pupil his mistake. Therefore, the instrument indicates positively to the pupil whether the second key is depressed too fast or too slow with respect to the release of the first key, and enables the pupil to determine with accuracy whether the touch is properly cultivated.

ACCOUNT KEEPING BOOK.—THOMAS G. KNIGHT, New York City. This invention provides a new and improved account-keeping book designed for use as a collection account book and the like to enable the bookkeeper to see at a glance the standing of a customer. It consists of an account-keeping book provided with a plurality of leaves ruled for forming an account of a given period and divided into a column for names of the customers and successive equal monthly divisions, subdivided for keeping account of the new business for the month, the total balance, and for remarks, each leaf being provided with transverse perforations to permit a portion of it to be torn out and with apertures at each end and with fasteners for attaching the removed portion to another page.

TABLE AND DRAPERY-HOLDER. — ROBERT S. GANOUNG. Seneca Falls, N. Y. This invention relates particularly to devices adapted for connection with a table for supporting a canopy of drapery over the same, while the table is supporting a burial casket, and the object is to provide a device of this character which may be easily adjustable to height and also to so construct it that its several parts are detachable, so that the whole device, with the table legs, may be packed in the table top. In brief, the invention consists in a table adapted to support a burial casket, of a sleeve attached to the back rail of the table adapted to receive an adjustable rod, the rod being flattened on one side to engage a flattened portion of the sleeve. A standard is adjustable vertically with relation to the sleeve, and consists of telescopic sections and a bracket on the upper section of the standard. The apparatus may be adjusted to any height.

FIREPROOF PARTITION. — FRANCIS OMEIS, of Charleston, S. C., has secured a patent for a novel fireproof partition or wall, in which the studding or beams are formed of two metal plates curved and united to each other by rivets joining the central portion of the convex sides. When this beam is used as studding, it is secured at the top and bottom by angle plates. When a solid partition is built, wires extend through holes in the central part of the studding. Upon these wires are secured plaster-supporting webs of woven wire, or stamped sheet metal, and to this skeleton wall is applied plaster, which is built out until it covers the edges of the studding. When a thick, hollow wall is to be built, the wires are secured to the edges of the studding and a plaster support and plaster is applied in the same way as in the case of a lathed wall.

GRAIN-SEPARATING MACHINE.—C. E. CULVER, Cashton, Wis. By means of this machine, oats and other light seed and dust are separated from wheat rapidly and thoroughly, and the different kinds of seeds and the dust are discharged separately. The grain is delivered to a revolving drum having small pockets in its interior. As the drum slowly revolves, the grain is packed into the pockets by flexible strips, and a rotary brush brushes back the oats and dust. The grain in the pockets is carried upward by the cylinder, and the lighter materials, owing to the inclination of the cylinder, is made to discharge at the front while the grain is deposited on an inclined table down which it rolls. The small particles and seeds and the broken grain pass through perforations in the table and are delivered to one conveyer, while the grains of wheat are delivered to another conveyer.

DRY-KILN. — J. GUERRERO and J. UNGEMACH, Buenos Ayres, Argentina, have patented a dry-kiln, for quickly and thoroughly drying various substances. It is provided with inner and outer walls, and a furnace of novel construction for supplying the necessary heat. It has also an efficient system of ventilation by which the moisture expelled from the articles being dried is carried away. This drier can be used for many different purposes, but it is especially designed for the preparation of hung beef.

Designs.

CARTON FILLER.—ROBERT J. BARKLEY, Chanute, Kans. The design consists in a filler presenting the appearance of a series of panels equally spaced from each other. The panels extend transversely of two longitudinal members which are disposed in proximity to each other and extend across the central portions of the first-mentioned panels, whereby narrow elongated openings appear between the members extending lengthwise between the adjacent panels.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.

NEW BOOKS, ETC.

A POCKET BOOK FOR MECHANICAL ENGINEERS. By David Allan Dow. With over 1000 illustrations. London, Bombay and New York: Longmans, Green & Company. 1898. Pp. 740. Price $2.50.

