

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

ELECTRIC PUMP.—J. C. STOKES, Mansfield, La. In this patent the improvement has reference to pumps, but is of peculiar application upon reciprocating pumps and upon pumps of other types in which it is desirable to have the current reversed by means of a quickly-operating switch.

AUTOMATIC ELECTRICAL SIGNALING APPARATUS FOR RAILWAYS.—A. H. BINYON, 100 Kentworth Court, Putney, London, S. W., England. The invention relates to automatic electrical block-signaling whereby upon a train entering a block-section the signals controlling that section are automatically put to "danger," and when (but not until) the entire train has passed within the section the signals controlling the preceding section are automatically put to "line clear," the inventor's object being to provide additional safeguards against accidental clearing of the signals.

Of Interest to Farmers.

FENCE.—J. E. TYLER, Roxobel, N. C. In connection with a post, means are provided whereby the lower end of the post is supported clear of the ground, thus avoiding rotting the lower end. The base is formed so it can be manufactured at any suitable point on a farm and then planted in the ground wherever desired and will form a firm solid base for supporting the fence-posts through the medium of the intermediate foot-piece detachably connected with the base and which is secured in connection with the fence-post proper by means of the fencing material. Posts and their foot-pieces may be lifted from the base and shifted from point to point. Means provide for holding the lower edge of the fencing material close to the ground.

Of General Interest.

HEAD FOR WATER CONNECTIONS.—B. RUBISPIERRE, New York, N. Y. The purpose of the improvement is to provide a head for leaders or other water connections which will be exceedingly durable, being constructed of but two pieces instead of the many parts usually employed, and to provide a construction wherein the two parts can be economically made and connected and rendered transversely and laterally strong with the least possible expenditure of labor.

CLASS-REGISTER.—J. S. PRICE, Atlanta, Ga. The register is particularly adapted to serve as a permanent class record for Sunday-schools or other classes or societies. The book is composed of two parts—namely, cards or leaves having rigidity and a cover for the same, which is constructed in U form and to which the leaves are pivoted so they may be folded within it. The inventor has sought to combine maximum compactness with perfect security and protection for the leaves and inscribed matter, as well as ready access to and manipulation of the cards.

DISPLAY-STAND FOR HEADWEAR.—O. PRLEGER, New York, N. Y. This improvement refers to means for supporting male and female headwear, such as hats and bonnets, in a show-window, a case, or other exhibition place, and has for its object the provision of novel details of construction for a portable stand which adapt it for a reliable support of a hat or bonnet in any one of different positions for its attractive and prominent display.

THERMOMETER ATTACHMENT FOR WATER-BAGS.—RACHEL MEYER, New York, N. Y. The invention pertains to vessels, such as water-bags or similar articles used in medical or surgical practice; and the object is to provide means for determining the temperature of the contents. A special object has been to improve the accuracy of the thermometric reading without introducing the thermometer or its bulb into the interior of the vessel.

PROTRACTOR-RULE.—C. W. LINES, New York, N. Y. In this patent the invention has reference to combination-rules and protractors, and has for its principal object the provision of a simple organization which may be effectually used to perform both functions. Its many capabilities render it extremely convenient for use of carpenters and other workmen.

ANNUNCIATOR.—C. W. LEBEIS, Yonkers, N. Y. The annunciator comprises a changeable sign of novel structure, the sign showing one word, symbol, or device in one position and another word or words or symbols when in the other, and said sign is actuated, preferably, by an electromagnet forming part of a circuit which is made or broken by the action of a person leaving or entering an apartment, or by a special switch, or by other means not material to the invention.

SANITARY COMMUNION-CUP.—O. V. L. HARBOUR, Fairmount, Ind. Wine is placed in an inner cup, the central opening permitting introduction thereof. When the cups are tilted, a small amount passes through a series of tubes, and when the cup is returned to its regular position the shield prevents the return of unconsumed wine to the inner cup, and it passes downward through another series of tubes into the space between the cups, from where it may be removed at end of service. After wine is partaken of, a slight turn of the

cups within the holder presents a fresh surface for the next communicant and passes a section of the flange through the antiseptic solution in the pad.

