Examples for the Ladies.

Mrs. W—— has had a Wheeler & Wilson Machine since June, 1857; to January 1st, 1871, she had made 24,476 vests, (in 1870, 2,255 vests,) 17 coats and 50 pairs of pantaloons, besides doing the family sewing for six persons; all the work ranging from the finest muslin to the heaviest beaver cloth.

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.

COIL IN BOILERS.—In answer to M. S. M., in relation to coil in boiler, I would say that his plan of heating water is not practicable. The sudden contraction of his coil, when the water supply is turned on, will start any joint he can put in. I have tried 2½ inch wrought pipe (very heavy), running it through fire box, over bridge wall to back end of boiler; the pipe 8 feet long would contract 1 8-12 inches, as soon as water was turned on, and of course start a joint or burst the connections. If S. W. will use a heater of 5 inch pipe, such as is used for casing oil wells, say 10 feet long, and put in six lengths of 1 inch pipe, using return bends, and let his exhaust steam heat his water, he will be on a sure safe footing; and if he has it arranged so as to have a steady continuous feed on his boiler, so much the better, for he will use less fuel and have no explosion. —E. A., of Pa.

EXTERMINATING RATS AND MICE.—I saw an inquiry, from one of your readers, how to exterminate rats and mice. One of the best remedies I have used is an equal mixture of flour and plaster of Paris. It is preferable to poison, because it will not hurt cats when catching them. —F. S., of Pa.

FLOATING OF SOLID IN MOLTEN IRON.—Permit me to suggest, in answer to S. H. W., that the probable cause, of cold iron floating on melted iron, is the attraction of cohesion in the latter. Light pieces of metal, such as a piece of fine wire, a small sewing needle, or a flat piece of sheet lead will float on water, and the only satisfactory reason of its doing so which occurs to me is, that the attraction of the particles of water for each other is sufficient to resist the passage of such light objects through its surface.—W. J. B.

J. R., of Slippery Rock, Pa.—The mineral you send appears to be an earthy carbonate of iron, and should be assayed to determine its value. It would be of interest to know how it occurs, whether in beds or veins, in either case how thick, as well as the direction and amount of dip; the associated rocks, above and below, whether shale, limestone, etc.; whether reddish nodules, or lumps of an iron ore with concentric coatings, occur in the vicinity.

WHAT MUST I DO?—When botches want to borrow my nice tools, and when I will not lend them, they call me names. Must I stand and take it, or lend the tools?—J. P. W. . . . . Answer.—Read the Beatitudes, Matthew V., 10, 11, and learn the blessedness of persecution.

J. I. M., of Pa.—Relatively to the axle, all parts of a rolling wheel move with an uniform velocity. Relatively to the plane upon which it rolls, the advance movement of the top of the wheel is temporarily greater than that of the bottom; but as all parts of the perimeter are successively top and bottom, the average advance of each part is equal.

A. J. H., of Mass.—All else being equal, the mechanical powers of screws are relatively as their pitch, or the number of threads to the inch on each, without respect to their diameters; but the larger the diameter of the screw with a given pitch is, the less is its friction in working, owing to the reduction of the inclination of the thread. A screw of larger diameter will raise greater weight without stripping the thread, than one of smaller diameter with equal pitch. For these reasons, to make an easy working and durable screw, it is better to make them of larger rather than of smaller diameter.

G. K., of N. Y.—Friction does not increase with the increase of surface, but—with some slight variations, not yet fully accounted for,—directly as the pressure of the rubbing surfaces against each other. This answer refers to the static or fixed force required to overcome the friction of bodies, and not to the power consumed in overcoming it for a given space of time, which will be as the coefficient of friction in pounds, multiplied by the space it overcomes in each minute of time; this will be expressed in horse power by the quotient obtained in dividing the product by 33,000.

G. L., of Minn., sends us a bit of maple branch, containing a peculiar insect, nicely housed therein, and asks what the bug is. It is a Hymenopter, one of the "wood-wasps," as the Germans call them, or "horn-tails." The long horny borer at the end of the body, contains two fine, serrated needles for boring holes, in which they deposit their eggs. This species is the *Tremex columba*, and usually infests the elm, buttonwood, and pear. The grub or larva is yellowish white, about an inch and a half long, with a horn on the hind end.

J. C. C., of Pa.—Your mineral specimen is simply hornblende —of no use in the arts.

C. D. A., of N. Y.—The subject of balancing cylinders was treated at great length in Vol. XIII. of the SCIENTIFIC AMERICAN, and we do not wish to reopen it at present.

