potash solution use a half pound to a gallon; for acid | mixture on the surface of brass or copper, previously solution use sulphuric acid 4 pounds, nitric acid 2 well cleaned, by means of soft leather or a cork moistpounds, water 4 pints; for cyanide of potash solution use 1/4 pound cyanide of potassium to 1 gallon of water. You should not attempt to work at it without having a good manual on the subject, such as Watt's "Electro Deposition of Metals," which we can send you by mail

- (3) G. J. P. asks: 1. What acids and in what proportion will etch type metal? A. Take nitric acid 1 part, water 5 parts. Mix. 2. How is the colored lacquering done, such as used on the inside of small glass balls and toys, for Christmas tree decoration, etc.? It is of all colors and remarkably brilliant. A. The cheaper colored balls contain a quickly drying colored varnish or paint put into the ball and distributed by turning the globe about. 3. Where to drawings in etching zinc plates? A. The manufacturers of fine printing inks will furnish such an ink.
- (4) A. P. S. writes: I read that if steel is immersed in carbonate of potash for a few minutes mosphere. Could it be applied to gun barrels or locks, without in jury to the same, and would subsequent oiling affect the result? A. The carbonate of potash only neutralizes any acid that may be upon the surface of steel or iron, and while it remains as a film, neutralizes the oxidizing properties of moist air in contact. Oil ing with neutral oil (free from acid, preferably linseed) will further protect the surface. Any wiping of the articles or handling the surfaces covered by the carbonate destroys its protecting properties. It will serve but little good on a gun barrel that is handled. Frequent oiling and wiping is recommended.
- (5) A. C. R. writes: I have some rattan baby carriages that have become soiled. I wish to stain them cherry color. How can I do it? A. For cherry stain, take of rain water 3 quarts, annatto 4 ounces; boil in a copper kettle until the annatto is dissolved, then put in a piece of potash the size of a walnut, keep it on the fire about half an hour longer, and it is ready to bottle for use. 2. I have a lot of kerosene lamp burners that have become black and soiled. What is the cheapest way to make them and applied wet, with brush, and brushed again when dry with soft plate brush to polish.
- (6) H. & W. ask: We have connected with our planing mills a dry kiln for lumber, which we dry with hot air. After this hot air has passed through the lumber, we convey it into the shop for heating purposes. Do you consider this manner of heating shops healthy, especially after the hot air has passed through a kiln of green pine? A. We should think it
- (7) R. W. asks: Granted a vessel weighs 10 tons, i.e., displaces 10 tons of water, is it not possible to float that vessel in much less than 10 tons of water in a lock or shell? Will her water line not remain the same? Is it not theoretically correct that the Great of solutions of alum and sugar of lead. Eastern may be floated in a pail of water? A. Yes, to all the queries.
 - (8) G. J. H. asks: A good receipt for blacking the inside of a photograph camera and bellows. A. The proper black for inside optical work is made with shellac varnish. Mix lamp black with pure day. alcohol to the required thinness, and add a few drops only of shellac varnish, just enough to make the lampon paper, as you are adding the shellac, to get the exact proportion. 2. My camera is made of Spanish cedar. Please give me a receipt for polishing same. A. Oil the box with boiled linseed oil and dry, and finish with French polish. We can send for 25 cents French Polisher's Manual on staining and polishing of wood.
 - (9) R. writes: A bets B that four 1 inch wins? A. A wins, according to arrangement of pipes.
 - (10) T. H. asks: How is emery made to adhere to leather? Is common glue used, or is there a waterproof cement used? A. Use the strongest glue. rather thick; brush on the leather even, and sprinkle the emery over; press it down with a block or mallet. When finished and dry, the surplus will fall off.
 - (11) J. F. N. asks how to coat small iron articles with black enamel or varnish such as is used on small buckles, etc. A. String the articles on fine wire, and dip in thin japan varnish. Bake in an oven or box heated to 260°, steam heat is safest. Care should be had that the vapor from the varnish does not come in contact with fire.
