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C. D. should consult a florist.-J. W. W. can find directions for making nitro-glycerin on p. 283, vol. 30.-C. G. will find full information as to grate bars in Trowbridge's "Heat and Steam Engines."-E. J. H. is informed that there is no rule for determining the horse power of a boiler. -O. R.N. will find full information as to the rubber horse shoe on p. 166, vol. 31.-M. M. W. will find a recipe for baking powder on p. 123, vol. 31.-D. L. L. should consult a treatise on water wheels. -T. W. will find directions for hardening needles etc., on p. 347, vol. 31.-I. C. F., W. R. M., and many others are informed that water glass is silicate of oda, advertised regularly in our columns.-J. L.S. can preserve his canvas tent by using the preparation described on p. 347, vol. 31.-B. C. S. can scour his castings by the process given on p. 139, vol. 31.

(1) W. H. B. asks: Will steam destroy the temper of spring steel kept constantly in it? A The springs, if properly tempered, will continue serviceable for a long time unless the steam pressure is unusually high.

(2) F. L. asks: How much coal and water are needed to propel a freight train of 30 cars for 100 miles at the usual speed? A. These elements vary greatly. We find, from an inspection of locomotive returns, that a tun of coal will move an ordinary freight train a distance varying from 35 to 62 miles

(3) S. F. S. asks: Can you tell me how to file circular saw for sawing cord wood into stove length? A.No.1 is a good shaped tooth for very soft wood, the wide bevel being the front of the tooth.



The point would be liable to break or bend in very hard wood or in knots. No. 2 will stand to saw the hardest timber or knots, but will not cut as easily as No. 1. No. 3 is a form of point generally used for promiscuous sawing of both hard and soft wood. The shapes of saw teeth should be varied to suit the kind of wood to be sawn. The set must be wide enough to clear the plate. In sawing very hard wood, less set is required than in sawing wood that is soft and fibrous.-J. E. E., of Pa.

(4) B M M, and others ask : What study would be best for a machinist to take up? A. It would be well to begin with geometry, drawing, and natural philosophy. We can recommend Minifie's Mechanical Drawing," Robinson's or Loomis' "Geometry," and Silliman's,Ganot's,or Deschanel's " Physics."

(5) F. E. H. says: I wish to make two large wooden troughs to hold a silver and copper solution, for electroplating. Please give me a recipe for varnish that will stand the cyanides. A. Coat it with marine glue.

(6) F. R. G. asks: I am engaged in constructing a reflecting telescope, which I wish to be a Gregorian. The mirror is 7 inches in diameter and of 6 feet focus. What should be the focus of the small mirror, and where along the tube should it be placed so as to give the best effect? A. Focus of small convex mirror, Cassegrain, 8 inches, 64 inches from speculum. A Cassegrainian wouldbe much better. The small convex mirror corrects part of the spherical aberration of the speculum. It is placed at its own negative focal length inside the focus of the large mirror. (7) W L W, asks: Is much as is used for perfumery, extracted from the common musk rat? A. It is prepared from the musk root sumbal, or iatamansi (a substance imported from the East). The root itself has long been used in India and Persia as a medicine, a perfume, and for incense. It has a pleasant, musk-like odor, and acts as a powerful stimulant on the nervous system.

toothed saw. a shows the form of tooth of full 25 miles distant, and the lime, "Drummond," or ⁸ize, and b, the position for holding the saw. 'calcium," light at a distence of fully 100 miles. The aw is held flat on the bench, and one side is fin-



ished before the saw is turned over. No setting is needed, and the plate should be thin and of the best quality and temper. A. We have never used this particular shape of tooth. For very fine smooth sawing, this form of tooth would undoubtedly work well; but must be filed by an expert workman.-J. E. E., of Pa.

(9) S. M. asks: 1. How are galvanometers made? A. A magnetized needle is placed in the center of a coil of insulated copper wire, the needle being suspended by a thread, or resting on a pivot. 2. I have a magneto-electric machine for medical purposes. It has always worked well until lately, and now I cannot get a hard shock though I put on all the force I can. The induction coilis all right, but I can only get a very feeble current through the secondary coil, and that at very irregular intervals. It is driven by a revolving armature between the plates of a small electromagnet; the circuit is broken and connected by two small silver springs, which press upon an arrangement on the shaft of the armature. The armature revolves about 200 times per minute. A Probably the coating or insulation of the wire of the secondary coil is destroyed, and thus prevents the secondary current from traversing the entire length of the wire.

(10) R. A. asks: How can I separate silver from copper in blocks of mixed metal? A. Dissolve the mixed metal in aquafortis of 1.2 gravity. Precipitate the silver as chloride with solution of salt, and reduce the chloride with zinc and dilute sulphuric acid. Evaporate the remainder (containing copper) to dryness, ignite to drive off the acid, and reduce the metal in crucible, or precipitate the copper in solution by iron.

(11) D. C. M. asks: Where can a mineral rod be obtained? A. If you mean by a mineral rod a divining rod, we cannot say, because they are only sold by quacks and used by ignorant per sons.

(12) B. P. M. asks: When did the first land plants make their appearance? A. In certain shales and other deposits, belonging to the Devonian formation.

1. Is the school started by Agassiz still open, and is it the best school of its class? A. It is still open, and is the best. For further information, address the officers. 2. Do medical colleges admit students who only take anatomy? A. Not as a general rule.

(13) W. D. S. asks: 1. What substance will dissolve in water at its natural temperature? A. Most of the salts of the alkalies and metals. 2. What substance will dissolve in water only when heated to 200° or 212° Fah.? What substance will dissolve in water heated (under pressure) to 500° or 700° Fah.? A. Substances which dissolve under these circumstances will also dissolve, although not to so great an extent, at lower temperatures. I drop a piece of copper into nitric acid; powerful analytic and synthetic action ensues, and there rises a murky, yellowish, brown vapor. What is this vapor? A. Hyponitric acid.

(14) A. S. asks: What degree of heat is required to melt nickel? A. Nickel has remarkable magnetic properties, which it loses on being heated to 650° Fah. The standard authorities do not state the melting point of nickel further than it is very high and near that of iron.

(15) F. E. asks: How can I line a tin can with lead? A. Tin lined lead pipes are now common, and a compound sheet of the two metals might be used for your purpose.