TROUSERS-PRESS.—A. E. HAPPEL, Elmhurst, Ill. The provision of a form of trousers-press is the object of this invention. The press is adapted to be placed under the bedclothes or mattress on which the person lies, so that the weight of the person in sleeping will supply the necessary pressure and warmth to neatly press and preserve the shape of the trousers.

DRENCHING-BIT.—J. HINEMAN, Irondale, Ohio. In operation the bit is introduced into the horse's mouth with the toggle bent and the bit-bars in juxtaposition, the nose-strap being over the nose. The yoke is then depressed by means of the handle, extending the toggle and forcing open the horse's mouth. Danger of injury is minimized, since the force is equally exerted on both sides of the mouth and at a point removed from the lips.

SCAFFOLD-HANGER.—M. CODY, New York, N. Y. The object in this instance is to provide a hanger so constructed that in addition to the usual hoisting and lowering tackle employed auxiliary tackle may be suspended therefrom and engaged with the scaffold and serve not only to hold the scaffold close to the wall, but also serve as a safety device should the ropes of the hoisting or lowering tackle be broken or become loose.

ATTACHMENT FOR PHOTOGRAPHIC-PRINTING FRAMES.—F. B. CORE, New York, N. Y. The aim in view of this inventor is the provision of a new and improved attachment for photographic-printing frames arranged to insure a uniform printing of a number of photographs from one negative, so that the photographs are practically alike both as to light and shade.

METALLURGICAL FURNACE.—H. H. GOODSELL, Leechburg, Pa. In the present patent the invention relates to furnaces used for treating iron and steel, but more particularly to an improved type of furnace having certain features in common with the inventor's former application for a furnace for treating sheet iron and steel. By the means employed the plates of iron and steel are given such a color at the start as they ultimately acquire when heated up under atmospheric conditions, so they are afterward unable to change color, nor are they easily disfigured.

ROLL-PAPER HOLDER AND CUTTER.—J. F. FINAN, Cumberland, Md. In this case the invention is in the nature of a paper holder and cutter for holding upon a store-counter or elsewhere a roll of paper from which sheets of varying size may be cut off at will to suit the size of package to be put up.

WOVEN FABRIC.—H. SARAFIAN, Yonkers, N. Y. In the present invention Mr. Sarafian has aimed at producing a fabric which combines a body or ground portion having maximum cheapness, strength, and durability, with a top or surface portion formed of better material, which may be attached to the body in the process of weaving the latter without any special manipulation of the loom.

DISPLAY-HOLDER FOR HANDKERCHIEFS, ETC.—G. W. EBRIGHT, Xenia, Ohio. This holder displays in suspended position handkerchiefs, neckties, ribbons, laces, and other similar articles in stores in such a way as to exhibit the patterns of the same in an attractive way, to hold a large quantity of them in available position for sale, and to so secure them as to permit them to be inserted and removed with great facility and without danger of tearing or soiling the delicate fabrics.

MEAT-TENDERER.—D. B. DATE, North Franklin, Conn. The purpose of the invention is to provide a meat-tenderer of exceedingly simple, durable, and economic construction and which can be conveniently and quickly manipulated and which will effectually sever or break down all sinewy particles in the meat and yet leave the material in a connected, compact, and tender condition.

METHOD OF PRESERVING AND WATER-PROOFING WOOD.—J. A. DEGHUEE, New York, N. Y. The invention in this improvement is to so prepare wood that it will resist attacks of animal and vegetable life, and thereby prevent decay, and also to prevent the penetration of water, and to thereby especially adapt it for use in the manufacture of paving-blocks.

MINER'S CANDLESTICK.—T. W. CONKLIN, Muljan, Idaho. The invention pertains to an improvement in candlesticks or holders intended more especially for use in mining, its object being to provide a candlestick which will be simple, consist of few parts, one which cannot become clogged with dirt, etc., and one in which the necessary parts can be locked in either open or closed section.

EDUCATIONAL APPLIANCE.—J. H. FITCH, Jeffersonville, Ind. The invention is an improvement in educational appliances, being in the nature of clock-blocks. It gives suitable problems to a child and affords amusement and instruction. By the use of the blocks a child of proper age can quickly learn the Roman numerals, their right position, and tell the time as indicated by the hands on the blocks; also months, number of days in the same, and the seasons. Blocks carrying the representation of the minute hand may be arranged to indicate time in periods of five minutes, which is ordinarily the first step taken in learning to tell the time.

