



If the air, on being compressed, is allowed to cool, its pressure will be decreased. Then, if it expands, and does work, its temperature will fall: and if it is recompressed, without loss from radiation, its temperature and pressure will again be increased.

(38) A. A. P. says: Suppose I take a cylinder of iron that will hold a gallon of water, more or less: Can I increase the power of a press in using all the water at once, without introducing the water gradually into the cylinder? A. Yes.

(39) S. B. asks: How long can a man live in a submerged boat, the air capacity of which is 200 gallons? A. With proper arrangements, the vessel would contain a supply of air sufficient for between 1 and 2 hours.

(40) G. W. S. says: I tried to extract potash from corn cobs by burning the cobs to ashes, and leaching them with water. I then boiled the leachings to dryness, and the potash which was the result would attract moisture from the atmosphere and turn to a strong lye. How can I prevent this? A. The product you obtained was, undoubtedly, pearl ash, an impure carbonate of potash.

(41) C. M. R. asks: How can I coat some small castings, made of Babbitt metal or pewter, with tin or some white metal to keep them white? A. Make your castings of Babbitt metal; and they will wear well and keep as clean and bright as tin would.

(42) G. A. M. L. asks: What is the composition and process of manufacture of common white shirt buttons? A. Some varieties of these buttons are made as follows: Finely powdered steatite is saturated with soluble glass, dried, and repulverized, and the powder thus obtained is pressed into molds by suitable machinery.

(43) J. A. H. asks: Where is the Pennsylvania soapstone dug or quarried? A. At Texas, Nottingham, Unionville; in South Mountain, ten miles from Carlisle; and at Chestnut Hill, on the Schuylkill.

(44) A. L. S. asks: How can I perfume soft wood in pieces three inches long? A. The wood might doubtless be impregnated, by means of hydraulic pressure, with any of the essential oils, etc., but we know of no substance the perfume of which might be considered as permanent or inexhaustible.

(45) A. C. W. asks: What preparation will make gutta serena stick to wood? A. Melt together equal parts of pitch and gutta serena. Apply hot.

(46) E. H. asks: 1. What influence has vegetable charcoal on the system? The dose is a teaspoonful in water. A. Its antiseptic properties render it a valuable medicine in some affections.

(47) W. H. W. asks: How is compressed yeast made? A. It consists usually of beer lees, flour moistened with beer, and other fermented matter, the superfluous moisture having been removed by pressure.

(48) E. D. R. says: J. D. can clarify his cider by adding to each barrel of it 1 pint boiling milk; if the cider contains enough free acid to coagulate the milk, the coagulum, in precipitating, carries down with it all impurities held in suspension in the cider; this process has the effect of decolorizing the cider in some degree.

(49) S. S. S. says: I have been experimenting for 10 years on gums, trying to bleach them. I have succeeded with shellac, sandarac, copal, etc., but have not yet been able to bleach a solution of dark gum arabic.

(50) H. C. asks: How long does it take the moon to make a revolution around the earth? A. The moon makes the tour of the heavens in a mean or average period of 27d., 5h., 43m., 11s., returning, in that time, to a position among the stars nearly coincident with that it had before.

COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

- On the Qualities of Sounds. By W. J. S.
On Industrial Expedients. By
On Fog Signals. By W. B. T.

On Aerial Navigation. By E. M. B.
On Northern Lights. By L. B.
On a Solar Chronometer. By H. C. P.
On Advice to Engineers. By C. C. J.
On Repairing Bells. By J. E. E., and by J. H. B.

Also inquiries and answers from the following:
J. G.—B. A. P.—J. M. P.—J. J. M.—R. J. F.—H. B.
J. J.—N. R.—W. B. W.—E. T. H.—T. E. C.—J. T. N.—E. G. F.

HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Hundreds of inquiries analogous to the following are sent: "Who sells the best photographic chemicals? Who makes the best brick-pressing machine? Who sells piano wire, in lengths of a mile and upwards? Whose is the best printing press for illustrated book work?"

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week ending August 24, 1875, AND EACH BEARING THAT DATE.

