

# Notes & Queries

[We herewith present a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

- 1.—How can I do silver plating on carriage work with foil?—T. R.
- 2.—How is canvas prepared for painting pictures on?—J. C. J.
- 3.—Will some one tell me how horn is cleared or made transparent?—A. J.
- 4.—Will some one please inform me how shot guns are loaded so as to throw the shot closely?—A. J.
- 5.—Is there anything that will remove the taste of kerosene from a cask?—Z.
- 6.—Can you inform me how to take the oil out of cotton waste in the quickest and cheapest manner?—J. C. W.
- 7.—Can you give a recipe for making paste to stick to bright tin without first roughing the tin; a paste that will not peel off?—B. W. & Co.
- 8.—What is the best size to use for gilding the engraved lines on ornamental walnut work, and also for gilding on pine board?—W. H. C.
- 9.—What is the best and cheapest process for gilding picture frames, and how can I obtain the high polish or gloss on certain parts of the gilt surface?—H. R.
- 10.—What is the best means of cutting brass stencil plates with acid, and what is the proper material with which to cover the portions of the plate that are to be protected?—J. J. C.
- 11.—Is it possible to take ink stains from dressed stone? One of the finest buildings in our city has been defaced by the use of writing fluid and some kind of syringe, in the hand of some spiteful unknown.—W. D. G.
- 12.—How is the pearl work put on the many sided part of ornamental handles of boxes, and on heads of canes, whips, etc.? From what is the material obtained, and in what part of the world is it produced, and what is the process?—C. D.
- 13.—Will some one tell me how thin, crooked ornamental patterns are made, such as stove patterns, column capitals, etc.? And how are small castings made to have the appearance of bronze or copper, by a cheap process?—G. W.
- 14.—I have a lead cistern which leaks; the plumber says it is caused by the action of the water on the lead. It is supplied from a well, and the water is not very hard. Do you know of any cement or paint which will stop the leaks and prevent any further corrosion?—B. F.
- 15.—Does wood, after it has been thoroughly kiln dried and treated with a non-absorbent of moisture, shrink and swell with variations in temperature, as iron, brass, zinc, and pipe metal do, and to what extent, taking iron as the unit? What is the best non-absorbent to use to give a hard and glossy finish? Would liquid glass answer the purpose?—A. A. D.
- 16.—I am building a cedar skiff and am desirous of making it as light as possible. Is there any preparation that I can use in the place of paint and oil that will be as good and weigh less?—J. H. R.
- 17.—What can I use for a light in a dark lantern for night hunting that will enable me to see farther than ordinary kerosene or signal oils?—J. H. R.
- 18.—Can there be telescopic sights adjusted to a rifle barrel that would be of use in night hunting, at a moderate cost?—J. H. R.
- 19.—I want a substance like glue, mucilage, or varnish with which I can give oak wood one or two coats, to keep it from burning, or else make it burn very slowly. I want to mix up liquid iron with it. I don't mind if the wood burns, so that it burns slowly.—W. H. P.
- 20.—How can I make a fireboard for a grate front? I have finished one, but it is wrinkled and full of folds. How can I stretch the cloth on the frame, and how can I paste the paper on the cloth so that it will be stretched smooth?—C. R.
- 21.—Will some one give a rule for laying out for dovetailing on a bevel, say for a hopper for a grist mill, or the corners of a carriage seat? I find very few mechanics who understand it.—T.
- 22.—I have a steam engine, cylinder of 1½ inches diameter, 3 inches stroke, which I wish to use for running a sewing machine, and perhaps some other small affairs about the house. How can I build a boiler for it that will be cheap and safe, and will run it at 150 revolutions a minute with 25 pounds pressure? Can I make one to go on a cooking stove, or would it be better to set a boiler into a common cylinder stove, or to make a boiler and furnace separate from any stove? What thickness of iron and how large should be the safety valve, and what should be the length of arm and the amount of the weight?—J. E. S.



**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 \$1.50 a line, under the head of "Business and Personal."

ALL references to back numbers must be by volume and page.

J. B., of N. Y.—Your windmill can, we think, be patented.

What is properly the damper in a stove? Is the movable plate next the pipe called the damper, or is the sliding plate in the front which shuts off the air properly the damper? I contend the plate which turns the fire under the oven is not the damper proper, but the regulator, and the valve in front is the damper. The dictionaries are not explicit enough to satisfy the understandings of different persons. Answer: We generally designate the movable plate or dish within or near the smoke flue as the damper, and the valve in front as the draft regulator. The plate that sends the fire around the oven might be called the oven damper or the oven regulator. It makes little difference what name you give to mechanical parts provided people understand what you mean when you speak.

