIVE.—Charles McGrew, Bloomington, Ill.—This invention consists of a beehive, constructed in such a manner and provided with vessels for the reception of water or other liquids, located in such a position that the bee moth will be entrapped and the bees protected from the ravages of that insect.

SHAFT COUPLING.—H. K. Smith, Norwich, Conn.—With this coupling shafts can be readily secured together or detached, and, when coupled or fastened perfectly centered.

CULTIVATOR.—Edwin Children, Lancaster, Wis.—This invention relates to a cultivator of that class which have their plows connected to a frame mounted on wheels and provided with a pivoted draft pole. It consists in a novel means for raising the plow beams and retaining them in an elevated position; and also in an improved arrangement of the draft pole and means of attaching the plows to their standards, whereby advantages are obtained.

PIPE TONGS AND CUTTER.—John Peace, Camden, N. J.—This invention consists principally in combining with one jaw of the tongs a double ended adjustable steel socket having a series of air spring edges; also in combining with the steel socket a bridle of suitable shape to fit about the tongs, to adapt them for the cutting off of pipes.

MANUFACTURE OF CAST STEEL.—V. Gallet.—Dated June 14, 1866.—The inventor of this process takes iron, by preference such as has been submitted to one rolling operation only in which state it is termed "puddle bar," and coats it with a paste made by mixing water with the following ingredients: Limestone, 30 parts; vegetable mold, 3 parts; carbonate of potash, 8 parts; oxide of manganese, 6 parts; resin, 6 parts; soot, 10 parts; charcoal, 34 parts; common salt, 3 parts. The iron coated with this composition is melted in a crucible, and cast steel is in this way obtained from iron in one operation.

METHOD OF TREATING PERMANENT INFLAMMABLE GASES, WHEREBY GREATER HEAT IS OBTAINED THEREFROM.—B. F. Stevens.—Dated June 15, 1866.—This invention consists, essentially, in mixing steam with gas obtained from the distillation of wood, resin, petroleum, peat, and other hydrocarbon substances in the manner hereinafter described, and employing this mixture for the production of heat.

MANUFACTURE OF PIGMENTS.—J. E. T. Woods.—Dated June 18, 1866.—The patentee proposes to utilize the condensed or deposited fumes of lead from lead furnaces, such deposit being known as lead soot or sublimated lead, by converting the same into a chloride of lead. One method of effecting this object is to treat the sublimated lead or lead soot with heated muriatic acid, or to treat the lead soot in combination with a saline chloride, such as the chloride of sodium or common salt, whereby the chlorine having a greater affinity for the metallic than the earthy base, will form a chloride of lead, which, being dissolved in water, and the lead precipitated therefrom, will leave a white pigment suitable for various useful purposes to which pigments are applied.

TREATMENT OF ANIMAL CHARCOAL USED BY SUGAR REFINERS OR OTHERS, IN ORDER TO ITS RE-USE.—W. B. Patrick.—Dated June 18, 1866.—In carrying out the improvements the charcoal, while still in the filter, after it has lost its power by use, is first washed, by causing hot water to flow through it. It is then dried, or partially so, by causing hot air to pass through or among it, aided by force or exhaustion. It is then allowed to remain for fermentation in the filtering vessel, with the taps or valves opened to the atmosphere for twenty-four hours or more. When fermentation has taken place carbonic acid gas is admitted to act on the charcoal for the purpose of rendering soluble or neutralizing the lime or alkaline matters which have combined or mixed with the charcoal in its use. Hot water is again passed through the charcoal, to cleanse it of matters rendered soluble by the action of the gas.

STAIR ROD.—W. B. Gould, New York City.—In this invention the stair rod at each end is held in a socket secured to the stairs at the proper points, and provided with an adjustable yielding bearing surface for the end of the stair rod, whereby the rod, without disturbing or detaching the sockets, can be placed within or removed from them with ease and facility.

