When one sash is in front of the other, the hinged frames of each sash can be freely manipulated. The hinged frames can be locked in any position.

THROAT-FRAME FOR MAIL-BAGS. — CHARLES BATEMAN, Gales Creek, Ore. The inventor has devised an ingenious throat-frame for mail-bags, which holds the mouth of the bag open at full extent in rectangular form for the free reception of the mail-matter, and also forms a secure closure for the bag-mouth. The improvement, although primarily designed for use upon mail-bags, is also applicable to other bags.

COVER CLAMP AND HANDLE FOR FRUIT-BASKETS.—MAJOR TUCKER, Brockton, N. Y. The device performs the dual function of serving as a handle for a fruit-basket and as a means for securing the cover of the basket in place. This combined clamp and handle can be readily sprung to proper position upon the different sizes of baskets usually employed for packing grapes and known upon the market as "climax baskets." The device tends materially to strengthen any basket to which it may be applied.

SCRAPER.—WILLIAM H. ONION, New Orleans, La. The purpose of the invention is to provide a scraper which may be easily dumped and handled, to which end novel mechanism is employed for holding a bucket in active position and for raising it, so as to carry its load to the dump, and then for readily and quickly inverting the bucket to discharge its contents.

STRAPPING-TOOL. — WILLIAM MAX, Brooklyn, New York city. To provide a tool for conveniently draining and stretching metal straps across the side of a box before nailing is the object of the invention. The tool is composed of an elongated handle and a fixed gripping-jaw, which are formed integrally. To the fixed jaw a movable jaw is pivoted, provided with a tail-piece extending back on the handle. A movable fulcrum-block is arranged in a guide-socket in the under side of the handle and has a foot or shank which passes through the handle, is secured therein, and is adapted to work in contact with the tail-piece of the movable jaw.

ADJUSTABLE BOOK-REST OR TABLE.—MAJOR MILLER, Lowell, Wis. Upon a stand a jointed arm is mounted for horizontal movement; and upon the arm a table is carried for adjustment independently of the adjustment of the sections of the arm or of the arm in its entirety. The table is designed to be used as a rest or support for a book, for manuscripts, music, and the like. The supporting-arm and its table are vertically adjustable.

HOSE-COUPLING. — JENS C. MARTIN, Spokane, Wash. The coupling is composed of two parts adapted to engage and automatically lock together. The parts are duplicate; and each has a locking mechanism of peculiar construction and an annular elastic gasket, which is securely held in place by a peculiar construction and is expanded by water-pressure, so as to form a perfectly tight joint under all conditions.

Designs.

TRIMMING.—PAUL GUMBINNER, Manhattan, New York city. The trimming includes a series of scallops at opposite sides of a longitudinal line, the scallops of one series being opposite the space intervening the scallops of the opposing series.

NOTE.—Copies of any of these patents can 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.

NEW BOOKS, ETC.

DER MEISTER VON PALMYRA. Dramatische Dichtung in fünf Aufzügen. Von Adolf Wilbrandt. Edited with introduction and notes by Théodore Henckels. American Book Company. 1900. 12mo.

It can safely be said that every teacher of the German language has been wishing for a long time that this masterpiece of Adolf Wilbrandt might be prepared and edited for class use in American schools and colleges. The work is modern, classical, and free from that excess of realism which often makes many books unsuitable for the class-room. Der Meister von Palmyra is a mysterious Faust-like poem, full of meaning and beauty, and the study of it should be a constant delight to both teacher and pupil; it is admirably adapted for the class-room. In the introduction the student will find a good account of the poet's life and works, and a synopsis of the "dramatic poem." In the notes all difficult expressions are clearly and concisely explained.

LES PLAQUES DE BLINDAGES. Par M. L. Baclé. Paris: Vve Ch. Dunod. 1900. Quarto. Pp. 233. 197 illustrations.

This monograph on armor plates is devoted to a history of steel armor, manufacture of the plates, and tests which have been made both in Europe and America. The author writes with the authority and self-confidence of one who is thoroughly familiar with his subject. Although his work has but little new to offer, it is worth while reading for the reason that it describes very thoroughly what has been accomplished in the metallurgy of armor-plate making and in the way of producing steel which presents the utmost possible resistance to the modern high-power projectile. The numerous illustrations, diagrams, and table provided admirably serve to elucidate the text.

UEBER DEN HYDRAULISCHEN STOSS IN WASSERLEITUNGSROHREN. Von N. Joukowsky. St. Petersburg. 1900. Price $1.

The action of the so-called "hammering" in water mains is so little known that Prof. Joukowsky, of the Moscow Imperial University, determined to conduct a series of experiments which would add something to our knowledge and supplement the work of Prof. Carpenter, of Cornell, who investigated hammering in small pipes. The results of the Moscow professor's experiments are exhaustively described in the present monograph.

Business and Personal.

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.

Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(7919) G. W. asks: 1. What length of spark must my induction coil produce to make an X ray apparatus for examining objects such as a leg or arm? A. A coil giving an 8-inch spark will answer for the thinner parts of the body, but for every kind of service one giving a 14-inch spark should be had. 2. What kind of tube would be the most suited for this work? A. There are many makers of tubes, whose advertisements are frequently to be found in our columns. A higher vacuum is required for use with a coil than for use with a static machine. All good tubes are now made with adjustable vacuum. 3. Can you give me directions for making a fluoroscope? A. You had better buy your fluoroscope.

(7920) O. M. S. asks: 1. How may opaque objects be seen under the microscope? A. By the use of the bull's-eye condenser. A lens which will focus the light of a lamp upon the upper surface of the object. One of these usually accompanies a microscope. 2. How can the glimmering of artificial light be overcome? A. If the light is too strong, turn the reflecting mirror till the field is illuminated to suit your eye. Shaded glasses can be had from dealers in microscopes which cut down and also color the light agreeably. These may be blue or gray. They are also made so that they are deeper in color in one portion than in another, and a nicer adjustment may be made of the illumination. 3. Will the best window or plate glass do for glass slips to use with a microscope of sixty-five diameters? If not, why? A. Any sort of glass will answer if it is smooth. It is better to buy the regular slips. These are 3×1 inch and are polished on the edges. They present a much better appearance than pieces of glass cut and left rough. 4. What proportion should the liquid, zinc and carbon be for a bichromate cell? A. A good bichromate mixture is composed of water 100 parts, potassium bichromate, 17 parts, and sulphuric acid 10 parts, all by weigbt. The zinc and the carbon may be of any size which the battery jar will hold. It is better to have a carbon on each side of the zinc, two carbons to each zinc. This gives a larger current and utilizes the action on both sides of the zinc. 5. How to make an induction coil which will not induce a current strong enough to kill a person. A. A good induction coil is described in SUPPLEMENT, No. 160, price 10 cents. It is not necessary to injure one's self with a large coil. A simple rule for safety is to put the left hand in your pocket or behind your back when doing anything to the coil with the right hand, if the coil is running. 6. What are the preserving fluids used in the museums and laboratories? A. Alcohol is the fluid ordinarily used in museums for preserving specimens in jars and bottles.

(7921) L. F. S., Vancouver, Wash., writes: I wish to know what horse power would be developed by a stream of water, which, if dammed would give a head of 130 feet or more. The amount of water flowing over a 4-foot weir is 8 inches, weir being rectangular 4 feet equals breadth, 8 inches equals depth. What size steel pipe or iron pipe would this water fill if it were to be carried to a turbine at distance of 1,200 feet? What is the cost of such pipe a running foot? Also, what would be the cost of a dynamo to utilize power thus developed by turbine. Suppose it were necessary to transmit power to a manufacturing plant at a distance of 4½ miles from power house. What would be loss of power in transmitting and what approximate cost of motor and wiring for such a plant? Kindly tell me where price list of motors and dynamos may be obtained? A. The capacity of your weir is 432 cubic feet of water per minute. This with 130 feet fall will give a theoretical power of nearly 3½ million foot-pounds or 112 horse power. From this must be deducted the loss by friction and the water wheel which, if of the Pelton type, should net you 80 horse power. The size of steel pipe for conveying this amount of water 1,200 feet with a loss of less than 2 feet head will be 24 inches in diameter, and will cost about $1 per foot. A Pelton wheel and connections will cost about $400. The dynamo will cost about $2,400. A motor on a 4½-mile line will cost about $,000, and should net 60 horse power at 4½ miles distance. We refer you to the water wheel companies for estimates of a complete power plant.

(7922) Y. N. W. writes: As it is your aim to disseminate useful information we make the following statement which will interest all photographers: We recently purchased one of the new aluminium trays and lately undertook to intensify a negative in it, using a three solution intensifier: Bromide of potassium, bichloride of mercury, and sulphite of soda, in the order named. Upon applying the mercury solution the chemical growth (which we had forgotten all about) of which a detailed description was given in the SCIENTIFIC AMERICAN of March 10, immediately began, and we were unable to check it until to-day, when we happened to think of using muriatic acid. We immediately applied a dilute solution of the acid to the tray, using a cloth to take off the black coating. After rinsing we applied a solution of soda and other tests without any action of the mercury. We would, therefore, advise our brother photographers to never use an aluminium tray for intensification, but if they have already spoiled a tray by it to try the acid, which we think will prove effective in every instance. A. We suppose it is not possible that every one who has to do with chemicals should first study their chemical actions sufficiently to avoid the mistake of our correspondent of putting a chemical into his tray which would dissolve it. He knows the fact regarding aluminium now and is not likely to repeat the experiment. Experience is a good schoolmaster, though her instruction comes high, it has been said.

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