

Business and Personal.

Marine Iron Works. Chicago. Catalogue free. For logging engines. J. S. Mundy, Newark, N. J. "U. S." Metal Polish. Indianapolis. Samples free. Yankee Notions. Waterbury Button Co., Waterbury, Ct. Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Special and Automatic Machines built to drawings on contract. The Garvin Machine Co., 141 Varick St., N. Y. The celebrated "Hornsbly-Akroyd" Patent Safety Oil Engine is built by the De La Verne Refrigerating Machine Company. Foot of East 138th Street, New York.

The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

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 This is for our information and not for publication.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.

(7975) E. A. B. asks: Have you seen or heard anything of the new light given by radium? I am anxious to get more information in regard to it. Radium is a substance recently derived from pitch blende. It has the strange property of giving off radiations which affect photographic plates in the same manner as X-rays do, and that without any apparatus such as is required to produce X-rays. But these radiations do not affect the eye. They cannot be detected by it, and to call them light is a misnomer. They are not proper light rays in any sense of the term.

INDEX OF INVENTIONS

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

OCTOBER 9, 1900,

AND EACH BEARING THAT DATE.

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

- Acid, making sulfuric, A. C. Johnson, 659,236
Acid, meta-amidotolylloxaminisulfo, R. Taggesell, 659,436
Adjustable table, H. S. Jordan, 659,532
Air compressing apparatus, hydraulic, W. O. Webber, 659,270
Airship, C. Stanley, 659,264
Baling cotton, C. L. Bessonette, 659,432
Bath cabinet, Elliott & Idler, 659,366
Bearing, ball, H. F. Weeks, 659,472
Beater, C. E. Ivins, 659,545
Beating out machine, Johnson & Catebeon, 659,388
Beating out machine, C. S. & W. S. Johnson, 659,389
Bed, invalid, J. A. Lemmons et al., 659,308
Bell, automatic gong, E. D. Stacy, 659,327
Bells, guide for drive, V. D. Kern, 659,370
Bicycle, J. P. Schooler, 659,515
Bicycle gear case, T. B. Jeffery, 659,235
Bicycle lock, Erick & Batt, White, 659,433
Binding strap clasp, I. P. Fox, 659,297
Binocular glasses, prismatic, J. W. Hasselkus, 659,526
Bit, R. A. Briggs, 659,284
Blower, rotary, T. W. Green, 659,619
Bobbin, separable cone, Wood & Emery, 659,597
Boiler sediment collector, T. G. Lovgrove, 659,540
Book holder, R. C. Pascal, H. M. White, 659,427
Book, manifold order, T. McDowell, 659,413
Book, manifold sales, T. McDowell, 659,414
Books, stub holder for check or other, R. F. McKinley, 659,250
Boot or shoe holdfast, C. D. Howen, 659,615
Boot or shoe toe cap, F. H. Finfrock, 659,519
Bottle, non-rubble, H. M. White, 659,427
Bottle stopper, J. M. Harmony, 659,395
Brake beam, E. Posson, 659,319
Brake block, automatic, W. H. Sauvage, 659,629
Bromo tannin gelatin compound, H. Brat, 659,204
Brush, tooth, C. W. Richards, 659,593
Buck et support, W. L. Muir, 659,343
Buckle, J. W. Heylman, 659,302
Building or other materials, apparatus for conveying or transporting, N. C. Schouboe, 659,492
Button, electrically illuminated, W. A. Church, 659,467
Button machine, N. C. La Casse, 659,347
Buttonhole machines, tripping device for stop motion mechanisms for, W. N. Parks, 659,415
Calcium carbide, preparation of, M. P. E. Letang, 659,427
Camera attachment, Pierron & Miller, 659,502
Car, convertible street, G. N. Willis, 659,220
Car journal bearings, top key, C. H. Howard, 659,232
Car underframe, railway, H. R. Keithley, 659,401
Carbonation vat, E. C. Burr et al., 659,359
Carbureter, W. J. Logan, 659,428
Carbureter, A. E. Hodder, 659,476
Cardboard creasing machine, L. A. Mayall, 659,246
Carding machine feeding device, T. Lee, 659,240
Carpet cleaning machine, A. Burkholder, 659,434
Carriage, folding baby, R. B. Topping, 659,423
Carving fork, I. Hirsch, 659,397
Cell doors, releasing mechanism for diffusion, E. C. Burr et al., 659,361
Cellulose manufacturing apparatus, E. Morterud, 659,301
Chair, W. G. Hastings, 659,611
Check book, F. G. Snook, 659,611
Churning device, Norcross & Holloway, 659,625
Clutch springs for matrix assembling machines, etc., Hens & Collins, 659,322
Cigar packing device, P. P. Folson, 659,520
Cigar wrapper cutting machine, P. E. Shirk (re-issued), 11,864
Cigarette roller, A. W. Brown, 659,337
Circuit closer, time, C. E. Katsch, 659,430
Circuit controller, A. Lungen, 659,244
Clock, electric program, H. P. Jordan, 659,479
Clothes powder, Fisher & Crisler, 659,293
Clutch, Moon & McMurren, 659,349
Clutch, Rogers & Chadwick, 659,379
Clutch, friction, D. Williamson, 659,275
Coal or ore handling and storage device, movable, R. D. White et al., 659,502
Coin holder, H. L. Hayes, 659,228
Cold storage apparatus, M. Cooper, 659,408
Commutator and making same, E. R. Gill, 659,443
Computing numbers, machine for, C. P. Meredith, 659,407
Cooke, fruit, E. Peach, 659,316

