storage battery in as simple language as possible, wit dimensions of lead plates, and the time necessary to charge it. A. For storage batteries we refer you to ou SUPPLEMENT, Nos. 322, 323, and others which we ca send by mail for 10 cents each.

- (11) C. W. asks for a recipe for makin substitute for white wine vinegar; will esteem it a favo A. Dilute acetic acid with water until of strength t suit your taste.
- (12) H. Poe asks for a composition fo picture frames. A. Various formulæ are used. W give two: 1. Seven pounds glue are boiled in 3% pine water; 3 pounds white resin are dissolved in 3 pin raw linseed oil by heat. Mix solutions and simmer for 1/2 hour carefully. Add enough whiting. 2. Three parts Flanders glue and 1 part isinglass, make into thi glue, dissolving each kind separately and mixing an straining. Mix with sawdust after cooling and rehea ing. Oil the moulds before introducing the composi tion.
- (13) J. H. asks: 1. 'To what exten must I enlarge the motor described in Scientiff AMERICAN SUPPLEMENT, No. 641, to run a small skif also what battery to use? The probable cost of sucl and running expense. A. Enlarge it to twice the size linear. Use a 16 cell plunging bichromate battery. Con probably from \$50 to \$60. Cost per cell per hour to run, about two and one-half cents. 2. Size of a two blade propeller wheel for skiff. A. Eight inch. Can all wire used in connection with motor be No. 1 insulated, also the No. of layers and convolutions No. 18 wire in the sections on the armature. A. Use No. on armature and No. 16 on field magnet. The number of layers is given in the article referred to.
- (14) J. L., Jr., asks what the specific gravity of water in a vacuum is. A. The specific gravity of water is the standard for solids and liquids and is 1.000. In a vacuum it will be unchanged but the water will weigh 1-815 more than in air on a count of the loss of buoyancy due to the removal of the atmosphere.
- (15) A. J. W. writes: I want to know of some substance that is a complete insulator of the magnetic current, such if placed between the poles of magnet and the armature, will not itself be attracted the magnet nor permit the armature to be. A. As v have often said in these columns, no such substance known, and there is not least probability of such ev being discovered.
- (16) J. B. H. writes: I have bee troubled lately by accumulation of lime from wat passing through water front in kitchen range. The clogging is so serious that sufficient pressure was matwice to rupture inch lead pipe. Can this deposit 1 dissolved in any way? I learn this occurrence is n an uncommon one here. A. The water back and pip can be partially freed from incrustation by putting in charge of caustic soda for a day, the same as is do for steam boilers. This would be a source of much trouble and delay for a range in a house. We can on recommend putting in a new water back and cleaning the old one for future use by closing one hole and fl ing the water back with a solution of 1 part sulphur acid to 4 parts water by measure; let it stand for a de or two, when the lime can be washed out.
- (17) A. S.—The observed phenomeno was not a rainbow. The colored circle around th moon as seen when light fleecy or cirrus clouds a passing is properly called a halo, when very close corona. It is caused by the refraction of the moon light by very small particles or vesicles of water for ing the clouds. In the high region in which the clouds float, the vesicles of water are sometimes in frozen condition, and may take the various forms minute snow flakes, and in this form may reflect t moon's light, giving rise to the white halo. To t various sizes of the water vesicles and the snow flak is attributed the various sizes of the halos. A rainbe is always due to the combined refraction and reflection of the sun's or moon's light in falling drops of rain.
- (18) F. T. R. asks: Which will product the mostlhorse power-two engines 12 inches in diamet and 12 inches stroke, or one engine 151/2 inches diam ter 17 inches stroke, all conditions being equal? The one engine 151/4 inches by 17 inches will do 25 m cent more work than the other.
- (19) T. E. & S. ask: What is the prope speed for a sixty inch circular saw to cut 15,000 feet lumber per ten hours? A. The saw should have speed of 600 revolutions per minute, for best effect. should easily cut 15,000 feet of lumber in 10 hours wi 20 horse power.

TO INVENTORS.

An experience of forty years, and the preparation more than one hundred thousand applications for n tents at home and abroad, enable us to understand t iaws and practice on both continents, and to possess u equaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and foreign countries may be had on application, and perso contemplating the securing of patents, either at home abroad, are invited to write to this office for pric which are low, in accordance with the times and our tensive facilities for conducting the business. MUNN & CO., office SCIENTIFIC AMERICAN, 361 Bros

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August 14, 1888,

AND EACH BEARING THAT DATE.

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Linoleum, German Linoleum Manufacturing Com-
pany
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