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## Notes and Queries.

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mille or
(8621) E. C. S. asks: What causes cast iron to shrink near the hub of a casting
which is cored for an inch hole? The shrink which is cored for an inch hole? The shrink bored out shows itself, and upon breaking the casting a shrink hole is found from 1 to ${ }^{2}$
inches in diameter. The walls of the shrink hole are light blue in color, and the iron is soft. Anything that you could suggest in re
gard to preventing it will be gratefully re ceived. A. C'ast iron shrinks to a consider-
able extent in setting from the fluid state. The able extent in setting from the fund state. The core, being dry, heats quickly, and the metal
sets last near the central part of a hole core
and draws away from it. The remedy is to make a riser near the place where the greates shrinkage occurs, large enough to drop a ro
of iron in, to keep the metal from setting by jumping the rod up and down and pouring
hot metal into the riser, even if some of it ruas over. In this way large wheel hubs are cas solid.
(8622) J. D. writes: I would like a formula for copper plating on metals (dip
process) : pickle for treating metals to remove process) ; pickle for treating metals to remove
scale, etc., before dipping; can silver or its imitation be deposited on metals by a similar process or by hat, as tin or zinc: A. Coppe
leposits by Dipping: This is seldom practice except on iron, as deposits thus obtained are
generally wanting in lasting qualities, since, from the thinness of the coating, the iron is
but imperfectly protected from atmospheric influences. If the iron is dipped in a solution
of sulphate of copper $31 / 2$ oz, sulphuric acid with a coating of pure copper, having a certain adhesion: but should it remain there a few
minutes, the deposit becomes thick and muddy, and does not stand any rubbing. Small ar
aicles, such as pins, hooks and nails, are thu coppered by tumbling them for a few moments
in sand, bran, or sawdust impregnated with the in sand, bran, or sawdust impregnated with the
above solution, diluted with three or fou volumes of water.-Cleansing Cast Iron: Cast
iron is freed from grease, etc., by dipping in hot alkali solution used for a similar purpose with copper, and after rinsing thoroughly is pickle
in water containing about 1 per cent in water containing about 1 per cent of sul
phuric acid for several hours : then rinsed in phuric acid for several hours: then rinsed in
water and scoured with fine sharp sand o pumice and a fiber brush. It is then rinsed and
returned to the acid pickle for a short time rinsed again and put into the plating bath di-
rectly. If more than 1 per cent of acid is use in the pickle the time of immersion must be
shortened, otherwise the iron will be deeply corroded. and the carbon which the metal con tains, and which is not affected by the acid
will not yield without a great dea will not yield without a great deal of labor to
the sand and brush.-Silver Solution for Dip ping. Nitrate of silver 6 drms, cyanide pota silver and cyantde crystals each in one pint of water and mix. Warm i
18 deg. Fall. for dipping. $^{\text {den }}$
(8623) N. F. asks: Kindly inform me how many 16 candle power 110 -volt lamps are there to the ampere on a single-phase alte
nating current: also, how many 1 j cand power 110 -volt lamps are there to the kilowat on an alternating current: also, on a direct
current, or do they both constitute the same a far as kilowatts are concerned? I kno
they do not constitute the same as far a
amperes are concerned. A. Incandescent amperes are concerned. A. Incandescent
lamps are rated by the number of watts the consume per candle, and not by the amper
nor by the kind of current used to light them The resistance of the lamp hot is made suc
that a determined number of volts will forc current enough through the filament to rais
it to a white heat. The usual rated number of
wats is watts is from 3 to 4 per candle. Since watts
are the product of amperes by volts, it fol lows that the amperes used in any lamp vary with the voltage of the current 16 candle lamp consumes about 55 watts on the $\begin{array}{lllll}\text { pere per lamp. With an alternating cur } \\ \text { rent } & 52 & \text { or } & 104 & \text { volts are more commonly }\end{array}$ found in the distributing wires from the
transformers for interior use. The nere transformers for interior use. Th.
will therefore be somewhat higr. the lamp used upon a direct c peres and volts are the same $f^{r}$




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