"Star" Foot and Power Screw Cutting Lathes. Automatic Cross Feed. FOR FINE, ACCURATE WORK. SENeca FALLS MFG. CO. 695 Water Street, Seneca Falls, N. Y., U. S. A.

ENGINE & FOOT LATHES. MACHINE SHOP OUTFITS. TOOLS AND SUPPLIES. SEBASTIAN LATHE CO. CINCINNATI, O.

WALWORTH PIPE VISES are the Heaviest and Strongest vises made. RENEWABLE STEEL JAWS. WALWORTH MFG. CO., 128 TO 136 FEDERAL STREET, BOSTON, MASS.

BARNES' NEW FRICTION DISK DRILL FOR LIGHT WORK. Has These Great Advantages: The speed can be instantly changed from 0 to 1600 without stopping or shifting belts. Power applied can be graduated to drive, with equal safety, the smallest or largest drills within its range—a wonderful economy in time and great saving in drill breakage. W. F. & J. N. BARNES CO., 1999 Ruby Street, Rockford, Ill.

SUB-PRESS PUNCHES AND DIES. We make to order to drawings or models blanking, shaving and swaging dies, either simple or compound, for work requiring accuracy and finish. Sub-Press Dies for the parts of watches, clocks, cyclometers, and other small mechanisms a specialty. THE PRATT & WHITNEY CO., Hartford, Conn., U. S. A.

MAXIMUM POWER—MINIMUM COST. If you use a pump for beer, lard, acids, starch, petroleum, brewer's mash, tanner's liquor, cottonseed oil or fluids, hot or cold, thick or thin you want to get the TABER ROTARY PUMP which does the most work at the least expense. THE TABER PUMP CO., 32 Wells St., Buffalo, N. Y., U. S. A.

IT SIMPLIFIES DIFFICULT WORK. There are many unique features in our Hand and Power Pipe Threading and Cutting Machine. THE MERRELL MANUFACTURING CO., 501 Curtiss St., Toledo, Ohio

Telephones. for Interior, Short Line, Intercommunicating and Hotel Work. THE SIMPLEX INTERIOR TELEPHONE CO., 431 Main St., Cincinnati, Ohio.

SAVE YOUR FUEL. Hoisting Engines a great saving over steam and a perfect economical hoist where wood, coal or water are scarce and high priced. THE WEHER GAS & OIL ENGINE CO., P. O. Box 1114-A, Kansas City, Mo.

COMBINED Surface & Buzz Planer. Panel and Rotary Bed Planers, Shafting, etc. Water Rans, Water Wheels. C. & A. HODGKINS CO., Marlboro, N. H.

HIGHEST EFFICIENCY attained in the STOVER GASOLINE ENGINE. The best is always cheapest. Write for prices. STOVER ENGINE WORKS, FREEPORT, ILL.

