

quality is enhanced; for the very rapid reproduction of the sound produced by one stylus gives to the tone something of that human timbre which is only too often lacking in talking-machines.

PICTURE HANGER.—I. H. SOLOMON, 48 Center Street, Manhattan, New York city. This device is intended to regulate the position, height and inclination of a hanging picture. In other words, with this attachment in use, any picture may be tilted so that it assumes the position most favorable to its proper exhibition. If, after having been thus inclined, it be found that the picture hangs too high or too low, the height desired may easily be attained. These operations may be very rapidly performed by any one. In order to secure the result mentioned it is not necessary to remove the picture from the wall, nor is the frame or wire in the least injured. The device may be operated as often as is desired and may be attached to a frame of any size with perfect safety.

LOCK-BOLT.—EDWIN F. CONBER, Selkirk, Manitoba, Can. This lock-bolt for door-locks is provided with a bolt lengthwise adjustable, so that under all conditions it will sufficiently clutch the hasp or bolt clutch. This adjustment enables the bolt to be engaged securely with this hasp or catch, should the door or frame shrink, without necessitating the resetting of the lock or its hasp.

PAPER BOX.—JOSEPH T. CRAW, Jersey City, N. J. The paper box is especially adapted to be used as a wrapper for fine bricks. The construction is such that the box may be partially open at both ends, or entirely open at one end and partially open at the opposite end. The end of the box can be partially closed by side and end flaps, cushions being formed against which another box containing a brick may abut. Thus, bricks can be packed and shipped without damage.

ATTACHMENT FOR INK-BOTTLES.—LOUIS SCHOEN, Manhattan, New York city. Mr. Schoen has invented a simple device which is readily attached to the neck of an ink-bottle and which includes in its construction a pen-rack, a penwiper, and a lid which supports a cork for the bottle. A portion of the cork can be utilized for clamping pens which are to be removed from a penholder.

WINDOW-SHUTTER.—FRANK CHASE, South Sutton, N. H. The object of the invention is to provide a window-shutter arranged to permit the operator to open or close the slats conveniently from the inside of a room without being compelled to open the window-sash. A finger-lever is fulcrumed on the window-frame below the sash, the fulcrum of the lever being coincident with the sash to permit the rocking of the lever when the sash is closed. A connection between the lever and an adjustable part of the window-shutter permits the operation of the latter.

AUXILIARY BOX-COVER.—MORITZ MEYER, Manhattan, New York city. The inventor has devised an auxiliary box-cover for use on cigar-boxes. The cover can be attached to the box without disturbing the cigars or without requiring the removal of the original box-cover. The improvement permits the contents of the box to be conveniently removed, excludes dust, moisture, and the like.

BUST-FORM.—EMILY H. WRIGHT, Manhattan, New York city. The bust-form provided by this invention is easily attached to a corset, readily maintains its form, and gives the dress the proper hang. The bust-form has sufficient flexibility readily to conform to the motion of the body without discomfort to the wearer.

Designs.

SHOELACE FASTENER.—BENJAMIN F. KOCH and SAMUEL BLOOM, Brooklyn, New York city. The leading feature of this design is a cylindrical body portion having a hook-like projection at one side terminating in an enlargement.

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.

NEW BOOKS, ETC.

GAME AND FISH COMMISSIONERS' REPORT. The Fourth Annual Report of the New York Game and Fish Commissions for the year ending September 30, 1898, has just been received at this office. The Commissioners deserve much credit for producing this work, copiously illustrated with handsome colored photographs of many varieties of both game and fish, which are as true to nature as art can show them. A large variety of both salt and fresh water fish are shown, colored very natural to life, while the illustrations of ducks, pheasants and plovers are most interesting. The letterpress is extremely interesting, treating in detail the habits and diseases of many kinds of fish. The increasing interest in all out-of-door sports and the living things of nature is wonderful, and is proving of great benefit to the country at large. To many sportsmen the love of nature, the propagating and protection of game and studying their habits has in a measure taken the place of a desire to kill everything in sight. The Game and Fish Commissioners are all well-known men, who have truly at heart, without any selfish motives, the protection and welfare of the game and fish of the State of New York and elsewhere.

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 your name and address to 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. 462.—For manufacturers of aluminum.

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

Inquiry No. 463.—For manufacturers of taxi-derry supplies.

