

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

ANTI-INCURSTATOR—C. G. F.
FLYING MACHINE—T. B.
IS THE BRAIN THE ORIGIN OF THOUGHT?—J. M.
NARROW GAGE CARS—T. D.
NEW MOTIVE POWER—G. H. M.
RAILROAD CARS AND THE WIND—U. B. V.
STEAM ON CANALS—J. McG., M.D.
THE EARTH CLOSET SYSTEM—F. M. H.

Answers to Correspondents.

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 1'00 a line, under the head of "Business and Personal."

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

MARINE GUN.—J. H. P. must take of coal naphtha, 1 pint, pure (not vulcanized) rubber, 1 ounce, cut in shreds; and macerate for 10 or 12 days, and then rub smooth with a spatula on a slab; add at heat enough to melt, 2 parts of shellac by weight, to one part of this solution. To use it, melt at a temperature of about 248° Fahr.—E. H. H., of Mass.

ELECTROTYPING ON WOOD.—Dip your wood in melted wax, then brush over with black lead until you get a polish, insert a wire of copper, and see that it also is covered with the plumbago, and in contact with that already on the wood; now attach to the pole of your battery, and immerse in the solution of sulphate of copper. The battery should not be of too strong intensity.—E. H. H., of Mass.

CEMENT FOR EITHER LEATHER OR RUBBER STRAPS.—This may be of service to some of your readers, and it is, I know, a useful thing. Gutta percha, 16 oz.; India rubber, 4 oz.; pitch, 2 oz.; linseed oil, 2 oz. Cut the rubber in shreds and add the oil, which in a few days will have softened the former. Melt carefully the gutta percha and pitch together, and stir in the rubber solution, or paste, apply hot, and press joints.—E. H. H. of Mass.

WISE BOX.—S. A. wishes to know how to fasten threads in a vise box. Take clay 3 parts, cow dung, 1 part, mix them intimately and work into a stiff uniform mass. Into the open end of the box fit a stout cardboard washer, the hole in it being less than the inside diameter of the thread, into the hole fit a taper wooden plug. Imbed the box in the prepared clay an inch thick, all over, withdraw the plug and set the clayed box away. When dry, put in by the plug hole sufficient tough brass and borax, and keeping the opening highest, introduce the box into a smith's fire; move the box about so it may be equally hot all over; increase the heat till the brass, seen through the plug hole, melts; take the box from the fire and roll it on the ground till the brass is set. When the fire color has left the inside, put a little clay round the plug and push it tight in the hole, and plunge the whole in water. When cold, break the "batch" and dress up.—P. D., of Ca.

CONE PULLEYS.—The sizes for the pulleys of the cones of a foot lathe may be found as follows: Decide on the sizes for the pulleys, say on the small cone, and on the size of one pulley on the large; then make a full size drawing of the pulleys decided upon, with the distance between centers the same as they are intended to run at; also draw the pulleys on large cone whose sizes are sought, with the difference in their diameters a little less than the difference in the diameters of the decided pulleys on the small cone. Now draw tangent lines representing the course of the belt on the two mating decided pulleys, and draw radii, cutting these tangents at right angles with the center. Measure the length of the lines representing the belt between these cutting radii, and set their sum down as part of the length of the belt. Now, with a protractor, measure the number of degrees in the arcs bounded by the radii, and covered by belt of the two pulleys; and if the whole circle or 360° = so much, then one degree = the 1-360 of the whole circle; and multiplying the amount in one degree by the number of degrees, we have the length of the arc; adding the lengths of these two arcs found to the lengths of the two tangent lines found, we have the total length of belt. Now, measure the tangent lines and arcs representing the belt on the second set, to see if the circuit is of the same length as the first; if not, change the size of assumed pulley according as the circuit is more or less than the length of belt, and measure a second time, when, if careful to consider how much more or less in change it would take, you will come very close, and a third trial will be close enough for all practical purposes. Find the size of second assumed pulley in the same way, also third, etc. If it happens that you have to decide on the sizes of the large pulley instead of the small, the operation would be the same, except that you would have to make the difference in diameter of the assumed pulleys a little more than the difference in diameter of the large pulleys, instead of a little less as when you decided the small first. I used this method in making a foot lathe, and although it is a little tedious to work out, it pays for the trouble. My belt runs beautifully, and the operation is easily seen through; it is simply finding the length of belt on one circuit, and bringing the others all up to the same length of circuit. Changing the distance between centers of cones of this description would change their relations to each other.—D. L. B., of Pa.

