

practice that the heavier a line of shafting is, the greater will be the loss in friction during the transmission of power through it. It is also a fact that light shafting running at high speed will perform work that would break heavier shafting running at lower speed.

We have here a plain argument in favor of light shafting. In the application of these principles, however, we often see errors committed which tend to render some people skeptical as to their truth.

One of these errors is that light shafting is often not properly supported. The lighter the shafting, the more apt it is to spring by its own weight, the weight of pulleys and gears, and the tension of belts. Light shafting will require, therefore, more frequent support from hangers than heavy shafting. Besides, with high velocities, there is more fiddling vibration, aided by centrifugal force, which consumes more or less power, generally more than is suspected. The obviation of this also calls for frequent supports along the lines of shafting, with accurate fitting of couplings, journals and boxes, and as perfect alignment of the shafting as possible.

To keep everything in perfect order will also require constant watchfulness. Slight settling of buildings, springing of floors, from the placing of new and heavy machinery or other cause, alterations which cannot be prevented, will often throw a shaft out of line, no matter how perfectly it may have been hung.

A cognate subject is the size of pulleys. We reserve this for a future article.

Business and Personal.

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

Dry Steam, dries green lumber in 2 days; tobacco, in 3 hours; and is the best House Furnace. H. C. Buckley, Patentee, Cleveland, Ohio.

Wanted—Parties to manufacture a newly patented Wrench Address Bradshaw & Lyon, Delphi, Indiana.

Improved Fruit Box. S. P. Tolman, Perrysburg, O., patentee. Grindstones for Axe Manufacturers. Worthington & Sons, North Amherst, Ohio.

Right, for Sale, of a valuable improvement in Sad Irons. Address, H. W. Seaman, Millport, N. Y.

Williamson's Road Steamer and Steam Plow, with Rubber Tires. Address D. D. Williamson, 32 Broadway, N. Y., or Box 1309.

Send Brick Machine Circulars to Box 6001, New York city. Something New. Shaping Machine Attachment for Lathes. Wm. E. Cass, 61 & 63 Hamilton Street, Newark, N. J.

Edge tool Makers' Grindstones—J. E. Mitchell—Phila., Pa. Bay Chaleur Grindstones, very superior—Mitchell, Phila., Pa.

Pattern Molding Letters (metallic), to letter or number the patterns of castings. All sizes. H. W. Knight, Seneca Falls, N. Y.

Parties letting steam power can have the amount determined, by the application of the indicator. Address Richard H. Buel, Consulting Mechanical Engineer, 7 Warren Street, New York.

50 Hand Drilling Machines, the best in the market, for sale at half price, \$20. Hoffman & Finney, 215 Water Street, Brooklyn, N. Y.

We want Ten more good Patents, of sensible, practical Tools, to manufacture in connection with our Star Tools. Will either buy, make on contract, or royalty. G. W. Hallett & Co., Star Tool Works, West Meriden, Conn.

Safety Steam Generators for Common Stoves. $\frac{1}{2}$ to 2-horse, \$25 to \$100. A. D. Brock, Washington, D. C.

\$5,000. The right party with Five Thousand Dollars can secure a profitable investment, without chance of loss, by addressing C. W. Hermance, Schuylerville, N. Y.

Nickel Plating.—For the best Apparatus and Solutions, apply to George W. Beardslee, 82 Fulton Street, Brooklyn, N. Y.

Wanted—Two good second hand engines and boilers, 10 to 15 horse power. Send description and price to Lane, Pitkin & Brock, Montpelier, Vermont.

Wanted—One first class Engine with all modern improvements, either new or second hand, from 150 to 300 Horse Power. Address Box 237, Buffalo, N. Y.

D. F. Shields, Auburn, N. Y., wishes to purchase two Carpet Beater Machines.

\$3.00 Microscope sent prepaid for \$3.00. Useful and amusing. Well worth the money. Frank Blockley, 552 Lafayette Av., Brooklyn, N. Y.

Wanted—A position as Superintendent or Agent of a Sash, Door and Blind Factory—12 years' experience. Good references. Address Agent, 90 State Street, Albany, N. Y.