(16) T. H. W. asks: 1. How can I coat castings with copper? A. The article should first be rendered free from rust by rubbing with an emery cloth, or by dipping into a pickle composed of sulphuric acid 2 ozs., hydrochloric acid 1 oz., water 1 gallon. After the article has remained some time in this pickle, it should be taken out and the rust removed by a brush and some wet sand; if the ox-ide cannot be easily cleaned off, it must be returned to the pickle. As soon as the article is rendered bright, it is washed in a warm solution of soda or potash, for the purpose of removing all grease. Lastly it is well rinsed in hot water, and immediately placed in a concentrated solution of sulphate of copper, to which a little sulphuric acid has been added. In a short time it will be found to be coated with an even covering of metallic copper. 3. How can I blue wire cloth, such as is used for dish covers? A. See p. 266, vol. 30. (17) W.R. asks: 1. Can you give mearecipe for a dye that will change a set of wooden white chessmen to a pretty red color? A. To 2 lbs. genuine Brazil dust add 4 gallons water. Place the articles, immersed in this liquid, in a suitable vessel, boil them for three hours and let them cool, then add 2 ozs, each of alum and aquafortis. and keep lukewarm until the required shade is obtained. 2. What would be the greatest distance at which a brilliant light would appear to stand over and so designate a particular house? A. We

(18) H. M. asks: Can you tell me of a varnish which is perfectly transparent, for polished silver ware? A. We think the following recipe will answer your purpose. Take gum mastic 6 ozs., turpentine 14 ozs., place them together in a large bottle, and shake for some time without the application of heat. When dissolved, strain it through a piece of calico, and place it, in a bottle tightly corked, so that the sun may strike it for several weeks, which will cause a mucilaginous precipitate, leaving the remainder as transparent as water. It may then be decanted into another bottle, and put by for use.

(19) H. W. J. says: I have a camera obscura, but the lenses are gone. It will take a pic-ture about 3 inches square. What kind of lens would be best to get? A. Try a meniscus, 1 inch in diameter, of 5 inches focus, or buy a quarter size view tube.

(20) E B Lasks: 1 How can I make paraboloid chucks to grind glass specula by means of a common lathe? A. Keep the mirror spherical until polished, then polish out the center until the focus of marginal and center rays is the same when you read the SCIENTIFIC AMERICAN at 50 yards distance. 2. If cast, how are the molds con-structed? A. Cast a pair, tap for lathe spindle, turn to template of correct radius, then grind together with emery. 3. After the speculum is ground and polished, how can it be tested for minute errors, and how can such errors be corrected? A. The parabolic mirror has twice the longitudinal aberration of the spherical one. That of the spherical one is equal to the square of half the aperture divided by eight times the principal focal length. The mirror is mounted on wooden cleats and viewed at the center of curvature: 1, with an eyepiece mounted on a graduated table close to an artificial star, a lamp with two pinholes in its opaque screen. If spherical, the image is sharply defined, and surrounded by interference rings. 2. By moving an opaque screen across the cone of rays in front of the pupil of the eye. If the miror be spherical, it will resemble a plane surface.

(21) H. Z. E. asks: 1. Does the earth in its path round the sun always move in the same plane? A. No. 2. What is the shape of the earth's orbit? A. An ellipse. The eccentricity is $\frac{1}{60}$. In 24,000 years it will diminish to 0.0033 and commence to increase.

(22) D. B. & D. H. B. say: We have an engineer running our engine; he sometimes runs with 30 lbs. of pressure, at other times as high as 75 or 80 lbs. He contends that low pressure is as good as high pressure in regard to economy. Wc say that low pressure takes more fuel, more water, and more steam. Which is right? A. The difference is in general considerably in favor of high pressure, but not always, however. We could not give an estimate of the difference in your case without knowing more particulars.

(23) E. O. G. says: 1. I state that, at the depth of 1 mile in the sea, a human body will, by the pressure, be rendered unrecognizable, at miles torn and pressed out of shape, and at 7 miles torn to pieces. Am I correct? A. We do not know. 2. At what depth is there a pressure of a thousand atmospheres? A. Atabout 34,000 feet.

(24) N. R. says: I have a well 80 feet deep, which is 15 feet from boiler. Can I force the water up through pipe, 90 feet high from bottom of well, with 70 lbs. steam? A. Yes.

(25) P. P. says: I read that, in warming buildings by steam pipes, each square foot of surface will heat 200 cubicfeet of the surrounding air to 75°, and will require 170 cubic inches of boiler capacity for its supply. 1. Is this a good standard to go by in estimating the quantity of pipe needed to heat a building? A. There is no general rule for all kinds of buildings. 2. What increases and diminishes the weight of air, and what increases and diminishes the density of air? A. Cold or compression increases the weight of a given volume. Heat or expansion diminishesit.

(26) J. H. says: 1. We have a boat 16 feet long by 3 feet wide, flat-bottomed, pointed at bow and nearly so at stern. Can this boat be driven as fast by a propeller as by one pair of oars? A.The oars will answer best. 2. On p. 43, vol. 32, in your answer to J. H., you speak of pitch and gutta percha not being attacked by water. Would this be good for painting the outside of a boat with, to prevent the water soaking into the wood? A. Yes.

(27) A. B. asks: What is meant by the area of a piston? A. The number of units of square measure, such as square inches or square feet, in the cross section. I have a rose bush that seems to be full of small

Peck's Patent Drop Press. Still the best in use Address Milo Peck, New Haven, Conn.

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For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular.

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(8) A. W. R. asks: Can you give me any information as to the saw here shown? The en-graving shows the shape of the fleam or lancet, nesium light has been distinctly seen at sea, when

reptiles r embling snakes. Ho can I kill them without killing the rosebush? A. Apply to a nurseryman.

Whatismeant by the frogling box of a locomotive? A. The term is new to us. Perhaps some of our readers can explain it.

(28) A. L. M. asks: What is the best plan of seasoning green dogwood or other small woods to avoid cracking? We are putting it in a tight box and turning on live steam, and intend piling it in a dry room (heated by steam) afterwards. Will this answer, and how soon will it dry? A. No doubt this plan will answer if it is thoroughly steamed, and it will dry in a few days.

1. What should be the size of a crank pin for a 45 horse power engine? A. The question is too indefinite to admit of a general answer. 2. How can I tighten a loose crank on shaft? A. It should be bushed and refitted.