Have any experiments been made with a sheet iron cylinder, filled with hydrogen or coal gas for the purpose of making an electro-magnetic helix out of it? If not, would you please to give me your opinion, whether such a helix would heat the gas, and cause it to explode, if there were a battery of 36 cells attached to it, or whether it would have no effect on the enclosed gas? The knowledge of whether it would have any effect on the gas would be a step forward to an important invention.—D. M. B. Answer: Experiments have been made. A sheet iron cylinder

will not act as a helix with such a battery. The gas would not be perceptibly affected, and would not explode if it were heated. It requires to be mixed with oxygen in proportion approaching 2 volumes of hydrogen to one of oxygen to make it explosive.

Is metallic antimony a good conductor of electricity for a positive metal in a galvanic battery, and what is its conductivity relative to silver or copper? What number of copper wire would it take for an electro-magnet 3 inches long with a core of ¼ inch or 1 inch diameter?—C. B. Answer: Owing to the action of the acids, antimony would be a very poor material to use in a galvanic battery. In a thermo or dry battery it may be used to advantage. It is a much poorer conductor than silver or copper. As to magnet, make your core a little longer, say 6 inches, for the diameter you mention, and use No. 20 cotton or silk covered copper wire.

M. M. S. asks: Suppose 130 is the larger, and 23 the smaller gear on a lathe, can a screw be cut coarser than said gears will cut on same lathe without larger or smaller gears? Is so, how can it be done? Answer: There can no coarser thread be cut with those gears, except by the use of intermediates on a stud.

It is argued that a person travelling, either eastward or westward, around the world—say at the equator—would find on arriving at his starting point that he had either gained or lost one day of the week. Is this so?—J. R. T., Jr. Answer: Yes. Make a calculation on a terrestrial globe, and you will see for yourself.

S. H. G. says: In the schedule of charges adopted by the Institute of Architects, June 4th, 1866, I find the following: "Drawings as instruments of service are the property of the architect." I wish to know how the architect can recover plans after such service. Answer: In the same manner in which a person may recover any other property of his, which may be improperly detained by another,—by due course of law.

I have in my possession a stone, something similar, I presume, to diamond. Enclosed is a small piece, which I hope you will give a thorough examination. It has been tested by several in this place and they report it a valuable stone of some kind, but do not know for certain whether it is a diamond or not.—J. M. McN. Answer: The fragment sent is from a pure, limpid rock crystal; this it is, and nothing more. Of no value.

E. B. M., of Tenn.—The crystals are sulphuret of iron or pyrites, and are valueless.

J. H., of N. J.—The specimen you send is shell marl, that is, a mixture of clay and lime containing small bivalve shells.

J. A. B.—The mineral you send is chalcedonic quartz, of no special value.

W. S. H. says: How can I arrange the exhaust pipe to my engine, so as to get the greatest degree of heat in the water in the tank? And if I use a coil or worm, do I lose any power from backpressure? Also, what would cause blisters on the bottom of the boiler? And would they be considered dangerous with plenty of water in the boiler? Answer: To get most thorough utilization of the heat of your exhaust steam, lead it into a receiver near the lowest point and carry off such as remains uncondensed by a pipe from the top. Sprinkle your feed or other water to be heated, by a rose fixed in the upper portion of the receiver. The feed will thus be heated to the boiling point if properly arranged. Place your pump so low, or the receiver so high, that there will be a good head of water above it, or you will find pumping hot water a difficult matter. If you must draw and force your feed water with a single pump, you will be compelled to use a worm heater. If well proportioned, it ought to do good work without seriously increasing back pressure. Give it plenty of surface, and do not make the pipe too small. Large blisters are always dangerous.

S. W. H. says: Your decision between R. and W., page 394, in the matter of a balance wheel keyed on diagonally to the shaft, as shown in the figure, seems to me unsound. You admit that it will always tend to turn itself until its axis coincides with that of the shaft, and say, "this effort will be a constant one, tending to bend the shaft, but does not necessarily produce unsteadiness in the shaft." Now unless the shaft be infinitely inflexible (which was not in the proposition) it must yield to the unlimited effort to bend it; and if the shaft does yield it becomes crooked, and if crooked a greater weight will be thrown on one side of its axis than the other. In which case I think you will hardly maintain that its steadiness would not be affected under high motion. If machinists may key on their balance wheels at 45 degrees to thin axes and furnish shafts crooked to any degree without affecting the steadiness of the motion, I think that somebody deserves a patent for the discovery. Answer: If our correspondent will try the experiment, even with the extreme case supposed by him, he will find our decision confirmed, provided that his bearings are not left loose, if the experiments with a horizontal shaft. With a vertical shaft, he may even leave his bearings quite loose and still obtain steady motion, unless the driving force act as does gravity in the first example. Cam shafts often illustrate this case, and our correspondent will readily be able to confirm what has been stated. We shall be glad to publish the result of his experiments should he take sufficient interest in the subject to make them.

