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(6375) T. D. L. asks: Can a permanen magnet be made equally as strong as that of an electro magnet wound by any desired st
(6376) E. C. S. writes: In a recent dis cussion as to the velocity of falling bodies, I made the
general statement that all bodies fell with equal velocity recognizing. of course, the apparent exceptions, such a feathers, etc. Will you kindly throw some light on the natter, as one of our local scientists maintans that ne. The Encyclopedia Britannica, under the bead gravitation, states that bodies fall to the earth with equal velocity, irrespective of material of which they are composed. Upon this and the fact that there is a rule giving
the veiocity of falling bodies $16 \cdot 1$ feet for the first second, tc, I base my opinion. A. The law of falling bodies applies to bodies falling in vacuo. In the air a heavy Encrclopedia Britannica statement applies to a vacuum. The air offers very high and generally underestimated
resistance to falling objects.
(6377) H. A. says: Can you give a good cord or with copying ink of different colors? A. Tak vaseline (petrolatum) of high boiling point, melt it on a water bath or slow fire, and incorporate by constant
stirring as much lamp black or powdered drop black as it will take up without becoming granular. If the vaseline outline; if the collor is in excess, the print will not be clear. Remove the mixture from the fire, and while it is cooling mix equal parts of petroleum, benzine, and
rectified oil ofturpentine, in which dissolve the fatty ink, introduced in small portions by constant agitation. The volatile solvents should be in such quantity that the fluid nk is of the consistence of fresh oil paint. One secret of success lies in the proper application of the ink to
the ribbon. Wind the ribbon on a piece of cardboard, wind the ribbon in such lengths as may be mest cenvenient, and lay it fiat on the paper. Apply the ink, after agitation, by means of a soft brush, and rub it well into the interstices of the ribbon with a tooth brush. Hardly any ink should remain visible on the surface. For colored inks use Prussian blue, red lead, etc., and especially
the aniline colors. Aniline black
Pure alcohol.
Pure alcohol..........
Concentrated glycerin $.15^{3 / 2} \mathrm{oz}$ Dissolve the aniline black in the alcohol, and add the glycerine. Ink as before. Th.e aniline inks containing slycerine are copying inks.
(6378) The F. R. Co. asks: 1. Is it possible to charge an electro-magnet with the secondary cur-
rent from an induction coil? If so, please name the
best form of construction. A. Not to advantage. It reYour description of the magneto bell requires the nent magnet. Why is this necessary? A. To polarize (6379) P. asks: 1. What advantages claimed for metol as a developer? Could you give for use? One with which I can have most control ov e plate, and whlch will keep when mixed for use, often want to develop one or two plates at a time. Ing qualities, keeps clear, does not stain the film in the hadows, and is easy to work. The following is a gee Meto
Metol.................................. 5 grains.
Sodium sulphite crystals C. P........ 25
Dissolve metol first, then sodium sulphite. If kept in tightly corked bottle, the solution will remain colorless
for two or three months. This is a stock solution. To evelop $4 \times 5$ pate, take 14 ounces of the above, ada ounce water and pour over the plate; if fully timed, the picture will gradually appear and rapidly gain densit and detail. If the time has been short, add to the soluion a few drops, four or five at first, of a carbonate potash in three ounces of water. Keep adding a little at it The ightly corked bottle. Fight $4 \times 5$ plates can be devel ped withthese 2 ounces of developer. At end of that time development will be very slow and the developer will have a peculiar pungent odor when the nostrils are placed near it. This signifies that it is ready to be hrown away. 2. An easy way of regaining gold from waste toning solutions by adding be toco con 32 grains of proto-sulphate of iron to every gallon of waste. The old will be precipitated to the bottom The clear liquid should be drawn off by a siphon and the residue poured upon a filtering paper and washed by pour ing over it boiling water until the wash water no longe produces a precipitate with a solution of barium chloride. The gold is now redissolved with aqua regia and the so The yellow crystalline salt may then be dissolved i ater to make up a fresh toning bath, or putinan ai tight bottle. 3. What can I use to finish off the wood-
work of a camera (tripod)? A. Fill the grain of the work of a camera (tripod)? A. Fill the grain of the
wood with a filler of appropriate color, and when dry give the tripod a flowing coat of shellac varnish,
(6380) C. K. H. asks : 1. What is con didered the best material to put between the fiooring to deaden sound ? If felt or paper will do, what kind is th proof, at the least expense. As parties are figuring on putting in an electric lighting system in the building, a
plant of from 100 to 150 incandescent lights, and running ame with a gasoline engine, will you give an idea which is the best engine and dynamo for the purpose and the cost of same? It will require from 10 to 15 horse power we are informed. A. A double fioor with morta detween is probably the best sound insulator. For the daress of engine and dynamo builders we refer you to