SCISSORS SHARPENER.—A. W. Gifford, Worcester, Mass.—With this sharpener the blades of scissors can be sharpened with ease and dispatch and without injury.

PROCESS OF UTILIZING WASTE VULCANIZED INDIA-RUBBER, AND MANUFACTURING HARD RUBBER THEREFROM.—G. T. Bousfield.—Dated June 19, 1866.—The first part of this invention has for its object to avoid the expensive and dangerous modes of treatment usually adopted, and to restore to the rubber those properties of which it has been deprived by the process of vulcanization to which it had been previously subjected. This the patentee accomplishes by adding to the rubber (after it has been suitably comminuted) a portion of some vegetable oil, which having no solvent action on the rubber, simply restores to it those properties and that capability of being vulcanized which it possessed in the crude state.

APPLICATION OF ELECTRIC LIGHT FOR GIVING EVIDENCE OF BUOYS OF EVERY DESCRIPTION.—A. Miroude.—Dated June 20, 1866.—This invention consists in the employment of the electric light for lighting buoys without requiring any communication from the shore, by which they can be increased in number and placed as far from the land as the sea or river navigation requires, the object being to light buoys by means of the light produced by electricity in the apparatus known as Geissler's tube, and is carried out by placing in the buoy to be lighted, whatever may be its dimensions and form, a receiver or battery (of a size and weight in proportion to the size of the buoy), producing an electric current; then a Ruhmkorff induction bobbin and lastly, at its upper part, the lamps furnished with several glass tubes or spheres, known as Geissler's tubes.

COTTON BALE TIE.—Joseph Knight, Louisville, Ky.—This invention relates to a new and improved device for fastening iron hoops or straps upon cotton and other similar bales, and consists in a flat loop of plate iron made square at one end and diagonal at the other, through which the ends of the strap are passed, and the outside end is bent in a peculiar way on the diagonal side of the loop and secured by slipping it under the body of the hoop above the loop.

DRESS HOOK.—Andrew Bennett, Brooklyn, N. Y.—This invention relates to such a construction of a dress hook that the same cannot be spontaneously disengaged from the eye, while it does not require much more than the usual force to unhook the same, if required. The invention consists in the use of a spring, which is formed by an extension of the wire of which the hook is made, whereby the aforesaid results may be obtained.

ROCK DRILL.—G. F. Case, New York City.—This invention relates to that class of drills in which diamonds are employed as the medium for cutting the rock, and it consists in arranging the diamonds in the head of the drill in two or more rows, and also in so setting them as to cut the entire surface of the rock embraced by the drill head.

SODA-WATER STAND.—Abraham Van Winkle, Newark, N. J.—This invention relates to a soda-water stand which is composed of two or more tiers of sirup cans placed one above the other, instead of one row on each side of the stand, as heretofore constructed, in such a manner that the appearance of the stand and its convenience are enhanced. All the ornamental sirup drafts being shown at a glance and in convenient reach of the person having charge of the stand. The draft for drawing the soda water is placed at the end of the stand, and thereby the soiling of the plated sirup drafts by the splashing of sirup and water is avoided.

MUCILAGINOUS COMPOUND.—Victor Bloede, Brooklyn, N. Y.—This invention relates to a mucilaginous compound obtained by treating common wheat starch with a mixture of acids applied in such a manner and proportion that a perfectly white gum can be produced, fit for photographers and for other delicate work, or gums of a more or less dark hue, according to the work for which the gum is to be used.

FISH HOOK.—Benj. Lee, Jr., Williamsburgh, N. Y.—This invention consists in combining a spring with the stem of a fish hook, the object being to increase the strength of the hook without materially increasing its weight, as well also as to render it sufficiently flexible to resist sudden strains.

BURGLAR AND FIRE ALARM.—Josiah Holmes and Charles W. Nickerson, Pittsburgh, Pa.—This invention relates to the construction of burglar and fire alarms, and consists in the arrangement of devices in connection with inflammable guard cords stretched throughout a building, whereby, when the guard cords are burned by fire or broken by the entrance of a burglar through a door or window, an alarm bell is started which will awaken and notify a person in charge of the building.