(Those marked (\*) are reissued patents.)

Table listing inventions and their patent numbers, including: Alarm register, Anchor tripper, Animal poke, Auger, Axles, Bealstead fastening, Bessemer converters, Boats, Boiler feed regulator, Boiler, fuel and tubular, Bolt-heading machine, Bottle stopper, Brick machiner, Bridge, arm, Bridge, truss, Bridge, compensatory, Broom-making machine, Buckle, lever, Buckle loop, Burner, argand gas, Burner, lamp, Butter from animal fat, Butter worker, Can, oil, Can and umbrella, Car brake, Car coupling, Car coupling, W. H. Ward, Car, hand, Car, lumber, Car, passenger, Car wheel lubricator, Cars, propelling, Cars on curves, Card, business, Carriage bow, Carriage spring, Carriage springs, Cartridge cases, Cartridges, feeding, Casting water traps, Center board, Chain, detachable link, Chair, folding, Chair leg rest, Champagne freezer, Check reins, Cheese vat, Chimney owl, Chuck, Perot & Beitenman, Clamp, T. Sanbach, Cloth measure register, Clothes frame, Columns, etc., capping flanges, Commode ventilator, Compass, mariner's, Core barrel, Corn mark, Cornstark puller, Crane, I. Hahn, Culinary implement, Culinary vessel, Cultivator teeth, Currycomb, Currying calf skins, Curtain roller and bracket, Desk, folding school, Drill, rock, Drilling metal, machine, Eggs, preserving, Engine, disk steam, Engine, rotary, Exercising machine, Exhaust mechanism, Faucet, A. Fuller, Faucet, beer, Fence, farm, A. Miller, Fence tightener, Fens, etc., preserving, Fire arm lock, Fire arm, attaching magazine, Fire plac, A. C. S. Rankin, Flask and bottle, Flour bolt, Fluxing composition, Fracture apparatus, Fruit and jelly press, Fuel, making quick burning, Furnace for reducing ore, Furnace for smelting ore, Furnaces, steam blast, Gas for fuel, grate for, Gas machine, Gas stove, Gate, automatic, Gelatin from salt fish skins, Grain drill, Grate bar, Grate bar, H. Ryder, Grate bar, S. Van Syckel, Harness mounting, Harrow, W. S. O'Brien, Harrow and cultivator, Harvester, S. W. Tyler, Hat, C. Sinclair, Hat blocking machine, Hat blocking machine, etc., Heater, air and water, Heater, drum, C. Skinner, Heel plate, Heel-trimming machine, Hinge, spring, Horse collar and hame, Horses, expanding bit for, Horseshoe blanks, Horseshoes, making, Horseshoeing tool, Hose bridge, Indicator, low water, Insect destroying compound, Jeweler's screw dress, Key fastener, Kindling wood bale, Label and tag machine, Ladder, step, Lamp, S. S. Newton, Lamp, B. B. Schneider, Lamp black apparatus, Lamp bowls, pedestals, attaching, Lantern, J. J. Marcy, Lantern, magic, Latch, locking, Lawn roller, Lead straps, Lime kiln, Lock permutation, Locomotive steam heater, Locomotive steambrake cylinder, Locomotives, cattle alarm for, Loom sheathing mechanism, Lubricator, car wheel, Malt, apparatus for drying, Marbleizing surfaces, Mechanical movement, Millstones, proof staff for, Mower, pitman box, Nail, picture, Nut lock, Ore washer, Overcoat, Oyster ranges, Packing for stuffing boxes, Packing piston, Paging and numbering machine, Paper bag machine, Paper box, Paper cutter rotary, Paper picture frame, Passenger register, Pencil, G. W. McGill, Photographic plate, Pipe coupling, Piston connecting, self-packing, Planing machine, Plow clevis, Power brake, Power, spring, Propeller, screw, Pump, chain, Pump, force and suction, Pump valve, lift, Purifier, midlings, Quicksilver in quartz, Railroad gate, Railroad rail joint, Rake, horse hay, Ranges, grate for oyster, Rice, polishing and scouring, Rivets, machine for drilling, Ruler, H. J. Richardson, Sash holder, Sausage meat mixer, Screw cutting die, Sewer trap and mold, Sewing machine needle, Sewing machine treadle, Sewing machine winder, Ship's swinging berth, Sifter, ash, Hull and Eppler, Spark arrester, etc., Freeman and Jones, Speaking tube, Stair rail joint fastening, Stamp mill feeder, Stereoscope, L. D. Sibley, Stove, J. W. Elliott, Strainer and funnel, Sugar machines, centrifugal, Susceptors, Syringe, combination, Table, ironing, Tacks, etc., making, Tealurian, J. Troll, Tongs, pipe, J. M. Everts, Toy block, arithmetic, Toy hoop or trundle, Toy money box, Trap, self-setting animal, Trunk, A. V. Romacka, Tube expander, Tyre-bending machine, Tyre heater, locomotive, Umbrella, G. W. Francis, Valves, handle attachment for, Valve, globe, Valve seats, etc., dressing, Valve, slide, Valve, device for operating throttle, Vehicle, side spar, Vehicle spring, E. Chamberlin, Vehicle spring, E. Chamberlin, Vehicle top, J. B. Relyea, Vehicles, side spar for, Ventilator cap, Vise, pipe and bolt, Wagon wheel, Wash bowl, hand, Washing and wringing machine, Washing fluid, Washing machine, Watch case spring, Watches, collet for springs, Watch independent case, Water closet, Water traps, mold for casting, Water wheel, turbine, Wax thread heating machine, Weather strip, Wells, torpedo for oil, Windmill, J. Q. Adams, Windmill, C. Gates, Window screen, Wire, straightening, Wool dryer, J. M. Dick, Wrench, J. H. Morrissey, Wringer, Norris and Woods.

