pinching of the fingers between the handle and the trunk body is frequently experienced. To prevent this, the handle above noted is so connected by its ends that when gripped it slides outward in diagonal slots in the securing devices and so as to stand out from the trunk body.

FURNITURE-SPRING.—EDWARD A. SEABURG, Seattle, Wash. A system of springs devised by this inventor provides a series of supporting springs in square arch form, and a superposed series of standards resting on the springs and connected together at the top by webbing.

BANANA-CRATE.—ANTONIO and JOHN SANSONE, Keokuk, Iowa. For shipping bunch bananas and also other fruit, the above-mentioned crate affords a safeguard against injury to the fruit by providing an outer frame and an interior suspended bag, which is spaced from the rigid frame and centered by circular series of flexible connections with the frame at different points.

BRACELET.—WILLIAM F. SIMON. West Hoboken, N. J. The improvements in articles of jewelry keep apace with other devices and reflect the universal tendency to embody new mechanical ideas. In a bracelet patented by this inventor, a strip of metal is crimped or corrugated and coiled spirally, whereby new ornamental effects are produced and increased flexibility obtained.

TRAP. — THOMAS H. TAYLOR. Luzerne, Pa. This trap is designed to kill small animals instantly, and to this end the inventor provides a pivoted bait plate with one end turned up to form a jaw, and a spring frame which, when the trap closes, will spring downward, striking the animal and causing it to be caught between the frame and the jaw of the bait-plate.

POST HOLE DIGGER. — JAMES L. CATES, Senatobia, Miss. On the post-hole digger patented by this inventor the shank has a special socket for receiving a detachable handle which has a peculiar shape to enable it to be used as a wire-stretcher.

Designs.

PUMP-BASE. — ARTHUR E. HUNT, Nichols, N. Y. In this pump-base an interior tubular extension rises from the inlet opening at one side of the center and the outlet opening is at the top at the opposite side. The sand, etc , thus has an opportunity to settle.

FIREPLACE REGULATING-PLATE. — HENRY PANNILL, Petersburg, Va. This patent presents a new design for plates for regulating the draft in fireplaces, the plate being rectangular in form, corrugated from end to end, and scalloped in three of its edges, elongated slots being formed in the plate for use in connection with a suitable damper-plate.

ANTI-RATTLER FOR THILL-COUPLINGS.—WILLIAM H. PARDEE, Antigo, Wis. The device patented by this inventor is intended for use in connection with the wire anti-rattlers, and shows a new shape of the bearing block.

ELECTRIC-LAMP HOLDER. — WILLIAM ROCHE, Jersey City, N. J. A novel campaign novelty has been patented by this inventor, consisting of a cup-shaped holder for a small electric lamp, the holder having an attaching pin, and at the front of the cup the portrait of a political candidate may be placed.

RECEPTACLE.—FRANK F. HOLLAND, Portland, Me. This design relates mainly to a unique shape of metallic ice cream cup to be used at soda fountains in connection with the popular handled holders.

FABRIC-TRIMMING. — THEODORE SCHIESS, New York city. This inventor has patented a new design of edging for trimming, the distinguishing feature of which is a zigzag line of stitching at each side, with tufts and knots at the outer connecting points.

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.

FLASHES OF WIT AND HUMOR. By Robert Waters. New York: Edgar S. Werner Publishing and Supply Company. 1900. 12mo. Pp. 186. Price $1.

Mr. Waters has written a merry little book in which is attractively presented the humor of the world's cleverest men. He has sometimes missed the point of a good story and sometimes failed properly to translate the sayings of foreign wits. On pages 33 and 120, the French adage, "*Qui se ressemble s'assemble*" has been misquoted, an error that might have been avoided by employing the good English proverb, "Birds of a feather flock together." On page 53, the pun on Napoleon's name, "non tutti, ma buona parte," uttered in reply to the statement, "all Italians are perfidious," has been incorrectly translated "not all, my good fellow," instead of "not all, but a good part," thus missing the point entirely. These are only trifles, hardly noticeable among a host of clever sayings.

TOPOGRAPHIC SURVEYING. INCLUDING GEOGRAPHIC, EXPLORATORY, AND MILITARY MAPPING. By Herbert M. Wilson. New York: John Wiley & Sons. 1900. Octavo. Pp. xxx. and 900. Price, $3.50.

