RECENTLY PATENTED INVENTIONS.

Engineering.

MOVABLE DAM.—Benjamin F. Thomas, Louisa, Ky. A dam which may be raised and lowered at will, by means of a chain connected with a suitable motor, is provided by this invention. It is formed of A-shaped trestles, placed side by side on a suitable foundation across the stream, and hinged to journal boxes in the foundation, the upstream posts of the trestles forming the barrier, and when down lying one with another on the foundation, forming no obstruction to navigation. A continuous chain connects each trestle with raising and lowering machinery on the abutments at the side, and there is a footpath at the top above the proposed pool level. Openings near the tops of the trestles permit the passage of surplus water.

Electrical.

VOLTAGE REGULATOR FOR DYNAMOS.—Thomas M. Pusey, Kennet, Pa. To automatically control the voltage of a generator, and afford a practically even current through a circuit leading from the dynamo to the lamps or other devices, this inventor provides a simple mechanism comprising a rheostat in a shunt circuit wherein is a helix operating a balanced beam and serving as a contact closer, there being a rheostat operating motor with electrically operated brake for its armature, and connections between the armature and rheostat. The resistance of the beam may be regulated as desired by weights placed in pans.

TELEPHONE SWITCH BOX. — Wallace A. Houts, Parker, South Dakota, and Lars G. Nilson, Sioux City, Iowa. This invention provides a mechanism whereby, on hanging up the receiver, the parts will be automatically returned to a normal position, or one in which the call of the particular box will be automatically placed in circuit, the construction being such that any number of stations connected with a central office may be automatically connected to any one of the others. In the casing is an escapement wheel adapted to make and break circuit, a locking device, and a second wheel carrying a disk with telephone call numbers, there being a spring connection between the wheels, and means for automatically releasing the locking device.

Mining, Etc.

CONCENTRATING AND GRADING ORES.—William H. Coward, London, England. An apparatus is provided by this invention for concentrating, grading and classifying crushed ore, especially adapted for use with a roller grinding mill. The apparatus has a casing with openings in the opposite sides and a series of aligned tapering shells rigidly connected with intervening spaces, the shells being adapted to have a current of air passed through them, and to engage particles of ore carried in the current, causing the particles to drop through the spaces between the shells. The bottom of the casing is hopper-shaped and fitted with sliding doors at which the contents of each compartment may be withdrawn.

COAL JIG GATES.—Theodore E. Smith, Shamokin, Pa. To automatically operate the gates of coal jigs, for the discharge of slate or impurities accumulating at the bottom of the jig, this inventor has devised a mechanism consisting of a gate operating lever and a continuously reciprocating lever locked together by a bolt and latch in such way that they will be held locked together for a greater or less time according to the resistance offered by the material. The suspended and vertically reciprocated jig has perforations in its bottom for the passage of water used to clean the coal, and at one end is an outlet for the escape of the slate, etc., the gate, according to this improvement, being automatically opened when there has been sufficient accumulation to place tension on its movement.

Mechanical.

COMBINATION TAP AND DIE.—Stephen E. Pranke, Buchanan, Va. This is a tool adapted to quickly and simultaneously cut external and internal threads on spuds, pipes and other articles, the cutters being readily changed for work of smaller or larger diameters. A collet having a central opening at its rear end is shaped to fit a holder adapted to carry a tap, the front end of the collet having a bore into which extends the tap, and the collet rotating with the tap holder and carrying thread cutting chasers. The heels of the chasers abut against a collar screwing on the rear end of the collet, and when the chasers are adjusted they are locked in proper position by a locking collar.

NUT LOCK.—William C. Nones, Louisville, Ky. For locking nuts on axles, screw bolts, etc., this inventor has patented a device consisting of a metal plate having a slot to receive the bolt and a flange to embrace the nut, while a spring bar pivoted to the plate is so arranged as to close the slot and prevent the plate from becoming accidentally detached from the bolt and nut. A square-headed screw skein bolt is threaded in the opposite direction of the thread in the nut to be locked, and has parallel grooves in opposite sides of its head, to be used in combination with the plate.

