

## RECENTLY PATENTED INVENTIONS.

## Of Interest to Farmers.

**WRISTLET.**—R. N. THOMAS, Shenandoah, Iowa. This wristlet comprises a sheet of flexible material such as leather, and is provided at one end near each side thereof with a series of four parallel slits, and straps are connected with the sheet by means of the slits. The straps are of sufficient length to pass entirely around the wrist when in place, and extend from their point of connection beneath the sheet and out through the opening, and thence around the outer surface of the wristlet to engagement with the buckle.

## Of General Interest.

**CABLE-GRIP.**—T. W. TILLEY, Bellingham, Wash. This invention relates to cable grips adapted for use in hauling logs and other loads. One object is to provide a grip having means which will grip the cable in an increasing degree as the load to be moved increases. Another object is to provide gripping means which are equally effective irrespective of the direction in which the cable is being hauled.

**BAND-STAMP.**—A. H. MERRILL, Ocean Springs, Miss. The stamp is especially adapted for use in entering lists of names on either books or papers, or both, as for instance pay rolls. In the present device a stamp is provided for each name and it is evident that the impression from each individual stamp may be repeated as many times as desired. In case the name of an employee is no longer used for any reason, it may be removed from the belt, and another substituted therefor.

**ROAD-CULVERT.**—L. BLAKESTAD and O. A. ANDERSON, Lyle, Minn. The improvement relates to road culverts and the object is to provide means for joining culvert members together, the means producing a much stronger culvert than other devices now in use. In this culvert the joints of the members are reinforced with cleats which are fastened together and are also fastened to the members.

**SAND-BLAST APPARATUS.**—D. A. NICHOLS, New York, N. Y. The purpose of the invention is to provide a blast apparatus in which the flow of sand from the container or reservoir to the air blast pipe can be regulated and controlled with exactness, and in which the flow of the sand from the container is assisted by the equalizing pressure pipe communicating with the air blast pipe and discharging within the container near the top of the same.

## Hardware.

**BOARD-SETTING TOOL.**—W. R. HARRIS, Pelican, La. More particularly the invention relates to board setting tools such as are adapted for the forcing of floor boards, ceiling boards, or the like, tightly together, and which are provided with levers carrying setting blocks and spurred body members adapted to engage the joists and pivotally to carry the levers.

## Heating and Lighting.

**GAS LIGHTING AND EXTINGUISHING APPARATUS.**—O. H. HINDS, Le Mars, Iowa. By this invention, Mr. Hinds seeks to provide a novel construction whereby a temporary increase of pressure in the gas supply pipe or main may operate to open or close the supply valve leading to the burner or burners whereby the burner may be lighted or extinguished by the opening or closing of its supply valve.

## Household Utilities.

**BEDSTEAD.**—G. T. BOUSLOG, Raymond, Miss. The invention relates to improvements in bedsteads, and more particularly in what are known as iron bedsteads, so that an adjustable post and rail construction is provided. The object is to provide a device which is provided with rails adapted to be horizontally adjusted with respect to the corner posts.

**BATH-CABINET.**—T. PAPWORTH, Portland, Ore. The object of the inventor is to provide a cabinet adapted to be removably mounted upon a bath-tub, and having an apron secured to the cover of the cabinet and depending into the tub to prevent water from escaping over the rim of the tub. Means provide for regulating the quantity of vapor within the cabinet, and controllable by the user from within the cabinet.

**RECEPTACLE FOR MATCHES.**—J. H. EVERS, New York, N. Y. One object of this improvement is to provide a receptacle which can be hung upon a wall or other support, or can be placed upon a table or the like, which is so formed that a telescopic box of matches can be inserted into the casing whereby it is opened to allow matches to drop into an open pocket from which they can be taken one at a time as needed.

## Pertaining to Vehicles.

**RIM-TIGHTENER FOR VEHICLE-WHEELS.**—J. HAMILTON, Weir, Kan. The invention relates to wheels and improved means for tightening the rims. It comprehends means for securing together the abutting ends of the rim and for moving these ends relatively to each other for the purpose of tightening and loosening the rim in order to facilitate its removal, replacement, or its fitting while in position.

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



Full hints to correspondents were printed at the head of this column in the issue of November 14 or will be sent by mail on request.

(12011) B. F. M. says: Please give me the best definition of the term "candle-power." We understand the relative meaning of candle-power to be the intensity of light as measured by the photometer on a horizontal plane one foot from the lamp, the same as given in all directions from the lamp, but how do we arrive at the phrase 16 candle-power, 32 candle-power, 50 candle-power, etc.? A. One candle is the light given by a standard candle. This is in England and America made of spermaceti, cylindrical in form, 3/4 inch in diameter, and of such a length that it weighs a pound. It burns 120 grains per hour. A 16-candle lamp gives 16 times as much light as this candle does at the same distance, or the same light at four times the distance. The word "power" has simply been attached to the name candle. It is not necessary. A lamp giving 16 candles is said to have 16 candle-power; that is, it is able to illuminate as well as 16 candles would do in the same place. It is not a unit of light. It is the unit of illuminating power.

