

Business and Personal.

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THE SINGER MFG COMPANY'S CASE FACTORY, SOUTH BEND, IND., NOV. 4, 1881.

H. W. Johns Mfg Co., New York: GENTLEMEN: Some of your Asbestos Roofing was used to cover our dry kilns during 1879, and at this date is in good order. The under side of roof is exposed to steam and acid generated in drying lumber, and a temperature of 250 deg. heat.

While the roof rafters and sheathing have cracked by the heat, your roofing shows no signs of damage. Tin roofs painted both sides proved to last but a few months, while the ordinary gravel roofs are useless on our kilns.

Yours very truly, THE SINGER MFG CO. L. PINE, Supt.

For the Garden and Farm.—A great variety of Seeds and Implements. Send for catalogue. Address R. H. Allen & Co., P. O. Box 376, New York city.

To Stop Leaks in Boiler Tubes, use Quinn's Pat. Ferrules. Address S. M. Co., 80 Newmarket, N. H.

The Berryman Feed Water Heater and Purifier and Feed Pump. I. B. Davis' Patent. See illus. adv., p. 44.

Light and Fine Machinery and Tools to Order. Lathe catalogue for stamp. Edward O. Chase, Newark, N. J.

Chemist's Pocket Book.—For Chemical Manufacturers, Metallurgists, Dyers, Distillers, Brewers, Sugar Refiners, Photographers, etc. By Thomas Bayley. \$2, mail free. E. & F. N. 2pon, 46 Broome St., New York.

Patent Wanted.—I want to buy whole or part interest, or manufacture on royalty. Address H. C. Lyon, New York.

Manufacturers, Steam Boiler Owners, Towns and Cities desiring pure water, send for circular to the Newark Filtering Co., Newark, N. J.

Malleable and Gray Iron Castings to order, by Capital City Malleable Iron Co., Albany, N. Y.

For Power & Economy, Alcott's Turbine, Mt. Holly, N. J.

Combination Roll and Hubber Co., 27 Barclay St., N. Y. Wringer Rolls and Moulded Goods Specialties. Send for Pamphlet of Compilation of Tests of Turbine Water Wheels. Barber, Keiser & Co., Allentown, Pa.

List of Machinists in United States and Canada, just compiled; price \$10. A. C. Farley & Co., Philadelphia. Presses & Dies (fruit cans) Ayar Mach. Wks., Salem, N. J.

Latest Improved Diamond Drills. Send for circular to M. C. Bullock, 89 to 88 Market St., Chicago, Ill.

Wood Working Machinery of Improved Design and Workmanship. Corlesman, Egan & Co., Cincinnati, O.

"How to Keep Boilers Clean," and other valuable information for steam users and engineers. Book of sixty-four pages, published by Jas. F. Hotchkiss, 84 John St., New York, mailed free to any address.

Supplement Catalogue.—Persons in pursuit of information on any special engineering, mechanical, or scientific subject, can have catalogue of contents of the SCIENTIFIC AMERICAN SUPPLEMENT sent to them free. The SUPPLEMENT contains lengthy articles embracing the whole range of engineering, mechanics, and physical science. Address Munn & Co., Publishers, New York.

Split Pulleys at low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

Malleable and Gray Iron Castings, all descriptions, by Erie Malleable Iron Company, limited, Erie, Pa.

Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., M. Lloyd, Son & Co., Pittsbg, Pa.

Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss, Brooklyn, N. Y.

Cope & Maxwell Mfg Co.'s Pump adv., page 45.

For Pat. Safety Elevators, Hoisting Engines, Friction Clutch Pulleys, Cut-off Coupling, see Frisbie's adv. p. 45.

Safety Boilers. See Harrison Boiler Works adv., p. 44.

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 45.

Improved Skinner Portable Engines. Erie, Pa.

Clark & Heald Machine Co. See adv., p. 62.

Ajax Metals for Locomotive Boxes, Journal Bearings, etc. Sold in ingots or castings. See adv., p. 61.

Draughtsman's Sensitive Paper, T. H. McCollin, Phila., Pa. For Mill Mach'y & Mill Furnishing, see illus. adv. p. 60.

Common Sense Dry Kiln. Adapted to drying of all material where kiln, etc., drying houses are used. See p. 62.

The Porter-Allen High Speed Steam Engine. South-work Foundry & Mach. Co., 460 Washington Ave., Phila., Pa.

Skinner's Chuck. Universal, and Eccentric. See p. 61.

See Bentel, Margand & Co.'s adv., page 76.

Silica Paints (not mixed); all shades. 40 Bleeker St., N. Y.