Household Utilities.

FOOT-REST FOR CHAIRS.—W. L. HOFFMAN, Jersey City, N. J. This improvement pertains to attachments for chairs, the object being to provide a device which may be conveniently applied to a chair so as to constitute a foot-rest. It also affords a convenient rest for blacking shoes, tying shoe-laces, etc., and may be easily folded into substantially concealed position when not in use.

CURTAIN-POLE SOCKET.—J. KRODER, New York, N. Y. The object in view of this invention is to provide a new and improved curtain-pole socket arranged to permit convenient attachment of the socket to the sides of the window-frames close to the top cross-bar and to give a neat appearance to the entire structure.

Machines and Mechanical Devices.

BOTTLE-CORKING MACHINE.—J. M. DAVIS, Gainesville, Fla. The machine is especially adapted for forcing what is known as "spring-stoppers" into bottles and it is so constructed that it will be simple, effective in operation, and capable of being quickly and readily operated. The machine includes a pedal-controlled adjustable plunger and a tubular tension-controlled guide member adapted for directing the stopper to the mouth of the bottle, and a plunger which operates upon the stopper in the guide member.

MACHINE FOR MAKING COTTER-PINS.—F. D. COPPAGE, Terre Haute, Ind. In this patent the invention is an improvement in machines for making what are known as "cotter-pins" or devices formed by bending a wire blank midway of its length to form an eye, the two arms or legs being brought together and their ends pointed.

LUMBER MEASURER, MARKER, AND RECORDER.—C. G. BLADES, Newbern, N. C. It is the purpose of this invention to provide an apparatus for automatically measuring the superficial area of boards or other lumber having a flat face and for recording and marking the number of square feet thus ascertained, both upon the lumber itself and upon a band or tape which is fed or caused to travel corresponding to the aggregate width of the boards measured.

TRUCK FOR MOLDING MACHINES.—W. SIEBER, Henderson, Ky. This improvement relates to that system of molding concrete blocks and other articles which has for its basis the use of a series of pallets located along the floor of the plant and the transfer of the mold from one to another and leaving the molded articles upon the pallets after the mold is removed. Especially it relates to means for supporting and moving the mold from one pallet to another along the tracks, said means being provided with a tamping device and a mold-removing device and means for centering the mold with respect to the various pallets.

WIRE-WORKING MACHINE.—A. H. NILSON and M. OLSON, Bridgeport, Conn. While the machine and the several features thereof are capable of performing certain operations to manufacture various articles from wire, it is designed especially for forming continuous zigzag pieces of wire having hooks, a number of said wires being capable of being connected together in such a manner as to make a fabric for beds and other purposes.

Prime Movers and Their Accessories.

ROTARY ENGINE.—P. BARTOLETTI, Brownsville, Pa. The object of the invention is to provide a new and improved rotary engine which is simple and durable in construction, very effective in operation, and arranged to permit quick and convenient reversing and to utilize the motive agent to the fullest advantage.

VALVE-GEAR AND AUTOMATIC CUT-OFF FOR STEAM-ENGINES.—H. DUNLAP, Memphis, Tenn. The invention consists in the novel construction and arrangement of parts operating in conjunction with a rotary valve made in three parts arranged in axial alignment, the middle part of which forms the exhaust-valve and rotates continuously in one direction and the two outer end parts of which form oscillating induction-valves and are operated by separate coating cut-off devices.

ACCUMULATOR.—R. W. WILSON, Noblesville, Ind. This improvement refers to apparatus for storing energy, and regulating its application, it being particularly adapted for use in connection with such motors of irregular speed as windmills, which are applied to the pumping of water. Its principal objects are to provide automatic means for controlling the reception and delivery of energy by the accumulator and to generally improve the construction of apparatus of this class.

ENGINE.—C. V. FRISK, Chicago, Ill. In this case the invention relates to improvements in steam-engines of the tandem or compound type, the object being to provide a novel form of valve mechanism whereby the live steam may be first directed into the low-pressure cylinder for starting the engine, thereby giving a much greater power than that of a simple single-cylinder engine.