WATER WHEEL POWER.—In No. 6, current volume, W. A. W. makes a somewhat curious inquiry. It reads as though his stream might afford forty square inches of water under a head of thirty feet. If so, is the actual opening forty square inches? or, is the opening large enough so that the section of the stream (or vent), measures forty square inches? Perhaps it is over a weir forty inches long and one inch deep, or twenty inches long and two inches deep. Or is it flowing along the bed of a stream? Or, is it a smooth sluiceway? Call it the utmost allowable, there is no wheel venting forty square inches of water, under thirty foot head, that can drive the four foot stones as fast and as strong as they may be driven with safety; although a first class wheel would give out over fifty effective horse power, and grind at least fifty bushels of corn per hour into merchantable meal, or make from nine to ten barrels of family flour in the same time. One hundred horse power could, without doubt, be used on a properly constructed pair of stones in making corn meal. The same amount may be applied to a circular board mill also. However, forty inches of water, under thirty feet head, would do as fast grinding and ginning as W. A. W. would be likely to wish for. If his stream is only forty square inches over a weir, it is an entirely different affair, and would be only equal to one third of one horse power constantly, or equal to eight horse power one hour in the twenty-four. That would do a good business driving the pair of stones, or the sixty saw gin, if no water is allowed to waste during the other twenty-three hours.—A. M. S.

BORING CYLINDER.—What does G. A. Y. mean by "under the leverage of his lathe pulleys?" "The tool backs the metal," does it? "and the cut is more of a break." That's a fact in most shops, both inside and out, too, as well as on plane surfaces. It is scraping and tearing and grinding, instead of peeling the shavings off, and out, in little curls.—A. M. S.

DRIP PIPE OF STEAM HEATER.—A. S. will see the necessity for introducing the drip pipe into the boiler below the water line, if he reflects that any other arrangement would leave the condensed steam between two equal pressures, and so leave it suspended in the pipe instead of returning it to the boiler. The plan about which he asks ensures the return of the drippings to the boiler, and so keeps the system of pipes free from water.—D. B., of N. Y.

TABLE CUTLERY.—To give R. S. S. H. a plain reply to this query, let me say that boiling water cannot possibly draw the temper of steel. There is something in the knives or the treatment of them that has not yet been stated.—D. B., of N. Y.

WALNUT STAINS.—In answer to W. H. B., in July 18, I would say that the juice of ripe tomatoes will remove the stain of walnuts from the hands, without injury to the skin.—J. S. B., of Ill.

BAND SAWS.—I have had no practical experience with band saws, but we all know that a steel band will not conform to, or be affected, as much by the pulleys, as a leather or other elastic band. I think a band saw would run to the largest part of the pulleys, provided the pulleys were made of some substance that would not let the saw slip and slide about and wriggle itself out of a tight place, particularly at that point where it is entering on the pulley. J. W., you know it is the nature of things when drawn over a slippery bunch to slide off if possible.—S. G. D., of Pa.

A CORRESPONDENT ASKS:—"Can I subscribe for the SCIENTIFIC AMERICAN for a shorter period than one year?" This is a frequent enquiry, and in reply we say: yes, you can subscribe for any period not less than three months, at the yearly rate, which is \$3. Send 75 cts. for 3 months, \$1.50 for 6 months, \$2.25 for 9 months, or \$3 for a year.

Queries.

[We present herewith 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.—**SONOROUS STONE.**—Situated about three miles from Pottstown, Pa., is a spot called Ringing Rocks, being a place about 100 feet square, filled with rocks piled on one another. These, if struck with a hammer or stone, give out distinctly musical sounds, but if removed from the locality lose this property. Two stones, however, that have been taken away still ring. Can any of your readers explain the phenomenon?—W. S. R.

2.—**HARDENING GUTTA PERCHA.**—Will you please inform me if there is any substance that can be mixed with a solution of chloroform and gutta percha that will render the gutta percha less sensitive to heat, and at the same time not interfere with its adhesive nature?—H. L. B.

3.—**BELTS.**—I would ask J. W., I. B. L., F. E. H., and particularly M. D. C., of Mass., why it is that when a belt runs on straight faced pulleys, and a straight faced tightener pulley is used on slack side of belt, and close to the receiving pulley on to which the belt is running, the belt will run to the end of the tightener which is applied most forcibly? And, when crowning faced pulleys are used, the opposite results are produced.—S. G. D.