Machine Diamonds, J. Dickinson, 64 Nassau St., N. Y.

Steam Hammers, Improved Hydraulic Jacks, and Tube Expanders. R. DuRoi, 24 Columbia St., New York.

50,000 Sawyers wanted. Your full address for Emerson's Hand Book of Saws (free). Over 100 illustrations and pages of valuable information. How to straighten saws, etc. Emerson, Smith & Co., Beaver Falls, Pa.

Eagle Anvils, 10 cents per pound. Fully warranted.

Peerless Colors for Mortar. French, Richards & Co., 410 Callowhill St., Philadelphia, Pa.

Elevators, Freight and Passenger, Shafting, Pulleys and Hangers. I. S. Graves & Son, Rochester, N. Y.

Gould & Eberhardt's Machinists' Tools. See adv., p. 77.

Gear Wheels for Models (list free); Experimental Work, etc. D. Gilbert & Son, 212 Chester St., Phila., Pa.

Barrel, Key, Hoghead, Stave Mach'y. See adv. p. 76.

For Heavy Punches, etc., see illustrated advertisement of Hilles & Jones, on page 76.

Centrifugal Pumps, 100 to 35,000 gals. per min. See p. 77.

The Medart Pat. Wrought Rim Pulley. See adv., p. 76.

Our goods speak for themselves, and a trial will convince the most skeptical of their superiority over all others. Lehigh Valley Emery Wheel Co., Lehigh, Pa.

Pays well on small investment.—Stereopticons, Magic Lanterns, and Views illustrating every subject for public exhibitions. Lanterns for colleges, Sunday schools, and home amusement. 116 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., N. Y.

Combined Concentric and Eccentric Universal and Independent Jaw Chucks. The Pratt & Whitney Co., Hartford, Conn.

For best low price Planer and Matchner, and latest improved Sash, Door, and Blin Machinery, send for catalogue to Rowley & Hermance, Williamsport, Pa.

C. B. Rogers & Co., Norwich, Conn. Wood Working Machinery of every kind. See adv., page 77.

Portable Power Drills. See Stow Shaft adv., p. 76.

The only economical and practical Gas Engine in the market is the new "Otto" Silent, built by Schleicher, Schumm & Co., Philadelphia, Pa. Send for circular.

The Sweetland Chuck. See illus. adv., p. 78.

Electric Lights.—Thomson Houston System of the Arc type. Estimates given and contracts made. 631 Arch, Phil.

Ore Breaker, Crusher, and Pulverizer. Smaller sizes run by horse power. See p. 77. Totten & Co., Pittsburg.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solomon's Parallel Vise, Taylor, Stiles & Co., Riegelsville, N. J.



HINTS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the writer.

Names and addresses of correspondents will not be given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest, should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the SCIENTIFIC AMERICAN SUPPLEMENT referred to in these columns may be had at this office. Price 10 cents each.

Correspondents sending samples of minerals, etc., for examination, should be careful to distinctly mark or label their specimens so as to avoid error in their identification.

TO OUR CORRESPONDENTS.—The destruction of our old offices by fire January 31, 1882, caused the loss of a considerable number of inquiries from correspondents and of our replies thereto, which we had in hand for publication. Those of our friends who find their inquiries neglected will know from the above the reason why; and they will oblige the editor by repeating their inquiries without delay.

(1) J. B. L. asks: What is the explosive matter used in caps for toy pistols? Have tried chlorate potash and flour sulph; chlorate 2 grains to sulph., 1 grain. Will not work. I have also tried charcoal and chlorate, but without success, though the preparation explodes in a mortar. A. Usually a mixture of gunpowder and potassium chlorate. See Fulminating Compounds, page 48, volume xlv.

(2) F. F. writes: What can I put in sperm oil to prevent its gummy? A friend suggests a solution of soda. How could I mix it? Is there anything better that I could try, as I should think that the solution of soda would rust the machinery? A. Alkali will not accomplish what you require. The oil is usually treated by exposing it to contact with lead shavings for a few days. See "Lubricants," SUPPLEMENT No. 316.

2. Is sulphur good to cool hot bearings; and why? or what is the nature of sulphur, that it reduces the friction? A. No; when mixed with a heavy fluid vehicle it can sometimes be used advantageously on heavy bearings to relieve friction.

(3) B. C. B. writes: Is there any acid or compound that will dissolve or cut out the lime deposit in the waterback of a stove where hard water is used? A. We know of nothing that could be safely applied in the way proposed. Any solvent that would take out the lime would be apt to corrode the iron.

