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PATENTS

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940,806 941,016 940,897 941,305 940,819 941,097 Bag fastener, E. S. Erickson

Gar, W. H. Soll
Gar heake operating mechanism, C. A. Williamson
Car door, grain, H. W. Richards.
Car door hanger, Frame & Harrington....
Car, dump, J. B. Rhodes
Car, railway, H. S. Hart
Car, ventilator, railway, J. E. Ward.
Car window ventilator, D. W. Snow.
Cars, passenger controlled register for street, O. Speckenbach
Carriage and wagon checking attachment, W. F. Young.
Carrier, C. B. Willenborg
Carrier, G. W. Bent.
Caster, self-adjusting, T. C. Luce
Cast day, Z. D. Underbill
Casuicizing tank, E. F. Parker
Cement washtub mold T. V. Galasse

940,771 940,768

941,069 940,893 940,772 941,249 941,067

940,946

941,108 941,273

940,760 940,816 940,780 941.082 940,755

NEW BOOKS. ETC.

FUNDAMENTAL PRINCIPLES OF CHEMISTRY. An Introduction to All Textbooks of Chemistry. By Wilhelm Ostwald. Translation by Harry W. Morse. New York: Longmans, Green & Co., 1909. 8vo.; pp. 349.

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Prof. Ostwald's name is one to conju with sunset. in almost every branch of science and in chemistry particularly. It would be difficullt indeed to mention a chemist who has contributed more to the advancement of his science in our time. or one who occupies a more eminent position as a teacher. In this book Prof. Ostwald has presented with remarkable ingenuity and simplicity the actual fundamental principles of the science of chemistry, their meaning and connection, and stripped them so far as possible of irrelevant additions. The book may be regarded as an attempt to work out chemistry under the form of a rational scientific system without bringing in the properties of individual substances. Hence, it has been necessary to restate clementary principles in a new light, and to bring out many new connections in regions hitherto untouched. That is why this work will be found different in its treatment from any other work on chemistry that has ever been written. The pedagogic value of the preceding can be judged only by the instructor of chemistry. But to anyone familiar at all with chemistry, its merit must be apparent from an it apparently is, grows faint from the impartial consideration of the book.

A HAND BOOK OF PRACTICAL CALCULATION AND APPLICATION OF REINFORCED CON-CRETE. Kahn System Standards. Compiled and published by the Engineer-ing Department of the Trussed Con-crete Steel Company. 12mo.; 126 pp.

The rapid growth of reinforced concrete construction makes necessary a hand book on design, similar to those in use for the ordinary classes of building material. The object of this hand book is to present to the designer tables and information in such form as to be made immediately available for use in actual designs, and at the same time to have these tables founded on scientific formulæ approved by our best engineering practice. The work as presented deals mainly with the Kahn trussed bar. The Kahn system of reinforced concrete, however, uses in its application several other types of reinforcement, including rib metal, hy-rib, cup bars, column hooping. rib lath, and rib studs.

HOW TO OBSERVE AND RECORD THE WEATHER.

(Continued from page 412.)

mounted very nearly horizontally. These two instruments are usually supported as they appear in Fig. 3.

The minimum is read and then "set" by this reading is taken and recorded, the thermometer is then "set" by gently swinging it up and down, until that amount of mercury is shaken back into the bulb that represents the difference in the present, if any. When no more mercury can be returned to the bulb. the thermometer is allowed to hang vertically, and a second reading is taken. The mertime of reading; and this reading is recorded as "set maximum." In other words, the maximum thermometer serves in place of two thermometers. First, it records the highest temperatures during when it is set, it gives the temperature at 7 P. M.-the time of reading.

EXPOSURE.—The marked variation bemometers owned by private persons and Weather Bureau thermometers is due all suppositions. much more frequently to the difference in the manner of exposing them than to difference in quality, accuracy, or cost

cess to the interior, for the four sides of the shelter are louvered; that is, composed of shutters. These shutters over lap, and have a pitch which enables them to shed water, and intercept also the rays of the sun, even when level at sunrise or

Shelters ought to be placed in a large open space, or upon a house top or other high building, where the circulation of the air is unimpeded. Correct temperatures are recorded only when the air flows freely round the shelter as well as through it. When the shelter cannot be situated in an open area, it may be set up on the north side of a building, with a space not less than four inches intervening.

Sunshine does not give the average temperature of the air, but the highest; and so a thermometer, hung in the sun, falsifies or greatly exaggerates. If the temperature is 87, a thermometer in the sun will run up to 100 or more. The confiding observer, suddenly aware how hot imaginary heat, runs for a fan, and rapidly raises his bodily temperature by his vigorous gesticulations trying to cool himself.