C. B. R., of N. B.—The draft of a furnace might undoubtedly be greatly improved in the manner described.

HINDRANCE TO THE FLOW OF WATER THROUGH PIPE.—J. R. B., query 17, page 187, says the descent in his pipe is even, but I presume an accurate profile would show a slight depression at some point, perhaps at the spring. A depression equal to the diameter of the bore would be sufficient to prevent the air from escaping at the upper end; and if the current is not rapid enough to carry it through, it will remain, and its accumulation is virtually so much subtracted from the fall, thus retarding the flow. When the hight of the column of confined air becomes equal to the difference of level between the spring and the discharge—that is, when its lower end reaches as much below the level of the discharge as its upper end is below the level of the spring,—the water pressure becomes equalized, and the flow stops. The remedy is very simple. Make a small hole or leak in the top of the pipe, at the summit, or highest point below the depression, and leave it open permanently for the escape of the air.—O. A. B., of N. Y.

GAS FOR TOY BALLOONS.—C. B. S. can make this gas by pouring slightly diluted muriatic acid upon an equal weight of zinc, in a covered vessel having a small tap or stop cock in the top for filling the balloons. The vessel should be made of lead, to prevent corrosion. It is impossible to estimate the amount of material, as the balloons generally vary greatly in size. He should be very careful with the gas; it is highly inflammable.—C. O. I., of Pa.

SKELETON LEAVES.—J. V. M., query 3, October 14, will find that strong vinegar will destroy all the pulpy matter of leaves, without injuring the fibrous parts. Leaves with woody fibers, such as those of the different species of ivy, require to be left in the vinegar for a fortnight or longer. The skeletons can be bleached by chlorine gas, of which commercial chloride of lime is the most convenient preparation for the purpose.—D. B., of N. Y.

ARTIST'S CANVAS.—J. T. M. C. can make a very cheap canvas by stretching a sheet of damp paper on a pane of glass or board, and, when partially dry, pasting on it four or five pieces of thin muslin, each piece being allowed to dry before another is put on; and all must be stretched very tight, and rubbed smooth. The paste should be made of isinglass rather than flour. Then cover it with white lead, using as little as possible, putting it on with a knife. After several days, give it a coat of paint and stipple it with a blender to give it a tooth. Leave it on the glass till the picture is finished.—E. S. S., of ——.

FORCE OF FALLING BODIES.—Let me inform J. E. that: As the accelerating influence of gravitation upon a falling body, and its retarding influence upon an ascending body, are equal, the force of the blow struck by the falling body, if all the force could be utilized, would be exactly enough to raise the body again to the place from which it fell. Hence, to find the force of a falling body, multiply its weight, in pounds, by the hight in feet from which it has fallen, and you have the force in foot pounds. And it may interest J. E. to know further that to find the striking force of a body moving in any direction, he may use the following formula: Divide the velocity, in feet, per second, by 8 (or, for greater accuracy, 8·04), and multiply the square of the quotient by the weight of the body. This gives the striking force in foot pounds.—W. H. P.

AQUARIUM CEMENT.—C. E. G. wishes to know how to make aquarium cement. Here is a receipt, which I think is good, taken from a newspaper: Take one part, by measure, of litharge, one of plaster of Paris, one of fine beach sand, and one of finely powdered rosin. When wanted for use, make into putty with boiled linseed oil.—E. M. D.

CORRECTION.—In publishing my answer to D. D. D., of N. Y., you made me say, "better not use back gear," or something near this: it should read: "better use back gear." It is essential that the speed be slow.—W. W. T., of N. Y.

INK STAINS ON LEATHER.—H. S., query 4, September 30, should try oxalic acid, or the so called salts of lemon. I have used the former, but it varies in its effect upon different leathers.—D. B., of N. Y.

HEATING SURAFCE OF BOILERS.—C. & H. A., query 1, Oct. 14, will find the following to be the proper proportions: For locomotive boilers, there should be about 80 square feet for each square foot of grate bars, and, on each square foot of grate bars, about 1 cwt. of coke or coal should be burned per hour. In stationary boilers, the number of square feet of heating surface required to evaporate a cubic foot of water per hour is about 70, in Cornish boilers; and the heating surface, to each square foot of fire grate, should be from 13 to 15 square feet in wagon boilers, and 40 square feet in Cornish boilers.—D. B., of N. Y.

BUGS ON PLANTS.—Insects and lice, infesting plants, may be effectually destroyed by the application of white hellebore in fine powder. —C. T., of Vt.

TENDER GUMS.—If your correspondent, W. W. G., will use common salt and a soft brush, when cleaning his teeth, his gums will soon get hard.—J. B. N., of Ohio.

TABLE CUTLERY.—The worst agent now known for the destruction of table cutlery, is the steel knife sharpener, recently invented, and in general use. I have been obliged to discard it, and to use the grindstone, as formally, and have no further trouble with my knives.—C. T., of Vt.

