##  <br> HINTS TO CORRESPONDENTS.


(1) W. C. H. writes: 1. About what is the air pressure on a window glass when the weather Fah. 9 How hot would it require to be for outdoo sir pressure to break common window glase, say 24
by 36 inches 4 A. The difference in pressure due to difference in weight of air at temp. in to would erence great enough to break the glase, hat the differ ence in tension on the glase from variations of temper ature sometimes causes breakage with comparatively
$\begin{array}{ll}\text { mall } & \text { changee } \\ \text { in the weather. } & 2 . \\ \text { How is prepared }\end{array}$ mall changes in the weather. 2. How is prepared
gue made? A. See answer to query 14 in SciEvTrIC Ambrican of February $2 \%$. 3. What does the emall let ter "M" on the silver dollar denoteq A. It is the ini tial of a die catter, Morgan, and is on but few coins
Other letters on coins are known as mint marks ; they ther letters on coins are known as mint mark8; thes
are not on all coins, and not on those from the Philadel phia mint, which does the largest proportion of the coin ge. " 0 " is the mark of the New Orleans mint, " s " hat of the San Francieco mint, "C C " that of Carson City, etc. 4. What is the difference in speed of the travel of a rife ball and sound A. A. Sonnd in air travels a
the rate of about 1,000 feet a second, the speed va the rate of about, 1,000 feet a second, the speed va
rying considerably with the volume or londness of rying considerably with the volume or londness of
the sound. The velocity with which a ball leaves the the sound. The velocity with which a ball leaves the
rifle will vary from 1,500 up to 2,200 feet per second ccording to the charge of powder, weight and shape of projectile, etc.
(2) H. J. D. asks (1) what cement to use when joining carbons to top of jar in a bichromate bat tery, by means of brase plate, so the acia win not
ruin it. A. You may fasten the carbon by brass lugs ecared,by bolts and nuts; before doing this, the apper end of the carbon may be soaked in melted paraftine or, yon may copper-plate the top of the carbon ant type metal. This gives a good bearing surface for the lugg, or they may be soldered to it. 2. How to kfep
brass bright atter polishing it? A. Lacquer it with st approved lacquer. 3. What is the best material Fo soldering brase? A. A A Bolution of chloride of zinc mad
by dissolving zinc to saturation in muriatic acid is get erally used. The addition of a little sal ammoniac im proves this. Lactic acid is also onsed.
(3) L. S. asks: 1. In the induction coil described in No. 160 of the SUPpLemencr, what is th object in having bare copper wire in the escondary coil, A. Bare copper wire is osed to save space. Otherwise overed wire will answer just as well. 2. Will the length of the spark be increased if the coil be made 2 or 3 inches larger, and a larger amount of wire in longer will the sparks be. 3 If made larger, would not three layers of No. 16 wire be better than two layer or the primary? A. Three layers might be advantage us if the coil was larger. 4. Is the coil dangerons
asing 10 or 12 small bichromate potash cells and wil the effects of the coil increase with the battery power A. The danger of naing too higha battery power is that he insulation will be injured, and its effects increased to a certain extent with increased battery. 5 . Will
common thick white wrapping paper do for between common thick white wrapping paper do for between the tinfoil in the condenser! A. For the condenser sou should use light paraffned paper.
(4) R. A. writes: Say there are two cabbe estreet car companies, A anc B, and A puts down
his road first, then $\mathbf{B}$ wants to croes $\mathbf{A}$ 's line, how is it done withoutinteferences A. A special device of two connected grips on a car, for this parpose, was illase
trated in the Scievtric Amrrican, vol. liii, No. 11 .
(5) E. J. M.-Copper, brass, or iron noulds are used for casting the valves, seats, and stuf-
fing boxes of dry gas meters. Oiling is not neceesary. If oiled to prevent sticking, the oil should be very
thinly put on with a brush. The composition is tin thinly put on with a brush. The composition is tin
and antimony-5 parts tin, 3 parta antimony. Dia hragme should be as nearly alike as poesible, and the dials made to match the measure.
(6) J. A. P., York Corner, Me., asks 1. Bherere any ceant or other method or sticking rubber to brass A. Foase together equal parts of gatts
percha and pitch. Use hot.
2 . Will rubber treze as to break A . Rubber when exposed to undue cold loses its property of elasticity, and becomes stiff