STEAM GAGE.—William Stamp, Susquehanna Depot, Pa.—This invention relates to the construction of gages for indicating the pressure of steam in boilers, and consists of a novel form and arrangement of a steel diaphragm or partition plate upon which the steam acts by expansion, and also the means of adjusting the moving apparatus of the dial to indicate the degree of pressure with minute accuracy.

WHITENING CURRIERS' SLICKER.—Daniel Peters, Keokuk, Iowa.—This invention has for its object to improve the construction of Daniel Peters and W. D. Wilson's slicker, patented April 19, 1864, and numbered 42,397.

The claims of the following notices were patented Feb. 5, 1867:—

MACHINE FOR HEADING BOLTS.—Phillip P. Trayer, Baltimore, Md.—In this machine the heading tool is free to rotate upon its axis so that as the square head of the tool moves forward within the die it is adapted to turn or adjust itself sufficiently to become coincident with the inner surfaces of the die and thereby prevent the abrasion or cutting action by the tool, which occurs in machines of this class as heretofore constructed.

MODE OF FASTENING ROOFING.—J. C. Wanda, Nashville, Tenn.—The material consists of a layer of wire cloth covered with any pitchy substance on the outside and with a coat on the inside to prevent its adherence to the sheathing of the roof. The breadths of fabric, felt or prepared paper are laid parallel upon the roof from ridge to eave, their edges lapping each other upon raised strips which are capped with metallic plates which fasten the lapped edges on the strips making a water-tight joint.

COTTON CULTIVATOR.—James C. Bethea, Blakely, Ga.—The sheath or standard is made of the same shape toward the front end to the rear to either of which the share may be attached so as to adapt it to throw the furrow to the right or to the left; the beam itself being shifted end for end to adapt it to the change.

COTTON-BALE TIE.—Henry Fassmann, New Orleans, La.—The buckle of this tie has two loops for securing the ends of the hoop and a ridge or ridges on one or both sides to press the hoop against the cotton and prevent its withdrawal. In use one of the hoops is first lapped around the bar of one loop and the other end of the bar is inserted through the notch in the bar and lapped over the bar of the loop whose notch it spans; the chamfered corners of the bar at the notch permit the oblique insertion of the hoop therein.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

Wanted.—Best wool carding and spinning machines and power looms. Manufacturers send circular and price list to C. Picard & Co., Nebraska City, Nebraska Territory.

B. G. Stockton, of Flint, Mich., asks where he can purchase a roadmeter and the price.

H. E. Shipman, Towanda, Pa., Where and at what cost can I obtain a machine for making shoe pegs? What power does it require?

Newton Clark, of Baraboo, Wis., asks where machines can be procured for sharpening hop poles.

Forgings of all kinds promptly executed to order at the New York Agricultural Manufactory, corner of Jay and Plymouth streets, Brooklyn.

Chattanooga Water Works Company, Chattanooga, Tenn., want a pump that will supply 500,000 gallons of water per day at an elevation of 150 feet.

Winter & Ball, Honesdale, Pa., wish to communicate with manufacturers of Gates Automatic Turning Lathe or any other wood turning machinery manufacturer. Also of water wheels and saw mills.

Pumps, brass and iron, all sizes. Send for list and prices. Rumsey & Co., Seneca Falls, N. Y.

Parties having for sale second-hand machinery for manufacturing flour barrels will address Wm. Ruddick, Keokuk, Iowa.

M. C., of Conn., sends us the details of a supposed spontaneous explosion of a burning oil which he had purchased under the name of "Non-explosive Union Oil." His wife was filling lamps from a can, in the day time standing about six feet away from a coal fire burning in a stove. On removing the stopper which was a piece of potato the oil (vapor) in the can exploded and set fire to the lamp, etc. A previous stopper, a wad of newspaper, had fallen into the oil; except in this respect the oil was clean and in as good condition as when procured. M. C. is unable to find any cause of the explosion. We are unacquainted with the oil under the name given. If M. C. on re-examination of the case is still satisfied that the explosion did not originate from the fire in the stove or any other fire burning in the room, we recommend him to have examination of the oil and can made by a competent chemist. We have placed his letter on file for future reference if necessary.