ROTARY ENGINE.—I. DAVIS, New Haven, Conn. This invention is an improvement in the class of rotary engines which are particularly adapted for use of steam or compressed air. The pressure upon the piston is continuous in one direction, and, the exhaust taking

place at the time a charge is admitted there is no possibility of back pressure.

Railways and Their Accessories.

RAILROAD-TRACK.—E. F. SEIDER, Upper Sandusky, Ohio. The invention relates generally to that class of rail-securing devices shown in Mr. Seider's former application for patent. In the present invention he employs a pawl arranged at its free end to lock the spike, and also employs in connection with the spike a pawl and clasp having a portion passed through an opening in the rail-supporting plate and provided with upper and lower portions, the upper engaging the rail-base and the lower engaging below the rail-supporting plate, the spike being arranged to secure the rail-clasp in engagement with the rail and its supporting-plate. This inventor has obtained another patent on a railroad-track, in which he is able to release one or both of the pawls from engagement with their respective spikes when removing the spikes. The pawl-carrying plates and their hooks and pawls being alike, they may be used interchangeably and no necessity of making them in rights or lefts, thus dispensing with unnecessary duplication of patterns and the like in the manufacture of the device. Furthermore, by engaging the hooks of the plates directly with the rail-base and utilizing the spikes in securing the hooks in such engagement and the pawls for locking the spikes he is able to reduce his rail-fastening to the simplest possible form.

FLUID-PRESSURE BRAKE.—M. F. VOLKMANN, Santa Monica, Cal. The invention relates to fluid-pressure brakes of the Westinghouse type; and its object is to provide a brake arranged to permit the engineer to directly control the retaining-valves with a view to recharging the auxiliary reservoirs without first releasing the brakes and to allow of increasing the pressure in the brake cylinders after the auxiliary reservoirs are recharged.

METALLIC RAILROAD-TIE.—A. M. BAIN, Topeka, Kan. The object of this invention is to provide a metallic railroad-tie which is simple and durable in construction, cheap to manufacture, and arranged to combine the utmost strength with lightness. In the manufacture of the ties and tie-plates it may be desirable to have the same mill-rolled, hydraulic-pressed, or bulldozed from steel plates; but other methods of making them may be employed.

RAIL-JOINT.—G. T. JOSEPH, Covington, Va. Mr. Joseph's invention is an improvement in rail-joints. The construction is simple, easily applied, and forms a secure connection between the meeting ends of the rails. Among the various advantages are the following: When a rail has been worn on one side, it may be reversed in order to bring the other side into wearing position. Means enable a track-walker to determine at a glance whether the connecting-bar is fractured or the integrity of the connection has been disturbed. Limited longitudinal movement of the rails is permitted for expansion and contraction in use. Means are provided to prevent any twisting of the base positions in the use of the invention. Also means for bridging the space between any two ties and forming a firm support for rail ends in all positions of the parts.

Pertaining to Recreation.

TABLE.—I. MASON, New York, N. Y. This invention relates particularly to improvements in card or similar game tables, the object being to provide a table of this character with a top having receptacles for conveniently holding cards, counters, and the like, the table also having a pedestal in which various articles may be stored.

BILLIARD-TABLE.—G. A. ELLISS, Lithgow, and P. J. MCGUIRE, Goulburn, New South Wales, Australia. Automatic means are provided for conveying the balls from cushion-pockets to either end of the table and for conveying the red ball from the "balk" end to the "spot" end. Along each side of the table below the cushions an inclined race is constructed, into which balls pass from the pockets and along which they roll by gravity to another race along the balk end and thence into a receiver medially placed therein. Extending from this central receiver beneath the table center is another race for carrying the red ball from this central receiver to the spot end of the table.

Pertaining to Vehicles.

CUSHION-TIRE.—C. G. SHAW and W. J. SHAW, Los Angeles, Cal. This invention has reference more especially to tires for the wheels of automobiles, bicycles, and the like, though applicable to the wheels of other vehicles; and one of the principal objects thereof is to provide means for increasing the strength and wearing qualities of the tire generally, but more especially the thread or bearing portion thereof.