H. B., page 373, Vol. XXVII, wants the working part of a rammer or scraper, to work in the ground among gravel. Chilled cast iron will suit his purpose better than steel, as it is harder than most merchantable steel can be made, and far cheaper. It can be had in almost any car wheel foundry where No. 3 cold blast charcoal iron is used. Let H. B. support the working edge if possible with fine cast iron, which need not be chilled. If he wants holes in the chilled part, they should be round or oval, not square, as a square corner affords a fine starting point for a fracture. Those holes should be cored. It is very hard to drill chilled cast iron, unless provided with suitable tools.—P. McC., of N. J.

J. W. B., page 362, Vol. XXVII, wishes to know how to make good cider. Take good sound apples (the sweeter the apples, the richer the cider; although apples slightly tart make cider of the best flavor) late in the fall, the later the better, before freezing. Early apples and wind falls may do for vinegar, but will not make cider that will keep any length of time. Fill the barrel full, put in the cellar, take out the plug and let the cider ferment for about ten days, keeping the barrel full with cider made at the same time. In this way most of the pomace is thrown out. This, however, is not very essential. After the cider has worked about ten days, take a long slim bag that, when filled, will go in at the bung hole, put in about one pound of English mustard for every 30 gallons, and drop into the cider, then cork the barrel air tight and let it stand about three weeks, then draw off into another barrel. Or put back in same barrel after thoroughly cleansing it; see that the barrel is full, then cork tight. Cider treated in this way will remain unchanged until warm spring weather, when it may be bottled for summer use. Cider will gradually get hard if the barrel is daily drawn from; in that case bottle when the flavor just suits. Sulphite of lime kills the life of cider and renders it as flavorless and worthless as dish water.—E. H. R.

To W. S. H., page 362, Vol. XXVII.—I have seen as smoky days in July as ever I saw in the fall, and several in succession. The leaf burning theory will hardly do for July.—E. H. R.

To tin brass pins, etc., the goods are to be cleaned free from oil; then an earthen pot is to be prepared. First a thin sheet of block tin is to be put at the bottom, then a steam pipe is to be introduced nearly down to the same; next put a layer of the goods, then a sheet of tin as before, next more goods, and so till it is filled. Then fill up with water till all are covered, throw in some cream of tartar and turn on the steam just enough to keep boiling. After whitening, rinse in clear water, and pass through saw dust. In a small way, I have whitened ordinary tinner's ware by covering with tin foil, and boiling over the fire, filling up the water as it evaporated.—W. A. B.

## COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On Bursting Strains of Boilers. By T. W. B. and E. E.
- On a Geometrical Problem. By H. B.
- On Vulcanized Rubber and Rubber Belts. By A. E. V. E.
- On Certain Remarkable Effects of the Solar Rays. By G. R.
- On Perpetual Motion. By W. J. A.
- On the use of Belts for Machinery. By W. G. B.
- On the Action of a Balance Wheel placed out of right Angle on its Shaft.—By H. C. K.
- On Scientific and Mechanical Possibilities. By J. E. E.
- On Steam Pressure. By F. G. W.

## Recent American and Foreign Patents.

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

**SPRING BED BOTTOM.**—Henry E. Maker, South Framingham, Mass.—The object of this invention is to furnish a spring bottom for beds; and it consists in slats resting upon pins which pass loosely through holes in cross bars. The ends of the pins rest upon wires which connect pairs of springs. The slats are placed longitudinally or at right angles with the cross bars on the tops of the pins, and are in themselves elastic, so that they give or conform to the tension of the springs and weight on the bed.

**SPRING BED BOTTOM.**—John Raiston, Mansfield, Ohio.—This invention has for its object to furnish an improved spring bed bottom, and it consists in two sets of slats, upper and lower, held apart by cross bars having between them spiral springs. Said cross bars as well as the slats are elastic and give further spring to the bed.

**GARBAGE BOX.**—Moritz Bacharach, of New York city.—This invention relates to a new garbage box, which is to be placed upon the sidewalks near the gutters of streets in cities and towns, and within which, to some extent, the moisture contained in the offal will be separated from the solid matter and ejected into the gutters. The invention consists in making the garbage box with an opening in the top and with a perforated false bottom, and in arranging on its side a door above the false bottom and an opening beneath the same.