(29) L A. T. says: 1. On p. 19, vol. 32, un der head of "British Naval Guns," we find the following: "The latter was proved capable of penetrating wrought iron plates 14 inches thick, as well as a backing of 18 inches of timber and a skin

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of 1¼ inches plates," etc. We wish to know if the edge to a cherry red and dipit into clear, cool waprojectile will pierce the above mentioned in one body? In other words, will it (the gun) shoot through a total of 33¼ inches of the above at one shot? A. Yes. 2. Can a ball be made to go through 14 inches of solid iron? A. Yes. 3. Can a vesse be made to float on water with that amount of iron on it? A. Yes. 4. "It penetrated 12 inches armor." What is meant by armor? A. The plating on the vessel's side.

(30) L. H. H. asks: What can I use on belts that have become glazed and hard? A. We believe castor oil and neatsfoot oil to be among the best preparations. We know, however, that engineers have a variety of materials which they think very well of; and as the matter is one of intcrest, we ask for information from our readers.

(31) C. E. P. asks: Please give me a good practical recipe for coloring raw wool with a logwood blue. A. Use 101/2 lbs. logwood, 11/4 lbs. prussiate of potash, 3½ lbs. supersulphate of tartar, 2¼ quarts muriatic acid, 1¼ lbs. nitric acid, 1¾ lbs. muriate of tin.

With an engine 9x18, how can I getthe most power with 50 lbs. steam, with a 4 feet band wheel on engine shaft and a large belt to drive line shaft with, or by coupling the line shaft to the engine shaft and drive each machine with a small belt from a pulley on line shaft? A. In the second way.

(32) F. H. H. asks: 1. Can oil or grease be extracted from bones, leather, etc., by the use of bisulphide of carbon? A. Yes. It is used in large quantities for this purpose. 2. How can the grease be recovered or separated from the carbon? A. By distillation, using a retort connected with a worm, and condensing tanks, similar in arrange ment to the apparatus used in the distillation of light oils.

(33) C. C. asks: How can I construct a furnace to smelt copper and silver ore on a small scale? A. It would require a whole treatise to give you the desired information, and we advise youto consult standard works on the subject, if the ser vices of a practical man cannot be obtained.

(34) C. F. says: I wish to condense about 7 cubic feet oxygen into a cylinder 7 inches in diameter and 18 inches long, and about 10 feet hydrogen into one of the same size. What will the pressure per square inch be on each cylinder? A. The pressure will vary inversely as the volume. Thus, if 10 cubic feet of hydrogen at a pressure of 15 lbs. per square inch, are compressed so as only to occupy a space of 1 cubic foot, the pressure will be 150 lbs. per square inch. Iron $\frac{1}{10}$ of an inch in thickness will answer for the cylinders. You will find rules relating to gases in Ganot's or Deschanel's "Physics."

(35) E. H. M. asks: What would be the best packing to use in a cooking vessel to prevent the escape of steam? A. It would probably be well to give the cooker such a form that you can getin a packingring, and clamp the two parts to gether.

(36) J. M. T. asks: At what speed will an engine 5x6 and a boiler 5 feet high x 36 inches in diameter, with 70 lbs. of steam, drive a propeller screw 36 inches in diameter in a tank of water, the wheel to be stationary? A. At about 300 revolutions a minute, if the wheel were completely immersed.

How high will a pound of steam raise a column of mercury? A. About $2\frac{4}{100}$ inches

1. Is there any back pressure on a high pressure cylinder of a compound engine? A. Yes. 2. Are the cranks of such an engine set at right angles or opposite each other? A. In both ways, and at intermediate angles. 3. Would a three-cylinder engine on the compound principle, having cylinders for three pressures from high to low, be practicable? A. Yes. It has been done.

(37) G. S. asks: The diameter and length of a hydraulic cylinder being given, how can I find the thickness of metal to withstand any pressure per square inch? A. It is customary to strengthen such cylinders with bands or other devices, when the pressure is very great. But for an ordinary thick cylinder, made of cast iron, the following rule will answer: Safe strain in lbs. per square inch

4,000×thickness of cylinder in inches. internal radius in inches+thlckness in inches.

(38) A. B. asks: What is the milk of lime that distillers use for cleaning vats, etc.? A Cream or milk of lime is a thick mixture of the hydrate of lime with water. It is readily obtained by first slacking the lime properly, and then mixing it with water until of the consistence of thin whitewash.

(39) J.L. asks: What is the difference in strength of a 14 inch and 16 inch boiler flue against external pressure? What is the variation of inches in diameter to base calculation on, for external and internal pressure, or how much additional thickness of iron would be required to make strength equal for both kinds of pressure? A.The following empirical rule will enable you to make the desired calculation: The resistance to collapse in lbs. per square inch of surface, is found by multiplying the square of the thickness in inches by 806,000, and dividing the product by the product of the diameter of the flue in inches and the length in feet. Let F=thickness of flue in inches D=diameter of flue in inches, L=length of flue in feet, P=resistance of flue to collapse, in lbs

ter, not further than one tenth of an inch. In doing this, let your arm rest on something firm, to enable you to hold it quite steadily. As soon as the tool is sufficiently cooled off, it is ready for use. The advantage of this method is that you obtain a hard edge, not liable to fracture, as it is sustained by the soft steel behind it.

(41) H. P. asks: How can monograms, etc. be erased from china ware? Will hydrofluoric acid do it, without making a spot? A. Stop out the part of the vessel which you do not wish to haveattacked with a dam of wax or melted paraffin, and allow the liquid hydrofluoric acid to remain in contact until the surface is sufficiently attacked. But it would be a very troublesome and difficult operation. There is no other solvent so powerful as this.

(42) L. G. S. asks: Can you tell me what solution or preparation is used for dipping plain wooden crosses in, so that they are covered with crystalsthat are generally red and not more than 1/4 inch in diameter and 1/4 inch long? A. Try coloring a saturated solution of saltpeter or alum with aniline red, and continue dipping until a sufficient thickness has crystallized. Or use a solution of bichromate of potash or red prussiate of potash.