GRINDING CLAY.—Answer to D. H. S., Jr., query No. 15, Aug. 26. The means required are a pair of rollers, horizontally fixed on a substantial bed three or four feet in hight. One roller must travel faster than the other. A trough, with scrapers to throw down the detached clay, with suspended weights attached, will also be required.—J. M. Mc., of —.

CLOTH FOR BRICK HACKS.—D. H. S., Jr., query 16, August 26. Oil cloth or felting is used for this purpose, and should be nailed to strips of lathing, or better still, to iron strips bent at right angles, with a string to hook on to the bottom board of the hack.—J. M. Mc., of ——.

BURNING BRICK WITH WOOD.—D. H. S., Jr., query 17, August 26.—It is difficult to answer this query, without knowing the class of clay. J. M. McC., of ——.

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.—TEMPERING SMALL STEEL GOODS.—How can I temper a piece of steel about four inches square and three fourths of an inch thick, with two holes in it, so as to keep the holes in shape, and the steel from cracking while tempering?—M. C. M.

2.—LINSEED OIL STAINS.—How can I take linseed oil stains out of rough cut stone or granite, without leaving any marks on the stone?—M. C. M.

3.—VARNISH FOR WALNUT FURNITURE.—How can I varnish old walnut furniture after rubbing it down with pumice stone? I get the surface smooth and clean, and apply varnish; but when it has dried, I find that it runs into holes as if the wood absorbed it in places. What filling can I use before varnishing? And how can I treat walnut so as to cave a bright gloss, without polishing with shellac polish?—M. C. M.

4.—CEMENT FOR IRON AND LEATHER.—What kind of cement shall I use to faeten leather covering to iron pulleys, for running band saws upon?—E. D.

5.—PASTING GLAZED PAPER.—Is there any substance which will destroy the acid in flour paste, and further the drying of it when used on glazed paper? I think the acid and slow drying destroy all the glaze on paper. I have used hot and cold glue, gum arabic, and gum tragacanth, but they are too expensive for general use.—F. S.

6.—MARBLEIZING SLATE.—What is the process and the kind of material used for marbleizing slate? Is the art common to the public, or is it secured by patent? Has the patent expired?—T. S.

7.—CLEANING ZINC.—How can I clean zinc in ice chests to bring it back to its original color? What shall I use, and how shall I use it?—W. H. W.

8.—BUTTER WEED FOR PAPER MAKING.—Will some one of your readers inform me if the weed known as butter weed (which grows spontaneously upon all of our new rich lands to the extent of three to four tuns per acre) can be used for the manufacture of paper, or for any other purpose? If so, what is the probable value per tun?—W. M. B.

9.—AEROSTATIC TOY.—A neat toy is often constructed thus: Take a large currant, thrust a pin through its center, place it carefully upon the upper end of a dandelion stem or other small tube, holding the other end in the mouth, blow a strong, continuous blast, and the currant will remain suspended in the air as long as you continue to blow, even when the tube is considerably inclined from the perpendicular. What is the explanation? Has the principle, upon which it depends, been applied to any practical purpose?—H. T.

10.—IMITATION AMBER COMB.—Can any one give me the *modus operandi* of making such an imitation?—S. B. I.

11.—CONTENTS OF A PYRAMID.—Is there any rapid method of computing the number of cannon balls in a triangular pyramid?—T. G. T.

12.—FALLING BODIES.—T. E. N. E., of Mass., in answer to query of J. E., Sept. 2d, gives: T equals the square root of Q S divided by G: as a formula applicable to falling bodies, in which Q equals the quantity of matter. Will he explain what the quantity of matter has to do with a falling body, apart from its momentum, especially in a vacuum? He speaks of space, velocity, quantity, and time without designating whether he means feet or inches, minutes or seconds, pounds or tuns; and in case J. E. gets a single one wrong, the formula will mislead him.—H. A. W.

13.—STAINS ON GILDING.—I have got a French gilt mantelpiece clock on which are a number of spots, which look like verdigris. Can any of your numerous correspondents tell me how to get rid of these? The clockmakers I have taken it to say they can do nothing with it.—A. M

14.—CLEANSING THE HAIR.—What is the best method of cleansing the hair of gum or dirt, without injury to the hair or scalp? This is asked by many engineers who are often compelled to work all the week and late on Saturday night, making a visit to the barber impossible. Also what preparation is commonly used by barbers for shampooing?—H. L. J.

15.—VINEGAR FROM SOUR ALE.—Can any of your correspondents give me a good recipe for making sour ale into vinegar?—C. H. F.

