

the jar and with a paper cutter, and perhaps a brush, smooth them into their places. A little practice and handiness will enable you to make a good job of it.

(10433) E. E. L. says: Is there any difference in the energy of a boiling liquid in different latitudes, the atmospheric pressure being the same for each place? What is the intensity of an ordinary saturated steel magnet as compared with the earth's magnetism for any given locality? A. The boiling point of a liquid is independent of the latitude, and the energy of the steam is the same for all places where the temperature of boiling is the same. The temperature of boiling is the same for all places which have the same barometer reading, wherever they may be on the earth's surface. The magnetic intensity of a steel bar magnet is, according to the tables given in Thompson's "Electro-magnet," from 14,000 to 16,000 lines per square inch.

(10434) J. T. says: 1. What is the cause of the large ring which appears around the moon in threatening weather? A. The lunar and other halos are produced by the action of the drops of moisture or ice crystals in the air upon the light as it comes toward the eye. 2. Why does not the atmospheric pressure, 15 pounds to the square inch, crush the small incandescent electric lights, which are supposed to be exhausted of air, or any other glass vacuum? A. An incandescent lamp bulb is not crushed by the pressure of the air upon it because it is strong enough to hold up 15 pounds per square inch. An empty eggshell will hold a pressure of 675 pounds per square inch on its end. 3. Why does not the upward motion of a bird's wing completely neutralize the effect of the downward motion? A. The up stroke of a bird's wing is executed so as to take the air at a different angle from the down stroke. The feathers do not return upward so as to present the same resistance to the air as they did when they were struck downward. 4. Why is the power of a telescope or microscope limited? A. The magnifying power of a microscope is limited by the indistinctness of the image in the extreme powers. The telescope is limited by the faintness of the light at great dispersion, and more by atmospheric conditions.

(10435) B. D. M. says: 1. Is it possible to generate light without heat? If so, give illustrations. A. It may be possible to generate light without heat, but it has not yet been done. It is one of the *ignes fatui* of inventors, like the utilization of tidal power and of the heat of the sun's rays. 2. Give proof that ice freezes at the underside, after a layer has formed, and not at the top. A. The proof that ice forms from the underside is that water is in contact with that surface of the ice and the upper surface is at the same time dry. The ice increases very rapidly in thickness to the extent of several inches on a severe night. The only other source of moisture is the vapor of the atmosphere, and that is not sufficient in quantity to supply the amount of ice which forms in a few hours. If the ice came from the air, the rapidity of its precipitation would exceed that of a heavy rainstorm.

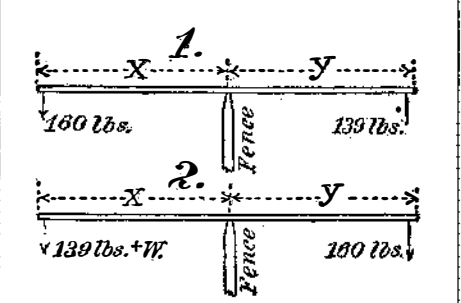
(10436) J. L. B. says: On page 199 of the SCIENTIFIC AMERICAN of March 2, 1907, in the Notes and Queries department, No. 10409, you say a vessel sinking will always go to the bottom, because the water pressure will tend to make it heavier with reference to the water. Why will it be made heavier than the water? I can understand the water compressing it to a given extent, but not to such an extent as to make it heavier than the water. You also say that "at greater depths it will be able to sink faster, since the water is not compressed to any extent at greater depths than it is near the surface." Some years ago Dr. Dall, of the Smithsonian Institution, showed that the compression of water on the ocean bottom was about two tons to the square inch, and higher up about half a ton. Would a vessel be compressed to such an extent in sinking? It seems to me that this would mean that a vessel weighing two tons would need to be compressed more than enough to occupy a square inch at bottom to cause it to sink. Since you say it would reach the bottom, I am willing to take your word for it, but I can't understand it. Again, I read in a scientific periodical called The Lens (date of publication unfortunately forgotten) that although the ocean bottom had been sounded for several miles deep, bottom had never been found in Lake Tahoe, because (as explained) the water pressure prevented the weight used from sinking more than several miles, at which point the temperature of the water was considerably below freezing, but on account of the great density of the water it was unable to congeal. I fail to understand how water is able to compress an object to a greater extent than the water itself is compressed, and when both are compressed to the same extent, the object hangs suspended in the water without moving in either direction. The periodical above referred to reasons from this that the bodies of the people drowned in this lake (none of which have ever been recovered) are compressed to the size of a new baby, and are suspended, frozen stiff, about two miles below the surface. A vessel which is lighter than the water will not sink in water; a vessel in order that it may sink must be heavier than water at the start. All iron ships are heavier than water. So are wooden ships when ballasted. Such a vessel will sink if filled with