Instruments that measure the depth of the fall of rain are neither well known by sight, nor is the method by which they record the rainfall very familiar.

Fig. 7 shows the essential parts of a rain gage, which are a receiver, a measuring tube, and an overflow. The rain is caught by the receiver, the bottom of which is funnel shaped, and falls into the measuring tube. Should the amount that falls be excessive, and more than fill the measuring tube, the excess overflows into the outer cylinder. The rain gage is designed to catch the precipitation of rain, and to facilitate the reading of the amount by mechanically magnifying the quantity. The diameter of a Weather Bureau rain gage receiver at the top is 8 inches; the diameter of the meas uring tube is 2.53 inches. In consequence of this difference in area, the water in the measuring tube stands ten times deeper than if spread over the area raising it gently until the index slides to of the receiver; so that a rainfall of one the surface of the alcohol (Fig. 5). The inch in the receiver stands ten inches maximum must be lowered to a vertical in the measuring tube. The scale by position before it is read (Fig. 4). After which the water is measured is graduated in hundredths of an inch; but that inch on the scale is really ten inches long (Fig. 8).

In the normal temperate climate, there are only a few rains in a year when a temperature between the maximum and reading of one inch is observed. A fall of ing, Annealing and rain amounting to two inches is uncommon; a precipitation recording three or more inches is the exceptional record of decade or two. Some rains, attended a cury now gives the temperature at the by strong wind, vivid lightning, and apparently heavy downpouring of sheety rain, give a reading as low as twentyfive to sixty or seventy hundredths of an inch: while other rains, not so accompanied by electric phenomena and aerial the twenty-four hours; and secondly, disturbances, occasionally give a reading of an inch or more. Only an experienced observer is competent to make a fairly

close guess of the amount of precipitatween the readings obtained from ther- tion; and at best his guess is subject to the errors that so commonly invalidate

Snowfall is caught in the large cylin-(Continued on page 419.)



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tions. Price \$2.50 postpaid HIS is a practical work, treating clearly and concisely modern processes for the heating, annealing, forging, welding, hardening and tempering of steel, making it a book of great value to toolmakers and metal-working mechanics in general. Special directions are given for the successful hardening and tempering of steel tools of all descriptions, including milling cutters, taps, thread dies, reamers, hollow mills, punches and dies and various metal-working tools, shear blades, saws, fine cutlery and other implements of steel, both large and small. The uses to which the lead-ing brands of steel may be adapted are discussed, and their treatment for working under different conditions explained; also special methods for the hardening and tempering of special brands. A chapter on case-hardening is also included.

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price. Thermometers exposed against	INDEX OF INVENTIONS	By E. R. MARKHAM	Causticizing tank, E. F. Parker
buildings, on verandas, in windows, can-		Size 5% x8 inches. 367 pages. 163 illustra-	Centrifugal extractor, W. Bartholomew 940.662
not often be trusted to give even ap-	For which Letters Patent of the		Chair, C. J. Travers
proximately the true temperature of the	United States were Issued	HIS is a standard work on selecting, annealing, hardening and tempering all grades of steel,	Chair fan attachment, L. Hildreth 940,688 Chairs, hinding means for, A. G. Walter 940,759
atmosphere. For the air is not a station-	for the Week Ending	by au acknowledged authority. The author	Checkrein, J. S. Mirgan
ary body, but is a continuously inter-	November 23, 1909.	collected much of the material for this book. Care-	Churn, F. A. Grant
twisting, expanding, and contracting gas perpetually seeking an equilibrium, which	AND EACH BEARING THAT DATE	ful instructions are given for every detail of every tool. Among the subjects treated are, the selection	Clamp and rail brace, Griffin & Muth 940.964 Clasp fastener, M. Pugatsky et al 941,096
is seldom even momentarily gained, than	[See note at end of list about copies of these patents.]		Cleansing compound, J. A. Lester 941,155
it is instantly lost. All gross inaccura-		how to treat steel in the making of small tools, taps, reamers, drills, milling cutters; hardening and tem-	
cies attending exposure of thermometers	Adding machine, C. N. McFarland	pering dies; pack-hardening; case-hardening; an-	Clothes pounder. E. W. Lynch
are overcome by the shelter adopted by	Adding machines, keyboard locking mech-	the best kind, and why; and in fact everything that	Clutch, Hovey & Stebbins
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