For the best and cheapest Water Wheel Regulator "in all creation," address Sullivan Machine Co., Claremont, N. H.

Blake's Belt Studs. The best fastening for Leather or Rubber Belts. 40,000 Manufacturers use them. Greene, Tweed & Co., 18 Park Place New York.

Manufacturers and Mill Supplies of all kinds. Greene, Tweed & Co., 18 Park Place, New York.

The "Safety" Hold Back for Carriages prevents runaway accidents. See Sci. Am. Feb. 24, 1872. Undivided Interest, or State and County Rights, for sale. Address N. W. Simons, Williamsfield, Ohio.

Lord's improved Screen or Separator—also Watchman's Time Detector. For particulars, address Geo. W. Lord, 232 Arch St., Phila., Pa.

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

The Exeter Machine Works, Exeter, N. H., manufacturers of Sectional Boilers and Steam Engines, will soon open, in Boston, Mass., a centrally located sales room, in connection with their works; and are willing to take the agency of a few first class Machines and Tools not already introduced in that city.

Standard Twist Drills, every size, in lots from one drill to 10,000, at $\frac{1}{2}$ manufacturer's price. Sample and circular mailed for 25c. Hamilton E. Towle, 176 Broadway, New York.

The paper that meets the eye of manufacturers throughout the United States—Boston Bulletin, \$4 00 a year. Advertisements 17c. a line.

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

Enameled and Tinned Hollow-Ware and job work of all kinds. Warranted to give satisfaction, by A. G. Patton, Troy, N. Y.

For Circular of the largest variety of Wood Planing and Mitre Dovetailing Machinery, send to A. Davis, Lowell, Mass.

Rubber Valves—Finest quality, cut at once for delivery; or moulded to order. Address, Gutta Percha & Rubber Mfg Co., 9 & 11 Park Place, New York.

Best and Cheapest—The Jones Scale Works, Binghamton, N. Y. Grist Mills, New Patents. Edward Harrison, New Haven, Conn.

Taft's Portable Hot Air Vapor and Shower Bathing Apparatus Address Portable Bath Co., Sag Harbor, N. Y. Send for Circular.

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

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

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

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

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

Presses, Dies & all cantools. Ferracute Mch Wks, Bridgeton, N. J. 2 & 4 Horse Engines, address Twiss Bros., New Haven, Ct

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

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

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

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

Over 1,000 Tanners, Paper-makers, Contractors, &c., use the Pumps of Heald, Sisco & Co. See advertisement.

In the Wakefield Earth Closet are combined Health, Cleanliness and Comfort. Send to 36 Dey St., New York, for descriptive pamphlet.

For Diamond Turning Tools for Trueing Emery Wheels and Grindstones, address Sullivan Machine Co., Claremont, N. Hamp.

Boiler and Pipe Covering manufactured by the Chalmers Spence Non-Conductor Co. In use in the principal mills and factories. Claims—Economy, Safety, and Durability. Offices and Manufactories, foot E. 9th street, New York, and 1202 N. 2d street, St. Louis, Mo.

For Best Galvanized Iron Cornice Machines in the United States, for both straight and circular work, address Calvin Carr & Co., 26 Merwin St., Cleveland, Ohio.

Peck's Patent Drop Press. For circulars address the sole manufacturers, Milo, Peck & Co., New Haven, Ct.

Power Punching and Shearing Machines. For car builders, smith shops, rail mills, boiler makers, etc. Greenleaf Machine Works, Indianapolis, Ind.

Hoisting Engines. Simplest, cheapest, and best. Send to John A. Lighthall, Beekman & Co., Office 5 Bowling Green, New York.

L. & J. W. Feuchtwanger, 55 Cedar St., New York, Manufacturers of Silicates, Soda and Potash, Soluble Glass, Importers of Chemicals and Drugs for Manufacturers' use.

New & Improved Bolt Forging Machines, J. R. Abbe, Prov., R. I.

Improved Foot Lathes, Hand Planers, etc. Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Europe, etc. Catalogue free. N. H. Baldwin, Laconia, N. H.