water. If it sinks at all it will go to the bottom, since water is compressed but little by the pressure it sustains, and iron, wood, etc., are compressed more than water by the same pressure. Dr. Dall showed that the pressure at the bottom of the ocean was two tons to the square inch, not as you say, the compression of the water. Water is not compressed a very great deal by a pressure of two tons to the square inch, not so much as a stone would be. Water is compressed about 1-75 part by that pressure, that is 75 cubic inches would become 74 cubic inches, and not, as you say, to 1 cubic inch. With reference to what you quote from a paper about Lake Tahoe, we can say that it is impossible. Water cannot be cooled below freezing by any possibility and remain water in an open lake. And water must be colder on top if the temperature of any part of the water is at the freezing point. Dead bodies are not frozen in water down deep below the surface. Nor is water ever dense enough to prevent lead from sinking in it.

(10437) C. B. R. asks: Will you kindly explain who has the advantage in the following case, and why? In shooting at flying targets thrown from the traps, I shoot with both eyes open. My friend claims I should close one eye, as I could get a better alignment of the gun. My claim is that I can get a better and quicker sight at my target by using both eyes. Please explain what part the left eye plays while shooting right-handed. Do I shoot crossways, look crossways of the gun barrel, or do I unconsciously sight with one eye, while both are open? Give the theory of aiming a gun with both eyes open. A. If you can shoot with both eyes open and hit, it must be that you aim with the right eye and disregard the line of sight from the left eye to the target. You can test this by looking along the gun without shooting with both eyes open. You can determine whether the sights are in line with the right or with the left eye. We do not know any theory of aiming with both eyes open. Most people use but one eye at a time when both eyes are open. Some habitually use the right and others the left eye at their ordinary work.

(10438) J. O. B. says: I find that upon holding an electric light incandescent lamp by the glass and applying the metal to an idler on the main belt of the dynamo (which gives about 15-inch spark) and taking it away, I can get a powerful charge by placing my other hand on the metal. Can you explain? I also find the lamp "burned out," but it still gives the above results. A. By holding the incandescent lamp as you describe you charge it as a Leyden jar is charged, and upon touching the metal which is connected to the inside of the jar you receive the shock of the discharge. The metal and the filament are the inside coating, and your hand holding the bulb is the outside coating. The charge is a charge of static electricity.

(10439) P. A. O. says: Will you be kind enough to give the answer to the following problem, which has agitated the best mathematicians of our town recently: A farmer and his wife desired to weigh a pig, and had no scales. The man weighed 160 pounds and his wife 139 pounds. They put a board across a fence so that when they sat upon each end of the board it exactly balanced. Then they changed places, the wife taking the pig in her lap, just balancing the board again. How much did the pig weigh? A. Your problem may be solved in the following manner: Referring to



accompanying sketch No. 1: x = distance from the first position of the man to the fence. y = distance from the first position of the wife to the fence. Let w equal weight of the pig. Then $160x = 139y$. 160 pounds = weight of the man. 139 pounds = weight of his wife. In sketch No. 2 the man and his wife exchange places, and the wife takes the pig in her lap, and they again balance as in the first position.

Therefore: $(139 + w)x = 160y$. Also from sketch No. 1: $160x = 139y$. $\therefore x = \frac{160y}{139 + w}$. $\therefore \frac{160y}{139 + w} = \frac{139y}{160}$. $160^2 = 139(139 + w)$. $w = 45 + \text{pounds}$. Therefore the pig weighs approximately 45 pounds.

NEW BOOKS, ETC.
ARTILLERY AND EXPLOSIVES. By Sir Andrew Nobel, Bart., K.C.B. New York: E. P. Dutton & Co., 1906. Large 8vo.; pp. 548. Price, \$6.
The fact that this work consists of a series

of essays and lectures written and delivered at various times by the author, detracts nothing from its value. Indeed, had it been planned and written as a co-ordinated whole, instead of being a compilation of separate essays, etc., it must still have been recommended for what it is, namely, a reference work to which the student of artillery and explosives will turn for information on subjects upon which correct information is only too scarce. The great value of this work will be at once evident, when it is stated that it consists largely of a record of the experimental work done by the author throughout the long period covered by his industrious professional life of nearly half a century. When Sir Andrew Nobel entered the service, the line-of-battle ships in the British navy were all sailing vessels, and their armaments and appliances differed but little, except as regards size, from those used in the days of Henry VIII and Queen Elizabeth. The spirit of conservatism pervaded both services, and the introduction of rifled ordnance was received with the greatest distrust. It is impossible to speak in any detail of a work of this magnitude; but the chapters on the Tension of Fired Gunpowders, on Friction in the Bores of Rifled Guns, and those dealing with the Tension of Gases Expanded Without Doing Work, will be read with the deepest interest at the present time, when the subject of erosion of guns is so much in the public mind. There is probably no one who has had wider experimental knowledge of the subject treated in this volume than its celebrated author. When he first took up the examination of gunpowder, knowledge on the subject has been described as "simply chaotic"; and the description of the investigation made by Sir Andrew Nobel and his associates of the action of powders when fired in completely inclosed vessels, makes extremely interesting and profitable reading.