(12012) J. J. G. asks: Will you kindly explain to me a phenomenon which I have noticed during the eclipse of the sun? At the time the sun is crescent shape, the light falling on the floor after having passed through a window-pane assumes the form of a multitude of crescents. I have never seen an explanation of this phenomenon. I have never seen even an indirect reference to it in any work on physics; but in a work published in 1852 by John Johnston entitled "Johnston's Natural Philosophy," at page 257, in discussing the passing of light through a small aperture a quarter of an inch square, this statement is made: "If these experiments are made during an eclipse of the sun the images will always be of the same form as the disk of the sun toward us." This is the nearest to a reference I have ever noticed. It may be that I have simply overlooked the reference, but it does not take up the question I asked of you, namely, why the light under these circumstances passing through a large glass window will throw thousands of such images on the floor. A. When the light from the sun passes through a small aperture and falls on the floor or any other flat surface nearly or quite perpendicular to the path of the rays of light, the disk seen is circular, since it is an image of the sun. The shape of the aperture through which the light comes does not affect the shape of the disk of light on the screen. The aperture may be triangular, square, round, irregular, or any other shape; the disk of light on the screen is circular when the sun's disk is a circle. The experiment may be performed with a gas burner, a small hole in a cardboard, and a white screen held in the path of the light beyond the cardboard. A very perfect image of the gas flame, inverted, will be found on the screen. The images cast through small apertures are of the same shape as the objects which cast the images. When the sun is in an eclipse the crescent-shaped sun may be seen repeated many times on the ground under trees, or on the floor of a room where the light enters through the crevices between the slats of blinds or other small openings. Ordinarily in the same situations circular disks, images of the sun, are formed. In the case mentioned above, the windows must have been rather dusty, so that the window became a series of small apertures in its effect upon the sunlight, and crescent images were seen. We should always see images of the sun on the floor but for the fact that they usually overlap each other. They are always there and may often be distinguished along the edges of a place where sunlight falls on the floor of a room. This matter is rarely mentioned in textbooks of physics now-a-days. The textbooks rarely give interesting applications of principles to occurrences in nature, but limit themselves quite too much to abstract statements of principles. Many textbooks are dry as dust for this reason. The case of images of the sun in an eclipse is to be found in Deschanel's "Natural Philosophy" under "Shadows." It would be a great improvement if all textbooks of science directed the attention of the student more to concrete applications of his study to be seen in nature, often close at hand, as in this particular case.

(12013) J. T. R. writes: I have a primary battery of eighteen cells; two series of nine connected in multiple, i.e., two positive and two negative wires connected. These are used to charge a secondary battery of three cells of chloride accumulator. The voltmeter indicates 6.6 volts at storage battery and 6.5 volts at terminals of primary battery. Is my primary battery large enough, and what should be the potential of the charging plant described above? A. A storage battery should have a charging current with a pressure of 2 1/2 volts per cell. Three cells require 7 1/2 volts. The maximum charging rate should be 6 1/2 amperes per square foot of surface of positive plate, reckoning both sides. You probably fall short in both pressure and current.

## NEW BOOKS, ETC.

**AERIAL WARFARE.** By R. P. Hearne. With an Introduction by Sir Hiram Maxim. New York: The John Lane Company, 1908. 8vo.; pp. 230. Price, \$2.50 net.

This is an excellent volume, which goes into the construction and operation of the most successful aeroplanes and airships, and especially those used for military purposes. The author has a close acquaintance with the various air craft that have been developed during the past few years, and he describes them in a simple, non-technical manner, and tells of their performances. He afterward discusses their use in warfare, and the probable development that will be made in airships and heavier-than-air craft for this purpose. The author does not indulge in any flights of fancy, but he discusses in a sensible way the probable use that will be made of aerial craft in wars of the future. The book is illustrated with very fine halftone engravings, and it is in every respect a high-class volume.

**DIE AUSNUTZUNG DER WASSERKRÄFTE.** By E. Mattern. Leipzig: Wilhelm Engelmann, 1908. Imported by the Engineering News, New York. 650 pp.; 256 ill.

Making no attempt to be didactic or to draw any conclusions from his statements of fact, the author of this work aims chiefly at the compilation of statistics regarding striking modern developments in water-power work. Whereas the German and other European works naturally receive the most attention, those of both North and South America which involve any new departures are sufficiently covered, as well as the possibilities of the Zambesi in Africa, and the developments described in the book are as representative in their selection as their description has been thorough and complete.

**THE MAN WHO ENDED WAR.** By Hollis Godfrey. Boston: Little, Brown & Co. Price, \$1.50.

Hollis Godfrey's "The Man Who Ended War" is the story of a monomaniac for peace, who brings about the general disarmament of nations through the destruction of their battleships by radiating a powerful gas which has the property of dissolving all metals into gas. The elaborate explanations of the manifestations of this new peculiar gas, and of the hero's scientific efforts to foil its employment, are crude and unconvincing even to one who is fond of pseudo-scientific romances. The human parts of the story are lacking in any delineation of character or of individual traits. All the leading personages in the story talk and act and feel just alike, whether they be hero or heroine, underling, or villain. The plot of this novel has the advantage of being more transparent than its descriptions of intricate scientific apparatus and of the reactions of molecules, atoms, electrocutes, or the "original units that make up the world." Thus any discerning reader is able to divine the hidden personality of "The Man Who Ended War" from the outset, so that there is no shock or surprise when the long-sought destroying angel finally reveals himself and drops dead in the act. At other points in the story, wherever any persons or objects are especially wanted, they usually turn up on the next page, and so it is with scientific manifestations.

**THE LIFE OF SIR ISAAC PITMAN.** By Alfred Baker. London: Isaac Pitman & Sons, 1908. 12mo.; 392 pp. Price, \$2 net.

The "Father of Phonography" received a meager education, being compelled, on account of delicate health, to leave school at the age of thirteen, and his diligent and painstaking efforts to perfect himself in the use and pronunciation of English are brought out in a most interesting manner in this "Life." Pitman's first efforts in teaching shorthand and the circumstances which led to his inventing the modern system of "sound writing" are told in a comprehensive manner. Teachers of phonography will find this book invaluable, and it will inspire all students of stenography with a high regard for their chosen vocation and a desire to attain greater proficiency in this most useful profession. The book is fully illustrated with half-tones, engravings, and cuts showing the development of phonography.

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