our advertising columns.
2. Do you think it our advertising columns. 2. Do you think it practicable un same successfully with a gasoline engine? A. Gaso-
ine engines have been successfully used for electric light ing; we believe they have proved to be economical. (6381) J. H. L. asks: 1. How shall I wind the fan motor described in Supplement, No. 767, so as
to be suitable for a 100 volt circuit? A. We advise you not to try the motor on a current of such potential. You
might wind with No. 26 wire and start with a rheostat. Where can I get instructions for making a voltmeter A. See our Supplement, Nos. 556 , 552 , and 353 , for defor making a small fan motor of the alternating induc tion type? A. For alternating current motors, see our cribe different motors, but de n $\bullet$ t give full working details
(6382) E. P. B. asks : 1 Is it feasible to make a storage battery for electric light work of one lead plate for a positive pole and a single zinc stick for
a negative pole? A. This is hardly feasible. 2. State the amperes needed to charge 144 square inches (all tola) of positive plate? A. 5 amperes. 3. What is the discharge for the above surface? A. 5 to 6 amperes. 4.
Is asbestos a perfect insulator? A. Nothing is a perfect insulator; dry asbestos is almost a perfect one.
(6383) W. A. H. asks how to wind an Crowfoot gravity batteries three in number, to be used I wish to know size and quantity of wire to beused on both primary and secondary. Which will give best results on Hunning's transmitters-open circuit or gravity cells? A. Wind primary to $1 / 2$ ohm with No. 24 wire secondary to 80 ohms with No. 36 wire. Use open circuit deposition of copper on the zinc
(6384) A. N. X. asks: To persons using whe same living rooms with a victim of consumption, and danger from contagion? A. There is no doubt that the practice is dangerous. Use individual cuspidors and place disinfectants, such as zinc sulphate, in them. See Scientific American Supplement, Nos. 782, 824, 959,
(6385) S. J. R. asks : 1 How can I make good but inexpensive microphone? A. See our Supburglar alarm system. Before retiring last night I tested the alarm and it worked all right. A bout an hour after heard a noise resembling an explosion, and opening the closet, in which I keep the batteries, I found that one
them had burst all to pieces and the fuid was thrown al over everything. A. Possibly the glass battery jar was
badly annealed. This or some accident throwing it down are the only
(6386) W. H. B. asks how to proportion
primary spark coil to get the best results with the leas
ameunt of material, to best adapt it to a batteryo f known
amperage and voltage. A. The calculation cannet mperage and voltage. A. The calculation cannot be
made except approximately. The voltage to be devel oped must be known. Then the size of core and turns of wire must be based $0 n$ the ratio of $10{ }^{8}$ lines of force cut per second for one volt produced. The great
trouble is in the leakage coefticient for the lines of force (6387) F. X. W. asks : In regard to eigh ght dynamo in SUPPLEMENT, No. 600, what alteration any, are necessary in winding, to change said dynam used as a motor? A. Wind in shunt. The size of wis depends on the
horse power.
(6388) F. W. G. asks how many vol umes a mixture of gas and air-10 to 1 (at ordinary
pressure) makes on explosion. A. It depends on the composition of the gas; from 6 to 10 times the origina volume, butinstantly going back to about the origina
(6389) C. R. B. asks: How much rain all a fall of 12 inches of snow would represent, and of the annual rainfall ? A. If light snow, it would give a little over an inch of water. To get accurate result, the snow must be melted so as to give a determinatio for every snowfall. The value of the snow in wat ounts as rainfall.
(6390) P. E. A. asks: Can a person see we stars in broad daylight by descending into a deep How many feet down would a person have to descend A. Stars can readily be seen in the day time from the oottom of deep wells and mines. A hundred or more ude are about as small as thus can be seen.
(6391) W. D. asks: What is the process of cleaning sea shells to make them look bright and surface is first removed by making a thick mixture of one part bleaching powder to two parts of water and soaking the shell therein. ©n removing wash and scrub
t. Thick incrustations of lime must be picked off with sharp-eded hammer or some similar tool, and then the hell must be dipped in boiling dilute hydrochloric aci ered with shellac varnish, which may be removed with alcohol after the acid bath. For strong, heavy shelle use $\mathbf{1}$ acid to 3 of water; for delicate shells use 1 part
acid to 10 of water. Dip the shell for a second only, acid to 10 of water. Dip the shell for a second only, Hold it in wooden forceps or attach it to a stick in an vay to serve as its handle. The important point is no may be applied with a brush.

## TO INVENTORS <br> An experience of nearly fifty years, and the preparation of mere than one nundred thousand applications for pa fens <br>  <br> 

## INDEX OF INVENTIONS

For which Letters Patent of the
January 22, 1895,
and EACH BEARING THAT DATE [See note at end of list about copies of these patents.]