WHIFFLETREE COUPLING.—G. L. MILLER, Socialville, Ohio. One purpose of the invention is to provide a simple, durable, and economic form of swingle and double tree irons adapted especially for pivotally connecting the doubletree of a whiffletree to the pole or tongue of a vehicle and also for pivotally connecting the swingletrees to a doubletree; but the couplings may be employed with equally good results in connection with kindred articles.

DUMPING-WAGON.—T. J. COPE, Philadelphia, Pa. There is provision in this vehicle

for discharging the load of the body at the side of the wagon, thus avoiding obstruction of the street or railway thereon, provision being also made for placing the body in inclined position, so as to elevate the place of discharge, and, furthermore, to elevate the body to a greater degree and permit inclination of the body at its highest point, so as to dump the load at different altitudes relatively to requirements due to different positions of the place designed to receive the load in a cellar or elsewhere.

TRUCK.—E. F. SHERRILL and B. R. SHERRILL, Moline, Ill. In this patent the invention is an improvement in trucks and especially in that class of trucks designed for use in handling baggage, bricks, and the like, wherein it is desired to raise the articles to a higher level in some instances and to lower them from a higher level in other instances.

Designs.

DESIGN FOR RUFFLING.—C. SEIDEL, New York, N. Y. The designer has invented a new, original and ornamental design for ruffling which represents a width of material made up of comparatively heavy and light double and single cross-lined strips. Single and double cross-waved patterns run through the cross-lined portions.

NOTE.—Copies of any of these patents will 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.

Business and Personal Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. In every case it is necessary to give the number of the inquiry. MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 7512.—For makers of the instrument called the "Leak Finder," used for locating leaks in underground water mains.

"C. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 7513.—For machines to make stapled and drawn push buttons.

For bridge erecting engines. J. S. Mundy, Newark, N. J.

Inquiry No. 7514.—For makers of rubber pillow ventilators.

Drying Machinery and Presses. Miles, Louisville, Ky.

Inquiry No. 7515.—For makers of typewriter parts, such as machine parts.

Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 7516.—For makers of garment hangers made of wood.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 7517.—Wanted, makers of an article for waterproofing silk without injuring the fabric or lessening the flexibility of same.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

Inquiry No. 7518.—Wanted, catalogue of latest machinery for making peat bricks for fuel.

The celebrated "Hornsey-Akroyd" Patent Safety Oil Engine is built by the De La Verne Machine Company, Foot of East 138th Street, New York.

Inquiry No. 7519.—For makers of bare and insulated copper magnet wire.

WANTED.—Young man experienced in drafting and designing textile machinery "New England." Machinery, Box 73, New York.

Inquiry No. 7520.—Wanted, machinery to make briquettes from sawdust.

WANTED.—Ideas regarding patentable device for water well paste or mucilage bottle. Address Adhesive, P. O. Box 73, New York.

Inquiry No. 7521.—Wanted, makers of metal fountain syringes.

LATEST ADVERTISING NOVELTIES.—High-grade Illustrating, Designing and Printing. Catalogues a Specialty. Smith & Warkley, Holland Bldg., St. Louis, Mo.

Inquiry No. 7522.—Wanted, a saw operated by electricity, gas or steam for sawing trees.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery tools and wood fibre products. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

Inquiry No. 7523.—For importers or makers of colored glass bead fringe used in making lamp shades; also for makers of stamped brass beading and moulding used in this work.

Absolute privacy for inventors and experimenting. A well-equipped private laboratory can be rented on moderate terms from the Electrical Testing Laboratories, 548 East 80th St., New York. Write to-day.

Inquiry No. 7524.—For makers of high resistance wire of small size, suitable for hot wire electrical instruments.

INVENTIONS WANTED.—Undersigned will consider one or two good patented or patentable inventions to manufacture on royalty. Something in popular demand preferred. Honest treatment guaranteed. F. Ranville Company, Grand Rapids, Mich.

Inquiry No. 7525.—For makers of post office caves.

WANTED.—Competent man who has knowledge of Mechanical Engineering, to take a position as traveling salesman for the selling of construction material used in Insulating Refrigerating Plants. Apply by mail to the Bruening Cork Company, Oakdale, Alfy Co., Pa.

Inquiry No. 7526.—For makers of manufacture motor cars for street car service, gasoline system.

Inquiry No. 7527.—For manufacturers of wire-forming machinery.