(43) J. S. F. asks: Is there any such an art as throwing the voice? Several persons have told me that ventriloquists can throw their voices in any direction, and at any desired distance. I contend that it is mostly deception, for it does not look reasonable to me that sound can be pitched about, separate from the body. A. Your view of the matter is correct. The deception consists in so working upon the imagination that an audience readily believes the sound to come from a distance

(44) J. L. D. says: There is a curious com-bination of gear wheels called Ferguson's mcchanical paradox. It consisted of 3 pinions connected to one spur wheel, one of which runs in opposite direction to the spur, one in the same direction and one not at all. How can this be? A. The

B



wheel, A, is secured to the pin, D, about which the arm, B, revolves. There are two pins, F, G, secured to the arm. The wheel, E, is loose upon F, and gears with A. The three pinions, H, I, K, are loose upon the pin, G. I has as many teeth as A: H, one more, and K, one less.

(45) C. W. J. asks: What is Burnetized lumber for building purposes? A. Lumber treated with Burnett's disinfecting fluid, which is large ly used as an antiseptic; and this fluid is a solution of chloride of zinc.

1. What is the fertilizing principle of cotton seed? A. It is probably due to the potash con-tained in the seed. 2. Would not the seed of the castor oil plant answer as well? A. That must be, of necessity, a matter of experiment with you; we know of no recorded comparisons between the

How can I make red and green ink for ruling? A. Red ink: Digest powdered cochineal 16 parts oxalic acid 2 parts, dilute acetic acid 80 parts, distilled water 40 parts, for 36 hours; then add pow dered alum 1 part, gum arabic 1 to 10; shake up, let stand for 12 hours, and strain. Green ink: To powdered bichromate of potassa 8 parts, contained in a porcelain dish, add oil of vitriol 8 parts, previously diluted with 64 parts water; then heat, and, while evaporating, add gradually 24 parts of alcohol, and reduce to 56 parts, which filter, and in the clear liquor dissolve 8 parts of gum arabic.

(46) J. L. W. savs : You sav : "Never allow drinking water to be drawn from a cistern supplying a water closet." Why not? A. Because the cistern is often so connected with the water closet that there is danger of the gases passing from one into the other, or the water, which readily absorbs noxious gases and vapors, becomes impregnated with them. (47) E. L. asks: Of what is carbolate of iodine inhalant made? A. The mono- and di-odated compounds of phenol are produced, with copious evolution of hydrochloric acid, by the action of chloride of iodine on phenol. The solution of the residue in soda ley yields, on addition of hydrochloric acid, a grayish white, viscid body, which, when heated under the ordinary atmospheric pressure, is resolved into a large quantity of iodine and rosolic acid : but when distilled in a vacuum, it yields liquid mono- and di-iodophenol.containing a small quantity of rosolic acid. Mono-iodophenol, C₆H₅IO, is a colorless, sirupy liquid, insoluble in water, soluble in alcohol and ether; and it forms, with alkalies, crysta lizable salts which to it, both sides being similarly shaped; let the are soluble in pure water, but insoluble in strong tool be about one inch and a half wide. Heat the potash ley. Di-iodophenol, $C_0H_4I_2O_1$ is a colorless

solid, which melts at about 110°, dissolves sparingly in water, and crystallizes from hot dilute alcohol in slender flattened needles. It dissolves in alcohol and ether, and in alkalies, forming with the latter compounds which are soluble in water but insoluble in strong potash ley. When heated it gives off iodine, and leaves rosolic acid.

Why is it that the dead are always buried with the head to the west? A. Are they?

I have a microscope and telescope, both of which are achromatic; the object glass of the latter is 2⁴/₅ inches in diameter, its focal length about 54 inches. Is there any way by which I can combine the lenses of the microscope and use them for an eyepiece in the telescope to increase the power of the latter? A. No. What would be the effect of black pepper

sprinkled upon beef or pork when packing it for winter and summer use? A. It would probably be of no advantage.

What effect would saleratus or bicarbonate of potash have, if added to the brine in packing either beef or pork? A. It would alter the taste, and would not prevent spoiling.

What is paraffin? A. It is a white solid, contained in the heavy portion of mineral oils.

(48) M. W. H. asks: Is cherry tree gum of any value for mucilage? A. We do not findit mentioned as of any value. A good mucilage is the following: Dissolve clear gum arabic in hot water, and add a very small quantity of sulphate of quinine. The latter effectually prevents the mucilage from becoming moldy, and replaces the poisonous creosote, corrosive sublimate, etc., frequently used to remedy this evil.

Are there any lead mines that have no silver in the ore? A. The galena, or sulphuret of lead, which is the ore usually mined, always contains a small percentage of silver.

What is the value of pure gold per ounce? A. Pure gold is worth about \$30 an ounce.

(49) J. S. says: 1. I have a well, the water in which is hard, and there is a chain pump in it, the chain being covered with zinc. Is it unhealthy to use the wate :? A. Generally speaking, no. 2. How does zinc poison affect the system? Does it ever injure the eyesight in any way? A. The salts of zinc, when taken in poisonous doses, cause violent vomiting, burning pain in the stomach, dull eyes, fluttering pulse, and cold extremities. Death seldom ensues, in consequence of the emetic effects.

(50) D. D. N. says: We found that our lamp burnt with a low flame for about 10 minutes, when suddenly the flame would dart up to about 15 inches in hight. The oil would trickle down, and the blaze descend below the chimney holder. What was the matter with it? A. Your trouble was probably due to the use of too light an oil, the vapor of which soon partially filled the inner chamber, and, owing to the warmth of the room, expanded and caused the overflow. In this case the remedy is to use an oil of a greater specific gravity.

(51) L. K. L. asks: 1. Which flame is best for a blowpipe to solder white metal to white metal, gas or alcohol? A. Either will do. 2. How can I make a white metal solder? A. You will find a recipe on p. 123, vol. 32.

(52) J. A. D. asks: What acid or combina tion of acids will separate the cotton and the wool in a mixed fabric? A. A solution of ammoniacal oxide of copper in excess of ammonia dissolves cotton, but not wool. To remove the wool from the cotton, steep in a concentrated solution of potash, when the wool is absorbed, leaving the cotton.

(53) A. F. asks: 1. Will boiling or steam-ing timber injure its solidity? A. The pores of the wood will become filled with liquid, and some of the substances soluble in water will be extracted. 2. Are there any chemicals that will improveit? A. It is sometimes treated with chloride of zinc, or chloride of mercury, or tungstate of soda.