 - (12) A. B. asks: Is there any way of treating soft rubber so that grease will not affect its A. There is not.
 - (13) E. H. desires the process of preserving natural flowers by the wax solution process. A Dip the flowers in melted paraffine, withdrawing them quickly. The liquid should only be just hot enough to maintainits fluidity, and the flowers should be dipped one at a time, held by the stalks, and moved about flowers, free from moisture, make excellent specimens in this way.
 - (14) S. R. B. asks how to tan a swan's skin without injuring the down. A. Thoroughly impregnate the fibrous part with a mixture composed of 4 parts alum and 1 part pepper and saltpeter. See "The Taxidermist's Manual," which we can send you, post paid, for \$1.25.
 - (15) E. H. asks a good receipt for making ink for use on stamp pads. A. Use an ink consisting of aniline violet 1/2 ounce dissolved in 15 ounces alcohol and 15 ounces glycerine added. If you prefer other aniline colors, they can be used instead.
 - (16) J. J. C. asks how to silver-plate a door plate and bell, by nsing a powder or liquid. A. Mix 1 part chloride of silver with 3 parts pearl ash. 11/2 parts common salt, and 1 part whiting, and rub the

- ened with water and dipped into the powder. When properly silvered, the metal should be well washed in hot water, slightly alkalized, and then wiped dry.
- (17) J. E. P. asks: How are lead bullets polished? A. By being revolved in a cask containing black lead or plumbago.
- (18) C. M. R. asks: What will restore the appearance of red brick walls, and make them look fresh and new? A. Use a red wash made by melting 1 ounce glue in a gallon of water; while hot, put in a piece of alum the size of an egg, 1/2 pound Venetian red, and 1 pound Spanish brown. Try a little on the bricks, let it dry, and if too dark, put in more water; if too light, add more red and brown. 2. Can diamond dyes be dissolved in anything so as to be get fatty ink spoken of in your paper, and used for used to paint lantern slides? A. Dissolve in alcohol. Lantern slides are painted with very thin colors, and enerally not with aniline paints.
- (19) J. A. V. desires (1) a good receipt to prevent water from having a disagreeable taste. A. it will not rust for years, even if exposed to a damp at | Mix .it with charcoal and filter; this will render it both colorless and odorless. 2. How to make collars stiff and glossy. A. Pour a pint of boiling water upon two ounces of gum arabic, cover it, and let it stand all night. Use a tablespoonful of this to a pint of starch.
 - (20) D. R. writes · We have plenty of theories as regards the sources of heat, but no one tells us satisfactorily whence the cold comes from, or accounts for the intensity of cold. A. Cold is the absence of heat, or the elimination of the vibrations that cause heat. Heat vibrations are supposed to have their limit at 459° below zero.
 - (21) H. H. S. asks: How can I give a high glaze to an oil painting? A. Use the following varnish: Take of mastic 6 ounces, pure turpentine 1/2 ounce, camphor 2 drachms, spirits of turpentine 19 ounces. Add first the camphor to the turpentine; the mixture is made in a water bath. When the solution is effected, add the mastic and the spirits of turpentine near the end of the operation; filter through a cotton
- (22) A. K. asks what washing comlook bright? A. Use oxalic acid and whiting mixed pounds (powders), such as "pearline," "soapine," etc., are composed of, and how compounded. A. The exact composition can only be ascertained by analysis, but their detargent qualities are due to pearl ash, soda ash, and similar alkaline compounds.
 - (23) C. asks (1) the best and quickest way of making vinegar in quantity. A. See process described in Scientific American Supplement. No. 313. 2. The best way to make acetic acid without distillation. A. The simple oxidation of alcohol produces acetic acid. Treat alcohol in the same way as you would cider, to produce vinegar. In fact, vinegar is only an impure acetic acid.