THE MIETZ & WEISS KEROSENE and GAS Engine. burns KEROSENE cheaper and safer than gasoline. A. MIETZ, 138-136 Morr St., New York, Markt & Co., London, Hamburg, Paris

SENT ON TRIAL. Prepaid to any address. THE COGGESHALL PATENT Steam Tube Cleaner. THE CLEANER THAT CLEANS CLEAN. NO Moisture, Saves cost quickly. The Coggeshall Mfg. Co., 123 Liberty St., New York.

- Copper and zinc from their ores, extracting, C. G. Collins, 659,339
Cotton, compressing, S. J. Webb, 659,612
Cradle or crib, F. McMurdy, 659,487
Cramp fastener, C. H. Sawyer, 659,523
Cultivator, F. I. Young, 659,356
Curling iron heating apparatus, J. M. Cammack, 659,604
Curtain pole ring, J. Kroder, 659,534
Cushioning body, R. I. Stewart, 659,266
Cut off for cisterns, automatic, J. T. & C. G. Martin, 659,541
Cycle, D. W. Tietjens, 659,350
Cycle saddle, W. S. Richmond, 659,323
Cylinder lock, H. S. Lockwood, 659,483
Dental articulator, G. R. Johnson, 659,531
Dental chair, Dowling & Durham, 659,216
Desk and seat, school, McCaulay & Anderson, 659,411
Desk, chair back, W. H. Anderson, 659,431
Dieter, electric bipolar, C. L. Mosher, 659,409
Disinfectant, D. M. Kelsey, 659,621
Display and cell case, A. A. Grau, 659,225
Displaying advertisements, device for, Adams & Crawford, 659,428
Door, J. A. Wheeler, 659,354
Draft apparatus, J. Cederstrom, 659,377
Drum blazer, C. H. Sawyer, 659,324
Drawing instrument, chart, E. N. Moyer, 659,410
Dredge, R. Osgood, 659,489
Driving gear, worm and chain, D. Corcoran, 659,563
Driving wheel, frictional, W. O. Worth, 659,427
Dye and making same, violet-red, O. Bally, 659,565
Dye and making same, yellow-red, O. Bally, 659,566
Dyeing, J. W. Frisvold, 659,343
Dyeing, A. Siegmund, 659,556
Egg beater, H. M. Sturgis, 659,558
Egg carton packer, W. H. Davis, 659,469
Electric circuits, apparatus for locating faults in, W. E. Athearn, 659,357
Electric meter, T. A. Edison, 659,359
Electric motor supporting device, C. A. Lindstrom, 659,539
Elevator, W. H. Mecbin, 659,406
Elevator safety device, G. E. Shepler, 659,493
End gate, wagon, W. Carpenter, 659,575
Engine muffler, J. M. Smith, 659,456
Engraving and die sinking machine, F. D. Van Norman, 659,461
Excavator, O. Hettlesater, 659,632
Extension table, G. A. Myers, 659,624
Eyeglasses, A. Licht, 659,404
Fastening device, Wales, 659,500
Faucet, P. F. Boyle, 659,285
Faucet attachment, G. C. Hamilton, 659,394
Faucet, H. J. Van Valkenburgh, 659,421
Fertilizer distributor, E. C. Hoyer, 659,233
Fifth wheel, M. Hoagland, 659,528
Filter, A. M. Amos, 659,430
Filter, J. A. Maigenen, 659,455
Firearm, recoil operated, J. M. Browning, 659,507
Firearms, means for sighting, J. Formby, 659,606
Fire extinguisher, A. Weiser, 659,331
Firing pipes, means for discharging, A. Reid, 659,548
Fire kindlers, etc., machine for manufacturing, Hoff & Klotter, 659,229
Fish gaff, E. J. Warren, 659,383
Fishing reel, E. Holzmann, 659,477
Flag, signal, H. A. Beaver, 659,260
Flash powder, A. Weiser, 659,331
Flax machine, Eastwood & Normand, 659,342
Fluid mixing fixture, A. A. Schratz, 659,260
Fork, See Carving fork.
Front wheel and yoke for trucks or other vehicles, E. Whalley, 659,332
Fruit pitting machine, W. Anderson, 659,598
Fuel feeding attachment, P. Asencio, 659,300
Furnace, See Hot air furnace. Recuperative furnace.
Furnace, D. E. Smith, 659,596
Furnace, W. Swindell, 659,495
Furnace, H. Tilden, 659,470
Furnace arch plate, steam boiler, D. U. Richards, 659,549
Furnace apparatus for heating air to be supplied to, W. C. Wallace, 659,312
Furnaces, feeding air device for, P. Mathias, 659,312
Furniture, detachable cover for upholstered, F. Nerad, 659,251
Gage, See Micrometer or similar gage. Truing gage.
Galvanometers, magnetic regulator for, Bradley & Picolet, 659,506
Game apparatus, F. S. Kratzert, 659,483
Garment waist closure, J. Stone, 659,459
Gas controller, automatic, W. G. Miller, 659,248