(54) J. H. savs: I wish to make a light garden hose out of cotton drill or cotton duck, by using two thicknesses of the materials. What kind of cement, that is insoluble in water. can I use to stick the two layers of cloth together? A. Dissolve india rubber in bisulphide of carbon, or in hot benzine.

(55) L. S. asks: What cement is used for cementing tea lead to paper by the Japanese? A. Generally what is known as rice glue. It is made by intimately mixing rice flour with cold water, and then gently boiling it; it is beautifully white, and dries almost transparent. Papers pasted together with this cement will sooner separate in their own substance than at the joining.

(56) H. S. M. asks: What is the shortest, surest, and best way to analyze water? A. Water analyses are difficult, and can be made only by chemists. 2. What is the best way to find if the water we wish to analyze is fit for drinking? A. As a general rule, when a bottle is half filled with the water to be examined, set aside in a warm place, and after a few days (on opening the bottle) is found to have a bad smell, taste, and color, it is ot wholesome.

and are more brilliant. Second, intoxication or drunkenness, which is a disordered condition of the intellectual functions and volition, manifested by delirium, varying in its character in different individuals, and by an incapability of governing the action of the voluntary muscles. This state is accompanied with excitement of the vascular system, and frequently with nausea and vomiting; it is followed by an irresistible desire for sleep, which usually continues for several hours, and is attended with copious perspiration. When the patient awakes he **com**plains of headache, loathing of food, great thirst, and lassitude; the tongue is furred, and the mouth claminy. Third, coma or true apoplexy, which is usually observed when excessive quantities of spirit have been swallowed in a short time. The pulse is generally slow, the pupils are usually dilated, and the breathing is for the most part slow; but exceptions exist to all of these statements. In some cases actual apoplexy (with or without sanguineous extravasation) is brought on. The immediate cause of death appears to be either paralysis of the muscles of respiration, or closure of the glottis. The effects of spirit agree, in a considerable number of circumstances, with those of wine, but present some peculiarities. Spirit more readily induces excitement, which, however, is of shorter duration, beingmore rapidly followed by collapse, relaxation, or debility. Death is by no means an unfrequent consequence of deep intoxication from spirit."-Pereira.

(58) W. H. S. asks: 1. How can I cast plaster of Paris molds without getting airholes in them? A. Make your plaster of the consistence of thick cream. For hardness, use a strong solution of alum, instead of pure water. 2. What kind of varnish should I use for a child's carriage? A. Copal. 3. What is a good varnish for plaster of Paris patterns, to fill up the pores? A. Try paraffin varnish

(59) W. M. says: You recently published a recipe for coloring hair dark brown. I tried it aocording to directions, and all it did was to leave a reddish brown deposit on the hair, which brushed off as soon as dry. What is the matter? A. You probably did not remove all the oil or grease from the hair. It is to be observed that hair dyes of all kinds will only act effectively and satisfactorily on perfectly clean hair. The presence of the slightest contamination of oily or greasy matter will arrest or greatly lessen their action, and render it unequal in different parts. Hence the hair, in all cases, should be first thoroughly washed with warm soap and water, then rinsed with tepid water, and lastly wiped dry, previous to their application. A few grains of soda or salts of tartar, added to the first water, will facilitate its detergent action.

(60) R. D. asks: 1. What acids or fluids, mixed with hydrofluoric acid, will etch a clean ground on glass? A. Did you use a solution of hydrofiuoric acid or hydrofiuoric acid gas? 2. How can I prepare what is termed by etchers white acid? A. We do not know of any acid by this name. 3. What acid or mixture of acids, applied to glass and covered with felspar, will produce a frosted appearance? A. Sulphuric acid. The better method is to place fluor spar or felspar in a shallow leaden dish, and cover it with sulphuric acid. The glass plate may be placed to cover the pan, and as the hydrofluoric acid gas is generated it will attack the under side of the glass plate. 4. What clear varnish is used by sign painters as a finishing protection to gilding on glass? A. This is prepared by dissolving in boiled linseed oil an equal weight of either copal or amber. This is to be diluted to the proper consistence with turpentine.

(61) J. E. S. says: In your last issue you ave the following formula for imitation gold 100 parts copper, 7 parts tin, 3 parts magnesia, 3.6 parts sal ammoniac, 1.8 parts quicklime, and 9 parts bitartrate of potassa. Of what use is the magnesia in this? A. The recipe was originally published by two French authors, MM. Mourier and Vallent, who claimed for it the advantages mentioned, but did not state their reasons for adding the magnesia, which would not seem essential.

(62) M. M. M. asks: Are trichinæ found in the fat or lean meat of the hog? A. In both, and principally in the muscles

(63) W. Y. asks: Can the nerves of the teeth be killed? A. Yes. The employment of arsenious acid for the purpose originated with Dr. Spooner, of Montreal. "The use of the actual cautery may be often successful; but inasmuch as it almost always produces inflammation in the investing and alveolar membranes, it should never be recommended. Nitrate of silver seldom succeeds, and usually increases the pain. The employment of arsenic, if applied directly to the nerve, will always succeed. The pain, it is true, will be removed by the destruction of the nerve; but so great a portion of the vitality of the tooth is at the same time destroyed that the organ is apt, sooner or later, to become a source of irritation to the surrounding parts. The propriety, therefore, of the employment of remedies of any kind for this purpose, except to a front tooth, may be looked upon as exceedingly questionable. It is true, the vascular and nervous connection kept up between the investing membrane and the outer surface of the root may, for a time, and more especially if it be an incisor or cuspidatus, prevent it from exerting any marked injurious effect : but in the majority of cases, the vitality even here is so much weakened as, eventually, to render it productive of more or less irritation. The effect of arsenic cannot always be confined to the lining membrane; it oftenextends to the investing, and for this reason I regard the immediate extirpation of the pulp with an instrument, if the tooth have but one root, as by far the preferable method of treatment. But this operation cannot always be performed with certainty of success on a molaris or bicuspis."-Harris

per square inch. Then $P = \frac{806,000 \times T^2}{T^2}$

(40) W. K., of Lippe, Germany, says: Since discovering that the following method of hardening picks for burr stones was the best, I brought it into use at several places, and all the millers who use it will have no other method : Have the pick made of the best tool steel, with a stout edge to it, both sides being similarly shaped; let the

Hasoxygen been found to be a compound, as vas reported lately? A. No.

What is the latest system of symbols in chemistry, and what is taken for the unit? A. The weight of the hydrogen atom is the unit. The system is described in Cooke's "Chemical Physics."