(7) G. S., Ogdensburg, N. Y., asks (1) how to make percussion powder used in gan caps. A. 100 grains of folminating mercury are triturated
with a wooden muller, on marble, with 30 grains of water and 60 grains of gunpowder. This is suffcien for 400 caps. 2. A good flux for general olalering. A. Resin for tin,
iron and brass.
(8) S. S. K. aeks: 1. What is the en mel, and how is it baked, on (bicycles? A. It is japan Tamiah made of prams and oill and is baked in an oven
heasted to 2600 . 2. Fhat is the liquid enamelaloo naed
for bicycles, but juet applied with a brush, coldq A.
Air-drying black varnibh-ordinary carriage varnish nixed with lampblack.
(9) M. N., Newark, N. J., asks : How can I remove warts? A. Moisten the warts, and rub
sal ammoniac well on them every night and morring. (10) L. G. G. asks : 1 . Is alta ive $\rho$ If so, under what circumstanceas A. Alcohol vaporates at a comparatively low heat, and gives of imes produces a slight explosion; a mixture of this vapor and air is explosive. 2. Is there danger in using an alcohol lamp, and if so, under what circumstances ?
A. The danger in nsing an alcohol lamp is that the A. The danger in using an alcohol lamp is that the vapor of alcohol may inflame. A good fiting wick
tube and a low temperature in the body of the lamp are the conditions of eafety. 3. Is wine or grain alcohol more or less dangerons than wood alcohols A. Wood alcohol evaporates at a lower temperature than ordinary alcohol, and hence is more dangerons. 4. Is wood alcohol as good to use in a lamp for soldering as grain alcohols A. It is not as good, as it will give a less
quantity of heat per gallon. 5 . What are the objecquantity of heat per gallon. 5. What are the objec-
tions, if any, to wood alcohol for such purposes? $A$ The very disagreeable odor and the greater danger ar and what is the cost of wood alcohols A. Grain alcohol, 95 per cent, $\$ 2.30$ per gallon; wood alcohol, $\$ 1.25$ per gallon. 7 . What class of tradesmen sell wood houses.
(11) E. N. A. asks: Will you please aswer in your paper whether the playing of a mouth ion is still undecided. 2. Is wood engraving a good trade, and are there many in it? A. Wood engraving is a good trade, except th
(12) F. A. B. asks if water has any more traction than land for a bullet or stone being fred over it, and what that attraction is. A. Water has
ess attraction, owing to its lower speniflc gravity. eess attraction, owing to its lower spesiflc gravity. nd or sea
(13) D. N. G. asks whether plaster of Paris will stand more heat than iron. A. Plaster of
Paris, when set, willstand very little heat; far less than Paris, when set, willstand very little heat; far less than
(14) D. A. writes : Will you please give meja good prescription,through your valuable iesue, for have no disease of any kind, but still I am very weak A. Consult a physician. Try a good emulsion of cod (15) H. G. H. asks: What is the differ quart of water in England weighs 20 ounces, I be eve. What does it weigh heige? A. The Imperial int contains 34 -659 cubic inct es, its contents in dished water weighing 8,750 grains. The American pint , $291 \%$ grains. The Troy ounce contains 480 grains, the avoirdupois 437\%. The Imperial pint contains 20 , the American a little over 18 ounces, avoirdupois.
(16) B. M. asks: What is an arpent in imensions? A. The arpent was anl old measure for standard was equal to five-sixths English acre.
(17) J. W. P. says : We are frequently roubled in our press room by paper sticking together, difficult to handle. Will you please give cause for his peculiar phenomena, and remedy to prevent it A. Your trouble is caused by electricity. If you print your paper dry, you might try wetting the edges of the paper with a sponge. If that does not remedy the diff-
culty, take a sheet of Manila paper, oil it thoroughly, alty, take a sheet of Manila
(18) T. W. asks : 1. In an electro-magnet, what is] thel relation between its attractive force nd the size of the coils? A. No clear statement of any w can be given, as so many other factors enter into he problem. 2. What size wire will give best results in an electric bell (local), and how large should coils be?
A. You will find No. 20 or 24 wire will work well $x$ pound in quantity. 3. What is the difference beneed be no difference.
(19) A. J. K. asks : 1. Please give me diections for making platinum prints, spoken of in some ubject of a patent. Address in reference thereto Wilonject of a patent. Address in reference thereto Wil-
on Hood \& Co., 910 Arch Street, or Thomas H. McCollin, 635 Arch Street, Philadelphia. 2. How can I stain
wood so as to make it look like cherry? A. Try following:

