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A. V. E. will find directions for mending rubber boots on p. 203, vol. 30 .- M. F. will find directions for making a Daniell battery on p. 326, vol. 32 .- J. H. V. H. will find a description of the process of photo-lithography on p. 272, vol. 32.—S. can remove marks tattooed on the skin with Indian ink by following the instructions on p. 331, vol. 30.-W. A. H. will find something on the results of the transit of Venus observations on p. 180, vol. 32.-E, will find a recipe for bay rum on p. 363, vol. 29.-J. S. D. will find directions for making paste for marking with stencil plates on p. 379, J. E. L. will find a recipe for a depilatory on p. 186 vol. 34 .- J. R. will find a recipe for aquarium cement on p. 202, vol. 28.—E. G. P. will find an article on es from fulcrum to center of valve, and a weight of 11b. | lead with powdered charcoal.

multiple telegraphy on p. 197, vol. 29.—C. H. H. will find on p. 187, vol. 32, directions for making battery carbons.

—G. H. will find something on polishing woods on p. 315, vol. 30. For French polish, see p. 11, vol. 32.-J. H. B. will find on p. 21, vol. 36, directions for lining kettles with porcelain.—F. P. R. will find an explanation of the term "nominal horse power" on p. 33, vol. 33.—W. F. A. will find directions for bending timber of all kinds on p. 26, vol. 31.—A. M. P., B. N. R., S. W., F. C., J. B. M., W. H., C. P. G., R. F. W., N. K., and others, who ask us to recommend books on industrial and scientific subjects, should address the booksellers who advertise in our columns, all of whom are trustworthy firms, for cat-

(1) W. G. says: A is a movable wheel, movng around and gearing into a wheel of the same size. How many times will A turn on its axis in going once round B? A. Twice, under the conditions stated,

(2) D. M. says: 1. I use an upright 3 horse power engine to run my presses. The boiler is cast iron with about 10 small flues up through it. Is this danger ous? A. Your description is rather indefinite, and though we think that in general the use of cast iron in boiler construction is objectionable, we do not know that your boiler is especially dangerous. 2. I use rain water from a flat tin roof, painted. Stove coal is used in the building, and the soot settling on the roof causes the water to be dark colored. I have been told that the creosote in the soot will corrode or eat into the boiler and flues where it settles on the top of the water. Is this so? Will the paint on the roof injure the water? A. In regard to the water you use, we scarcely think that its action will be injurious to the boiler. This question can, however, in the absence of an analysis, be settled only by observation, and we advise you to inspect the boiler and connections carefully, at short intervals.

(3) R. E. asks: Can you give me a plain rule by which I can ascertain the horse power of 44 inches diameter by 10 feet stroke engine, and the percentage or useful effect of the engine in horse power spent in working a 20 inches diameter plunger pump, pumping water out of a perpendicular shaft through an 18 inches diameter by 288 inches discharge pipe? The receiving pipe is 20 inches diameter by 10 feet long, capacity of engine is 5 strokes per minute with a boiler pressure of 75 lbs, per square inch. We have in use eight 32 inches x 36 feet cylinder boilers. Distance of engine from boilers is be determined with any degree of accuracy would be by experiment. From the data sent, we could not give you a reliable rule.

(4) C. H. R. says: I am anxious to get something that will blow a church organ. We could not use hydraulic motor. Has anything else been invented for the purpose? A. There are hot air, gas, and petroleum engines in the market, some one of which might answer your purpose

(5) J. C. asks: 1. What degree of heat will steam indicate under a pressure of 100 lbs. to the square inch? A. About 338° Fah. 2. How much can the heat beincreased by superheating? A. You can increase the temperature as much as desired by using proper appa-

(6) H. V. asks: I am building a boat 50 feet long over all, and of 13 feet beam. I am having two engines built of 7 inches diameter and 8 inches stroke. The boat is to draw 3 feet of water, and to be of good model. I intend to put in twin propellers, oue engine on each shaft. What diameter of propeller shall I use, and what speed can I expect from the above dimensions? A. Put in propellers of as large diameter as you can conveniently use. By using counterbalanced cranks or disk wheels, you can obviate all danger of catching on the center. With a good steaming boiler, you may expect to realize a speed of at least 7 or 8 miles an hour.