D. U. S., of D. C., supposes a very long railway car going East. A track is laid on the top of the long car, and on this track is a short car going West at the same rate as the long car goes East. What is the motion of the short car in relation to a spectator at rest on the side of the railway. What the motion after the short car falls down on to the main track. A very good case for the juveniles.

J. V., of Ala., The enamel on watch faces is a white glass or glazing which is melted on the metal in a muffle. Photographs may be made on any genuine enamel.

O. H. H., of N. J., sends the following interesting computations. A cubic mile of water in round numbers is equal to 147,000,000,000 cubic feet or 9,000,000,000 lbs. or 4,560,000,000 tons.

J. C. A., of Conn., sinks a pipe perpendicularly into the earth 50 feet, and water is found at 26 feet. He appears to enquire if the water will not rise to the surface of the ground, by reason of the great length of the pipe. The length of pipe beyond the point where its end would constantly be in the water would be of no advantage.

J. C. M., of Me., sends a pencil sketch of a singular freak in the formation of ice. A common wooden pail had been left out of doors till a film of ice had formed about a quarter of an inch in thickness. The surface was ordinarily even except that two or three inches from one side rose a neatly formed flattened tube of ice. The tube was one and three-eighths inches high, one and one quarter inches in outside diameter, about quarter of an inch internal diameter.

W. S., of O.—Benjamin Pike, Optician No. 518 Broadway can supply you with microscopic photographs.

A. H., of N. Y.—The process for purifying black lead consists in mixing it with sulphuric acid to a pasty consistency and exposing to heat till a considerable part of the acid is decomposed. The mass is then washed with water which dissolves the impurities.

J. M., of Pa., thinks it extraordinary that there was a thunder storm in his town (Bareville) on the 2d inst. But we had also here on the same day a thunder storm and another on the 9th. Such storm in winter are rare. They are to be explained in the same way as the summer storms.

H. W. S., of O., suggests that the law of equal pressures in all directions should be extended to solids as well as liquids. He argues that the difference between liquids and solids is only in degree that all liquids have some cohesion, and no solid is perfectly rigid; and concludes that the law of equal pressures is applicable to all bodies due allowance being made for the action of cohesion in individual cases.

R. B., of Ill.—The so-called marine soap, or the soap which can be used with salt water, is made of coconut oil and soda. Vegetable oils generally make soaps which are more soluble than those containing only animal fats. Palm oil is used in all parts of the world as a soap fat.

W. R., of N. Y.—We cannot see any greater difficulty in extinguishing a fire in the basements of buildings on the line of the proposed arca derailway, than in the lower stories of other buildings; in fact not so much. The areas leading to the tunnel, and the building, itself, would suffice for the escape of the smoke. It would not be necessary for the engines to be placed on the lower level, but they could be worked from the street, as at present.

J. F. D., of —, has some old brass bearings, faucets, etc., which when melted will not fill the molds well and is too hard to work easily. He desires to know how to remedy it. We think the addition of a little zinc, say 20 per cent, would improve it. Plumbago crucibles are not injured by long exposure to a low fire. It is high heat that weakens them.

B. of R. N., Wis.—You are quite correct. Arsenic is recognized as a medicine and is used by most of the faculty under the form of what is called Fowler's solution. There are perhaps no well known poisons which have not been praised for their medicinal virtues. If you make up your mind to take no doses which contain a poison you may as well at once dismiss all the doctors. The root doctors and the Indian doctors, in respect to the poisons are just as bad as their more enlightened brethren.