POOR'S MANUAL OF THE RAILROADS OF THE UNITED STATES. Street Railway and Traction Companies, Industrial and Other Corporations, and Statements of the Debts of the United States, the Several States, Municipalities, etc. New York: Poor's Railroad Manual Company, 1906. Large 8vo.; pp. 1808. Price, \$10.

With its 1,808 pages and its well-earned reputation for accuracy and voluminous information, this number continues to hold for the Manual the high place which it won among railroad men and the public generally many years ago. The following important features, heretofore published separately in the Railroad Manual Appendix, have been incorporated; namely, first, all data embraced in Poor's Ready Reference Bond List; second, Table of Annual Meetings, Transfer Agencies, etc.; third, Table of Dividends paid for eight years. By the addition of the new features referred to, and the natural expansion of the regular departments of the book, the work this year has increased in text 192 pages, the statements for no less than 120 industrial corporations having been procured and incorporated in this new issue. Attention is also directed to the improvement in the index pages and to the great increase in the number of railroad and other maps.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending March 5, 1907.

AND EACH BEARING THAT DATE [See note at end of list about copies of these patents.]

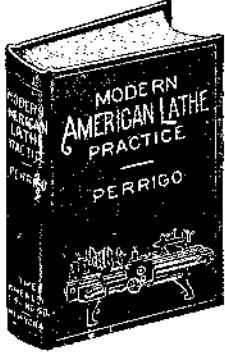
Table listing inventions with patent numbers and dates. Includes items like Accounting appliance, Acid purification, Acousticon, Adding machines, Adhesive compound, etc.

Table listing inventions with patent numbers and dates. Includes items like Bellows, pressure regulator, Bill head, duplicate, label, receipt, and envelope, Billiard cue, Binder, temporary, etc.

JUST OFF THE PRESS!

MODERN AMERICAN LATHE PRACTICE

By OSCAR E. PERRIGO, M.E. Price \$2.50



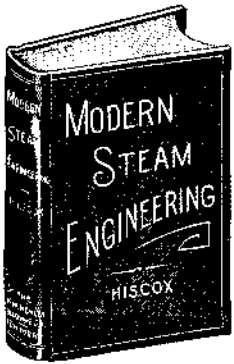
A complete book of 400 pages on The Modern American Lathe. Its development from the earliest times up to the present day; its modern form as constructed by up-to-date builders; its general and special classes of work; the quantity of its output, and its marvelous accuracy. Written by a man who knows not only how work ought to be done, but who also knows how to do it, and how to convey this knowledge to others. It is strictly up-to-date in its descriptions and illustrations which represent the very latest practices in lathe and boring mill operations as well as the construction of and latest developments in the manufacture of these important classes of machine tools.

A large amount of space is devoted to the turret lathe, its modifications and importance as a manufacturing tool. Multiple spindle and automatic chucking lathes are fully considered, as are also special high power lathes for the use of high speed tool steel, and electrically driven lathes. In the treatment of the subject 315 illustrations and examples from the best practice have been made use of, as by illustration alone can many of the important details and methods be clearly presented.

Modern Steam Engineering in Theory and Practice

By GARDNER D. HISCOX, M.E. Price \$3.00

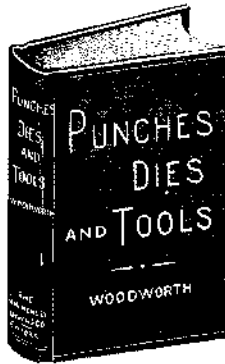
This is a complete and practical work of 487 pages, dealing with the care and management of Boilers, Engines, Pumps, Superheated Steam, Refrigerating Machinery, Dynamometers, Elevators, Air Compressors, and all other branches with which the modern Engineer must be familiar. It fully describes and illustrates the properties and use of Steam for the generation of power in the various types of engines in use. Slide Valve, High Speed, Corliss, Compound, Multi-expansion engines and their valve gear, the De Laval, Parsons, Curtis and other Turbines are included and fully described and illustrated. Forty-two tables of the properties and application of steam in its various uses are included, which in themselves form a most valuable and instructive section of the work.



Nearly Two Hundred Questions with their Answers on Steam and Electrical Engineering like to be asked by the Examining Board are included. These if studied by you will help you to procure a license. This book is thoroughly reliable and practical, and not only a guide but a teacher. As a text book it is the latest and best authority on the subject. It is fully illustrated with detail engravings, not to be found elsewhere.