Motor Vehicles, Duryea Power Co., Reading, Penn.

Inquiry No. 464.—For manufacturers of spring-motor fans.

WATER WHEELS. Alcott & Co., Mt. Holly, N. J.

Inquiry No. 465.—For small motor fans for use in dwelling houses for circulating air; motor like that used for sewing machines.

Yankee Notions. Waterbury Button Co., Waterbury, Ct.

Inquiry No. 466.—For manufacturers of sponge rubber.

Dies & Special Machinery. Amer. Hdw. Mfg. Co., Ottawa, Ill.

Inquiry No. 467.—For manufacturers of machinery for making hair felt.

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

Inquiry No. 468.—For manufacturers of all kinds of rubber specialties.

"For sale New Automobile Steam—\$400. Wilson Bros., Easton, Pa."

Inquiry No. 469.—For parties to make a bent wire novelty.

Sheet Metal Stamping; difficult forms a specialty. The Crosby Company, Buffalo, N. Y.

Inquiry No. 470.—For a small ice plant of about 2 tons capacity.

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

Inquiry No. 471.—For manufacturers of very strong paper boards.

Our number 4 Catalogue of Automobileparts, write us, Standard Welding Co., Cleveland Ohio.

Inquiry No. 472.—For small gas engine developing about 1/4 of a horse power.

Rigs that Run. Hydrocarbon system. Write St. Louis Motor Carriage Co., St. Louis, Mo.

Inquiry No. 473.—For manufacturers of small gasoline or kerosene engines suitable for farm work.

SA WIMILLS.—Variable friction feed. Send for Catalogue B. Geo. S. Comstock, Mechanicsburg, Pa.

Inquiry No. 474.—For manufacturers of rubber wading pants with boots attached for fishermen's use.

Ten days' trial given on Daus' Tip Top Duplicator. Felix Daus Duplicator Co., 5 Hanover St., N. Y. city.

Inquiry No. 475.—For special rubber rivets and compounds for repairing pneumatic carriage tires.

Machine Work of every description. Jobbing and repairing. The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y.

Inquiry No. 476.—For manufacturers of sheet iron 2 1/2 inches wide and up.

For sale and introduction in Scandinavia, of American goods, any and all. Apply to O. P. Jespersen and Sonner, Copenhagen, Denmark.

Inquiry No. 477.—For small outter making machines for domestic use.

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

Inquiry No. 478.—For a street outfit for making popcorn.

For Sale.—Right to take out foreign patents on my invention, Suspender End Attachment, U. S. patent to issue May 4, 1901. Address C. H. Dome, Prescott, Ark.

Inquiry No. 479.—For manufacturers of small cheap globe or gate valves.

Will sell outright, or on royalty to manufacture my patented poison guard paper, a device to be used as a safe-guard against accidents with poison. For making Wrapping Paper, Roll Paper, Paper Bags, Boxes, Envelopes, Labels, etc., and changing any ordinary bottle to a poison bottle by pasting the paper on it; also poison packages. For Wholesale and Retail Druggists, Manufacturers of Chemicals, Paint, etc. Will stand full investigation. For particulars, Address, Patent, care of the SCIENTIFIC AMERICAN, New York.

Inquiry No. 480.—For manufacturers of cable chain made from 1/4 inch to 1/2 inch wire.

Sheet Metal Novelties, Articles and Stampings of all sizes. Tools and dies manufactured on contract. Address Standard Stamping Co. Cor. 7th & Hudson Sts., Buffalo, N. Y. U. S. A.

Inquiry No. 481.—For dealers in wood engravers' supplies.

Wanted.—Skilled artist in mechanical art work. No one need apply who has not a knowledge of mechanics coupled with artistic ability and experience. Address Artist, P. O. Box 773, New York.

Inquiry No. 482.—For parties to make a cheap tin box, flat and round; of a half pint capacity.

A Winton motor carriage, model 1899, for sale. Price, \$500 f. o. b. cars Syracuse. This machine is in good running order, and was run less than 500 miles. Address, William Schmidt, 339 East Genesee St., Syracuse, N. Y.

Inquiry No. 483.—For manufacturers of an electric pen for perforating maps or patterns.

Moistener and Sealer. For moistening and sealing stamps, Envelopes and Labels. Patents for sale or on royalty. Excellent chance for manufacturer with facilities for introducing a useful device. Address, CHAS. L. VOSE, Westerly, R. I.

