

the weight and net price of commodities. The beam of the scale has a weight scale at its lower portion and a value scale at its upper portion.

MUSIC-HOLDER.—OLAVES I. BYE, Hillsborough, N. D. The purpose of this invention is to provide a simple and cheap music-holder which may be directly attached to the instrument so as to hold the music at all times in clear view of the performer.

SUGAR-CRYSTALLIZER.—EDWARD P. EASTWICK, Jr., New Orleans, La. The purpose of the present invention is the provision of an apparatus for crystallizing sugar in motion that will give a more complete movement to the mass than has hitherto been attained.

NECK-YOKE.—SAMUEL J. McDONALD, Gallatin, Mo. In this invention, the center ring or loop has a swivel connection with the cross-pole of the neck-yoke, thus enabling the center ring or loop to adjust itself to any necessary position.

MILITARY EQUIPMENT.—HENRY J. ROSE, Hythe, and WILLIAM GILBERT-COOPER, Dover, England. This invention provides an equipment for military and sporting purposes by means of which equipment a knapsack or handbag, great coat, canteen, pouch and the like can be carried with the utmost convenience and least discomfort.

SKIRT.—BERTHA E. MARTIN, Asbury Park, N. J. The skirt provided in this invention is a bicycle-skirt, having the appearance of an apron front. The skirt is designed not to blow up over the knees and to be used upon drop frame or diamond frame bicycles.

PASSAGEWAY FOR BULKHEADS.—DALLAS DU BOIS, Montclair, N. J. In this invention, a device is provided whereby communication may be obtained between one compartment and another, at the same time maintaining a waterproof and fireproof division between the compartments.

PENCIL HOLDER AND SHARPENER.—CONSTANT E. COTSY, New York city. To provide a holder in which the pencil may be readily advanced as it wears and at the same time permits the sharpening of the point, this inventor employs a spirally grooved case having a longitudinal slot.

Designs.

WIRE-FENCE.—ALBERT HENLEY, Lawrence, Kans. This design consists of a series of horizontally disposed trapezoidal figures in which the parallel sides are approximately vertical, of the same length throughout the same rows and of gradually increasing length from row to row.

BOTTLE.—HERMAN TAPPAN, New York city. A circular base is provided for this bottle, from which base rises a cylindrical body slightly tapering inwardly at its upper end, terminating in a neck formed with raised spirals and ending in a reduced cylindrical mouth.

JET FOR LIME LIGHTS.—JOHN A. MANTZ, Jersey City, N. J. The leading feature of this design consists in a boss, from one side of which extends a bend of the base portion and from the top of which boss rises upwardly and forwardly a spout terminating in a contracted mouth.

HOOK.—EUNICE R. MORTON, Revere, Mass. This hook consists of a bar, from the upper end of which rise the spaced side members of a loop, from the middle portion of which extends upwardly the shank of a hook ranging in an opposite direction to a hook-plate depending from the upper edge of the bar first mentioned and from between the side members of the hook.

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HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question.

(7474) F. W. M. says: I take the liberty of sending you a cutting of an ash tree I have, with a growth which I believe are eggs, and asking you what it is and for a cure. Last year this same tree, later in the season, had numerous small insects on some of the branches which looked like mould or moss, and which I scorched off, and now think perhaps they were a more advanced stage of the same thing I inclose.

(7475) F. G. G. asks: Is there any rule by which I can find the strength of an electromagnet, having given the size of the core and wire, the number of coils, and the amount of current? A. A practical formula for this case is

T C M / 2661 L = A

T=number of turns of wire on magnet. C=current in amperes. M=magnetic permeability of the iron. A=area of poles in square inches. L=mean total length in inches all round the iron circuit.

as that of the core of the magnet. No allowance is here made for the leakage of the magnetic lines; so that the actual result in any case will be somewhat less than is given by the formula. Much depends upon the accuracy with which the armature fits upon the poles of the magnet. The full calculations of the lifting power of an electromagnet may be found in S. P. Thompson's "Electromagnet," price \$6 by mail.

(7476) J. H. L. writes: I wish to call your attention to the difference between an eighty gear on a bicycle or a sixty, backpedaling down a hill. Does it require any more strength to hold a large gear down a hill than it does a small one? A. It requires less pressure on the pedals of a low gear bicycle than on those of a high gear, in going down hill.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

AUGUST 9, 1898,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Table listing various inventions and their corresponding patent numbers, including items like 'Abrading wheel, D. J. Lattimore', 'Advertising device, J. D. Heffey', 'Air brake, F. L. Guillemet', etc.

Table listing various inventions and their corresponding patent numbers, including items like 'Boat, Daphner', 'Bolt, Sec. Lock bolt', 'Bottle, non-refillable, E. A. Clair', etc.

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