(57) T. F. R. asks: What is it that causes the phenomena which we see after a person has imbibed drink of any kind that will intoxicate? A. "The effects of ardent spirits may be divided into three stages. First, excitement of the vascular and nervous systems. The pulse is increased, the face flushed, the eyes animated and perhaps red the intellectual functions are powerfully excited the individual is more disposed to joy and pleasure, cares disappear, the ideas flow more easily

(64) J. M. says, on the question of size of pump pipes: I put the air vessel or water chamber on to the suction pipe to the pump, as suggested by N. E. L.; and while the speed of the pump could be increased somewhat, the results were not near as good as prophesied by N.E.L. I amnow convinced that, where elbows or bends are used in the supply pipe to a pump, the diameter of the pipe should be much increased: this applies also to long pipes, and if the manufacturers of pumps would make their machines to receive pipes equal to the diameter of the pump cylinder, much better results would be obtained than are now accomplished. I am now putting up a pump exactly like the pump that I originally asked you about. The opening in pump is for a pipe six inches in diameter; but I intend to use a pipe eight inches in diameter to a point as near the pump as possible, and expect thereby to be able to run the pump faster and show better results than I have been able to with the **B**ump on which I used the six inch pipe for the whole distance. My experience shows that it is not safe to be governed closely by the rules set down in the books on hydraulics. As no allowance is made for rough and uneven places found in almost all pipes, which retard the flow of water much more than is generally imagined, the only sure way that I know of is to use pipes large enough to furnish sufficient supply. In testing a fire pump recently, I found that the lining in a rubber-lined hose was torn in a few places, and hindered the flow of water so much that the power of the pump was diminished fully one quarter. The chamber of which N. E. L. speaks, on the suction pipe to a pump, is of much less use on a pump which takes in water at both strokes of the plunger or piston than on a single acting pump, as in the latter case this chamber has a chance to fill while the pump is making one stroke. [If this writer errs at all, it is certainly on the safe side.-EDS.]

(65) S. N. M. says, in reply to F. D. N., who asks: What is the rule by which paper can be cut so as to cover a globe? A globe can be covered with spindle-shaped slips, each in length equal to half the circumference, laid from pole to pole; the narrower the slips the more neatly they will fit, say 10° wide at the center. Calculate the linear width. Draw a straight line equal to ½ the linear circumference, and bisect it. Through the center point draw a perpendicular indefinitely or side. Take points on this perpendicular, eac at a distance from the central point, equal to linear width of the slips. Through these two and the ends of the first line, draw arcs of a The figure thus drawn is the exact pattern required slips. To find the diameter of the on which these arcs are to be drawn, divi square of 1/4 the sircumference of the glo 1/2 the linear width of the slips; add the qu to the divisor, and the sum will be the requir ameter. Example.-Let the diameter of the be 12 inches; its 1/2 circumference will be 18:84 es. Let the slips be 10°, and their linear wid be 1.047 inches. The diameter of the requir cle will be 14 feet, 2.17 inches; radius 7 fee inches. In practice, take a rod for a radiu an awl for a center pivot, and a small sharp-p knife at the other end to cut out the slips.

MINERALS, ETC.-Specimens have be ceived from the following correspondent examined, with the results stated:

J. E.-It is litharge or the oxide of lead, formed whenever melted lead comes in c with the oxygen of the air. It can be redu metal again. Argentiferous galena is sulphy lead containing a small percentage of silv P. C.-It is quartz, and has no especial value McC.-No. 1 is a calcareous earth, containing remnants of fossil shells and a small amo organic matter. On certain kinds of land, it be used with benefit. No. 2 is clay and ear pregnated with bitumen, which could be ob by proper treatment, and used for heating luminating purposes.-R. T. P.-They are magnesian limestones, one of them contai considerable percentage of bituminous matt other is colored by a green earth.-O. S.-Th liant metallic particles are pyrites, not go which there are no external indications; alt it is possible that, if the rock were properly c and assayed, it might be found to be aurif -S. W.-It is fluoride of calcium, or fluorsp fuses readily in a blowpipe flame, and is fluorescent. Its specific gravity is 3°C5. By f search, you will probably find well formed of crystals, of which we should be glad to have mens.-W. S. V.-Send pieces large enoug we will determine them. These fragments minute.

H. L. N. asks : How can I clean a knife rust formed by perspiration, so as to ma knife look as though it had just come fro **W. H.** 1 From steam press equally in all directions? Does press equally in all directions from a certa ter? Is not that center the mathematical of the vessel in which it is, of whatever sha vessel may be?

On the Occult Sciences. By J. B. On Amalgam Fillings. By F. H. H. On the Sewing Machine Monopoly. By L. M. H. On Mathematical Facts. By M. P. On Boulders. By D. B.

Scientific American.

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Also enquiries and answers from the following : R, L, R.-A. B, H.-W. S.-D. M.-A, W.-J, H. S.-A, B, C.-J. H. H.-J. R, S.-H.-R. L.-W.L.-E.H. W. H. H.-S. L. F.-A. O. C.

HINTS TO CORRESPONDENTS.

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

Enquiries 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 pleasure in answering briefly by mail, if the writer's address is given.

Hundreds of enquiries analogous to the following are sent: "Who makes picture frame mitering machines? Who makes engineers' and surveyor's instruments? Who publishes a book containing a list of all the mines in the United States? Who buys black walnut knots. etc. ?" All such personal enquiries 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 obtained.

[OFFICIAL.]