R. N. T., of Me.—There is as yet no successful electro-magnetic engine, and our knowledge must be much farther advanced to enable us to see how it is possible that electricity can supercede steam as a motive force. The electrical force equivalent to steam force costs about fifty times more, and in utilizing it for mechanical work there is a larger percentage of leakage.

R. B., of Vt.—The steam gun was invented by Jacob Perkins an American, who exhibited it in London where for a time it was the great sensation.

S. C. N., of Del.—Your opinion is just as good as ours, perhaps better on the probable advent of cholera this year. We do not entertain many subjects where mathematics and physical demonstrations are wholly inapplicable.

S. G., of Tenn.—The sources of zinc are very abundant in the United States, but very little of the American metallic zinc gets into market. It is found more profitable to use the ore for zinc paint.

N. L. N., of N. J.—There is no way known of bleaching printing ink. The black matter of the ink is carbon for which there is no solvent. Any corrosive substance which can destroy carbon, acts much more powerfully on paper and other organic matter. Writing ink is of a different nature altogether and its chlorine may be discharged by chlorine and almost any acid; oxalic acid is most commonly used.

R. B., of R. I.—The acid of the lime, lemon and orange is the same substance, citric acid. The acid cannot be manufactured profitably in your state.

S. N. D., of Ind.—We hear complaints from all quarters about the vinegar. It appears as if half of the manufacturers do not understand their business. A great deal of the vinegar now sold loses all its sourness in a few weeks and becomes offensive to the smell. We are told also that some of the vinegar makers have learned the art of increasing the sourness by putting in sulphuric acid. Those who are anxious on the subject should test the vinegar by a solution of chloride of barium; a white precipitate indicates sulphuric acid.

J. F. S., of Kansas.—To determine the efficiency of a water ram it is necessary to know the diameters of the pipe as well as their lengths. You will perceive therefore that your question cannot be answered.

Improved Tile Roofing.

In some districts of this country, as well as in some other countries, wood is scarce and cannot be obtained readily, even for the purposes of roofing. Shingled roofs may be considered essentially American, not being much in use elsewhere. Slate stone is not universally found, and metal roofing corrodes readily in some climates. In such cases recourse must be had either to tiles or some more primitive material.

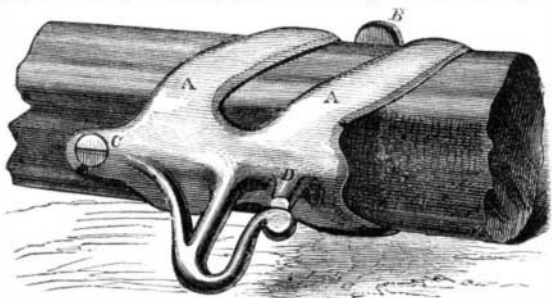
The annexed engraving shows a method of forming and laying tiles to make a convenient roofing. It is the invention of gentlemen living in Colorado, where wood, slate and metal for roofing purposes are scarce. The tiles are made in sections, so formed that each successive layer is a support to that next preceding. The tiles are made with projections running across the under sides to rest against the eaves or wall plate and against the cross rafters. The upper edges also have projections at the other ends of the tiles to lock into the downward projecting edges before mentioned. The whole is secured in place by a strip which near the ridge-pole fits into proper depressions, and the longitudinal recesses in the center of the tiles form in combination perfect gutters for rain. The arrangement can be easily understood by the engraving. It would seem to be admirably adapted for certain situations. Address Chas. Bamberg or Jos. Weiber, Box 443 Central City, Colorado, for state and county rights.

Absorption of Gases by Solids.