(4) F. H. L. asks what it is that is used on paper and silk that when it is exposed to heat or dampness will change from blue to pink—being blue when exposed to heat or dryness, and pink when exposed to cold or moisture. A. The liquid you refer to is very probably a dilute aqueous solution of pure cobalt chloride.

(5) J. B. G. asks: By what means can I blue the barrel of a gun or make it look like blue steel? I think chloride of iron and gallic acid are two of the compounds used, but I wish to be certain of it. A. Try the following: Scour the steel with a small quantity of a strong aqueous solution of soda, rinse in water, warm, and brush over with a solution of a quarter of an ounce chloride of iron dissolved in five ounces of water, and let it dry; then apply in the same manner a solution of one-fifth of an ounce pyrogallic acid in one ounce water, dry, and brush. Does not wear well without lacquering. The blue oxide is sometimes imitated by using a thin alcoholic shellac varnish colored with aniline blue or Prussian blue.

(6) R. S. M. writes: The countershaft of my planer and matcher broke square off, just at the edge of the journal. It is attached to frame, has three bearings, and ran smooth and had no jar. It just came in two, and stopped while running smooth. A. The probability is that the journal bearings were not in line, and the shaft was sprung at every revolution, until a break occurred, like bending a wire many times across the finger.

(OFFICIAL.) INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending January 17, 1882, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

Alarm. See Firealarm. Attrition mill, H. A. Duc, Jr. 252,361. Axle box, car, J. R. Cooper 252,357. Axle box, car, J. C. Richardson 252,591. Ball bending machine, S. Vanstone 252,551. Barber's paper clip, M. Cohen 252,430. Basin, flushing, B. Williams 252,344. Bed bottom, spring, D. L. Campbell 252,425. Bed bottom spring, J. V. Jarrett 252,459. Bed, cot, C. H. Hard 252,469. Beestead, A. P. Brown 252,354. Beestead, N. T. Melvin 252,490. Belt lifter, A. Gairing 252,453. Benzole from gas obtained by distillation of coal, manufacture of, J. A. Kendall 252,473. Bicycle head blanks, die for forging, H. B. Hicks 252,461. Billiard table adjuster and leveler, O. F. Hoover 252,373. Blankets, putting up, D. A. Swaney 252,540. Blotter, T. C. Townsend 252,546. Board, See Electric switch board. Sign board. Boat raising, lowering, and detaching apparatus, G. G. Laurence 252,490. Boiler furnace, W. Ennis 252,445. Bolt. See Chain bolt. Bolt, C. H. Goebel 252,310. Bolt heading machine, J. C. Duckworth 252,440. Boot and shoe heel, J. Kieffer 252,474. Bottle, drop, C. Gebert 252,454. Bottle stopper and fastener therefor, G. B. Stuart 252,539. Box. See Axle box. Cuff box. Packing box. Box, W. Livingstone 252,389. Box cover press, E. Austin 252,414. Bracelet and clasp, W. C. Edge 252,441. Bracelet, spring hinged, A. H. Engel 252,444. Brake. See Wagon brake. Branding chute, R. York 252,345. Bread and meat slicer, S. L. Denney 252,360. Bread cutter, A. Moore 252,325. Brick kiln, E. N. Hutchison 252,319. Bridge, J. B. McPherson 252,487. Bugzy, adjustable, W. T. Angus 252,411. Burner. See Vapor burner. Burning air and hydrocarbon