CAROUSEL AND PANORAMIC APPARATUS.—Joseph Darling, Baldwin, Pa. This is a merry-go-round which has a wave motion in addition to the usual rotary motion, and designed to give to the rider the sensation of sailing or flying. It also has an inclosing tent with an observation opening, in front of which movable scenery is held to pass, all co-operating to convey the feeling of moving as the scenery passes along, the sailing sensation being augmented, if desired, by "swashing" means automatically operated under the platform.

ROOFING COMPOSITION.—John A. Freeze, Mason, Texas. A new compound designed to be used with especial advantage as a roofing paint has been devised by this inventor. Among its ingredients are coal tar, pitch, alum, rock salt, oxide of iron, chloride of iron, etc., and applied hot with a brush on wood, paper or metal roofs, it forms an excellent protective cement, rendering the material to which it is applied waterproof and almost fireproof.

PUZZLE.—Helen E. L. Fisher, Germantown, N. Y. This device has central concentric inclosures having gates for the passage of balls, while extending from the outer wall of the inclosures are channels, each having a dividing longitudinal partition and a receiving chamber at the outer end. The receiving chamber contains a box in which is held a spring-pressed figure, confined in shielded position by a locking device, but released when the chamber is unlocked by a rolling ball, the player tilting the puzzle board to cause the balls to roll in the channels.

DESIGN FOR PENCIL TIP.—George A. Wieland, Duluth, Minn. This design consists of a hollow cylindrical body with radial imperforate points, as of a five pointed star, in the same plane.

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(6490) W. J. R. asks: 1. I have your SUPPLEMENT, No. 600, with instructions for building an eight light dynamo, and wish to build one equal to four lights; if I reduce everything from full to half size, will that be all right? A. No. Reduce to nine-tenths the size by lineal measurements. 2. What numbers of wire would be best for armature and field magnets? A. It depends on the voltage desired. Use one or two numbers finer wire than those specified.

(6491) S. B. asks: What will be the pressure due to an explosion of gasoline gas mixed with 10 parts of air? How many times will it expand with nominal loss of heat due to working an engine piston? What will the pressure be after it has expanded to 3 volumes and to 6 volumes? What part of the loss of pressure is due to loss of heat? Will the increase in pressure be greater or less if the mixture is compressed? A. Allow for an expansion to about 10 volumes, giving an initial pressure of 150 pounds per square inch. At 3 volumes allow 105 pounds, and at 6 volumes 60 pounds. The loss of pressure is accompanied by loss of heat, and as necessarily accompanied by it, may be said to be due to it. Compression gives a higher initial pressure, and consequently a higher average pressure.

(6492) F. C. W. asks: What is the temperature of the flame of an arc electric light one thousand volts, two thousand candle power? Is there any known material that will not crumble or melt under such a heat, and where can such a material be procured? A. It is questionable if any reliable record of this can be obtained. In the ordinary arc the temperature of the negative carbon is put at 3,000°—3,500° C. and that of the positive carbon at 4,000° C. Carbon neither crumbles nor melts in it.

(6493) G. E. M. says: Please inform me through your columns how I can brighten copper coins, so they will stay bright for a coin collection. A. Coins can be quickly cleansed by immersion in strong nitric acid, and immediate washing in water. If very dirty, or corroded with verdigris, it is better to give them a rubbing with the following: ½ ounce pure bichromate of potash; 1 ounce sulphuric acid; 1 ounce nitric acid. Rub over, wash with water, wipe dry, and polish with rottenstone or chalk. To keep them bright permanently thay should be lacquered.

(6494) S. S. asks: 1. May an article upon which the patent has expired be made by any person, and by him sold under a name different from the one by which the invention is generally known? A. Yes. 2. May any one freely make and sell perforated maps, etc., which are made by the cheap electric pen, described in SCIENTIFIC AMERICAN of June 4, 1887? A. Yes. 3. What is the lowest temperature yet attained? A. See our SUPPLEMENT, Nos. 990, 896, 948, 973, 967.

(6495) W. M. asks: 1. Will a rifle shoot the same at an object on water as it shoots on land (without changing elevation)? A. It is probable that gravity may be slightly less on the sea than on the land and may cause a very small difference in the range. The amount is too small to appreciate in ordinary practice. 2. Will the accuracy of a rifle be changed by having a ring that is heavier on one side fitted tightly around the barrel near the muzzle. A. A gun barrel unbalanced as described will not recoil in the line of the bore, and will throw a bullet away from the center line of fire toward the light side.

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