Inquiry No. 484.—For parties to install system for electric welding of iron tubing.

TEMPTING TERMS.—Those who are planning an early trip to the Pan-American Exposition will be interested to learn that the \$12 excursion tickets from New York to Buffalo, over the Lackawanna Railroad will be on sale every day during May. The limit is ten days.—Another excursion trip is for \$18 and tickets will be good for fifteen days, beginning June 1. A particularly tempting rate is a \$9 excursion ticket to be sold on Tuesdays during May, good for five days, and honored only in coaches.—A beautiful guide to the Exposition, telling about its many wonderful features, is being sent out in response to requests accompanied by four cents in stamps, to T. W. Lee, General Passenger Agent, New York City. Write for one.

Inquiry No. 485.—For the makers of machines for stitching and riveting belts with solid copper two-prong rivets and fasteners.

Inquiry No. 486.—For manufacturers of boiler engines.

Inquiry No. 487.—For parties to make light sheet metal article.

Inquiry No. 488.—For dealers in new or second hand gasoline engines of about 1/4 or 1/2 horse power, for running car of about 60 pounds weight.

Inquiry No. 489.—For manufacturers of stereoscopes and magnifying glasses.

Inquiry No. 490.—For dealers in life motion picture machines, such as the Chronophotographic Machine, the Mutograph and others.

Inquiry No. 491.—For manufacturers of round cheap mirrors 2 1/2 in. diameter with metal rims; also without rims.

Inquiry No. 492.—For manufacturers of cheap mechanical telegraph instruments, key and sounder combined—no battery.

Inquiry No. 493.—For manufacturers of tin tubing of eleven-sixteenths inch and 1/4 inch in diameter, the seams to be soldered.

Inquiry No. 494.—For small ice making machines and cooling apparatus to work by hand.

Inquiry No. 495.—For manufacturers of steel tubing one-sixteenth inch thick by 1 in diameter and over 2 feet long.

Inquiry No. 496.—For the present address of the Northrop Loom Co.

Inquiry No. 497.—For parties handling the Tropenas process for steel castings.

Inquiry No. 498.—For small practical and cheap typewriters.

Inquiry No. 499.—For manufacturers of glass moulding machinery.

Inquiry No. 500.—For machinery for envelope making.

Inquiry No. 501.—For manufacturers of up-to-date brick and tile machinery.

Inquiry No. 502.—For manufacturers of gasoline lighting system for buildings.

Inquiry No. 503.—For manufacturers of liquid-air motors and generators for use in a boat.

Inquiry No. 504.—For manufacturers of machines for testing lubricating oils.

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.

(8165) W. F. G. writes: Please refer me to some article or work where I can find plain and easy directions and specifications for making and constructing a home-made apparatus for practice work and experiment (with the ordinary Morse key and sounder) in wireless telegraphy? A. We can furnish you Fable's "History of Wireless Telegraphy," price \$2 by mail. Also SUPPLEMENT 1131, 1177, 1192, 1213, 1219, price ten cents each, all containing information concerning wireless telegraphy.

(8166) A. G. asks: 1. Can I use any other metal instead of platinum on the spring and screw of the induction coil described in SUPPLEMENT 160, as I have difficulty in getting it? A. Platinum should be used because it burns very slowly and does not oxidize easily. 2. Can I use well-varnished wood instead of vulcanite as a commutator cylinder? A. Yes; but use shellac varnish.

(8167) C. A. asks: Would you kindly tell me what way to arrange the carbons in an electric arc furnace so that I could get about one square inch of heating surface, that is, the arc between the carbons; and could two large carbons be used, say, four inches long, with a quarter-inch arc, or would it be advisable to use small ones? Could you give me an idea of what heat there is in an arc, and would it be very expensive to run such a furnace? A. You can arrange the carbons as you propose for an electric furnace, and increase the number of pairs till you have the heating surface you require. The heat of an electric furnace is the highest on the earth ever produced by man. Any desired heating effect can be produced by continuing the current for a sufficient time. SUPPLEMENT 1077 gives an account of a number of electric furnaces; price ten cents.

(8168) J. K. asks: Will you please tell me whether there is any way of taking the ink from half-tone pictures or engravings on paper off on glass so as to show in a magic lantern? A. We do not know any way of removing a picture from paper to glass so as to use the glass as a lantern slide. The best way is to make a photographic copy of the picture and use that as a slide.