vapors, device for, M. G. Fagan 252,307. Button spring, L. Goulding 252,311. Button, swivel, S. O. Parker 252,509. Cable, anti-induction, W. R. Patterson 252,511. Cake pan frame, W. J. Cashen 252,428. Calipers, L. B. Woodruff 252,410. Can. See Oil can. Sheet metal can. Candle, illuminating, R. F. W. Loper 252,590. Car coupling, E. J. Roberts 252,520. Car coupling, L. Wilkerson 252,562. Car door fastening, C. C. Kilts 252,384. Car roof, G. B. Simons 252,532. Car, stock, G. F. Patterson 252,399. Car ventilator and dust arrester, C. C. MacConnell 252,390. Carbon conductors, apparatus for the preparation of, L. K. Böhm 252,351. Carbons, manufacturing, L. H. Latimer 252,386. Carpet sweeper, M. G. Stolp 252,402. Carriage spring, G. Pennoyer 252,326. Case. See File case. Cattle tie, A. Bynell 252,424. Chain bolt, C. H. Goebel 252,309. Chair. See Opera chair. Wheel or nursery chair. Chart, dress, E. E. Palmer 252,507. Chart for draughting garments, E. J. Linck 252,388. Chopper. See Cotton chopper. Churn washer, Taylor & Hamilton 252,335. Churn power, steam, T. Mayhew 252,323. Cigarette, H. A. Cuppia 252,358. Cigarette paper, A. V. D'Costa 252,437. Clamp. See Cultivator standard clamp. Rope clamp. Clip. See Barber's paper clip. Clock movement, A. E. Hotchkiss 252,495. Clock movement, B. B. Lewis 252,588. Clothes drier, rotary, H. Palmer 252,506. Coffee beans, apparatus for drying, W. A. Diesel-dorf 252,439. Coffee substitute, L. Chiozza 252,422. Colors upon vegetable fibers, producing azo, T. Hohlway 252,317. Compound engine, G. B. Massey 252,485. Cooler. See Milk cooler. Copper and silver from their ores, extracting, J. Deby 252,593. Corn sheller, H. A. Hawkins 252,373. Cotton chopper and cultivator, J. D. Patterson 252,510. Cotton opener, R. Kitson 252,583. Coupling. See Car coupling. Thill coupling. Cream of tartar, manufacture of, E. Muller (r) 10,011. Crimping machine, rand and welt, M. C. Flint 252,366. Cuff, I. P. Turner 252,341. Cuff box, I. P. Turner 252,340. Cultivator, M. Pate et al. 252,508. Cultivator, W. B. Young 252,572. Cultivator standard clamp, H. C. Stahl 252,536. Curtain fixture, Darling & Nicholson 252,359. Cutter. See Bread cutter. Peg cutter. Dairy vat, D. H. Burrell 252,574. Dial, sun, H. A. Behn, Jr. 252,418. Digger. See Potato digger. Disinfecting compound, D. Warren 252,555. Disinfecting device, water closet, D. Warren 252,556. Door hanger, E. U. Scoville 252,527. Door spring, A. B. Tanner 252,541. Double tree, E. Spear 252,535. Drier. See Clothes drier. Driving wheel, J. A. Hafner 252,427. Drying machine, centrifugal, T. Long 252,488. Electric lights, circuit regulating device for, C. M. Ball 252,347. Electric machine, dynamo, C. A. Hussey 252,380. Electric machines, commutator for dynamo, A. G. Waterhouse 252,405. Electric signal printing register, automatic, Wood & Brower 252,409. Electric signaling apparatus, automatic, Brower & Wood 252,353. Electrical switch board, J. B. Odell 252,395. Elevator. See Grain elevator. Hay elevator. Embroidering, M. Hoffmann 252,377. End gate, J. W. Handayside 252,458. End gate, wagon, D. H. Bauer 252,415. Engine. See Compound engine. Locomotive engine. Pumping engine. Reciprocating engine. Rotary engine. Excavator, coal, H. Wilverth 252,565.