MAKING SCRAPED BRASS.—Edward G. Smith, New York City. To efficiently scrape brass and adapt it to be driven into rollers to form the type for printing wall paper, this inventor has devised a machine in which two feed disks coact with revoluble cutters separated from each other, and whose cutting teeth have their oppositely arranged cutting edges beveled. Two adjustable guide blocks run beneath the feed disks and cutters and extend beyond them, forming guides proper through which the work passes.

SHEET FEEDER.—George B. Wurtz, Shreveport, La. To feed sheets of paper of like or different sizes rapidly and certainly to printing presses, paper folders, etc., this inventor has devised a mechanism comprising a suction bar and means to exhaust the air from it, the bar being mounted on an endless carrier which moves to and from a platform or table on which are the sheets to be fed. The suction bar has a facing or cushion of rubber or other elastic material, and apertures at suitable points, and the air is exhausted from it as it comes in contact with a sheet to be fed, the vacuum being broken when the bar reaches the point at which the sheet is to be delivered to the grippers.

PRINTER'S PAGE STICK.—Alaric G. Alrich, Lawrence, Kansas. To facilitate the making up of books, pamphlets, etc., the body of this device is made in the form of a steel rule, with lines or score marks on both sides corresponding to pica lines or other standard type measure, the rule having at its outer end an integral projecting portion or fixed jaw, and there being slidable on it a movable jaw. In the various score marks are openings and there is an opening in the movable jaw, which may be readily adjusted by means of a pin at any desired line mark on the rule, according to the number of lines to form a page, the device being very serviceable when a number of pages are to be made up to the same size. A clamping device with thumb piece holds the movable jaw on the body of the stick.

Agricultural.

CORN HARVESTER.—Orison C. Miller, Harveyville, Kansas. This is a machine designed to harvest two rows of corn while being drawn over a field, the stalks of corn being held within the machine prior to being cut and the cut corn falling against a support from which it may be readily removed by one or more operators. The machine has a dumping platform on which the shocks of corn may be readily set up and secured, that they may be delivered and left standing in the field. Two men are preferably employed to operate the machine.

Miscellaneous.

BICYCLE HOLDER.—Lewis K. Miller, Clarksburg, Mo. This is a light and compact device to be secured to the bicycle frame and carried out of the way of the rider, but so that it may be ready for use at all times on dismounting. The holder is attached to the lower diagonal and horizontal upper bar of the bicycle, and comprises a slotted sleeve in which slides a stem having at its lower end oppositely extending feet or legs. A pin on the stem projects through the slot in the sleeve, and the lower end of the slot is curved, whereby the feet of the holder are swung out to engage the ground on each side when the holder is lowered, and when it is raised the feet are swung in line with the frame so as not to project at the sides.

TYPEWRITING MACHINE. — Lawrence F. Urbanus, Chicago, Ill. This is designed to be a superior typewriter having the revoluble type wheel on which the type heads are mounted and means by which they may be moved to effect the impression, a simple and efficient feed mechanism being provided to move the carriage backward and forward. The key mechanism is so arranged that changes may be made from upper to lower case, and in the line and letter spaces, with great facility and nicety, and a variable spacing mechanism is provided, so that absolutely exact printing may be done. The machine is designed to be operated at high speed and do the best work, the keys merely throwing the type into position for printing, the actual work of which is done by a rotating disk or cylinder, whereby all the letters are similarly and nicely printed.

HOSE COUPLING.—Joseph S. Blackburn, Salem, Ohio. This patent is for an improvement on formerly patented inventions of the same inventor, to prevent the buckling or bulging of the elastic sleeve serving to form a continuation of the bores of the male and female sections of the coupler, and also simplifying the construction of the jaws of the coupling and providing a better seat for the wrench adapted to open the jaws. In coupling the two sections are simply forced together, when the inner joining sleeve presents a solid wall throughout its entire length, and when the sections are united they have a substantially swivel movement on each other.

VEHICLE SEAT CANOPY COVER.—Alvanes G. Henery, Malta, O. According to this improvement, the seat is so made that a top or cover may be folded into it when not in use, means being provided for detachably connecting the sections of the canopy or top and holding its members one upon the other. The side braces are pivotally connected and provided with a device limiting their spread, and ribs are removably connected with the braces, while the seat comprises a skeleton base covered by the seating section, there being in the base a roller and a folding canopy having hinged connection with the base and being adapted to be stored therein.