Wanted, to correspond with owners of Patents—Picture Frames, Hangers, or other light metal work—view to manufacturing. Address H. J. Dorchester, 618 North Main Street, St. Louis, Mo.

Get your steam boilers and pipes covered with the best non-conductor in the world. Call for Circular. Asbestos Felting Company, 45 Jay Street, New York City.

Notes & 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.—MELTING ASPHALTUM.—Can you inform me of any process by which I can melt asphaltum economically?—H. E. W.

2.—CURE FOR RED NOSE.—Will some one be so kind as to tell me how to take the Bacchanalian hue out of my nose?—B. A. B.

3.—SCALE IN TEA KETTLE.—Will some correspondent inform me how to take the scale off an iron tea kettle, and how to prevent its accumulation?—D. E. S.

4.—HORSE POWER OF BOILER.—Will some one of your many correspondents give me a rule for computing the horse power of boilers?—D. A. M.

5.—MELTING POINTS OF PLATINUM AND CAST STEEL.—What degrees of heat are required to melt, respectively, platinum and cast steel?—J. A. H.

6.—FROSTING GLASS.—What is the best method of frosting glass for windows?—G. P.

7.—MAKING RULES.—How can I prepare shellac for this purpose, to make it waterproof and durable? With what can I black the figures?—J. E. M.

8.—COPYING PRINTS BY PRESSURE.—Is there any way of preparing paper so that, when pressed on a plate in a book of designs, it will copy the plate without damage to the book?—S. O. C.

9.—COLORING GOLD.—Will you please inform me the best method of coloring fine jewelry, and how the satin finish is produced?—J. L. D.

10.—PREPARING SKELETON.—Will one of your numerous correspondents inform me what chemical or other compound will eat the flesh from a dead animal, and leave the bones uninjured?—G. L. F.

11.—LAKE DWELLING RACES.—Will you please inform me where I can get any information about the prehistoric lake dwellers of Switzerland?—C.

12.—QUESTIONS IN OPTICS.—Does the power of a refracting telescope depend to any considerable extent upon the size of the object glass, or on the convex eye piece? Is the microscope affected by the shapes and sizes of similar lenses?—J. A. H.

13.—IRON IN WATER.—I have in my cistern an iron submerged pump which, I think, excels all others for doing good work. But the water tastes so strong of iron that we can hardly use it. Is it deleterious to health?—M. M.

14.—FUSIBLE METAL.—Is there not a composition, into which bismuth enters largely, which readily melts when subjected to heat? I believe the spoons, made for a trick, which melt on immersion in hot tea etc., were formed of such a substance. I wish to know its component parts, and how its fusibility can be regulated, and whether it is strong and will bear a tensile strain.—O. E.

15.—FLY PREVENTING WASH.—Can any of the readers of the SCIENTIFIC AMERICAN inform me if there is a wash, to be applied to a new ceiling (painted white), which will prevent flies from alighting on same?—A. H. S., Jr.

16.—BED BUGS.—I am unfortunate enough to live in a house that is full of bed bugs from top to bottom. The walls are full of cracks, and they are full of bugs. Is there any thing that can be put in white wash to kill them?—J. P.

17.—DEMAGNETIZING STEEL.—Will some of your readers tell me how I can demagnetize iron or steel without using heat? Some of my tools (jeweller's) have accidentally been magnetized, and it renders them almost useless.—J. B. W.

18.—DISINFECTING WATER.—Will some one suggest a mode of disinfecting a well of water made foul by leakage from bathing vats of a tannery? The well is about thirty feet deep, twenty of which are blasted in solid rock. In blasting, fissures were made, and they are now filled with putrid matter from the vats, which consists of excreta from a hen house. We are anxious to have the well purified that it may be used for family purposes; the water was originally very good.—J. G. W. & N.

19.—BRASS FOUNDRY.—Will some one please give me the process of melting and molding brass in small quantities? Will ordinary sand crucibles break in a blacksmith's fire, and are they the best for melting brass? I melted some old brass, and while melted, a light blue smoke arose from it, and one of its component parts seemed to pass off, leaving what I will call quite white ashes mixed with the remaining metal. What was the matter? The brass had some grease on it when put into the crucible. It seemed difficult for me to heat the metal hot enough to run freely. Is there any work on the subject in question?—D. G.