4.—**RADIATION OF HEAT.**—I have a dry house heated by means of exhaust steam passing through a six inch galvanized iron pipe. Will the pipe radiate or throw out more heat if I paint the outside of the pipe black?—J. R. L.

5.—**LIQUEFYING TALLOW.**—Can you tell us of any substance that will liquefy tallow and keep it fluid without impairing its good lubricating properties?—T. & M.

6.—**FOUNTAIN.**—I wish to build a fountain in my door yard, the water to be supplied by a hydraulic ram. I have four foot fall at a distance of four rods, with surplus water. Distance from ram to fountain, 200 feet; elevation from ram to top of fountain, 25 feet. I wish to spurt the water up from fountain through small jets, for ornamental purposes only. Can that be done direct from the ram, supposing I use 1½ inch pipe for the supply and ½ or ⅜ inch for the discharge, or must there be an elevated reservoir? Would there be danger of bursting small lead pipe when a jet is put on, as they would be frequently changed? What size and what kind of pipe (lead or iron) is best to use with No. 4 ram?—G. M. G.

7.—**WRITING ON CHINA.**—Will some of your many readers give me a formula by which I can put names on china or stoneware, so that they will not wash off? Can it be done after the ware has been glazed?—R. S.

8.—**ROLLING THIN METAL.**—Has any metal ever been rolled thinner than 4,800 sheets to an inch in thickness?—C. H.

9.—**FORM OF VEHICLE.**—Which will run the easiest, a thimble skein or an iron axle wagon, the wheels being the same size and both wagons capable of carrying the same load?—C. H.

10.—**CLEANING MEERSCHAUM.**—How can I clean a meerschaum pipe, that is colored very nicely, without spoiling the color?—F. H.

11.—**GETTING WOOL OFF DRY SALTED SHEEP SKINS.**—Can any of your readers inform me what to do with dry salted sheep skins, so that I can pull the wool off without injuring the skin? I can wet them in water and sweat them, but this rots the skins.—A. R. S.

12.—**KILLING TREES.**—Is there not something that, by giving a sapling a hack with an axe, and depositing it in the cut, will kill the tree, top and root at the same time? It should be cheap, and not of such a nature as to poison stock that might lick it. There are wood preservers, and I think there ought to be destroyers also. If these saplings are cut down they sprout again, and the roots do not begin to rot for a long time and to girdle them would take too much time.—J. H. L.

13.—**SAND BELTS.**—How are sand belts for finishing spokes made? What kind of sand is used, and how is it put on? What is the proper length and width for belts? What is the right diameter and speed for the pulleys?—E. T. C.

14.—**COAL CUTTING MACHINE.**—I am anxious to learn what coal cutting machines are, and what they are used for. Can I see any in this country, whether in use or not? and have there been any articles written describing them?—W. W. W.

[They are used in getting coal in mines, and one was fully described in SCIENTIFIC AMERICAN, Vol. XVII., Nov. 16, 1867, page 312.—Eds.]

15.—**GRINDING CLAY.**—What is the best and cheapest machine for grinding wet clay, so as to crush any gravel contained therein?—D. H. S., Jr.

16.—**WATERPROOF CLOTHS FOR BRICK HACKS.**—Are cloth covers ever used to protect hacks of bricks from storms? And if so, what is the best and cheapest cloth to use for that purpose? Is there any composition or paint with which I can render common cotton sheeting waterproof, and still have it pliable and not liable to stick when rolled?—D. H. S., Jr.

17.—**BURNING BRICK.**—In burning brick with wood, which will produce the most even burn with the smallest consumption of fuel, two or three brick benches? What are the usual quantities of oak cord wood or pine slabs used, per thousand in burning? And can brick be well burned with the soft and sulphurous bituminous coal of Iowa and Illinois? And if so, what is the proper method of setting, and amount of coal to use per thousand?—D. H. S., Jr.

18.—**PRINTER'S INK.**—Will you give me a recipe for making black printer's ink?—O. S. C.

19.—**MOUNTING CHROMOS.**—Can you tell me how to mount chromos?—L.

20.—**STAINING BUTTERNUT.**—What is the best method of staining butternut and other woods so as to imitate black walnut? Can the grain of the walnut be successfully imitated?—E. S. H.

Practical Hints to Inventors.

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How Can I Obtain a Patent?

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To Make an Application for a Patent.

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