MOIST COLORS. — August Sartorius, New York City. Colors for use in water color and gouache style are provided by this inventor in a special manner, in described proportions, with chief ingredients, as binding and dissolving media, of soft soap, mucilage, salicylic acid, glycerine and mirbane oil, the colors not containing any substances that require the application of heat for amalgamation. They may be readily applied in a uniform manner, dry quickly and yet permit of blending or the application of one color on top of another before fully dry. The proportion of color and mixing medium varies according to the nature of the color.

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

NEW BOOKS AND PUBLICATIONS.

ROUGH NOTES ON POTTERY. By W. P. Jervis. Newark, N. J.: Published by the author. Profusely illustrated. Pp. 112. Price $1.

The author, without aiming to present a complete treatise, gives a large variety of most interesting facts regarding early makers of the best specimens and the development of the manufacture of fineware. The notes on early English pottery and on Staffordshire work are especially interesting, but the author briefly, and in an eclectic fashion, goes over the whole field, so far as may be done in the limited space. A short chapter is devoted to historical American earthenware, and another to ware made here and abroad for the American market.

TABLES FOR IRON ANALYSIS. By John A. Allen. First edition, first thousand. New York: John Wiley & Sons. London: Chapman & Hall, Limited. Pp. vii, 85. Price $3.

This excellent compendium of tables will be acceptable to a vast number of chemists, relieving them of the necessity of struggling with ratio and proportion and logarithms in converting their results into the requisite percentages. It gives very full and elaborate tables for converting the weights of precipitates or compounds as weighed or titrated in the course of analyses into the proper form for report. Thus we find no less than eight tables for converting CO_2 into C, useful in the determination of carbon in pig iron and steel, and this is an example of the system applied by the author to all the prominent constituents of commercial iron. After this come tables in a more concise shape for effecting requisite conversion of data. Although the book is stated to be for iron chemists, it will be a most useful companion for many others who work in the general field of inorganic analysis.

LEITFADEN FUR EISENHUTTEN-LABORATORIEN. Von A. Ledebur. Vierte, Neu Bearbeitete Auflage. Braunschweig: Druck und Verlag von Friedrich Vieweg und Sohn. 1895. Pp. 11.

We have already noted the contents of the tables for iron analysis. The present monograph treats of methods of analysis to be adopted, and for those conversant with German would form an excellent companion to the preceding work. It is very beautifully and clearly engraved, the illustrations being in the well known German style of wood cutting, which seems to lend itself peculiarly well to reproduction of laboratory apparatus.

A TEXT BOOK OF PLANE SURVEYING. By William G. Raymond, C.E. New York, Cincinnati, Chicago: American Book Company. Pp. 484. Price $3.

We feel that this book deserves considerable praise for its treatment of the subject of plane surveying. It is well up on recent practice, and as a special example of its method the portions devoted to the use of the level may be cited, to the adjustment of which nearly eight pages are devoted. In its pages may also be found treated plane table work, and the use of the slide rule, planimeter and stadia measurements are excellently given. Full tables and numerous examples of work in the way both of underground surveying and of general topography are also given.

CATALOGUE OF THE PUBLIC DOCUMENTS OF THE FIFTY-THIRD CONGRESS. And of all departments of the government of the United States for the period from March 4, 1893, to June 30, 1895. (Being the "Comprehensive Index" provided for by the act approved January 12, 1895.) Prepared under the supervision of the superintendent of documents, Government Printing Office. Washington: Government Printing Office. 1896. Pp. 638.

To those interested in knowing what the United States Congress does with its time, what constitutes the contents of the many reports, as prepared by the federal government, and what work is being done in its scientific departments, this index will be of great value. It presents in consecutive index form the topics of the public departments; the indexing running consecutively from beginning to end, there being, very sensibly, no subdivisions attempted, beyond the data and the list of government officers to whom the indexes are to be credited.

MECHANICAL DRAWING. By Charles F. Jackson. Philadelphia: J. B. Lippincott Company. Pp. 63, 20 plates. Price $1.50.

A work for the use of students in architectural as well as mechanical drawing is here presented by a teacher of many years' experience. The subject of projections is fully treated, difficult terms are avoided as far as possible, and the explanations are carefully and concisely made.