20.—MATERIAL FOR GLASS POTS.—I wish to know if there is any mixture that will resist the destructive properties of the flux of soda and lime in the manufacture of glass. At present we are using the German clay pots, but they wear at the top very fast. If a mixture could be produced to coat the inside of the pots with, they might be made to last three or four months.—D. F.

21.—PISTON PACKING.—Can some of your many readers inform me how to manufacture the best packing for the piston rod and valve stems of an engine?—C. E. S.

22.—CUT WORMS.—Will some of your readers tell me how to get rid of those pests the cut worms, that are so troublesome, in the gardens, to cabbage and lettuce plants?—D. U. B.

23.—SHELLAC VARNISH WITH LINSEED OIL.—I would like to ask if I can mix shellac varnish with linseed oil, and if so, in what proportions. The same question was asked by W. W. in No. 4, page 58, current volume, but has not been answered.—J. C.

24.—CLEANING TIN WARE.—What is the best preparation, in form of a powder, for cleaning tin ware?—P. T.

25.—CLEANSING SOAPY FELTS.—How can I get rid of the soap in a felt that has been full by soap? Is there any material for this purpose that I can add to the water while washing the felt?—W. H. P.

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 100 a line, under the head of "Business and Personal."

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

A. D. O., of Tenn.—The black speck noticed by you as floating across the field of vision is probably nothing more than an air bubble in the fluid (tears) which lubricate the external surface of the eyeball. It is a thing of common occurrence, and will probably never give you any serious trouble.

O. G. O., of Ohio.—If you use artificial means to ventilate your dry kiln heated by steam pipes at the bottom, it will matter little where you draw out the saturated air. If, however, you depend upon natural circulation, you should give free admission of air over the surfaces of the heated pipes, and free egress at the top of the kiln. The kiln should not be so high that the air will cool much in making the passage.

SPEED OF CIRCULAR SAWS.—D. S. B., query 11, Feb. 3, asks for the right speed for a 52 inch circular saw. Seven thousand feet a minute for the edge of a saw is generally allowed to be the right speed.—L. C. K., of N. H.

SCENE PAINTING.—Y. R. can use any powder paint for this purpose, if he will grind it with a size mass of isinglass. It should not be too strong, or the painting will look as if it had been varnished.—E. E. S. of O.

TEMPERING SPRINGS.—W. R. H. wishes to know how to temper trap and other springs. A very good way is to harden them in oil, or water not too cold; if in water, dip them in edgewise and hold still till cooled; and to draw the temper right, heat them gradually till you can see the red color come in them when held in the dark; and lay away to cool. I think steel is less liable to have cracks in it if hardened in raw linseed oil.—G. P., of N. Y.

PAPER FRICTION PULLEYS.—Query 13, page 154, present volume. These are nearly equal to iron, and better than any other material except that metal. They are made of bookbinder's tar board of gasket paper, the sheets being cut the size needed for the pulley, and firmly bolted together. The friction comes on the edges of the sheets, which soon glaze, and are almost as hard as iron.—B. T., of —

INCOMBUSTIBLE WHITEWASH.—In answer to query No. 1, January 27, 1872, I would give the following recipe for an incombustible wash. Slake some stone lime, in a large tub or box, with boiling water; when slaked pass six quarts of it through a fine sieve; to this lime add one quart of salt and one gallon of water. Then boil the mixture and skim it clean. To every five gallons of this mixture add one pound of alum half a pound of copperas, and, by slow degrees, three fourths of a pound of potash, and four quarts of white sand or hard wood ashes sifted. This solution will admit of the introduction of any coloring matter, and may be applied with a brush. It is more durable than paint.—J. A. H., of Kan.

PERMANENT PENCIL MARKS.—Query 10, page 154, Vol. XXVI. A very weak solution of gum arabic, passed over the drawing with a soft brush, will render pencil marks permanent.—B. T. of —