**FEED WATER APPARATUS FOR STEAM BOILERS.**—John W. Youman, Mobile, Ala.—This invention relates to a new and improved mode of introducing feed water into steam boilers. The feed water pipe passes through the rear head and extends forward to near the front head of the boiler, and returns back to and through the rear head. This pipe is located at or near the waterline, and near the shell of the boiler. The feed water, in passing through and before it reaches the return portion of the pipe, which is perforated, will become heated to near or quite the boiling point, and the sediment contained therein will be deposited in the pipe, and may be blown off from time to time through a small blow off pipe extending through the rear boilerhead. This perforated tube may be larger in diameter than the other part, and may be arranged in the boiler so as to be just submerged. In this position it will serve as a surface blow off by shutting off the feed water.

**FENCE.**—Edward M. Crandal, Marshalltown, Iowa.—The invention consists in an arrangement of rails, posts, and braces to form a cheap, strong, and durable, yet easily transported, fence. The corner post consists of four uprights, connected together by transverse bars, extending outward laterally in different directions so as to support the braces. The uprights are also connected together by rails, upon which the rails of the fence rest, the ends of the rails being notched and held down by wires. The uprights of the post are placed at a sufficient distance apart to admit the rails and allow the fence to be extended at right angles in either direction. The other posts are made in a similar manner, but with two uprights, with braces extending in each direction to keep the fence upright, except that, at proper intervals—say once in four or five rods,—braces, which support the fence longitudinally, are added. The fence may be made with any desired number of rails, and each one may be removed separately, so that a gateway may be made between any two posts for the passage of teams, stock, or for other purposes.

**BED, SOFA, AND LOUNGER BOTTOM.**—Royal Jennings, Racine, Wis., assignor to himself and Wallace H. Jennings, of same place.—This invention relates to a new construction of bed, sofa, and lounge bottom, which is very light, graceful and elastic, and at the same time durable and cheap to make. The invention consists in the arrangement of wire springs, clasps, and a wire or cord bottom. The spiral springs are of suitable number, each having its two ends formed into hooks. The outer ends of these springs are, by the hooks thereon, fastened to screws or pins that project from the upper faces of the end rails. When all the springs have thus been placed, a wire or string is fastened with one end to a pin of an end rail, then carried loosely along the outer sides of pins that project from the side rails, laid around a pin on the oppositely, carried back to the first end rail, and hooked to the first spring thereon, and so brought back and forth and hooked to the several springs, and finally fastened with its other end substantially as with the first. All the while the string or cord is left quite slack. Subsequently it is drawn tight by small clasps that are hooked over adjoining lengths of the wire at proper intervals.

**SLOP PAIL.**—John S. Jennings, Brooklyn, N. Y.—This invention consists of a detachable seat for slop pails, also a cover therefor, detachably connected with it, the seat being detachably connected to facilitate the cleaning of the pails, which can be done much more readily and thoroughly when the seat is detached than when not so, as they have been heretofore made.

**FRESHING CANALS.**—James G. Brewer, Lone Tree, Nebraska.—This invention consists in an improved mode of conducting water from rivers which flow over shifting sands or quicksands into canals or races to enable the water to be used as a motive power. The inventor drives piles into the bottom of the river, or into the sand near the river, so close together as to exclude both sand and water, or at least the sand, and inclosing a larger or smaller space, according as more or less water is required. The piles form a close curb all around the inclosed area except an opening for the canal or race. The water rises through the sand in the curb, which forms the beginning of the canal, and flows through the said canal or race to the place where it is to be used. Should the sand rise with the water, the sand may be kept back by wire screens, which, in this case, will not choke, as the water rising through the clean sand is free from sediment. This invention enables the water of the Platte, Arkansas, and other similar rivers, to be used for water power, which heretofore has been impossible.

**MITTENS.**—John L. Whitten, Essex Junction, Vt.—This invention relates to the construction of mittens made, either in whole or in part, of leather, and consists in the mode of cutting the leather, and in the patterns for the parts of the said mittens.

**MEDICAL COMPOUND.**—Herman Themel, Escanaba, Mich.—This invention relates to a new medical compound, which is intended for use against stomach diseases in cases of cholera, etc. It is composed of the following ingredients: bog bean, wormwood, juniper berry, valerian, gentian, potash; the remainder, alcohol or alcoholic liquor—such as whisky.

**FENCE.**—Harrison McMullin, Batesville, Ark.—This invention has for its object to furnish an improved fence. It consists of a number of planks resting above each other and supported by blocks of stone or wood. The low wall thus made is surmounted by crossed stakes and a rider.

**CAR COUPLINGS.**—David Walter, Evansport, Ohio.—This invention consists in a gravitating self-coupling hook, which is raised by the link when it enters the buffer, and engages said link automatically, which said hook is provided with a rolling or oscillating guard, which falls between the link and the point of the hook whenever the end of the link is thrown upward more than is usual in the ordinary working conditions—as, for instance, when a car jumps the track and effects the uncoupling, so that the cars remaining on the track will not be forced off by one already off.