 - (24) F. J. S. asks: What will keep tents from mildewing in warm weather? A. Use a mixture
 - (25) J. N. G. desires a cure for bunions. A. An inflamed bunion should be poulticed, and larger shoes worn. Iodine 12 grains, lard or spermaceti ointment 1/2 ounce, make a capital ointment for bunions. It should be rubbed on gently two or three times a
- (26) F. T. asks: What will take oil stains and rust stains out of marble? A. Apply comblack stick without being shiny. Make a little trial mon clay saturated with benzine. If the grease has remained long enough, it will have become acidulated, and may injure the polish, but the stain will be re-

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Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman 377,55 Metallic mat or floor covering, W. O. Bement 377,47 Metallic wheel, J. W. Savene 377,57 Meter. See Water meter. 371,57 Milk cooler, J. T. & T. C. Hays 377,67 Mill. See Saw mill. 377,44 Molasses gate, Gerard & Webb 377,57 Motor. See Fluid motor. Hydraulic motor. 377,56 Mower, lawn, E. Kelly 377,57 Mowers and reapers, cutter and cutter bar for, 377,57 Music stand, ffolding, J. H. Macke, Jr. 377,67 Nail. See Screw nail. Shoe nail. 377,67 Nail extractor, G. W. Lane 377,57 Nails, die for cutting and pointing wire, H. A. Stone Stone 377,7 Nut lock, W. H. Haws 377,7 Nut lock, G. Heffner 377,6 Oil can, E. W. Rider 377,4 Oil cup, McNaughton & Bardsley 377,4 Oils, refining vegetable, G. W. Scollay 374,4
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman. 377,58 Metallic mat or floor covering, W. O. Bement. 377,47 Metallic wheel, J. W. Savene. 377,57 Meter. See Water meter. 371,57 Mill. See Saw mill. 377,67 Mill. See Saw mill. 377,54 Molasses gate, Gerard & Webb. 377,54 Motor. See Fluid motor. Hydraulic motor. 377,54 Mowers and reapers, cutter and cutter bar for, 377,54 Music stand, ffolding, J. H. Macke, Jr. 377,65 Nail. See Screw nail. Shoe nail. 377,65 Nail extractor, G. W. Lane. 377,55 Nail extractor, G. W. Lane. 377,57 Nut lock, W. H. Haws 377,77 Nut lock, W. H. Haws 377,77 Oil can, E. W. Rider 377,40 Oil cup, McNaughton & Bardsley 377,40 Oils, refining vegetable, G. W. Scollay 377,41 Ore crusher, C. Kaestner 376,41 Package comprising fragile articles, Shaw &
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman 377,55 Metallic mat or floor covering, W. O. Bement 377,47 Metallic wheel, J. W. Savene 377,57 Meter. See Water meter. 371,57 Milk cooler, J. T. & T. C. Hays 377,67 Mill. See Saw mill. 377,41 Molasses gate, Gerard & Webb 377,57 Motor. See Fluid motor. Hydraulic motor. 377,57 Mower, lawn, E. Kelly 377,57 Mowers and reapers, cutter and cutter bar for, 377,57 Music stand, ffolding, J. H. Macke, Jr 377,67 Nail. See Screw nail. Shoe nail. 377,67 Nail extractor, G. W. Lane 377,57 Nut lock, W. H. Haws 377,67 Nut lock, W. H. Haws 377,67 Oil cup, McNaughton & Bardsley 377,67 Oils, refining vegetable, G. W. Scollay 377,47 Ore crusher, C. Kaestner 377,47 Package comprising fragile articles, Shaw & McCulloch 377,69
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman 377,55 Metallic mat or floor covering, W. O. Bement 377,45 Metallic wheel, J. W. Savene 377,57 Meter. See Water meter. 377,67 Mill. See Saw mill. 377,67 Mill. See Saw mill. 377,67 Molasses gate, Gerard & Webb 377,57 Motor. See Fluid motor. Hydraulic motor. 377,57 Mower, lawn, E. Kelly 377,57 Mowers and reapers, cutter and cutter bar for, 377,67 Music stand, folding, J. H. Macke, Jr 377,67 Nail. See Screw nail. Shoe nail. 371,67 Nail extractor, G. W. Lane 377,67 Nut lock, W. H. Haws 377,77 Nut lock, W. H. Haws 377,77 Oil cup, McNaughton & Bardsley 377,40 Oil cup, McNaughton & Bardsley 377,41 Ore crusher, C. Kaestner 377,40 Package comprising fragile articles, Shaw & McCulloch 377,42 Packet folding machine, De Freest & Wynkoop 377,42 Packing case fastening, N. Beckwith, Jr 377,42 Packing case fastening, N. Beckwith, Jr 377,42