(7) A. C. asks: Does area of a cylinder nean the open surface? A. You probably refer to the volume of a cylinder, which is the space inclosed by it. It is improper to speak of the area of a cylinder. can, however, speak of the area of the base and of the convex surface

(8) F. A. L. asks: How much power do I require to raise water 60 feet through a 114 inch pipe to temper. But another time I failed. I used great caution my cistern in attic? A. It depends upon how fast you want to raise the water. It will be easy to raise it by means of a pump that a child can work, or you may use all the power that can be exerted by a horse.

(9) J. K. N. says: Can you explain the cause of the trouble with our cistern? It was built about 18 months ago, is under the house, and holds about 1,200 barrels. This winter it has proved to be leaky; and upon examination, we found that the cement in places, upon the sides and bottom, had puffed up in blisters of 3 or 4 square feet, and some smaller, leaving a hollow space beneath of from one to two inches. Of course, the cement had cracked and caused the leak. The walls of the cistern stand upon the solid rock; but the bottom does not go to the rock, but is plastered upon sand and gravel mixed, about 4 feet from the rock, with cement about an inch thick. There has been more or less water in it ever since it was built. No one hereabout seems to know the cause of it. A. At certain seasons, the water in the ground is more plentiful than at others, and rises to a higher level; if at such time the water in the cistern is drawn down to a lower level than that of the water in the ground, the latter will have the preponderance of pressure, and the upward movement of cistern bot toms is thereupon a very natural result. The remedy consists in constructing the bottom of the cistern arching-like an inverted dome-cementing the prepared gravel bottom, and then turning a brick arch upon it, laid in cement, to hold it down.

(10) W. H. C. says: 1. I have an engine of 6 inches stroke and 3 inches bore. How large a boiler do I want to make it run a small lathe for turning wood not over 6 inches in diameter? I have a boiler 2 feet long, 15 inches in diameter, and 1 thick. How much steam will it stand with 3 rods running through the center of the boiler? A. The boiler will probably answer, and you can carry 30 lbs. of steam. 2. I have a safety valve 16 inch in diameter, with a lever 4 inches long, 116 inch-

How much steam can I get before it blows off when my ball is at the full length of the lever? A. The data in regard to your safety valve are not sufficient for a complete calculation; but when the ball is at the end of the lever, the pressure required to raise the valve will he between 40 and 50 lbs. per square inch.

(11) D. F. H. asks: Could not a steam boiler, that would be safe, be made by placing the heads on each end of shell and passing the tubes through the heads, to be fastened by nuts on the ends? A. Such boilers are frequently used on steam vessels. All the tubes are not secured by nuts, but several are made heavier than the others, and are fastened in this way.

(12) S. A. S. says: Can you give me a recipe for making a bright crimson dye, for the purpose of dyeing ordinary white muslin? A. Mordant the cloth with tin salt, and dye in a hot bath of madder extract or alizarine. There are numerous works on the art of dveing, etc. See our advertising columns for names and addresses of publishers,

(13) T. C. P. says: I use 1 inch gas pipe for a heater and supply. I want to know if a 2 inch pipe in its place would be harder on the pump, as the pump has a 11% inch plunger, and is run by eccentrics at 200 revolutions per minute. My object is to heat the water hotter. A. It will not.