The book contains, in concise form, all the data necessary to a knowledge of topographic surveying. The methods elaborated are chiefly those developed in recent years by the great government surveying expeditions. The work will be of assistance to the engineer who may be called upon to conduct an exploratory survey in an unknown region, or to make a detailed photographic map as a preliminary to construction. Descriptions and examples of the methods to be employed and the essential tables required in computation are included in the volume.

LE GRANDE EPITOME. A Fundamental Principle and its Immediate Facts Relating Man to the World. A Sequence. By C. A. Bowsher. 16mo. Pp. 19.

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.

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

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Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(7936) M. S. asks how to stop cross talk on two grounded lines running parallel for six miles. A. The complete remedy for cross talk on a grounded circuit is to remove the ground and put up a complete metallic circuit properly crossed. If this is not feasible the common return system may be used, which will save wire. In this system a single return wire is made to serve for all the lines on the poles. You will find the various methods of putting these up described in Miller's "American Telephone Practice," which we can furnish you for $3 by mail, and which should be in the hands of every telephone man.

(7937) A. M. W. writes: Is an undershot waterwheel placed between two floats, in a ten mile an hour current practical to run a pump for sprinkling garden and lawn, water to be elevated thirty feet? Would two floats twelve inches square and twelve feet long made of plank, and securely fastened at right distances apart at each end to allow the wheel to run between them, have buoyancy enough to hold the wheel and pump? Can you advise me of anything published on the subject or give me any information as to size of wheel or pump the most practical? A. The float as described with a light wheel 5 feet diameter working directly on the pump from its crank, will supply a large quantity of water for garden irrigation at the elevation stated. A 5 foot wheel should make 30 revolutions per minute and operate a pump 1½ inches diameter by 5 inches stroke double acting and should pump 2 gallons per minute 30 feet high. Wheel should be 3 feet wide, buckets 8 inches wide. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 799, on "Current Wheels and Raising Water," 10 cents mailed.

(7938) A. L. N. asks: 1 As an electric motor in fact is a magnetic motor, and as the strength of a magnet decreases as the square of the distance, would not an electric motor be more efficient less the air gap was made, only to insure free running of the armature? Would not the same prove true regarding dynamos also? A. The armatures of all dynamos and motors are made to run with as narrow an air gap as possible. This is because so much is lost in forcing the "lines of force" through the air. They flow through iron with much greater ease. 2. What kind of metal would be best to use in an electrophorus with a disk of resin ½ inch thick and 12 inches diameter? A. Any kind of metal can be used as a plate of an electrophorus. Tinned sheet iron is good. 3. Is an electric current in the science of to-day considered to be a vibration of the molecules of the conductor or what? A. An electric current is believed to be a disturbance of the ether of space. 4. If sufficient head could be procured to fuse carbon, would it crystallize and become diamonds? A. Carbon has been fused and vaporized. It becomes carbon again when it cools. It is believed that enormous pressure is needed to enable carbon to become diamond. 5. As an electric current under certain circumstances causes matter to be lighter or in other words, diminish the attraction of the earth on some, would it not be practicable to utilize said action to overcome gravitation say in airships? A. If an electric current can overcome gravity it might be used to lift an airship. 6. Is there more than one kind of electricity? It must be, because the behavior of sparks from a running belt, a battery, or a dynamo seems to be as different to each other as different fluids or gases. A. There is only one electricity. 7. If gold can be separated to simply copper and lead, can not said metals be combined to make gold? A. If gold can be separated into copper and lead, these metals could be combined into gold. 8. What is auric acid, and how is it made? A. We do not know what auric acid is. 9. Can a body be dissolved or separated to its elements, said elements sent by an electric wire to another place and then reassembled? A. We do not know any instance in which a body has been decomposed by electricity and its elements sent to another place to be reassembled again by the same power.

(7939) L. R. D. asks: 1. Could an electrical current of a high voltage, but of a low amperage be connected to one of a high amperage, to form a current of a high voltage and a high amperage. A. No. 2. Could two motors be connected in series each ½ the voltage but all the amperage. A. Yes. if direct current is used. 3. What size wire should I use on 2 pole armature Edison dynamo to obtain the highest amperage? I am not particular about the voltage; should it be shunt wound? A. The little machine is wound in all probability to the best advantage as it is. It is a motor, and will not probably act as a dynamo unless you use a battery to excite the fields.

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