

out of the vehicle. The check strap is extended beneath a gripping cam on the saddle and is made to act on a rearwardly projecting arm to release the cam by being lifted or moved upwardly.

KNEE PROTECTOR.—Thomas B. Walker, Honolulu, Hawaii. For the use of cavalymen and others to protect the rider against rain, snow, etc., this inventor has devised a new article of manufacture to be made of leather, rubber or waterproof cloth.

STRING FASTENER.—Charles C. Pine, New York City. For fastening shoes, corsets and other articles to be laced, this inventor provides a device for holding the string end without tying the string or using springs, jaws, etc., the fastener being more especially designed for use with flat strings.

PAPER DOLL.—Edward T. Gibson, Minneapolis, Minn. This invention relates to dolls in which changes of costume can be made by the adjustment of paper garments, the doll being destitute of arms and shoulders, and preferably destitute of head and neck.

GAME APPARATUS.—Joseph Jessup, Woodbury, N. J. A game to be played in simulation of the game of football is provided by this patent, a foldable board being used, marked off as a football field, while a movable block has the position of the opposing teams indicated thereon.

DESIGN FOR WRENCH HEAD.—Walter T. Johnson, Macon, Ga. This head has a rounding and transversely serrated top surface, one projecting end presenting a bifurcation and the opposite projecting end being concave at the under side.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

SCIENTIFIC AMERICAN BUILDING EDITION. AUGUST, 1895.—(No. 118.) TABLE OF CONTENTS.

- 1. A Colonial house at Scranton, Pa. Perspective elevation and floor plans. Cost complete \$4,500. E. G. W. Dietrich, architect, New York City. A simple yet pleasing design.
2. A cottage at Residence Park, New Rochelle, N. Y. Two perspective elevations and floor plans. Architect, Mr. G. K. Thompson, New York City. A unique example for a cottage dwelling.
3. Perspective and floor plans of a Colonial cottage at South Orange, N. J. Built by H. E. Matthews, Orange, N. J. A neat design, with some novel features.

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References to former articles or answers should give date of paper and page or number of question.

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Minerals sent for examination should be distinctly marked or labeled.

(6598) T. D. B. asks: 1. Will you please tell me the name of inclosed leaves and greatly oblige several parties? A. Charles W. Dabney, Jr., of the Department of Agriculture, informs us that the leaf which you inclose is that of the common poison ivy, Rhus radicans.

2. Please give formula and an example of increase of candle power due to increase of amperes in an incandescent lamp. A. An increase in the amperes will increase the light of an incandescent lamp because both heat and light are determined by the power used by the lamp.

Electrical power is measured in watts, which are calculated by multiplying the amperes by the volts. W=CE. (1) A 16 candle power lamp should use about 60 watts, when the pressure is 115 volts. From formula (1) we obtain (2) C = W/E hence C = 60/115 = 0.52 ampere. If in formula (1) C is made larger, the product CE becomes larger; that is, more power in watts is used and more light is given.

This answers the question as asked, but the result cannot be gained in this way. With a given lamp and generator capable of lighting it, no variation in the amperes can be made. Ohm's law is C=W/R amperes=volts/ohms. Dynamos for incandescent lighting usually have a constant voltage, and the resistance of the lamp may be said to be constant.

(6599) P. W. says: Please tell me through your paper: 1. What is celluloid composed of? A. Celluloid is a hard elastic compound made by subjecting gun cotton, camphor and other ingredients to hydraulic pressure. See our SUPPLEMENT, No. 227. 2. Some simple way of preserving flowers, especially double flowers, so as to preserve their shape and color. A. A method of preserving the natural colors of flowers, recommended by R. Hegler in the Deutsche Botanische Monatshefte, consists in dusting salicylic acid on the plants as they lie in the press, and removing it again with a brush when the flowers are dry. Red colors in particular are well preserved by this agent.

Gardeners' Chronicle, recommends, as an improvement in the method of using sulphurous acid for preserving the color, that in the case of delicate flowers they might be placed loosely between sheets of vegetable parchment before immersion in the liquid, so as to preserve their natural form.

(6600) J. D. writes: I am figuring on a refrigerating plant, to be operated by the use of compressed air, and would be glad if you will state how many cubic feet of air, atmospheric pressure, at a temperature of 20°, would be required to cool say one gallon of water to a temperature of 34°. The water being in a coil of pipe placed in a receiver into which the compressed air is expanded to 1/2 pound above atmospheric pressure. Please advise how many units of heat are contained in one gallon of water at 70°, also at 34°; also how many units of heat in one cubic foot atmospheric air at 90° and at 20°. A. The difference of 70°-34°=36°x8 1/2 pounds of water per gallon equals 300 heat units. The specific heat of air for equal weights with water is but 0.237, and as 13 cubic feet of air at 60° equals one pound, then 90°-20°=70°=5.39x0.237=1.277 heat units per cubic foot from 90° to 20°. As the mean difference of the water above the air temperatures at its lowest point is 32°, then = 2.46x0.237=0.583 heat unit for each cubic foot of air expended in cooling, and as 300 heat units are required, 300/0.583=514 cubic feet of free air at 20° to cool one gallon of water from 70° to 34°. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 999, on "Cooling by Compressed Air."

(6601) P. B. V. says: Please give me through Notes and Queries a formula for a black hair dye. A. 1. Black: Sulphate of iron.....10 grm. Glycerine.....1 oz. Water.....1 pt.

The hair must be thoroughly washed with this, dried and brushed once daily for three days; then the following should be applied on a small tooth comb, but it should not be allowed to touch the skin if the other preparation has done so, as a temporary stain would result. Or 2.

Gallic acid.....4 grm. Tannic acid.....4 " Water.....1 1/2 oz.

After the first application of formula 1, the hair should be allowed to dry and then be brushed. Subsequently, both formulae may be used once daily at an interval of an hour or so, until a black color is produced. All preparations of lead and mercury are injurious if used for any length of time: they may, however, be legitimately used where some small portion of hair has, from personal idiosyncrasy, lost its color, which cannot be restored.

(6602) F. and M. say: Have you receipt for working over and restoring rancid butter to fresh, sweet flavor? A. To Convert Rancid Butter.—1. 100 pounds of butter is mixed with about 90 gallons of hot water, containing 1/2 pound of bicarbonate of soda and 15 pounds of fine granular animal charcoal free from dust, and the mixture is churned together for half an hour or so. The butter is then separated; after standing, warmed and strained through a linen cloth, then resealed, colored and worked up with one-half its weight of fresh butter.

TO INVENTORS. An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere.

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