Table listing inventions and their patent numbers, including: Vehicles, side spar for, Ventilator cap, Vise, pipe and bolt, Wagon wheel, Wash bowl, hand, Washing and wringing machine, Washing fluid, Washing machine, Watch case spring, Watches, collet for springs, Watch independent case, Water closet, Water traps, mold for casting, Water wheel, turbine, Wax thread heating machine, Weather strip, Wells, torpedo for oil, Windmill, J. Q. Adams, Windmill, C. Gates, Window screen, Wire, straightening, Wool dryer, J. M. Dick, Wrench, J. H. Morrissey, Wringer, Norris and Woods.

DESIGNS PATENTED.

- 8,572, 8,573.—EMBROIDERY.—E. Crisand, New Haven, Ct.
8,574.—FRAMES.—A. B. Dimmet, Bloomington, Ill.
8,575.—VASE HANDLE.—J. W. Fiske, New York city.
8,576.—FAN.—J. F. Langworthy, New York city.
8,577.—FINGER RING.—A. R. Lender, Washington, D. C.
8,578 to 8,580.—FANS.—S. L. Barnds, Memphis, Tenn.
8,581.—MEDAL.—J. C. Deming, Norfolk, Va.
8,582.—DANCE PROGRAMME.—P. Hake, Hoboken, N. J.

CANADIAN PATENTS.

LIST OF PATENTS GRANTED IN CANADA August 26 to 30, 1875.

- 5,115.—J. Roy, St. Jean Baptiste, P. Q. Chair for sick persons. August 26, 1875.
5,116.—L. Payette, Montreal, P. Q. Pontoon for raising sunken vessels. August 27, 1875.
5,117.—J. N. C. McIntosh et al., Ypsilanti, Mich., U. S. Shaft support. August 30, 1875.
5,118.—O. J. Siskles et al., Canton, N. Y., U. S. Milk cooler. August 30, 1875.
5,119.—J. D. Heebner, Norritonville, Pa., U. S., et al. Governor for horse powers. August 30, 1875.
5,120.—E. G. Scovill, Simonds, N. B., et al. Piling iron. August 30, 1875.
5,121, 5122.—G. N. Sanders, Jr., New York city. Spike. August 30, 1875.

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On application for Reissue. \$30
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