Among the interesting observations of Mr. Graham, Master of the British Mint, (to some of which we have lately referred) upon the passage of liquids and gases through solids, is the fact that atmospheric air, by passing through india-rubber, becomes super-oxygenated, and will rekindle smoldering wood like pure oxygen. Any kind of light india-rubber receiver, in which a vacuum may be obtained, the size being sustained by mechanical means, will collect super-oxygenated air; the better if the india-rubber be thin and the temperature high. Mr. Graham makes the suggestion that the solid films pass gases through them by first condensing them to a liquid form within the substance, and then passing them off on the other side by evaporation. Hydrogen passes through redhot platinum, while oxygen and nitrogen do not, or not in appreciable quantities; hence their compounds with hydrogen are readily dialysed by this method. The passage of carbonic acid, chlorine, hydrochloric acid, vapor of water, ammonia, coal gas, and hydro-sulphuric acid, is also inappreciable, while the hydrogen, in compounds containing it, passes. One volume of redhot platinum absorbed 0.207 volume of hydrogen, retained it while cold, and gave it off on reheating. One volume of palladium absorbed 643 volumes of hydrogen, sensibly increasing its weight, and when heated afterward, gave off the most of it in a continuous stream. On the other hand, osmium-iridium does not absorb hydrogen, and copper absorbs it very slightly. Gold absorbs hydrogen and nitrogen slightly. Silver absorbs 0.289 of its volume of hydrogen, and then presents a beautifully frosted appearance. Oxygen is taken up in the proportion of 0.745. Redhot iron and steel pass hydrogen as readily as platinum does.

WILSON'S CLASP HOLD-BACK IRON.

In attaching the common hold-back irons to carriage shafts the shaft itself is weakened by the insertion of screws which remove a portion of the wood from that part that requires to be as strong as any other, if not stronger. In case of acci-



dents by the stumble of the horse, the shaft is frequently broken, even if the animal does not fall upon it. The hold-back here represented is not open to these objections, as instead of weakening the thill it really strengthens it. It is made of malleable iron in one piece, embracing the shaft by two bands, A, which unite on the hook-front plate. On the opposite side the hold-fast is divided in a line with the shaft and the two parts are secured together by a single screw, head seen at B, which grips the halves firmly around the shaft. By loosening this screw and drawing that at C the hold-fast can be removed to any portion of the shaft desired. The projection, D, on the inside of the hook makes it almost impossible for the breeching to slip out.

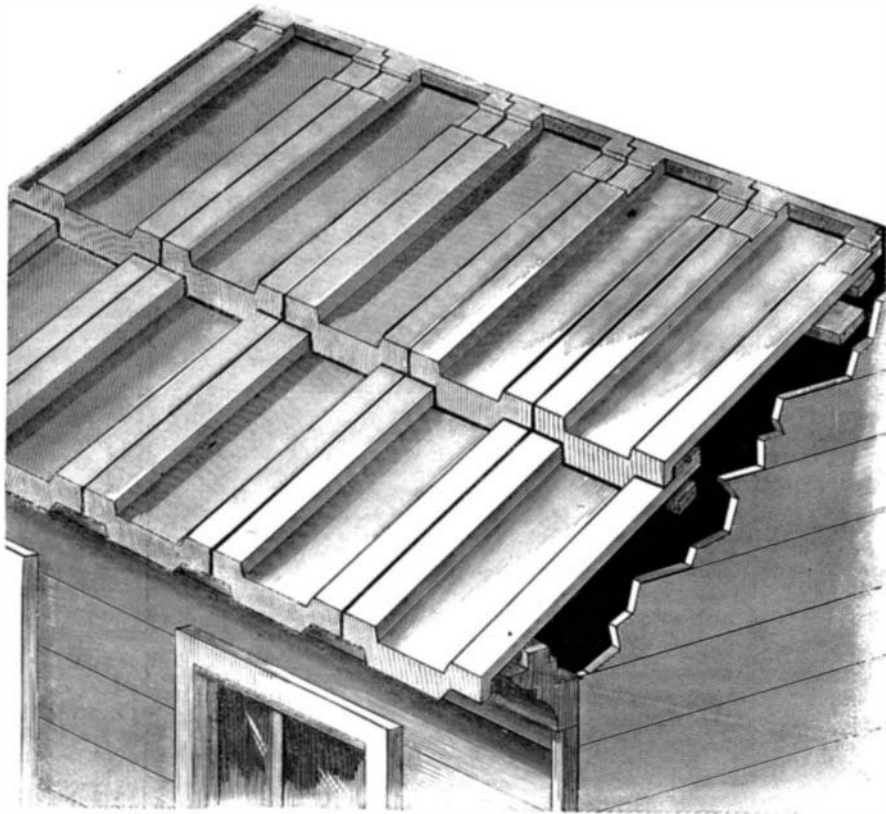
The contrivance has a very neat appearance and seems to be calculated for giving additional strength to the shaft. It was patented Nov. 6th, 1866. Information required by those interested, as to rights to make and use, can be obtained from Edward Wilson, Northbridge, Mass.