Gas engine, A. A. Williams, 659,426
Gas from carbide of calcium, generating acetylene, M. P. Letang, 659,448
Gas generator, acetylene, F. A. Feldkamp, 659,618
Gas generator, acetylene, I. L. Harris, 659,226
Gas generator, acetylene, B. F. Williams, 659,273
Gas producer, S. A. Fraser, 659,472
Gate, See End gate.
Gear, changeable speed, A. Fischer, 659,390
Gear, short turning, C. Williams, 659,274
Generator, See Gas generator. Steam generator.
Glass blowing machine, H. J. Colburn, 659,289
Glass blowing machine, L. H. Colburn, 659,291
Glue or gelatin free from fat, producing, C. T. Seltzerberg, 659,261
Grain drill, G. D. Hartman, 659,297
Grain drill, F. A. Placek, 659,545
Grain drill feeding mechanism, R. Galloway, 659,367
Grass cutter, J. P. Riedy, 659,594
Grate bar, O. Olson, 659,451
Grate, gas, G. E. Sbarpe, 659,553
Hair receiver, toilet, F. Lemon, 659,538
Hammer, pneumatic, C. K. Pickles, 659,425
Hammer, pneumatic, C. K. Pickles, 659,418
Hand strap, F. A. Reichardt, 659,420
Hand strap, U. McClinchie, 659,412
Harp, orchestra, Almcrantz & Tornqvist, 659,429
Harrow, H. H. Larsen, 659,536
Harrow, sulky, C. D. Carter, 659,576
Hat brush, C. J. Annet, 659,323
Hat pounding machine, C. H. Reid, 659,259
Hay loader, F. N. Trissel, 659,382
Head cutting machine, W. E. Nichols, 659,488
Header, E. M. Pring, 659,547
Heel attaching machine, C. W. Woods, 659,463
Hinge, N. A. Bourquin, 659,283
Hook, for chain, hook, 659,283
Hook, F. Wendler, 659,271
Horn substances, producing homogeneous, J. G. Bierich, 659,358
Horseshoe calk sharpening machine, P. B. Braze, 659,388
Hose swivel, D. B. Smith, 659,326
Hotel furnace, A. C. Cheney, 659,208
Hotel register, J. Bullock, 659,572
Hurl cutting and separating machine, W. H. Faulkner, 659,441
Hydrocarbon burner, W. S. Haworth, 659,554
Ice making machinery, T. Shipley, 659,610
Incandescent mantles, means for inserting, shirring strings into, E. von Bultzlowen, 659,617
Incandescent structure suitable for lighting, Duncan & Barnett, 659,515
Incubator, J. H. Hughes, 659,529
Indicator, See Schedule indicator.
Inhaler, H. A. McIntosh, 659,542
Insecticide, C. L. W. Schambach, 659,552
Joint, See Railway rail joint.
Journal box, Born & Dunham, 659,284
Knife for cutting wrapping twine, G. S. Lyles, 659,245
Ladder, extension, Marston & Hatch, 659,310
Ladder, step, J. S. Butler, 659,362
Lamp, acetylene gas generating, J. C. F. Dick, 659,436
Lamp and foot warmer, combined carriage, J. B. Bartholomew, 659,279
Lamp burner, F. T. Williams, 659,333
Lamp extinguisher, W. C. Miller, 659,247
Lamps, device for removing and replacing incandescent, Croteau & Messier, 659,631
Lamps, glower heating apparatus for electric, Van Vleet & Stevens, 659,298
Latch door, Lomax & Tomlinson, 659,233
Lens, headlight, J. H. Pitkin, 659,333
Letter box, W. H. Mulloy, 659,486
Letter sheet, return, A. J. Elias, 659,218
Lightning arrester, C. M. Taylor, 659,559
Limes, lemons, etc., device for squeezing, P. King, 659,346
Lift and raising apparatus of the air-lift type, J. Price, 659,491
Lock, See Bicycle lock. Cylinder lock. Nut lock. Permutation lock. Sash lock. Time lock.
Loom, C. F. Roper, 659,628
Loom jacquard mechanism, J. Dean, 659,394
Loom shuttle, I. C. Bryson, 659,285
Loom shuttle, I. W. Campbell, 659,435
Loom shuttle motion, R. B. Leynd, 659,405
Lubricator, H. F. Loos, 659,243
Metals, means for applying fluid, W. H. Smyth, 659,380
Meter, See Electric meter.
Methylalcohol carbureter and making same, Bothooffer & Dreser, 659,202
Micrometer or similar gage, Brooker & Baxter, 659,570
Milk and cream separator, P. C. Smith, 659,494
Milk cooling apparatus, J. A. Myers, 659,375
Miner's separating pan, A. J. Ketselsen, 659,237
Mining machines, cutting chain for, H. H. Mercer, 659,348
Miscellaneous, C. W. Dehn, 659,213
Molder's chaplet or anchor, Haskins & Fisher, 659,444