(8169) G. E. H. writes: 1. The instructions for the construction of voltmeter and ammeter, in SUPPLEMENT 1215, are particularly for E from 0 to 125. How much less wire No. 40 would I use to get a better reading for electro-plating dynamo of 8 volts, allowing a range of 0 to 15 volts? A. To change a voltmeter so that it shall give about the same deflection for 15 volts as for 125 volts, you will need about one-eighth as many turns of wire in the coil. 2. The capacity of machine will be 35 amperes. Would not No. 8 be about right for winding the solenoid for the ammeter? A. No. 8 wire carries 35 am-

peres with ease in the open air. 3. Wire tables give carrying capacity of wire thus: "Concealed" and "open." When is it supposed to be open and concealed? A. "Concealed" wire is wire in molding so as to be out of sight and away from a cooling draft of air. It will heat worse than open wire or wire exposed to the air. 4. Allowing 2,000 amperes per square inch phase, state rule for figuring carrying capacity of any size wire. A. A wire cut open exposes a circular end. Find the area of that circle by measuring the diameter and multiplying the square of the diameter by 0.7854. Multiplying this result by 2,000, you have the amperes of carrying capacity.

(8170) R. S. V. asks: 1. Is there any way in which I can tell the difference between iron and steel; and between common copper wire and magnet wire? A. It is not easy for an inexperienced person to tell iron from steel. Magnet wire is copper wire covered with a winding of cotton or silk thread. 2. In making a magnet close the iron core half to be covered with paper or some other non-conductor, will common wire do instead of magnet wire? The iron core should be covered so that the copper wire shall not come in contact with it. The copper wire must be covered with cotton winding so as not to come in contact with any other wire. 3. What kind of instrument measures the ohms of resistance of anything? A. There is no instrument for measuring resistance. A standard of resistance is required and a galvanometer. Books on electrical measurement will tell you the process. 4. Will those small carbon rods you tell how to make in "Experimental Science," on page 705, do for pendants for the microphone on page 585 instead of battery carbon? A. Yes; if made small enough. 5. What is meant by cauterly work. A. Cautery is cutting by a hot knife or wire heated by electricity. 6. For that water decomposer in "Experimental Science" on page 560, do you need to use platinum wire all the way to the batteries? Should it be insulated, and what size should it be? A. Platinum wire is needed only for the parts under the water. Any size will do.

(8171) R. L. S. asks: 1. What is the method for testing fields and armatures for short circuits? A. Measure the resistance as the work proceeds, and if that does not decrease there should be no short circuits. Parham's "Shop and Road Testing of Dynamos and Motors," price \$2 by mail, should meet your needs. 2. How can I make a cheap rheostat to be used with current up to 30 volts and 3 amperes? A. If by your question you mean that you want 30 volts in your external circuit and will take up the rest of the voltage in the rheostat, you will proceed as follows: Suppose the voltage of the circuit is 110. There will be a drop of 80 volts in the rheostat, and 30 in your apparatus; 8 amperes will flow through both. You will require 10 ohms of wire arranged in coils with air circulating through them so as to keep them cool. No. 13 iron wire will be the right wire to use. You will need 600 feet of it. If the voltage is other than 110, proceed in the same way as above, and calculate the length of wire at about 60 feet per ohm. We should suppose it to be better to buy a rheostat from some dealer in your city.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

APRIL 16, 1901,

AND EACH BEARING THAT DATE.

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

Table listing inventions and their patent numbers, including items like Abdominal supporter, Acid and making same, Air brake, Amalgam containing copper or precious metals, Ankle protector, Armatures and inductors for dynamo-electric machines or meters, Assorting machine, Automatic switch for groups of transformers, Axle, adjustable wheel, Axle box fastening, Badge, Bale cover, Baling cotton means, Ball bearing shears, Band cutter and feeder, Basket handle, Bath tubs, Bearing, bicycle or vehicle spring, Beer cooler, Beet topping machine, Bicycle, Bicycle holder, Bicycle support, Binders, straw twine mechanism for self, Blotter pad and copy holder, Boiler, Boiler brace, Boiler furnace, Boiler seal, Boiler tube cleaner or scraper, Boiler washout device, Books, machine for casing-in.

(Continued on page 269)