(14) N. H. T. says: 1. I have a horizontal boiler 3 feet long and 20 inches diameter, with firebox 20x 20 inches. The heat and smoke go to the front into a smoke box and come back through about 35 one inch tubes to the chimney. It has been tested to 150 lbs, per square inch. Is it large enough for a vertical launch engine 31/2 x 5 inches? A. The boiler will probably answer very well. 2. How fast will this engine and boiler runa boat 25 feet long, built for the purpose? A. You may expect a speed of from 5 to 6 miles an hour in smooth water. 3. Can I get as much power with the same engine and boiler condensing in a vacuum, as I can using live steam? A. Yes, and more, other things being equal.

(15) J. Y. P. says: Please give me your opinion of theamount of power required in a machine for pulling pine stumps, and the kind and size of chain necessary, when used double? A. Without knowing what kind of a machine you have in view, we are unable to give you any information. So far as we know, a 20 feet. A. The only method by which these facts could little giant powder, or some similar compound, forms be determined with any degree of accuracy would be by

> (16) T. V. D. asks: How can I build a cistern? A. One of the first considerations is the nature of the soil in which the cistern is to be built. In some hard soils, an excavation is sometimes made carefully to the size required, the bank sprinkled with water, and then a coat of cement applied to it, without building a wall. In most cases, however, it is best to construct a cistern with brick walls, bottom and top. Let the form be cylindrical, the top arched in the form of a dome, and the bottom in the form of an inverted dome. If economy is an object, the walls may be 4 inches thick for 8 feet diameter or less-larger than this will require 8 inch walls-and all laid in cement. Plaster the interior throughout, together with the top of the crown, with a good coat of cement. Let the crown be 18 inches below the surface of the ground, and place a flat stone on the bottom, directly under the opening in the top.

> (17) Y. A. asks: 1. What material or composition, other than lampblack, is successfully employed in the coloring of black mortar joints of brick face work? A. Coal dust and English drop black. 2. What should be the proportion of sand and lime in such mortar, and how should I mix the same? A. Prepare your pointing mortar first, and add color to suit, until the gray becomes black. 3. There is a material known as point black. Is it durable in color? A. We presume you refer to the drop black above referred to. It is the best in use for the purpose, and costs about \$2 to the thousand of front brick. We cannot say if it is much

(18) M. W. D. says: 1. I have a recipe fortempering millpicks, by rubbing cyanide of potassa over the steel, heating to cherry red, and dipping inwater. After a little experimenting, I was able to produce an excellent not to overheat them; but out of several dozen I had not one that would not crumble like cast iron, and looked as if it were burnt. A. If the grain of your steel, after hardening, appeared coarse or granulated, it must have been overheated. 2. What will be best to temper them in that will not destroy the steel? A. Try heating them in molten lead, and using the cyanide of potassa as before.

(19) J. W. says: Your answer to G. E. C.'s question as to reversing a stationary engine is not correct. If the eccentric of an engine is turned halfway round, to reverse, the valve will be set wrong to twice the amount of the lap of the valve when the valve has no lead, and twice the lead in addition when it has. The position of the valve when the engine is on the center will be wrong by $1\frac{1}{2}$ inches in an engine cutting off at $\frac{3}{4}$ stroke, with a 3 inch travel to the valve and no lead. when set byturning the eccentric halfway round. A. Our correspondent G. E. C. spoke of a valve without

(20) T. W. says: We have a belt for polishing spokes, etc., which does not give satisfaction. Can you tell us how to construct a good belt? A. Use sand or quartzglued to a leather belt. Spread the sand on a board, make the glue well hot, coat the belt with glue, lay it glue side downwards on the sand and roll a heavy pulley on the back of the belt to press it into the sand.

(21) H. A. W. asks: 1. How fast should a lathe run while turning a piece of 1 inch bar iron? A. With a good tool, about 130 revolutions per minute. How fast should it run to turn a piece of oak wood 2 inches in diameter? A. As fast as possible.