Punches, Dies and Tools for Manufacturing in Presses

By JOSEPH V. WOODWORTH Price \$4.00

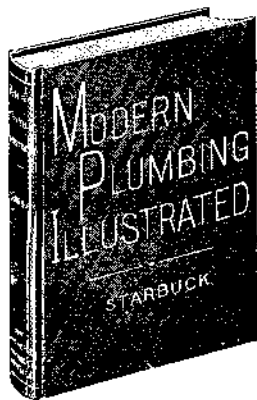


A practical work of 500 pages fully illustrated by nearly 700 engravings, being an encyclopedia of Die Making, Punch Making, Die Sinking, Sheet Metal Working, and Making of Special Tools. Sub-Presses, Devices and Mechanical Combinations for Punching, Cutting, Bending, Forming, Piercing, Drawing, Compressing and Assembling Sheet Metal Parts and also Articles of other Materials in Machine Tools. Two Hundred and Ten Processes are clearly described and fully illustrated. This work is a companion volume to the author's elementary work entitled 'Dies, Their Construction and Use'. Nothing appears in this volume that has already been published in the author's previous work on 'Dies.'

Modern Plumbing Illustrated

By R. M. STARBUCK Price \$4.00

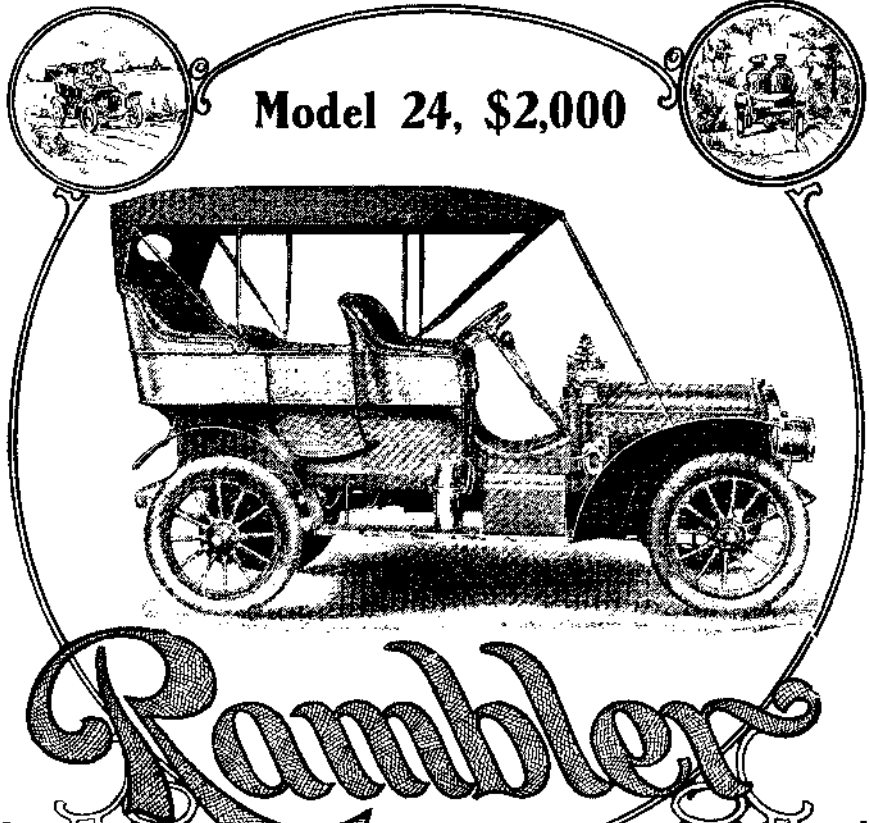
A comprehensive and up-to-date work illustrating and describing the Drainage and Ventilation of dwellings, apartments, and public buildings, etc. The very latest and most approved methods in all branches of sanitary construction are given. Adopted by the United States Government in its sanitary work in Cuba, Porto Rico, and the Philippines, and by the principal boards of health of the United States and Canada. 300 pages. 55 full page illustrations.



A special circular describing these books sent on request. Any of these books sent prepaid on receipt of price.