Inquiry No. 7528.—For makers of tape measures in metal boxes, having springs inside for winding.

Inquiry No. 7529.—For a machine for cutting right-angle, circular and oval beveled openings in metal board.

Inquiry No. 7530.—For manufacturers of ventilators.



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.

(9844) C. E. D. writes: In your answer to J. S., No. 5703, September 23, 1905, you say a person is no heavier while going up an elevator than going down, and explain the effect of inertia on the matter. It seems to me this does not cover it. Either the attraction of gravitation must be considered as a fixed something which exerts its pull without moving (an inconceivable thought to me) or else it must have a speed at which it pulls, just as light or electricity has a speed at which it travels. If it is admitted to have a speed, then this speed must be between 0 and infinity, and therefore measurable. If it had an infinite speed of action, any mass multiplied by this speed of action would be infinitely heavy, and therefore impossible to weigh. It would seem, therefore, that gravitation must have an appreciable measurable speed, and that if we could find an elevator with a constant speed, one would weigh as much less when coming down as the speed of the elevator takes from the speed of gravitation, while in going up the conditions would be reversed, and one's weight would be increased in the proportion that the speed of the elevator adds to the speed of gravitation. Is not this correct? A. The theory of the intrinsic nature of gravitation is not by any means settled among scientists. Indeed, there can hardly be said to be such a theory. There would seem, however, to be a substantial agreement that gravitation acts instantaneously through space. That gravitation has a velocity would hardly be considered a suitable expression of this fact. Nor do we see how the velocity of gravitation can have anything to do with the weight of bodies. This is determined by the relative amount of matter in the earth or major body and the body to be weighed, as we call it, and the distance between the centers of gravity of these two. It is not involved in the question of the speed of action of gravitation. Even if it were, the speed of action of gravitation is so enormous that any change of velocity in a moving body cannot affect the actual weight of that body, and all weightings at the same distance from the center of the earth are affected by it to the same extent, so that, like every other constant, it is omitted in considering the changes of value of the variables in an expression.

(9845) D. E. F. writes: I note the inquiry of L. A. H. (9779) in a recent issue of the SCIENTIFIC AMERICAN which I here quote: "Is there such a thing in the realm of science as flame or combustion without emitting light?" I take it that he means rapid combustion. That even in this sense the answer is "yes" you can really demonstrate in the following manner by means of the inclosed cards of this, transparent celluloid. Soak the celluloid over night in water. Take them out of water and wipe dry and let dry an hour or two. In a moderately warm room free from strong drafts, hold the card of celluloid vertically in the left hand and light the upper end with a match. When it burns down about half an inch blow it out. Thereafter there will be no light or incandescence even in the darkest room, but the charring of the celluloid will continue to run downward and disappear, leaving only a trace of ashes. The samples which I inclose herewith do not work as well as some which I have heretofore tried, which continued to disappear until the whole card was consumed, but these suffice to completely demonstrate this remarkable phenomenon. I think this celluloid is a little too thin to work well. I also inclose several white celluloid washers, which seem to be more efficient in demonstrating the phenomenon than is the transparent celluloid. Let about one-third of the disk burn before blowing it out. Soak these in water as indicated, then at once dry by pinching between blotters and burn. A. We have been interested in burning the pieces of celluloid you send us, as well as other pieces. They smoulder after the flame is extinguished, as do other combustible materials, until the substance is cooled below the temperature at which combustion ceases. We are not able to make the thin transparent celluloid burn any after the flame is extinguished. The white, thick disks contain some paint-like material, used for filling, which carries on the combustion longer. We are just as successful without soaking in water as when the pieces

are soaked. This is just as we should expect, since celluloid does not contain any ingredient which is soluble in water and it is impervious to water.

NEW BOOKS, ETC.

MACHINE SHOP TOOLS AND METHODS. By W. S. Leonard. New York: John Wiley & Sons, 1905. 8vo.; pp. 554; 689 figures. Price, \$4.

This is a very complete textbook of machine-shop tools and methods, which was written for use in connection with lectures on this subject given in the Mechanical Department of the Michigan Agricultural College. The book describes in detail all the various tools, both large and small, used in the modern machine shop. While necessarily somewhat elemental in character, it nevertheless contains a deal of information valuable to the ordinary machinist. It is very thoroughly illustrated with diagrams and half-tone plates. The present is the third edition, which has been thoroughly revised and enlarged.