BLOCK AND INTERLOCKING SIGNALS. By W. H. Elliott. New York: Locomotive Engineering. Pp. 277.

This is a republication in book form of a series of interesting articles originally published serially, written by one who has had practical acquaintance with the subject as having had charge of this bureau on the Chicago, Milwaukee, and St. Paul Railway. What signals are for, what they do, and how they do it, will all be found answered in these pages, including telegraph systems, manual systems, and automatic electric systems, together with methods of operation and rules.

DICTIONARY OF THE COAL TAR COLORS. By George H. Hurst, F.C.S. London: Heywood & Company. Pp. 212. Price $3.25.

That it should require a large book to simply describe and classify the different colors made from what was a waste product twenty years ago, and these colors now the most important in the employ of the textile colorist, is one of the most striking of the many illustrations of our progress in applied chemistry. This book has reached its second edition. It gives the chemical composition of the different colors, formula, method of making, and date of introduction, with the properties and uses of the colors. It gives also a list of the leading foreign coal tar color makers.

Commencing with January, 1897, the Street Railway Review will issue a special foreign edition, which in size and quality of matter, illustrations and general attractiveness will be fully equal to their present home edition. As usual, the Review will be the pioneer in this new departure, but no expense or effort will be spared to make it deserve the same recognition abroad which it has earned at home.

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.

(7082) R. W. L. asks for directions for making an electromagnet for working telegraph sounder on an outdoor line of about 200 feet (metallic circuit). What number insulated wire should be used, and how much? How many cells of gravity batteries will it take to work it? A. For cores use two bundles of iron wire two inches long and about ½ inch in diameter. Wind with No. 20-24 wire to an inch or more in thickness. As yoke you may use a bar of iron, or simply bend six inch lengths of wire into a U, and dispense with yoke. Two cells of gravity battery should work it.

(7083) J. W. asks: 1. Is electric lighting with batteries successful? A. No; except with storage batteries. 2. What kind of cells and how many would it take to run four 16 candle power lamps four hours per day? A. Ten cells storage battery for low voltage lamps. 3. Which would be the cheaper light—four 16 candle power lamps from batteries or coal oil lamps to light a room 24×36 feet? Oil at 35 cents per gallon. A. The coal oil lamp is about the cheapest of the ordinary illuminants.

(7084) M. S. K. says: A few days ago I had occasion to make some standard resistance coils. I found that without exception a certain length of wire had more resistance when coiled on a wooden spool than it had before it was so coiled. Will you please give me an explanation through the columns of the SCIENTIFIC AMERICAN? A. Any disturbance of the molecular condition of wire changes its resistance. If it hardens it, the resistance generally may be assumed to increase, and bending a wire operates to do this

(7085) F. S. G. says: Please tell me what kind of glass is best for Leyden jars and whether they can be charged with an induction coil. If so, how? A. A good quality of hard glass is the best for Leyden jars. Some glass is so inferior as to be quite worthless. To charge, connect the inner coating with one terminal and the outer coating with the other terminal. Take care of shocks. Induction coil experiments are described in our SUPPLEMENT, No. 166

(7086) T. W. B. says: I wish to make a 20 ohm telegraph sounder; will you please inform me, in your paper, of how many feet of what kind of wire will give the most satisfactory results? A. Use No. 28 to No. 30 wire.

Approximate length,	No 28.....	300 feet.
"	" No. 29.....	.....200 "
"	" No. 30.....	.....100 "

(7087) J. B. M. asks: What is the resistance of a gallon gravity Bunsen, Fuller, and Leclanche battery? A. For the Leclanche battery allow 1 ohm, for the gravity 4 ohms, for the others ¼ ohm, all subject to large variations. 2. How long a spark is required to make a good X ray? A. Two inches is a good length.

(7088) J. D. asks (1) for a solution to keep photograph proofs from fading. A. Dip the proof in a solution of hyposulphite of soda 20 grains, dissolved in 5 ounces of water for ten minutes, then wash in changing water for two hours. 2. Also mention where I can get unmounted photographs of actresses. A. For pictures of actresses consult your local book or stationery storekeepers.