(22) S. N. says: I wish to heat small article of steel in a lead bath, for the purpose of hardening them by plunging in water after heating, but I find a difficulty from oxidation that takes place on the surface of the lead. What is the remedy? A. Cover the

(23) T. S. R. says: 1. I am making a lathe to run by foot or hand power. What ought to be the size of the band wheel to go by hand, and what the size of the band wheel to go by treadle? A. To go by hand, 24 inches diameter. To go by foot, 30 inches. 2. What should he the diameter of the pulley? A. Six inches. 3. Shall Iuse a leather or rope band? A. Use a leather

(24) J. P. L. asks: Is there any die in use for cutting screw threads on bolts, etc., so constructed that it may be opened at the end of the cut, and be run back without reversing the lathe or die holder? A. Die holders such as you require are made by nearly all the prominent bolt-cutting machine makers,

(25) T. H. B. asks: Why do cast iron kettles for melting metal crack on the bottom about two hours after the fire is started, or as soon as the metal is thoroughly melted? A. Because the bottoms are too thick. Trykettles with thinner bottoms,

(26) E. S. asks: What is the best way to solder wire cloth to a round iron hoop? Is there not a preparation that will cause the solder to adhere readily, and prevent rust? A. Use killed muriatic acid (muriate of zinc); then add 2 parts of water and a little salammoniac, determining the quantity by experiment.

(27) T. B. asks: What causes the hardening of saws that are gummed out with emery wheels? A. The spaces between the particles of emery fill up with steel (or whatever is being ground on them), creating a smooth in place of a rough surface; and the friction causes heat, heating the outer surface sudd enly, and it cools equally suddenly when the emery wheel leaves it, and the outer shell of the steel hardens. To remove it, hack the wheel. This may be done with the corner of a worn-out file. Then go over the saw very lightly, and grind off the extreme outer surface which has been hardened. It is better to keep the emery wheel backed and cut off only a little at a time, and go around the saw several times in gumming. It will really require no more time than to do it in the usual way of gumming each tooth clear down before commencing the next one. This is an important matter, as hundreds of saws are ruined for want of this knowledge.- J. E. E., of Pa.

(28) W. C. H. asks: How may copper be permanently colored or stained black? The coatings made by varnishes soon wear off, and a process is desired that will render the color durable. A. There is no coating for metals that can conveniently be applied betterthan that recommended to A. F., on p. 90, vol. 36.

What is the method of silvering glass? A. See p. 35, vol. 35.

(29) S. G. asks: What can I use to color starch brown, for starching brown linens, cambrics, prints, etc.? A. Try a little soluble Bismarck brown.

(30) G. C., of Ballarat, Victoria, Australia, asks: 1. What do the blind manufacturers in America use to prevent the blistering of the paint on inside blinds? A. Paint is apt to blister when mixed with boiled oil. Use raw oil, and let the paint get dry and hard before exposing it to dampness or rain, 2. What are the ingredients used in the manufacture of green paint? A. Paris green is the principal ingredient used in the greens for painting blinds. The color is shaded by adding black. A bronze green is sometimes made by mixing black and chrome yellow.

(31) A. A. B. says: Please inform me of the ause of and remedy for granulated eyelids? A. The trouble is commonly caused by a weak and impure state of the blood. Use sulphur and iron tonics for the blood, and wash the eyes regularly, three times a day, with the following: Pure sulphate of zinc 3 grains, tincture of opium 10 drops, water 2 ozs.

What is the process of making emery wheels? A. They are usually made by kneading crude caoutchouc, softened by heat, with about half its weight of sulphur, and the proper quantity of fine emery, and vulcanizing the material by heat.

Can a person make a patent invention for his own individual use? A. No.

(32) J. J. says: Please give me a recipe for making vulcanite, to set artificial teeth in? A. The right to manufacture this material is secured by patents It is made by kneading caoutchouc with about half its weight of sulphur and a little Indian red. It is vulcanized by heating for 4 hours, under pressure, at a temperature of 310° Fah.