## 

Mix and let'stand in a tightly corked bottle some days. Go.over the wood with dilate ( 1 in 10) nitric acid first. This is pretty dark. You may lighten by using more cohol. 3. What can Ifput on a laboratory table made wood to prevent it from being stained and eaten by old for blackboards.
(20) L. W. writes: I noticed in a silver plating works some time since that the platers dip their wares in a solution to clean and take off the tarnish. They claim it is a solution of cyanide of potassium. Can
you give me receipt for this solution, and how to clean on give me receipt for this solution, and how to clean is used as a dip for articles cyat have been a few minntes in the electro-plating bath. For full information as to the preliminary cleaning, scouring, pickling and amalgarating of the articles, we refer yon to Fontaine's Electrolysis, 89.50, also Watt'r Electro-Metallnggy, prices $\$ 5.00$. These are the best books on the sab-
ject. One process j the following: A solation of 1
caustic soda in 10 water lo firet need; nest 1 sulpharic
acid in 10 water, after rinsing, a solution of 10 nitric
acid $\left(36^{\circ}\right), 200$ salt, and 200 water is used; next 60 nitric acid ( $36^{\circ}$ ), 200 salt, and 200 water is used; next 60 nitric
acid, 200 sulphuric, and 200 water. To amalgamate, a dilute solution of nitrate of mercury may be used These solutions are for dips. The articles are im
(21) F. H. M. writes : Will you pleas give the method of solving the following problem: man has a board ten feet long, which is two feet wid one end and from that tapers to a width of one foo the opposite end. Where shall he cut it at righ angles with the center line, to give an equal area in
each section? A. The area of the whole piece is found by multiplying its mean diameter by its length:
$\frac{1+2}{2} \times 10=15$ square feet. It is to be cut into two pieces, each of an area of $71 / 2$ square feet. Let ns take the foot acrose call its length $x$. Then, as the board tap in width one in ten, the large end of the section wil measure $1+\frac{\gamma}{\text { of }} x$. The mean width will be
$\underline{1+\left(1+\frac{1}{6} x\right)}=1+\frac{10}{30} x$
This mean width multiplied by the length, $x$, will give the area, which by the conditions of the problem mu be 71/2. This gives us the equation:

## (1) $\left(1+\frac{1}{25} x\right) x=7 \cdot 5$.

which solved gives us $x=5 \cdot 8110+$ or 5 feet 9.32 inches or the board must be cut at that distance from the nar
(22) N. S. C. writes asking (1) the rate of expansion or contraction of ice. A. 1000 volumes of ce at $32^{\circ}$ Fah. contract to $9971 / 2$ volumes at $-4^{\circ}$ Fah. tions. 2. Also for a cement for bisulphide of carbo prisms. A. For prisms use fish glue with a little
(23) A. F. O. writes: Cooling water be gins to expand at $39^{\circ}$, and continues to expand till frozen. Does the resulting ice continue to expand by tive volumes of ice at lerature? tive volumes of
auswer to No. 22.

## TO INVENTORS.

An experience of forty years, and the preparation of tents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unsynopsis of the patent laws of the United States and al foreign countries mas be had on application, and person abroad, are invited to write to this offlee for prices,
which are low, in accordance with the times and our extensive factivles or conducting the busiaess. Adare mUNN \& CO. office Scientific American, 361 Broa way, New York

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