(Continued on page 254)

Letters copied while Writing. No press; no water; no brush; no work. Any ink; any pen; any paper. Our Pen-Carbon never smuts; our clip holds paper firm. Write with no extra pressure, and our Pen-Carbon Letter Book produces a perfect copy. PEN-CARBON MANIFOLD CO., 145-7-9 Centre Street, New York.

Perfection Electric Alarm Clock. A great improvement over the ordinary alarm clock. Rings until you get up and stop it. THE J. JONES & SON CO., 64 Cortlandt Street, New York.

SAVE ONE-HALF YOUR FUEL. We Tell You How. FUEL. Rochester Radiator Co., 26 Furnace St. Rochester, N. Y.

\$5.00 A DAY EASY FOR ALL WILLING TO WORK. Gold, Silver, Nickel, Metal Plating. FREE. Write today. Pamphlet, samples, etc. FREE. D. GRAY & CO., Plating Works, CINCINNATI, O.

Awarded "GRAND PRIX" Paris Exposition 1900. Gaeger UNDERWEAR. PURE WOOL. New York: 16 West 23d St., 166 Broadway. Brooklyn: 504 Fulton St. Boston: 129 Tremont St. Philadelphia: 924 Chestnut St. Chicago: 74 State St.

N. Y. CAMERA EXCHANGE. 50% Saved on all makes of Cameras. Headquarters for Buying, Selling and Exchanging Cameras or Lenses. N. Y. CAMERA EXCHANGE, 114 Fulton St., NEW YORK

Crest Mfg. Co., CAMBRIDGEPORT, MASS. 3 & 5 H. P. MOTORS. Lightest Motor per H. P. Made. CREST INDESTRUCTIBLE SPARKING PLUG. GUARANTEED.

A. W. FABER. Manufactory Established 1761. LEAD PENCILS, COLORED PENCILS, SLATE PENCILS, WRITING SLATES, STEEL PENS, GOLD PENS, INKS, PENCIL CASES IN SILVER AND IN GOLD, STATIONERS' RUBBER GOODS, RULERS, COLORS AND ARTISTS' MATERIALS. 78 Reade Street, New York, N. Y. Paris Exposition, 1900. Grand Prize. Highest Award.

ARTESIAN. Wells, Oil and Gas Wells drilled by contract to any depth from 50 to 3000 feet. PIERCE WELL ENGINEERING AND SUPPLY CO., 136 LIBERTY STREET, NEW YORK, U. S. A.

SENSITIVE LABORATORY BALANCE. By N. Monroe Hopkins. SUNART CAMERAS. MEET ALL REQUIREMENTS. 28 STYLES. PRICES \$5 TO \$50. SEND FOR CATALOGUE TO SUNART PHOTO CO., ROCHESTER, N. Y.