MUNN & CO., Publishers, 361 Broadway, New York

Table listing various technical articles and their prices, including topics like 'Plow, L. M. Whisenant', 'Pneumatic wheel, W. L. Barnard', 'Railroad bridge, G. A. Mead', 'Steam engine, W. A. C. Pape', 'Saw attachment, hand, W. C. Sennett', 'Sewing machine plaiter or ruffler, J. T. Kelley', 'Sheet metal can for food and other articles, slip cover, B. H. Kannenberg', 'Sheet metal slitting machine, L. E. Curtis', 'Shelf supporting bracket, Werley & Thomas', 'Shirt, L. Bernstein', 'Shoe cleaner, S. Feld', 'Shoe upper fastener, C. K. Sharrod', 'Signal control, electric, M. Abt', 'Smoke cleaner and cinder catcher as applied to locomotives, J. Reesser', 'Snap fastener, T. R. Hyde, Jr.', 'Soldering compound, R. A. Hall', 'Soldering machine, can end, Rudolphi & Nelson', 'Sounder and resonator, combined, S. F. Cox', 'Speed transmission mechanism, variable, J. H. Baughton', 'Speed varying mechanism, G. T. Rennerfelt', 'Speedometer, A. Fleischmann', 'Spinning machine spindle and its appurtenances, J. & H. Wright', 'Spinning machine spindle bearing, A. Stell', 'Spinning mule, J. Schmitt', 'Splitting machine, E. A. Hillbreth', 'Spring seat, A. Beidenstein', 'Spring wheel, E. B. Sims', 'Sprinkler, C. C. & H. G. Rhodes', 'Sprinkler heads, emergency shut off for, E. Abbott', 'Sprinkling system, combined water and chemical, S. C. Radford', 'Square, W. A. Schmalz', 'Square, carpenter's, G. Yates', 'Stable implement, G. S. Precott', 'Stacker head, A. Luke', 'Stain and filler, T. J. Kelly', 'Stair rod holder, L. N. Giffin', 'Stalk cutter, E. A. Frantz', 'Stalk puller, C. R. Smith', 'Stamping machine, C. W. Gray', 'Stand. See Display stand', 'Staple puller and fence maker's tool, H. Cottrell', 'Steam generator, Mumford & Robb', 'Steam meter, W. A. Kitts', 'Steam separator, G. Clark', 'Steam trap, W. Geipel', 'Steel tempering bath, J. Churchward', 'Steering and propelling mechanism, boat, W. H. Fahrney', 'Steering gear, F. Y. Harrison', 'Step hanger, A. N. Maunroe', 'Stitch impressions or indentations, burnishing machine for imitation, L. W. G. Flynt', 'Stone blocks, machine for making artificial, V. W. Grumman', 'Stepper, B. F. Whelden', 'Store front construction, F. J. Plym', 'Stove or oven door support, R. A. Culter', 'Street or station indicator, C. A. Myers', 'Striking bag apparatus, J. F. Emes', 'Stubble cutter and destroyer, cane, J. Le Blanc', 'Submarine structure, M. E. Pester', 'Sulfid ores, treating, O. Franek', 'Sunshade or umbrella support, D. M. Keech', 'Surveying instrument, bore hole, P. E. Lewis', 'Suspenders, S. H. Leary', 'Suspenders for wearing apparel, A. Weintraud', 'Switch stand, F. W. Snow'



Model 24, \$2,000

Rambler

A medium weight, high class touring car with more new and practically valuable features than ever before embodied in any one car.

The new balanced clutch and the most convenient and efficient sliding gear transmission alone entitle this model to your careful investigation.

These and many other valuable features shown in our 1907 catalog now at your service.

Write for it to-day. You will find it both interesting and instructive.

Main Office and Factory, KENOSHA, WIS.

BRANCHES: Chicago Milwaukee Boston Philadelphia San Francisco New York Agency, 38-40 W. 62d Street Representatives in all leading cities

Thomas B. Jeffery & Company

Cement Reinforced Concrete Concrete Building Blocks

SCIENTIFIC AMERICAN SUPPLEMENT 1543 contains an article on Concrete, by Brysson Cunningham. The article clearly describes the proper composition and mixture of concrete and gives the results of elaborate tests.

SCIENTIFIC AMERICAN SUPPLEMENT 1538 gives the proportion of gravel and sand to be used in concrete.

SCIENTIFIC AMERICAN SUPPLEMENTS 1567, 1568, 1569, 1570, and 1571 contain an elaborate discussion by Lieut. Henry J. Jones of the various systems of reinforcing concrete, concrete construction, and their applications. These articles constitute a splendid text book on the subject of reinforced concrete. Nothing better has been published.

SCIENTIFIC AMERICAN SUPPLEMENT 997 contains an article by Spencer Newberry in which practical notes on the proper preparation of concrete are given.

SCIENTIFIC AMERICAN SUPPLEMENTS 1568 and 1569 present a helpful account of the making of concrete blocks by Spencer Newberry.

SCIENTIFIC AMERICAN SUPPLEMENT 1534 gives a critical review of the engineering value of reinforced concrete.

SCIENTIFIC AMERICAN SUPPLEMENTS 1547 and 1548 give a resumé in which the various systems of reinforced concrete construction are discussed and illustrated.

SCIENTIFIC AMERICAN SUPPLEMENTS 1564 and 1565 contain an article by Lewis A. Hicks, in which the merits and defects of reinforced concrete are analyzed.

SCIENTIFIC AMERICAN SUPPLEMENT 1551 contains the principles of reinforced concrete with some practical illustrations by Walter Loring Webb.