THE MODEL SCHOOLHOUSE.—The Legislature of Massachusetts has decided not to pay for the model schoolhouse which certain gentlemen have been getting up for the Paris Exposi-

tion. The point is, that Massachusetts and other American States excel not particularly in school houses but in school laws. Such a humble specimen of mere architecture, in the Exposition, will astonish the natives only as flies in amber do—how in the name of common sense, did they come to be there.

DAVIS'S IMPROVED PROPELLER SCREW.

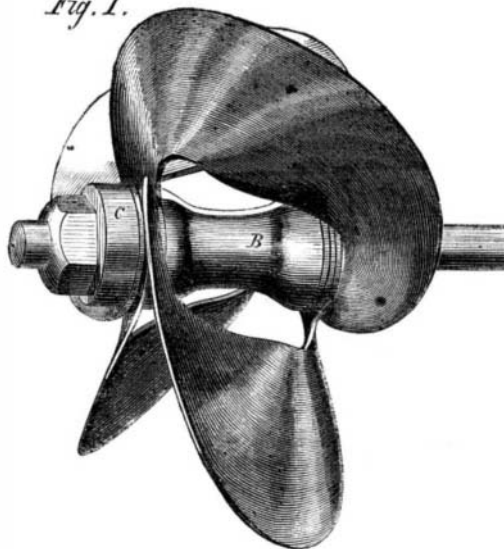
The inventor claims for the screw represented in the accompanying engravings several advantages over that in common use. As may be seen in the engravings, it is a combination screw, formed in parts and put together, instead of being a single casting. The blades are made of boiler plate, or of plate steel, of equal thickness throughout. They are cut

**BAMBERG & WEIBER'S TILE ROOFING.**

from a flat plate, the holes for the reception of the propeller shaft made, and then either by hammer, rolls or formers curved to the proper shape. Each blade is precisely alike, so that if one should be broken a duplicate could be readily fitted.

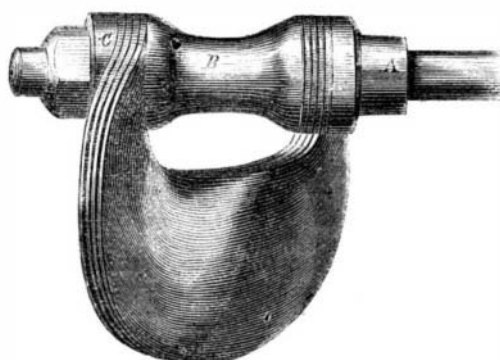
A is a collar secured upon the shaft, and the inner legs of the blades bear firmly against it. The sleeve, B, keeps the legs of the blades at the proper distance apart, and the collar, C, and nut secure all in place. To hold the blades in position

Fig. 1.



against the leverage of the water, bolts may be passed through the collars and blades longitudinally with the shaft, or the blades may be held by a feather on the shaft.

Fig. 2.



Among the advantages claimed for this screw over others is increased strength from the material used, less weight, greater efficiency from the uniform thickness of the blades, facility for repairs and also for transportation as shown in Fig. 2.