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	Cotton chopper, J. D. Mitchell	Shutter, rolling, H. J. Defrenne	4.885H. P. Garland and A. J. Gove, San Francisco,
	Cotton seed separating fiber from A Rock 159,457	Sifter for stoves, ash, J. H. Goodfellow 159,406	San Francisco county, Cal., U.S. Improvements on
	Covering non conducting C I Piker 159,459	Skylight bar, A. J. Post	sewing machines for sewing sacks or bags, carpets, etc.
AN ac-	Cow tail holder I M Worden 159,492	Slate washer, Lyman & Boell 159.274	called "Garland and Gove's Bag-Sewing Machine."
t of or-	Cultivator M. Johnson 150.001	Soda fountain, J. Matthews 159 491	Jan. 30, 1875.
lowing	Curtain fixture F B Lake	Soda water, fountain for, J. Matthews. 159,432	4.8%F. Proudfoot, Toronto city, Ont. improve-
	Cutting and polishing machine Walters & Saunders 170 494	Spading and other forks, Denio & Babcock (r)	ments on drum heaters, called "Proudfoot's Radiating
	Damper regulator. Tomlinson and Smith 159 477	Spike, G. N. Sanders	Drum Heater." Jan. 30, 1875.
	Dash boards, attaching, G. Shaffner 150,992	Spoolforholdingbraid.etc., elongated.Koch et al. 159.838	4,387G. B. Tiuker, Beebe Plain, Stanstend county, P.
i	Dental flask for rubber. S. D. Palmer 159,449	Stocking and skirt bolder, A. Warren	Q. Assignee, E. N. Bacon, Chelses, Orange county,
	Ditching machine, Williamann and Sarav 150 971	Stop mechanism drop wire, L. Dimock	Vt., U. S. Improvements on ox-bow fasteners and
	Doll. A W Monroe 150 407	Stove, G. C. Milgate	guards, called "Bacon's Ox-Bow Fastener and Guard."
	Doorknob fastening I R Walls 159,481	Stove, D. L. Stiles	Feb. 1, 1875.
_	Drawing hook. A. Forbriger (r) 4 971	Stove attachment, cook. E. B. Patten 159.850. 159.851	4,338D. C. Morency, Lévis, P. Q. Une machine pour
I.	Drillingmaching metal (Van Hasson 480 401	Stove grate, J. D. Slichter	fournir un conrant d'air continn, dit "Machine Soup-
•	Drilling machine, nock. G. Atkinaan 150,901	Stove pipe thimble, J. S. Elliott	plante de Morency.' A machine to provide a constant
	Flactor Fulton and Program 180 082	Stove, reservoir cooking, J. H. Goodfellow 159.259	current of air. Feb. 1, 1875.
	Elevator, hav. Martin and Moor 150 490	Stoves, ash sifter for, J. H. Goodfellow	4, 339G. McEwan and C. O. Gibson, Rock Island, Stan-
	Engine governor, steam, F. M. Brown 159,460	Straw stacker, G. Sanders	stead county, P. Q. Assignee, G. Bachelder, of same
	Engine valve. J. Bulger. Jr. 159 988	Street sprinkler, E. H. Franz. 159.253	place. Improvements on milk pans, called "McEvan
F. L.	Engine, etc., packing, Hughes and Kelly 159 826	Tanning pickled skius, W. R. Stace 159.866	and Gibson's Milk Pan.'' Feb. 1, 1875.