SCIENTIFIC AMERICAN SUPPLEMENT 1573 contains an article by Louis H. Gibson on the principles of success in concrete block manufacture, illustrated.

SCIENTIFIC AMERICAN SUPPLEMENT 1574 discusses steel for reinforced concrete.

SCIENTIFIC AMERICAN SUPPLEMENTS 1575, 1576, and 1577 contain a paper by Philip L. Wormley, Jr., on cement mortar and concrete, their preparation and use for farm purposes. The paper exhaustively discusses the making of mortar and concrete, depositing of concrete, facing concrete, wood forms, concrete sidewalks, details of construction of reinforced concrete posts, etc.

SCIENTIFIC AMERICAN SUPPLEMENT 1372 contains an article by A. D. Eilers on tests and constitution of Portland cement.

SCIENTIFIC AMERICAN SUPPLEMENT 1396 discusses the testing of cement.

SCIENTIFIC AMERICAN SUPPLEMENT 1325 contains an article by Professor William K. Hatt giving an historical sketch of slag cement.

SCIENTIFIC AMERICAN SUPPLEMENTS 955 and 1042 give good accounts of cement testing and composition, by the well-known authority, Spencer B. Newberry.

SCIENTIFIC AMERICAN SUPPLEMENTS 1510 and 1511 present a discussion by Clifford Richardson on the constitution of Portland cement from a physico-chemical standpoint.

SCIENTIFIC AMERICAN SUPPLEMENT 1519 contains an essay by R. C. Carpenter on experiments with materials which retard the activity of Portland cement.

SCIENTIFIC AMERICAN SUPPLEMENTS 1465 and 1466 publishes an exhaustive illustrated account of the Edison Portland cement works, describing the machinery used.

SCIENTIFIC AMERICAN SUPPLEMENT 1491 gives some fallacies of tests ordinarily applied to Portland cement.

SCIENTIFIC AMERICAN SUPPLEMENT 1561 presents an excellent review by Brysson Cunningham of mortars and cements.

SCIENTIFIC AMERICAN SUPPLEMENT 1533 contains a resumé of the cement industry and gives some valuable formulae.

SCIENTIFIC AMERICAN SUPPLEMENT 1575 discusses the manufacture of hydraulic cement. L. L. Stone is the author.

SCIENTIFIC AMERICAN SUPPLEMENTS 1587 and 1588 contain an able paper by Edwin C. Eckel on cement material and industry of the United States.

SCIENTIFIC AMERICAN SUPPLEMENT 1586 contains a review of concrete mixing machinery by William L. Larkin.

SCIENTIFIC AMERICAN SUPPLEMENT 1583 gives valuable suggestions on the selection of Portland cement for concrete blocks.

SCIENTIFIC AMERICAN SUPPLEMENT 1581 splendidly discusses concrete aggregates. A helpful paper.

SCIENTIFIC AMERICAN SUPPLEMENT 1595 presents a thorough discussion of sand for mortar and concrete, by Sanford E. Thomson.

Each number of the Supplement costs 10 cents. A set of papers containing all the articles above mentioned will be mailed for \$3.50

Order from your Newsdealer or from

MUNN & CO., PUBLISHERS, 361 BROADWAY, NEW YORK CITY

Classified Advertisements

Advertising in this column is 50 cents a line. No less than four nor more than ten lines accepted. Count seven words to the line. All orders must be accompanied by a remittance. Further information sent on request.

BUSINESS OPPORTUNITIES.

PEAT SWAMPS TURNED INTO COAL MINES.—Peat coal, coke, gas, etc. Peat bogs developed and plants erected. Dealer in peat machinery and peat products. J. Borcollo, Kingsbridge, New York City.

WANTED.—MACHINERY AND CATALOGUES OF machines for the manufacture of concrete fence posts. For further information and particulars address Rafael Rodezno, Guatemala, C. A.

AGENTS WANTED to sell best kettles in world for cooking, steaming, straining food of all kinds. No more burned or scalded hands, no more food wasted. Sample free. For particulars write American Specialty Stamping Co., Johnstown, Pa.

WANTED.—Business Opportunities and Real Estate for Cash Buyers. If you want to sell your Real Estate or Business, no matter where located, send description and price to Frank P. Cleveland, Real Estate Expert, 1510 Adams Express Building, Chicago, Ills.

PATTERN LETTERS AND FIGURES (White Metal and Brass) for use on patterns for castings. Large variety, prompt shipments. Send for catalog. H. W. Knight & Son, Seneca Falls, N. Y.

METAL NOVELTY WORKS CO., Manufacturers of all kinds of light metal goods, Patented Articles and Hardware Specialties on contract. Metal Stamping Dies and Stamping our specialty. 43-45 Canal St., Chicago.