When a blade is broken from a cast propeller the screw is ruined, and floating ice, timber, or fouling by a rope, are always threatening such an accident. With this screw, however, the breaking of a blade can be at once remedied by removing the remaining portion and replacing it with a duplicate blade. Letters patent for this device were granted through the Scientific American Patent Agency to William E. Davis, Aug. 7th, 1866. Mr. Davis will supply all further information if addressed at Jersey City Locomotive works Jersey City, N. Y.

Steam Plowing.

A steam missionary has been sent over from England to preach to our Western farmers. The economy of steam plowing, cultivating and harvesting in the Mississippi valley, is extraordinary, of course. The cost of the apparatus is the grand objection. In England, where \$5,000 will buy a plowing equipment, it is found that few farmers feel able to furnish themselves, and still fewer, perhaps, could give enough employment to the capital in this form to render it remunerative. Hence association is resorted to, and a neighborhood of farmers sometimes organize a company for steam cultivation. Under our free laws of association this can be done with facility and advantage. Messrs. John Fowler & Co., of England, have taken the right way to extend their business, by sending out the agent above referred to, with their apparatus, (price \$10,000) to exhibit its economy and induce the Western farmers to form associations for owning and operating it. An objection to doing this business by itinerant jobbing, is the cost of so much heavy transportation. The work of the steam plowing apparatus is estimated at an acre per hour, twelve inches deep.

Aerial Ferry.

We are rather surprised that our aeronautical friends have not seized the present favorable juncture for proposing an "air line" from New York to Brooklyn. It would seem that the first practical success in aerial navigation should be on short crossings like these, where some kind of guide or aerial suspension way can be established, along which to propel and steady in its course the unfledged flying ship. A sort of guy rope anchored to a pier in the middle of the channel, reaching to the shore, and there connected to the aerial boat, would guide it over in a parabola; yielding gracefully to any lateral deflection the wind might require in either direction. On approaching the shore, a gradual and easy descent would be secured by running out the guy rope off a drum checked by the tension of a strong spring or brake, thus rendering the centripetal pull sufficiently elastic. An experiment might perhaps be cheaply conducted by using one of the islands up the East River.

PAYMENT OF A PATENTEE.—Senator Van Winkle, from the Committee on Post Offices and Post Roads, reported a bill authorizing the Post Master General to pay \$100,000 to the owner or owners of the letters patent granted to Marcus P. Norton, of Troy, N. Y., for invention for marking of letters, etc., and for the cancellation of postage stamps thereon, said sum to be compensation for the past and future use of the patent, and for which the transfer of the same is to be made to the United States.

Our readers will find an illustration of this invention on page 104, Vol. XI, SCIENTIFIC AMERICAN.

RAILWAY DRY DOCK.—Two gentlemen of Portland, Me., have patented apparatus designed for connecting with a dry dock a system of tramways and trucks upon which a ship, after being docked by means of high tide and supplementary water raised by pumps, may be run out into a ship yard adjoining, making room for others to any required extent. Locks and reservoirs are also arranged in such a manner as to store at the required elevation, for further use, the water once raised for the purpose of docking a ship.

GEORGE PEABODY'S GIFT.—A million of dollars in cash, and a million and more of unreputed Mississippi bonds which can be fully resuscitated through a shrewd application of the terms of the gift, make up a virtual donation of probably two millions of dollars, given in trust to a number of our most patriotic and liberal public men, for the all-important object of the time—the education of the youth of the Southern States, without any other distinction than that of their needs.

OFFICERS OF THE AMERICAN INSTITUTE.—The election of officers of the American Institute took place on the 14th inst., when the following gentlemen were elected:—President, Horace Greeley; Vice Presidents, Dudley S. Gregory, Orlando B. Potter, William H. Vanderbilt; Recording Secretary, Salem H. Wales; Corresponding Secretary, Samuel D. Tillman; Treasurer, Sylvester R. Comstock.

PATENT EXTENSION.—Senator Willey, Chairman of the Committee on Patents, has made an adverse report on the application of Geo. B. Simpson for the extension of a patent of a telegraph cable insulation by gutta percha. The case was elaborately argued by several prominent lawyers.