We learn from the preface that the preparation of the work has occupied the whole of the author's spare time during the past five years, and that he has also had the services of several assistants in the calculation of the tables and in the preparation of their illustrations, and we judge, from a cursory examination of the book, that the time has been well spent. It is a mine of valuable information presented in a terse form, easily understood by engineers. There are already a large number of engineers' pocket books, but there always seems to be room for one more, as engineering practice moves so rapidly. We could not undertake to give an outline of the contents in the limited space at our disposal, but, in brief, it may be stated, it includes mathematics, calculations and civil and mechanical engineering, with special attention to steam, pneumatic, and hydraulic engineering. The book is beautifully printed and the type is astonishingly clear. Illustrations are freely scattered through the book.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Notes & Queries

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.

Inquiries not answered in reasonable time should be repeated: correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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Minerals sent for examination should be distinctly marked or labeled.

(7494) C. S. D. asks (1) for a formula for coating the back of a photographic dry plate to avoid halation. A. Powdered burnt sienna is used, mixed with gum and water. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 1030. 2. Will this coating have to be removed before development? (I use Eikonogen developer.) If so, how? A. Yes; with a tuft of cotton or sponge.

(7495) S. M. R. says: Please answer through inquiry column the following: Formula for glue or paste which will adhere firmly, like the adhesive substance on envelops, at once it is applied. A. Postage stamp mucilage is said to be made as follows: Gum dextrine, 2 parts; water, 4 parts; acetic acid, 1 part. Dissolve with the aid of heat and add one part of ninety per cent alcohol.

(7496) J. B. asks: Could you tell me how to make the cement metal sign engravers use to fill in the letters with after they are cut? A. Melt together in a clean iron pot 2 parts each of best asphaltum and gutta percha; stir well together, and then add 1 part of gum shellac in fine powder. It may be used hot and mixed with smalt, vermilion or other pigment, if desired.

(7497) W. D. C. asks: Will water in small lakes, ponds, or large reservoirs evaporate when the humidity is at a high per cent as fast as at a low per cent, the thermometer and wind being equal in both instances? A. The term "humidity," as popularly used, means the relative humidity or degree of humidity, as compared with full saturation of the air with moisture, and not the absolute quantity of water vapor in a cubic foot of air. When the relative humidity is 100 per cent, the air contains all the water vapor it can hold. It can take no more, and water in ponds, etc., or in clothes hung upon a line, where humidity is 100, cannot evaporate at all. Under a high humidity, evaporation is slow; under a low humidity, it is rapid, other conditions being equal. Every housewife knows that on some days water does not boil away out of her kettles, and on other days it disappears rapidly. On the former humidity is high, on the latter it is low and the air is dry.

(7498) C. B. asks: 1. Can same size wire be used to wind motor of SUPPLEMENT, No. 641, for a dynamo, and if the same circuit is used? A. There is no difference in the winding of a machine to use it as a dynamo or as a motor. 2. Will a soft iron solid ring do for the armature? I use cast iron fields. A. You will have about one-half as much power with cast iron as with wrought iron. The design is made for wrought iron.

(7499) F. G. asks whether the direct or alternating current should be used in the electric arc furnace illustrated and described in a late issue of the SUPPLEMENT. A. Either current may be used.