(33) H. G. says: Please give a recipe for making bar soap? There is one offered for sale by peddlers, as follows: Take 5 gallons ley, 5 gallons water, 5 lbs, tallow, 1 lb. potash, 2 lbs, sal soda, 1/4 lb, rosin, 1 pint salt, 1 pint washing fluid. Let boil half an hour, which is enough for 100 lbs. But I cannot make it work. It does not take up the grease, and it does not harden. A. Dissolve the potash and sal soda in the water (boiling), and add a few ozs. of caustic lime, stir and allow to settle. Pour off the ley thus formed, and boil this for several hours with the tallow and rosin. Then removefrom the fire and add the salt (dissolved in hot water). Stirwell, and allow to settle. Pour off the supernatant liquid, gather the precipitated flocculent soap on a cloth, and strain off the excess of liquor by pressure. When dry, this should give you about 12 lbs. hard soap.

(34) I. J. asks: 1. How many lbs. of coal will make a bushel of coke? A. On an average 50 lbs. of cannel coal will yield a bushel of coke. many lbs. of coke are there in a bushel? A. A bushel of coke weighs about 35 lbs.

(35) H. E. N. asks: What will remove the stain of white paint, that has become hard and set on brown si'k? A. Try good chloroform and ether, and then a little soap and water.

(36) T. S. says: I wish to make an intense light in one end of a hallfrom a single gas jet, the body of the hall being lighted with ordinary gas burners. I wish the light to last for two or three hours How can I increase the intensity of gas? A. There is no source of brilliant illumination which approaches, in point of economy and controllability, the oxyhydrogen or lime light. Try large argand gas burners, provided with tall chimneys and good silvered reflectors.

a hill several hundred feet high, and nearly a mile from ground or where subject to dampness where we wish to use the water. One half of the required length of pipe is 11/2 inches, and the rest 1 inch in diameter. In order to get the best head and largest flow of water, how shall the pipe be used? With the largest size near the spring, or vice versa? A. The larger pipe should be placed nearest to the spring, as in this case its contents will act as a head to force the water through the smaller pipe, in which, on account of the greater velocity, there will be the greater friction. 2. Does water in a pipe, under pressure, flow with less friction in coming downhill than on a level or in being forced up hill? A. No. The friction depends upon the velocity without regard to the power. If you remove the power of gravity, water may be forced up hill as easily as down. 3. Is the friction greater when water is forced through a pipe than it would be if it were drawn through the same pipe by suction? A. No. It is forced , through the pipe in either case. Where suction is employed, the pressure of the atmosphere is simply removed from one end, and allowed to exert its full force

(38) S. T. asks: What ingredients can be mixed with aniline red to turn it black without injuring its quality? A. Use hydrochloric acid and chlorate of potassa. Aniline black may be made more economically directly from the aniline oil (crnde) by means of the above reagents.

(39) M. M. F. asks: Please give me a recipe for annealing steel very soft? A. Heat it a cherry red, and let it cool in lime.

(40) H. C. D. asks: 1. How is a fine varnish finish put on wood, to be perfectly smooth and glossy? A. First rub down the surface of the wood senic.—A box from Mobile city (no letter with it) con with pumice powder. Then give three good coats of co- tains guano of good quality. -O. P.-It contains galena pal varnish (commonly called furniture varnish), allow- and iron pyrites. Sec p. 7, vol. 36.-H. C. M.-It is an ing each to dry before applying the next. Rub this aggregation of small crystals of smoky quartz. Its ocdown perfectly smooth with pumice powder and water, and finally give the work a good flowing coat of strained imity of any valuable metal. See our advertising colvarnish. 2. How is a white finish put on wood to represent marble, that will not scratch? It is used on coffins, A. The wood is given several good coats of zinc white, 1 is hornblende. No. 2 isgalena—sulphide of lead. No. and then rubbed down with pumicestone. It is then 3appears to be erubescite—a double sulphide of copper flowed with a lacquer of gum aniline, and baked at a and iron. No. 4 is clay containing a large percentage of temperature of about 300° Fah. 3. What can I use to carbon. It is not a natural formation. No. 5 is mica fill the pores of walnut before varnishing? A. Common oil size is sometimes used; but the best material for oxide of iron. It is used to some extent, mixed with this purpose in use is a rough varnish composed of rosin. oil, and turpentine. It is known in the trade as scraping varnish. Several coats of it are applied to the wood and then scraped off with an iron or steel scraper and fine sandpaper, leaving the pores of the wood evenly