PATENTS SOLD ON COMMISSION.—If you wish to buy or sell a patent write for particulars to E. L. Perkins, 72 Broad Street, Boston. Patent Sales Exclusively.

FOR SALE.—Portable Compressed Air House Cleaning Wagons and Machinery sold to responsible parties to operate in cities of from five thousand inhabitants upwards. Each Portable Cleaning Plant has an earning capacity of from \$50.00 to \$70.00 per day, at a cost of about \$8.00 per day. Capital required from \$2,000.00 upwards. Stationary Residential Plants also from \$450.00 upwards. Over 100 companies operating our system. We are the pioneers in the business, and will prosecute all infringers. State references. Address General Compressed Air House Cleaning Co., 4453 Olive Street, St. Louis, Mo.

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

HELP WANTED.

SPECIALISTS.—We offer the surest means of finding your right place if you are a specialist in any high grade technical line. Write to-day, stating experience. Haggood, 305 Broadway, New York.

PARTNERS WANTED.

WANTED.—Financial assistance by an inventor to have working model of invention made. Patent allowed. Should parties with interest in foreign patent, please so state. Amount not needed will be returned. For further particulars address Financial, Box 773, N. Y.

FLYING MACHINE.—I have invented a flying machine that will rise from the ground, can be steered in any direction, and will alight in safety. My invention is comparatively very simple in construction. I am now holding United States Patent on it, and I want responsible party with the necessary means to help build the machine for part ownership in patent. Address J. R., Box 84, San Francisco, Cal.

TYPEWRITERS.

CLEARANCE SALE—Remingtons, Densmores, Jewetts, Blickensderfers, Williams, \$12.50; Postals, Hammonds, \$10; Underwoods, Oliviers, \$35. Orders filled or money back. Standard Typewriter Exch., Suite 45, 231 Broadway, N. Y.

TYPEWRITERS.—3 Remingtons and 2 Smiths. Perfect order, \$25 each. Two Hammonds, like new, \$20 each. Address Manager, Room 406, 2 Park Place, New York City.

PATENTS FOR SALE.

PATENT FOR SALE OUTRIGHT OR FOR PART royalty and part cash. Hatchet and Plane Combined. Patented in United States, October, 1905, No. 800,646; in Canada, March, 1906, No. 98,137. For particulars, address D. M. Haney, Box 44, Sykesville, Penna.

FOR SALE.—Quick adjusting pipe and nut wrench. Will sell patent outright or have made with right parties for royalty. For full information and particulars, address F. B. McGovern, Box 373, Oil City, Pa.

IF YOU WANT TO BUY A MONEY-MAKING Patent, I have a Patented Fence Post for sale or take royalty. For further information and particulars, address R. R. Buetto, Slaughter, La.

MORE WOMEN USE FACE POWDER than men who use a razor. Over ten million razors used, yet there is no Puff Box on the market with special feature of novelty or usefulness and millions of women waiting to buy one like ours. Just patented. Patent for sale. Correspondence solicited. For further information and particulars address "The New-Way Company," Louisville, Ky.

PATENT GAME APPARATUS.—Most exciting board game out. Represents the struggle for supremacy in life. Will sell outright or will lease on royalty. James E. Heron, Meeteetse, Wyoming.

NOVELTIES.

GREENBACKS!—Pack of \$1.376 imitation bills and Boys' Magazine, 3 months, 10c; 3 packs and a year's subscription, 25c. Send for a pack and show the boys what a WAD you carry. C. A. Nichols, Jr., Box 64, Chili, N. Y.

WATER FILTER.

THE DUPLEX FILTER is positively hygienic, because it is self-cleaning. Leased by 257 physicians, 6 hospitals, thousands of private families. Rent, 2 cents per day. Duplex Filter Co., 1140 Broadway, New York.

FACTORY AND MILL SUPPLIES.

FACTORIES, CUT DOWN YOUR INSURANCE by putting in a Caldwell Tank and Power Machine Protection. Once up, no further expense. Endorsed by all insurance companies. References in every section. Arkay Stave Co., of Columbus, Miss., says: "Saves us \$20 a month." Illustrated Catalogue and Price List free. W. B. Caldwell Co., Station D, Louisville, Ky.

PHOTOGRAPHY.

WE PHOTOGRAPH any thing, any where, any time. Building, Paintings, Plans, Models, Machinery, Estates, etc. Illustrations for Advertisers. The General Photographing Co., 1215 E'way, Daly's Theatre Bldg., N. Y. City

MACHINERY FOR SALE.

REMOVED to larger quarters, we offer our large stock of new and second-hand machinery; also boilers, engines, dynamos, motors, materials and supplies. Liberty Machinery Mart, 153 West Street, New York.

OFFICE SUPPLIES.