Engraving machine, W. S. Wight	. 159,488	Telegraph, etc., automatic, W. E. Sawyer 155	 9,460
Faucet, self-closing, J. W. Trafton Fence, farm, D. Sattler	159,478	Thill coupling, A. Classon),848), 180
Flat iron heater, B. Wilmot	159,489	Toy dancer, W. L. Hubbell	¥.325
Fluting and sad iron combined, C. R. Rand Funnel, A. Pforr.	159,856	Toy money box, J. Hall),263),300
Furnace, hot air, B. L. Bradley	159,383	Trestle, builder's, M. M. Lucky), 33'.
Furniture caster, W. A. Perkins	159,352 15),265	Truck, hand, L. Gilson (r)	.267).248
Gas, generating, Rawlings and Irelan	159,355	Umbrella tip retainer, V. Montalbetti 159	438
Gas mains, sealing, Caffall and Thomas	159,389	Valve for cylinders, relief, E. Waiters	1,48:3 : 261
Glass, ornamenting, T. Jones	159,418	Vehicle chaing iron, A. Wright 159	.373
Grain drill, C. E. Patric (r)	6,274	Vchicle runnerattachment, J. A. Hyde 159	.327
Grate, S. Kepner	159,271	Vehicle wheel, F. W. R. Emery 159	,251
Grate, J. D. Slichter	159,361	Vehicle wheel hub, C. H. Guard (r) 6	,273 262
Gun dart, air, H. M. Quackenbush	159,354	Wagon side bar, C. A. Collins 159	,892
Gymnastic apparatus, H. S. Carley	159,301	Wall, hollow brick, F. Hainsworth	,820
Hand rest, E. F. French	159,254	Washing machine, Slott & Eavenson	,466
Harvester rake, Morgan and Motley	159,276	Watch crystals, gage for fitting, B. B. Loar 159.	,336
Harvester reel, D. S. Fulton	159,316	Water closet valve, E. O. Brinkerhoff 159.	,297
Hay loader, H. V. Hawkins	159, 264	Water meter, N. W. Knowlton	,419
Heater, Tuttle and Larsh	159, 419	Wrench, pipe and nut, F. Kohler 159	. 120
Hoole, A. H. Alverson	159,874		
Hook, cast, J. C. Coonley	159,215	EXTENSIONS GRANTED.	
Hooks, sn:ap, J. T. Foster 159,313,	159,403	31,082MIXING DOUGHW. Hotine.	
Hooks, machine for forming snap, J. 1. Foster Hoops, machine for coiling, J. Tomlinson	159,814	31,094.—CERAPING STRAPS, RTC.—W. McK. Thornton.	
Horse power, J. S. Schofield (r)	6,268	31,122CAR SPRING1. F. Allyn. 31,128HoistE. G. Otis. Three patents.	
Horsesboe blank bar roll, W. W. Lewis	159,340	31,133CULTIVATORSD. S. Stafford.	
Horseshoe nafi plates, making, ▶. J. Harrington.	159,410	DISCLAIMERS FILED.	
Horseshoe, elastic pad, J. B. Wood	159,292 159,845	81,133CULTIVATORE. T. Conklin.	
House building, J. N. Cherry	159,247	S7,991ROLLING LEATHERJ. Whitney.	
Ice creeper, S. R. Phillips Ice pick, S. Lindley	159,447 159,273	DESIGNS PATENTED.	
Insect powder, injector for, C. Chinnock (r)	6,265	8,036SCREW HEADSJ. S. Ray, East Haddam, Cone	ł.
Iron into steel, converting, Foote and Henry Journal box, hanger, J. Greenwood	159,402 159,260	8,037 & 8,038.—SOREW HEADS.—R. H. Burr, West Me den, Conn.	er1-
Keyhole escutcheon, H. T. Blake	159,382	8,039HANDLE SOCKETSR. H. Burr, West Meriden,	Ct.
Knife, revolving pocket, W. Staniforth Ladder, step. G. Grünewald	159,286 159,319	8,040GRAVE COVERINGSI. G. Lunday et al., Hick Flat. Ala.	ory
Lamp, A. M. Blake	159,381	8,041LAMP BRACKETF. R. Seidensticker, West M	teı -
Latch, door, O. F. Russ	159,281 159,257	iden,Conn. 8.042 & 8.042 —CHANDRITKES —F. R. Seidenstieket.W	
Level, C. C. Schwaner	159,359	Meriden, Conn.	•
Level and slope indicator, O. S. Willey	159,370	8,044COOK STOVEG. A. Wells, Troy, N. Y.	
Loom, pile fabric, S. Sanford	159,282	TRADE MARKS REGISTERED.	
Loom temple, A. D. Fuller	159.255 159.446	2,197CIGARSCh. H. Brenaman & Co., Baitimore,M	LL L
Manure distributor, N. Tomlinson	159,476	2,199. – TEA. – R. Cunningham, San Francisco, Cal.	
Map exhibitor, J. Lichtenberger	159,335 159.393	2,200WHISKIESO. Jackson & Brother, N. Y. city	
Metal rods, colling, P. H. Standish	159,367	2201.—CIGARS.—M. Stuchelberg & Co., New York city).
Mill, stamping, H. W. Colver	159, 9 03	2,204.—Cotton Cassimeres.—Bliss et al., N. Y. city.	
Miter box, P. and W. G. Suydam	159,368	2,205.—CIGARS.—F. Dittmer, Detroit, Mich.	
Mortising machine, S. Rydbeck	159,456	2,207.—BITTERS.—Schmidlapp & Co., Cincinnati, Ohio	J.
Mowing-machine, Morganand Motley	159,277	2,208.—CIGARS.—Seidenberg & Co., Key West, Fla.	241
Neck tie, O. Kueppers	159,272 159,422	2,210.—SILVER PLATED GOODS.—J.W. Tufts, Medford, M	Ms.
Nut lock, C. J. Cumminge	159,306	2,211.—WIRE GOODS.—J.H. & N. A. Williams, Utica, N. 2,212.—MEDICINE.—I. F. Woodward Boston Mass	Γ.
Nut machine, P. L. Fitrer	159,252	-	
Oven, desulphurizing, J. C. Brewster	159,384	SCHEDULE OF PATENT FEES.	10
Oven, portable steam, J. H. Lockwood	159,427	On each Trade mark	25
Paper box, J. F. Jones	159,270	On filing each application for a Patent (17 years)	15
ravements, repairing, H. W. Gould (r) Peatmachine, F. Dodge	6,271 159,398	On appeal to Examiners-in-Chief	10
Pegging machine, H. Kuhlmann	159,423	On appeal to Commissioner of Patents	20 30
regs, forming points on, Sturtevant & Shaw Pegs, compressing points on. F. M. Shaw	159,287 159,284	On filing a Disclaimer	10
Piano insulator, W. R. Miller	159,342	On an application for Design (3½ years)	10
Pin, safety, S. F. Merritt Pipes, controlling cocks of, W. A. Crawford	159,341 159,394	On application for Design (14 years)	30
Pipes, joint for sheet metal, J. Moore	159,489	CANADIAN PATENTS	
Planter, corn, A. Roark Planter, seed. J & W. Campbell (r)	159,454 6.270	LIST OF PATENTS GRANTED IN CANAD	
Plants, portable cover for, W. Musgrove	159.346	JANUARY 28 to FEBRUARY 3, 1874.	
Plow, S. S. Aughe Plow. A. Hampe	159,377 159,321		
Plow, J. A. Johnson	159,267	4,827H. Folliott, Temperanceville, York county, Or	а.,
Plow harrow attachment. Jacobus & Ambrose	159, 33 8 159,416	and J. W. Folliott, Bolsover, Victoria county, Or Extension of No. 278, on "Folliott's Self-Adjust	nt., ing
Printing machine, ticket, J. Anderson	159,293	Roller." Jan. 23, 1875.	-
Propeller, chain, D. C. Johnson Pulley, differential, J. T. Fewkes	159,830	4,328,J. Lewis, Manchester, Lancashire county, E. Improvements on water meters, and which impro	ng. we
Pump, C. O. Sylvester	159,470	ments are also applicable to water motors, cal	fled
Quilting frame, T. C. Maris	159,429 159,349	"Lewis' Water Meter and Water Motor." Jan. 1875.	сч,
Range, E. O. Brinckerhoff	159,298	4,829Wm. I. Doremus, New York city, U. S. 1	lui-
Rectifying apparatus, J. W. Reford	159,450 159.451	provements on oscillating spring chairs, called "Do mus' Oscillating Spring Chair." Jan 29, 1875	Γ τ'•
Roofing, etc., tile for, J. P. Jeffries	159,829	4,8301. Kinney, London, Middlesex connty, Ont. 1	lnı-
Ruler, H. & T. H. Belcher	159,294	provements on lock and key guards, called "Kinne Lock and Key Guard." Jan. 29, 1875.	у'в
Sash fastener, C. J. Snow	159,365	4,331G. Boivin, Montreal. Improvements in cutt	lng
Sash nolder, L. J. Baker (r) Sawgummer, G. W. Griswold	6,263 159,318	Boivin. '' Jan. 29, 1875.	ort
Saw, jig, C. M. Hayden	159,412	4,332L. Kimball, Jr., Bolton, Vt., U. S. Impro	ve-
Saw set, H. Heinicke	159,413	ments in the form of trays for enopping meat and ot	ner

MARCH 6, 1875.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERIC. knowledges, with much pleasure, the receipt Iginal papers and contributions upon the fol subjects:

On Steam Boiler Explosions. By M. On Honing Razors. By **4**. W. D. On Exhaust Steam. By J. F. S. On Combustion. By C. W. On Ants. By H. L. A. C. On a Calculating Machine. By E. K. W. On a Phenomenon Explained. By A. S. H On the Transit of Venus. By D. W. de F On Flying Machines. By A. B. B. On Counting Money. By J. W. C. On a Man-Eating Tree. By F. H. H. On Finding Lost Property. By H. W. S. On Shifting Passengers from Cars. By B.