(41) W. D. M. says: When do fishes sleep? In my aquarium my gold fish and minnows seem always on the alert. A. Such fishes rarely sleep, unless in very cold water.

(42) J. L., of Manchester, England, asks: How are the castings of zinc figures or statues made in France and Germany? The mode of procedure is, I believe, casting the zinc in brass moulds, with the pattern engraved inside the mould; but I cannot arrive at the way in which they cast them hollow, for by the appearance of the metal no sand core is used. A. The moulds are built in pieces, and the sand is faced all over, for both the inside and outside of the statues, leaving no sand or parting marks on the castings.

(43) S. asks: 1. What is the greatest perpendicular height to which water can be lifted by a steam pump? A. From 30 to 32 feet. 2. Which can lift the highest, a piston or a rotary engine? A. If the two forms of pump are equally tight, there will be no difference in favor of either.

(44) A. E. B. says: 1. I wish to construct a footpower jig saw. The saw blade is to be stretched in a frame after the fashion of the gate saw. A. A man can comfortably make about 120 strokes of the treadle with the foot per minute. This will turn your driver 120 times per minute. 2. How large a driving wheel must I have to attain 800 strokes a minute, and of what size should the pulleybe? A. The driver pulley may be from 11/2 to 2 inches in diameter, and you can make your own can agricultural steam engines be bought? Who sells calculation for driver. 3. How large shall I make my flywheel, and will it make any difference whether I have it on the shaft with a pitman pulley or on the same shaft as the drive wheel? A. It is better to attach a pitman to the shaft which carries the driver, because it is more direct and saves the friction of intermediates.-J. E. E., of Pa.

(45) W. H. D. asks: 1. How can I construct a hand pump for the purpose of pumping oxygen gas from a bag into a cylinder, to compress it for a calcium light? A. If you are entirely unacquainted with the details, we think it will be more satisfactory for you to purchase the pump from a maker of philosophical instruments. 2. In making oxygen gas in a cylinder kind of liquid does it contain? A. A pressure gauge can be made of a bent tube containing water. 3. What is a Bunsen burner? A. It is a gas burner in which the gas is mixed with air before being burned. 4. What is the expansive capacity of hot air to the square inch? A. If the volume is constant, the pressure increases about 1 for each 1º Fah.

(46) E. P. B. asks: 1. Will the salt in oil made from butter be injurious to machinery or leather? including both the specifications and drawings, will be A. It is better to extract the salt. 2. Is there anycheap way of removing the salt? A. The salt may be extracted from the butter by agitating the same with a large quantity of water just hot enough to fuse it. On allowing the water to stand for a few minutes, the fatty oil will rise to the surface.

(47) J. McT. asks: What is the substance called breeze, mentioned in a recipe for making concrete? A. Small ashes and cinders, sometimes used instead of coal for burning bricks.

Is there danger f a balloon frame rotting when filled in with concrete, the inside of the stude being exposed? A. No. especially if the ends of the stude are not covered with the concrete.

Which is the best to apply to wood, crude petroleum

(37) R. C. S. says: 1. A spring is situate on or coal tar? A. Coal tar is best for coating wood under-

(48) R. C. G. says: Our western coal has a great deal of sulphur in it, which makes it very trouble some to work; and as I am a blacksmith, it gives me much trouble. Is there anything that will remedy the evil? A. Thiscannotbe obviated, as the sulphurin the fuel exists in combination with iron as pyrites.