Extractor. See S extractor. Fanning machine, Flowers & Talmage 252,367. Fare register, J. B. Benton 252,417. Feather trimming, ostrich, J. Hawlowetz 252,374. Fence, I. L. Landis 252,479. File case, index, H. E. Moon 252,394. File for bills, etc., J. T. Chynoweth 252,356. Fire alarm, E. Earley 252,362. Fire escape, B. Taylor 252,592. Fire extinguisher, automatic, P. Oriolle 252,501. Fire kindler, J. W. Blaisdell 252,420. Fish trap, Hoxie & Collins 252,466. Fishing reel, J. Vom Hofe 252,554. Fork. See Hay fork. Frame. See Cake pan frame. Piano action frame. Frame house, J. Boyd 252,302. Furnace. See Boiler furnace. Gas, method of and apparatus for the manufacture of combustible, N. A. Otto 252,503. Gate. See End gate. Sliding and swinging gate. Gate, N. C. Cooley 252,433. Glazier's points, machine for setting, G. W. Hubbard 252,379. Grain binder, S. D. Locke 252,482. Grain binder, automatic, P. F. Hodges 252,463. Grain elevator, E. C. Hinkley 252,376. Grain separator, J. Grube 252,314. Graphoscope, folding, J. Lee 252,321. Gun and gun carriage, D. M. Mefford 252,488. Halter and bridle trimming, J. S. Nelson 252,500. Hanger. See Door hanger. Harvester, S. M. Krigbaum 252,478. Harvester, W. N. Whiteley 252,561. Harvester, corn, E. W. Quincy 252,328. Harvester cutting apparatus, E. P. Curtis 252,575. Harvesting machines, adjusting the grain wheel of, W. K. Miller 252,495. Hay elevator and conveyer, S. E. Winsor 252,566. Hay elevator and stacker, J. Dain, Jr 252,303. Hay fork, C. Friberg 252,308. Hay rake, M. Butler 252,586. Hay stacker, L. W. Carson 252,427. Hay tedder, J. W. Ruhl 252,522. Hemp washer, T. J. Ferguson 252,365. Hinge, spring, G. M. Jewett 252,470. Hoisting bucket and dump car, combined, J. F. Taylor 252,542. Holder. See Pistol and carbine holder. Sash holder. Horseshoe, P. McCabe 252,393. House. See Frame house. Ice creeper, etc., H. Bland 252,549. Indicator. See Scale indicator. Jack. See Shoemaker's jack. Key. See Pole changing key. Kiln. See Brick kiln. Lamp, electric, M. G. Farmer 252,364. Lamp, electric, H. S. Maxim 252,391. Lamp, electric, J. Olmsted 252,396. Lamp or cigar lighter, hydrogen, F. Rhind 252,518. Lamps, carbon holder for electric, A. G. Waterhouse 252,404. Lantern for bicycles, P. Gray 252,371. Lantern, tubular, E. J. Hale 252,315. Lathe for trimming eccentric or polygonal forms, W. H. Lenhart 252,481. Leather dressing machine, W. Goodman 252,369. Life preserver, A. McDonald 252,324. Lifter. See Belt lifter. Pattern lifter. Light. See Skylight. Lock. See Nut lock. Permutation lock. Lock, W. H. Taylor (r) 10,012. Locomotive engine, H. F. Shaw 252,331. Loom shedding mechanism, J. Denton 252,488. Measuring machine, cloth, A. Winter 252,567. Meat roaster, T. A. Gardner 252,377. Mechanical movement, C. H. Trask 252,399. Milk cooler, E. F. Smith 252,534. Mill. See Attrition mill. Rolling mill. Millstone driver, L. P. Weaver, Jr 252,557. Mirror, illuminate, Loth & Sinick 252,382. Moulding machines, guard for variety, G. Grill 252,513. Motor escapement, H. H. Hobert 252,581. Mower, lawn, M. Braun 252,352. Musical instruments, music rack for, W. H. Ivers 252,587. Necktie fastener, J. Goldberg 252,456. Nut lock, G. B. Hill 252,462. Nut lock, J. M. Williams 252,564. Nut lock, J. A. Simpson 252,530. Oil can, Righter & Griffith 252,519. Oil for mixing paints, treatment of resin, F. M. Reed 252,516. Opera chair, E. J. Smith 252,533. Ore washer, W. S. Wood 252,569. Organ bellows, J. W. Trainer 252,338. Packing and lining fabrics, machinery for manufacturing, R. H. Thompson 252,547. Packing box for fruit jars, etc., N. F. Tipton 252,544. Paint, distemper, W. S. & L. F. Welch 252,553. Pantry dresser, and sideboard, combined portable, L. O. Hudson 252,318. Paper bag machines, folding mechanism for, D. Appel 252,412. Paper feeding machine, J. C. Kneeland 252,477. Pattern lifter, Innis & Kane 252,382. Peg cutter, rotary, H. C. & J. N. Tower 252,337. Perforating checks and drafts, machine for, S. Ullman 252,500. Permutation lock, removable, R. W. Thurman 252,396. Piano action frame, upright, P. Gmelin 252,517. Pistol and carbine holder, L. S. Flatau 252,448. Planter, corn, L. Scofield 252,526. Planter, cotton, H. C. Tillery 252,543. Plow, D. P. Bigelow 252,519. Plow, F. Nitschmann 252,585. Pole changing key, W. E. Atbearn 252,346. Porch iron, H. S. Stauffer 252,401. Potato digger, H. Strait 252,538. Power. See Churn power. Power, apparatus for the transmission of, J. da Silva Sertori 252,529. Press. See Box cover press. Projectile, D. M. Mefford 252,489. Pump, C. Blasenroff 252,390. Pump, G. R. Hunter 252,463. Pumping engine, duplex, Reynolds & Rider 252,517. Quilting machine, Happe & Newman (r) 10,009. Radiator, steam, T. P. Hardy 252,580. Railway alarm signal, T. H. Gibbon 252,378. Railway safety device, J. Gogerty 252,368. Railway signal, electric, Lebac & Loiseau 252,397. Railway signal, electric, C. D. Tisdale 252,545. Rake. See Hay rake. Reaping machine, W. K. Miller 252,494. Reciprocating engine, L. B. Greer 252,579. Reel. See Fishing reel. Refrigerating, method of and apparatus for, T. S. Very 252,553. Register. See Fare register. Roaster. See Meat roaster. Rolling metal roll for, F. Holub 252,464. Rolling mill, W. E. Harris 252,460.