ENGINEERING CHEMISTRY. By Thomas B. Stillman, M.Sc., Ph.D. Easton, Pa.: Chemical Publishing Company, 1905. 8vo.; pp. 597. Price, \$4.50.

In this, the third edition of a well-known manual on quantitative analysis, the author has taken note of the rapid changes during the past few years in methods of testing the various products of chemical technology and materials of construction, and he has completely revised that portion of his work that has to do with these subjects. Much additional matter has been included, especially information pertaining to asphalt, lubricating oils, Portland cement, and the technology of the products of the blast furnace. The book is fully illustrated, and is quite up to the standard of the previous editions, and will be found valuable to all students, chemists, and engineers.

COMMERCIAL ECONOMY IN STEAM AND OTHER THERMAL POWER-PLANTS. By Robert H. Smith. With numerous diagrams by H. Malcolm Hodson. Philadelphia: J. B. Lippincott Company, 1905. 8vo.; pp. 291. Price, \$7.

The main idea of the author in writing this work was to persuade the mechanical engineer to advance from the primitive view that engineering science can guide him only in the physical construction and dynamics of his machinery to the more complete idea that scientific method must also be applied to his reckonings of cost and value produced. The ultimate triumph of practical science must, the author believes, be evidenced in its demonstration of the means to attain maximum economy. An exact measure of economy is the first essential in any section of technico-commercial science. The author, therefore, discusses an "Economy-Coefficient" applicable to all kinds of productive industry, and also probably to the industry of distribution and exchange. By a simple combination of the three factors of Cost, Value, and Speed of Production, this coefficient aims at giving due value to all essential elements of commercial economy. The author also deduces other coefficients which are of value in the discussion. The book goes into commercial steam-power economy in a very thorough manner, and has numerous charts relating to this and kindred subjects. It is very complete and will be found to contain many useful ideas regarding economy in the operation of power plants.

PRACTICAL KITES AND AEROPLANES. By Frederick Walker, C.E. London: Guilbert Pitman, 1903. 16mo.; pp. 78. Price, 60 cents.

The kite, from the toy of a schoolboy, has, by the ordinary laws of mechanical evolution, developed into the aeroplane, capable of carrying loads vertically, and sustaining them at a certain altitude by the ordinary wind currents, but so far the airship of the future as a problem admits of no solution by the aeroplane or aero-curve surface alone; unless it may happen to a future inventor to cause a flat disk, of gas or air, which by its inherent high pressure shall impinge upon the inner surface of an aero-curve and by diversion overcome gravity, and thus cause a vertical ascension. This may occur in the future; but according to our present lights a captive aeroplane may be only used for raising a single passenger to the height permitted by the tension rope or cord and the pressure of the air current prevailing in the atmosphere. The author desires to create interest in the subject by a timely little book.

THE INDUSTRIAL AND ARTISTIC TECHNOLOGY OF PAINT AND VARNISH. By Alvah Horton Sabin, M.S. New York: John Wiley & Sons, 1905. 8vo.; pp. 372. Price, \$3.

This is a very complete technical work on the subjects of paints and varnishes. A brief account of their modern use, and of the principles involved in their fabrication and application, will be found within its pages. Among the subjects treated are Varnish and Its Manufacture; Linseed Oil; Tung Oil; Rosin; Japans and Driers; Varnish or Enamel Paints; Chinese and Japanese Lacquers; and Spirit and Pyroxylin Varnishes. A chapter on the protection of metals against corrosion is one of the most useful in the book. Other chapters deal with Water Pipe Coating; the Painting of Ships' Bottoms, and Ship and Boat Painting

as well; Carriage Painting; House Painting; and Furniture Varnishing. The book is illustrated with a number of half-tones, and will be found interesting reading by all who have to do with this industry.

INDEX OF INVENTIONS

For which Letters Patent United States were Issued for the Week Ending November 14, 1905 AND EACH BEARING THAT DATE

See note at end of list about copies of these patents.]

Table listing various inventions and their patent numbers, including items like Abrasive apparatus, Acetylene tetrachlorid, Acids, Advertising novelty, Agricultural implements, etc.