(49) F. S. asks: Is there anything which will take smoke stains from white marble? A. If you do not succeed with soap and water, try rubbing with a little prepared chalk moistened with benzole

(50) W. B. asks: How can I color brickork black? A. Use a paint or varnish made from Brunswick black, oil, and turpentine.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the result stated:

B.B. T.—The material contains nickel, cobalt, arsenic, and sulphides of these metals. After solution, the ar senic may be separated by sesquioxide of iron. Neutralize and precipitate with lime, dry the precipitate, and dissolve it in very dilute oil of vitriol. The iron may then be separated by neutralizing with lime and a little carbonate of lime (chalk). Crystallize the nickel solu tion, and decompose by roasting. - A. E. F. - No. 3 appears to contain gold, but it would require a quantitative analysis of the ore to determine the amount. We can give no opinion as to the probable value of the ore from the small fragment which you send.-A. E. L.-No. 1 is galena—sulphide of lead. Nos. 2 and 3 consist principally of iron pyrites and marcasite. See p. 7, vol. 36.—C. J. D.—It contains iron, nickel, cobalt, and arcurrence is not necessarily indicative of the close proxumns for addresses of dealers in scientific books, who will send you catalogues on application. -A. R. R.-No. schist.-S. M. W.-It is an iron ocher-clay colored with oil, as a paint for outside work and for floors.-M. S. H. -It appears to contain British gum (dextrin), gum arabic, shellac, borax, soap, glycerin, and some perfume. Shellac may be rendered soluble in water by adding borax.—A specimen contained in small yellow box, with no name on it, appears to be a piece of slag or scoria from some furnace.-C. J. L.-It is a piece of furnace slag.—S. G. McM.—It is sesquioxide of iron.

COMMUNICATIONS RECEIVED.

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

On the Bourdon Pressure Gauge. By A. B. W. On the Attraction of Atoms. By D. P. B. On Home-Made Philosophical Instruments. By J. P.

On the Telephone. By H. H, Also inquiries and answers from the following:

L. H.—A. B.—T. A. K.—E. B., Jr.—W. W.—A. J. B.

—G. B.—C. A. F.—N. J. W.—J. T. R.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeatthem. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Inquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take please ure in answering briefly by mail, if the writer's address

Hundreds of inquiries analogous to the following are sent: "Who sells small distilling apparatus? Where electro-magnetic motors? Who sells the best microscopes? Whose is the best work on watchmaking?" All such personal inquiries are printed, as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously ob-

OFFICIAL.

INDEX OF INVENTIONS

FOR WHICH

Granted in the Week Ending

March 6, 1877.

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row. New York city

	Air gun, spring, H. M. Quackenbush 188,028	Lamp chimney cleaner, C. P. Palmer	188,069	
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1	Bale tie, cotton, J. L. Sheppard (r)	Line fastener, A. S. Goodrich	188,047	ı
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	187,987 188,069 187,959 188,142 7,544 188,220	9,830 to 9834.—CARPETING.—E. J. Ney, Dracu 9,855 to 9,838.—CARPETING.—H. Nordmann, N 9,859.—GAS REGULATOR.—O. Pressprich, N. 9,840 to 9.842.—CARPETING.—C. W. Swapp, Lo 9,843 to 9,845.—INESTAND, ETC.—O. F. Fogels Britain, Conn.

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9,770.-MATCH HOLDER AND MAT.-P. L. Davis, San

9,771 —CARPETING.—E. Fisher, New York city. 9,772 to 9,783.—CARPETING.—J. Fisher, New York city. 9,784 to 9,795.—CARPETING.—J. L. Folsom, Brooklyn, N.Y. 9,796 to 9,810.-CARPETING.-O. Heinigke, New Utrecht, N. Y.

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