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JThelsen	Metal bar mat, W. C. Spelman. 377,54 Metallic mat or floor covering, W. O. Bement. 377,44 Metallic wheel, J. W. Savene. 377,57 Meter. See Water meter. 371,61 Mill. See Saw mill. 377,61 Mill. See Saw mill. 377,41 Molasses gate, Gerard & Webb. 377,51 Motor. See Fluid motor. Hydraulic motor. 377,52 Mower, lawn, E. Kelly 377,52 Mowers and reapers, cutter and cutter bar for, 4 Music stand, folding, J. H. Macke, Jr. 377,52 Nail. See Screw nail. Shoe nail. 371,51 Nail. See Screw nail. Shoe nail. 371,51 Nail. See Screw nail. Shoe nail. 371,51 Nail. Gie for cutting and pointing wire, H. A. 370,51 Stone 377,51 Nut lock, W. H. Haws 377,57 Nut lock, G. Heffner 377,62 Oil can, E. W. Rider 377,62 Oil cup, McNaughton & Bardsley 377,62 Oil cup, mcNaughton & Bardsley 377,62 Ore crusher, C. Kaestner 377,62 Packet folding machine, De Freest & Wynkoop
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JThelsen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
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Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JThelsen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JTheisen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JThelsen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.JThelsen	Metallic mat or floor covering, W. O. Bement
Condensing and cooling purposes, apparatus for, E.JThelsen	Metal bar mat, W. C. Spelman
Condensing and cooling purposes, apparatus for, E.J.Theisen	Metallic mat or floor covering, W. O. Bement
Condensing and cooling purposes, apparatus for, E.JThelsen	Metallic mat or floor covering, W.O. Bement
Condensing and cooling purposes, apparatus for, E.JThelsen	Metallic mat or floor covering, W.O. Bement
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Condensing and cooling purposes, apparatus for,	Metallic mat or floor covering, W.O. Bement
Condensing and cooling purposes, apparatus for, E_Theisen	Metallic mat or floor covering, W.O. Bement
Condensing and cooling purposes, apparatus for,	Metallic mat or floor covering, W. O. Bement
Condensing and cooling purposes, apparatus for, E_ITheisen	Metallic mat or floor covering, W. O. Bement
Condensing and cooling purposes, apparatus for, E_ITheisen	Metallic mator floor covering, W. O. Bement
Condensing and cooling purposes, apparatus for, E_ITheisen	Metal bar mat, W. C. Spelman 377,54 Metallic mat or foor covering, W. O. Bement 377,44 Metallic wheel, J. W. Savene 377,55 Meter. See Water meter. Milk cooler, J. T. & T. C. Hays 377,55 Milk. See Saw mill. Miln See Saw mill. 377,44 Molasses gate, Gerard & Webb. 377,55 Motor. See Fluid motor. Hydraulic motor. Mower, lawn, E. Kelly. 377,55 Mowers and reapers, cutter and cutter bar for, 377,57 Morton & Brown 377,57 Music stand, ffolding, J. H. Macke, Jr. 377,57 Nail. See Screw nail. Shoe nail. 371,61 Nail. See Screw nail. Shoe nail. 371,61 Nail see for cutting and pointing wire, H. A. 370,77 Nut lock, G. Hemer 377,77 Nut lock, G. Hemer 377,87 Oil can, E. W. Rider 377,87 Oil can, E. W. Rider 377,47 Ore cru