(7500) W. R. A. says: 1. Can you tell me what photographers use to obtain the high gloss which some photos have? It seems to be a thin coating of some kind that is put on over the picture that gives it the appearance of glass. A. Use very clean plates and rather larger than the prints to be enameled. Wipe them well, rub them with talc, and remove the excess with a soft brush passed lightly over the surface. In a dish, half filled with ordinary water, immerse the photographs and allow them to soak. This being done, coat one of the talced plates with enameling collodion in the ordinary way, agitate to cause the ether to evaporate, and when the film has set—that is to say, in a few seconds—steep this plate, the collodionized surface up, in a second dish containing pure water. Now take one of the prints in the first dish and apply the printed side to the collodion, remove the plate from the dish, keeping the print in its place with the finger of the left hand, and remove the air bubbles by lightly rubbing the back of the photograph with the forefinger of the right hand. Care has been taken beforehand to prepare some very pure starch paste, passed through a cloth, and some thin cardboards, or simply thick paper, the size of the plates used. The air bubbles having completely disappeared, and the perfect adherence of the print ascertained, dry with bibulous paper, and spread over the prepared cardboard on paper a coating of the collodion by means of a flat brush. Apply this sheet on the print, pass the finger over it to obtain complete adherence, and give it twenty-four hours to dry. At the expiration of this time, cut with a penknife the cardboard or paper ven with the print, and detach by one corner. If the plate has been well cleaned, the print will come off itself. We get in this manner a very brilliant surface, and as solid as that obtained by use of gelatine, which, as it is seen, is entirely done away with in this process. The prints are afterward mounted on thick cardboard in the usual way. It is possible, by mixing with the collodion some methyl blue, dissolved in alcohol (a few drops are sufficient), to obtain moonlight effects, especially if a rather strong negative has been used. For sunsets, make use of an alcoholic solution in coccinine. Wet gelatine prints are simply rolled down on clean ferrotype plates which have been previously rubbed over with a cloth having a very minute quantity of beeswax rubbed over it, the beeswax being almost entirely removed from the ferrotype plates by means of a clean cloth. The prints will come off readily when dry. 2. Also is there such a thing as liquid celluloid, and is it proof against heat and cold—that is, will either of them cause it to crack? I have taken your paper for four years, and think it is the best in the world. A. There is a celluloid varnish called "Roxyline Enamel," sold by dealers in photographic materials, which is practically liquefied celluloid. Temperature will have little effect on it.

(7501) M. I. M. asks for the composition for birdlime. A. Boil the middle bark of the holly, gathered in June or July, for six or eight hours in water, until it becomes tender; then drain off the water and place it in a pit under ground, in layers with fern, and surround it with stones. Leave it to ferment for two or three weeks, until it forms a sort of mucilage, which must be pounded in a mortar, into a mass, and well rubbed between the hands, in running water, until all the refuse is worked out; then place it in an earthen vessel and leave it for four or five days to ferment and purify itself. Remarks: Birdlime may also be made from mistletoe berries, the bark of the wayfaring tree, and other vegetables by a similar process. Should any of it stick to the hands, it may be removed by means of a little oil of lemon bottoms or turpentine. Use.—To rub over twigs to catch birds or small animals. It is said to be discutient when applied externally.

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Sad iron heating device, F. W. Newton	610,823
Sand box, T. J. Stanton	610,590
Sash fastener, F. V. Greene	610,732
Sash holder, R. H. Fenn	610,805
Sash lock, J. L. Barnes	610,699
Sawmill carriage, N. Shaw	610,565
Scale and grip and lifting machine, coin controlled weighing, G. G. S. Merry	610,766
Scarf pins, hat pins, etc., fastening device for, C. E. True	610,617
Screw machine die head, W. Morgan	610,632
Seaming machine, sheet metal, E. Norton	610,556
Separator. See Magnetic separator.	
Sheet metal tank, O. J. Ziegler	610,574
Shocking device, E. R. Powell	610,637
Sifter, dust tight ash, A. McKay	610,635
Signal, F. Dutcher	610,672
Skein bolder, silk, J. W. Gleason	610,859
Skirt edge protector, dress, A. M. Weber	610,780
Smelting furnace, ore, H. Kaemmerling	610,540
Smoking pipe, J. Bigelow	610,597
Spectacle frame temple, S. E. Hirst	610,875
Speed and distance indicator and recorder for velocipedes, etc., F. J. Wich	610,782
Spindles, apparatus for applying cop tubes to, E. Herzog	610,605
Spinning machine twist indicator, Meats & Dean	610,552
Spout, dumping, M. Ryder	610,690
Spring. See Bolster spring. Carriage spring.	
Stacker, pneumatic straw, Miller & Huber	610,659
Stair rod, E. E. Kutz	610,544

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