16.—BACK PRESSURE IN EXHAUST PIPE.—We run our exhaust steam from a 150 horse Corliss engine, through 1,200 feet of five inch steam pipe. The pipe runs from one end of the dry house to the other twelve times, the turns being made by elbows of the same size as the pipe. At the end the steam is allowed to exhaust in the open air without any check. Query—Is there any appreciable back pressure? If so, how much? —J. W. H.

17.—ALLOY.—How can I make an alloy that will melt at 1,000 degrees, which will possess sufficient strength to make a steam cylinder, three inches in diameter, to withstand a pressure of fifty pounds?—J. B. N.

18.—PROPORTIONS OF STEAM BOILER.—If a steam boiler of four feet diameter and one fourth inch plate will stand a pressure of sixty pounds, is it not reasonable to conclude that a bhiler one foot in diameter and one sixteenth inch plate will stand the same strain with equal safety?—J. B. N.

19.—PRESERVING SHINGLES.—Can any one furnish a recipe for a wash to apply to shingles to prevent decay?—J. M. G.

20.—PROPORTIONS OF CYLINDER.—Can any one solve the following problems: Given the hight and number of gallons of a cylindrical vessel, to find the diameter. Given the diameter and number of gallons of a cylindrical vessel, to find the hight. Given the area of a circle, to find the diameter (in feet and inches). —W. G. N.

Declined.

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

BOILER EXPLOSIONS.—C. E. G.—W. M.
CANAL BOATS.—W. W. R.
COIL OF PIPE.—B. G.
ETHER CONTROVERSY.—C. T. J.
INFLUENCE OF COLOR IN DEVELOPING LIFE.—C. F. P
METAPHYSICAL ARTICLES.—F. G.
NARROW GAGE RAILWAYS.—J. P.
PAINE'S ELECTRO-MOTOR.—S. J. K.
PROPERTY IN INVENTIONS.—J. E. S.
SELF-ACTING BLOWPIPE.—W. J. C.
THE GULF STREAM.—J. P. W.

Official List of Patents.

ISSUED BY THE U. S. PATENT OFFICE.

FOR THE WEEK ENDING OCTOBER 10, 1871.

Reported Officially for the Scientific American.

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119,684.—HARNESS.—I. H. Alexander, Newfield, N. Y.
119,685.—STEAM ENGINE.—J. F. Alexander, Shelby, N. C.
119,686.—TREADLE.—R. N. Allen, Pittsford, Vt.
119,687.—POTATO PLANTER.—L. A. Aspinwall, N. Y.
119,688.—BED.—F. P. Baldwin, C. T. Segar, Utica, N. Y.
119,689.—SPIKE MACHINE.—M. Belknap, Philadelphia, Pa.
119,690.—SEWING MACHINE.—R. Blees, Brooklyn, N. Y.
119,691.—HEEL.—E. P. Bray, Elizabeth, N. J.
119,692.—SADDLE BOX.—W. H. Brough, Coatesville, Pa.
119,693.—ROLLING MILL.—W. H. Brough, Coatesville, Pa.
119,694.—EVAPORATOR, ETC.—F. G. Butler, Bellows Falls, Vt
119,695.—TURNING, ETC.—R. M. Clapp, Vergennes, Vt.
119,696.—SAW FRAME.—W. Clemson, Middletown, N. Y.
119,697.—HARNESS.—C. H. Drury, Osceola, Ill.
119,698.—CANOPY.—J. Ellisdon, Liverpool, Eng.
119,699.—LIQUID METER.—N. Finck, Elizabeth, N. J.
119,700.—SAUSAGE STUFFER.—C. Forschner, New York city
119,701.—SAWING MACHINE.—J. Groat, Peru, Ind.
119,702.—BENDING WOOD.—Gustaf Gustafson, Chicago, Ill.
119,703.—IRONING TABLE.—C. C. Hardy, Rutland, Vt.
119,704.—RAISIN SEEDER.—J. Harrington, New London, Conn.
119,705.—CUSPADORE.—E. A. Heath, New York city.
119,706.—CUSPADORE.—E. A. Heath, New York city.
119,707.—POLISHER.—C. H. Helms, Poughkeepsie, N. Y.
119,708.—CLOTH PRESSER.—P. Howe, Boston, Mass.
119,709.—WATER METER.—H. J. Hyams, Pittsburgh, Pa.
119,710.—INLAYING.—J. W. Hyatt, Jr., Albany, N. Y.
119,711.—STAPLE MACHINE.—W. Malick, Erie, Pa.
119,712.—HARVESTER.—L. J. McCormick, W. R. Baker, Chicago, Ill.
119,713.—FIRE ALARM.—J. N. Pitts, J. E. Russell, Niagara, N. Y.
119,714.—WATER METER.—A. O'Leary, Iowa City, Iowa.