WHY DON'T YOU BUY a time-saving, brain-resting Locke Adder? Rapid, Accurate, Simple, Durable. Capacity, 999,999,999. Price only \$5. Booklet free. C. E. Locke Manufacturing Co., 25 C Street, Kensett, Iowa, U. S. A.

ELECTRICAL.

ELECTRIQUE TEDDY BEAR SCARF PINS, Skull, Elk, etc. Best carved, transparent ivory; illuminated, produce weird effect. E. J. Jarvik, manufacturer of Vest Pocket and Flash Lights, Medical Batteries, 240 Sixth Ave., New York City.

ELECTRICIAN AND MECHANIC.—The only electrical paper published for amateurs and beginners. Three months trial, ten cents. S. A. Sampson Pub. Co., 6 Beacon St., Boston, Mass.

VACATIONS.

101 RANCH offers a delightful vacation on the largest ranch in the world; real ranch life, riding, roping, etc. Horses, saddles, private rooms and comfortable accommodations for ladies and gentlemen. For beautifully illustrated booklet address Miller Brothers, 101 Ranch Bldg., Okla. (If ordering booklet through curiosity, inclose 10 cents stamps.)

SOUVENIR POST CARDS.

25 BEAUTIFUL POST CARDS mailed to any address for 12c. A great variety of subjects. Sold by some stores at 2 for 5c. and others at 5c. each. Defiance Studio, 65 West Broadway, New York. Price list free.

1,000 POST CARDS \$6; 500-\$4; made to order from any Photo or Print with your imprint on each as publisher. Workmanship guaranteed. Goods delivered within 10 days. Rich Photo Process Co., Dept. F, 28 E. 23d St., N. Y.

SCHOOLS AND COLLEGES.

GEO. H. WILSON, the World's Champion, has written a booklet, "Vanderville, Stage Dancing and Entertaining." It is absolutely free and very interesting. Just address Wilson's Vaudeville School, 263 W. 42d St., N. Y.

PATENT Laws and Office Practice. Thoroughly practical course by mail for attorneys and inventors. Free specimen pages and information. Cor. School of Patent Law, Dept. A, 1853 Mintwood Place, Washington, D. C.

COINS, MEDALS, CURIOSITIES.

FROM ALL AGES AND COUNTRIES.—Largest stock in America. \$1.50 to \$10 paid for gold dollars. Illustrated premium catalogue, 10 cents. New York Coin and Stamp Co., 351 Broadway, New York.

DEAFNESS.

DEAF or hard of hearing persons find lip reading simple, easy, practical. Oral or mail. Terms easy. For particulars address S. A. Lupmann, P. O. Drawer 2618 Boston.

EYE-GLASS SPECIALTIES.

ABSOLUTE COMFORT AND ASSURANCE OF SAFETY means wearing the 12 Kt. Gold-filled, Patent Shur-on Eye glasses, \$7.50. Hold tight and feel light. M. Singer, Manufacturing Optician, 116 Fulton St., N. Y.

DUPPLICATORS.

SAVE MONEY.—Send to Lineograph Co., 112 Fulton St., New York City, for Duplicators and Supplies. Being the actual makers, you will save 40 cents on the dollar. Circulars sent on application.

Table listing various items and their prices, including Switching mechanism, Talking machine sound box, Tapping mains, apparatus for, W. H. Van Winkle, Telegraph pole, metal truss, L. Blessing, etc.

Table listing various items and their prices, including Ventilator, W. F. Warden, Vessel, non-refillable, L. Barnes, Vessels, making collapsible and expandable, etc.

TRADE MARKS.

Table listing various items and their prices, including Abdominal supports and hose supporters, combined, N. L. Digney, Antiseptic salve, A. Obrack, Automobiles and parts thereof, etc.

Advertisement for Boston Garter, featuring an illustration of a man in a suit and text: 'GENTLEMEN WHO DRESS FOR STYLE, NEATNESS, AND COMFORT WEAR THE IMPROVED BOSTON GARTER...'

Advertisement for White Wash, featuring an illustration of a machine and text: 'You Can White Wash Cheaper and Better... One man can apply whitewash or cold water paint to 10,000 Square Feet of Surface in One Day...'

Advertisement for 'HOW TO MAKE AN ELECTRICAL Furnace for Amateur's Use... The utilization of 110 volt electric circuits for small furnace work...'

Advertisement for 'THE BEST LIGHT Spectacles and Eyeglasses... are a superfluous where our lamps are used...'

Advertisement for 'The Major Reversible Valveless Marine Engine for 1907... 1 1/2 H. P. \$33.75 (engine only)...'

Advertisement for 'The Strelinger Marine Engines... lead in every point of Excellence...'

Advertisement for 'Convert Your Bicycle into a Motorcycle... at small cost by attaching the self-starting Erie 2 H. P. Power Outfit...'

Advertisement for 'Pony Rigs for Boys and Girls... Nothing else should give your children so much pleasure...'

