

F. H. H. says: If I make a square vessel with partitions cast in copper (all in one piece), filling each alternate compartment with zinc, would it produce an electric current? It is on the principle of the electric disk or soles, the only difference being that, in the disks and soles, the pieces of copper and zinc are connected and joined with copper wire, while this one of mine is one solid piece. Would the solid body of copper prevent the passage of a current? Answer: Your arrangement would not produce an appreciable electric current, as something more than mere contact of metals is required in a galvanic battery. It is true that in the dry pile, so called, a current of electricity is generated ordinarily, but not when the parts are perfectly dry, showing that moisture, which gives rise to chemical action, is necessary to produce an electric current. Even if a current were generated in your arrangement by the mere contact of zinc and copper, there are no means of isolating and making it available. If a current should flow from the zinc to the copper, it would return immediately by the copper connections, around to the zinc again, and vice versa. To make an effective galvanic battery, there must be chemical action upon one of the metals used, and the parts of the battery must be arranged and connected in a particular way. See "galvanic battery" in any text book on electricity.

W. A. J. says, in reply to C. C., who asked, on page 250 of our current volume, as to power of a hay press: If C. C. will measure the amount of chain taken up on his pulley at P while his follower travels 1/2 or 3/4 inch, he will readily get a ratio by which to multiply his 1,600 lbs. power, and that ratio will increase as his levers become nearer parallel. A very simple rule (which I have never seen published) for all purchases or leverages is: The distance which the resistance or object is moved is to the distance which the power applied moves as the ratio of the purchase or leverage. This rule applies to pulleys, gears, tackles, and all descriptions of levers. Take, for example, a compound lever punching machine, where you cannot measure the separate levers: The punch moves 1/2 inch, while the lever where it is grasped by the hand moves 30 inches; this gives a ratio of 60 to 1, that is, the lever moves 60 times as far as the punch, and 100 lbs. applied at that point of the handle will exert a pressure of 6,000 lbs. (less the friction of the machine) on the punch. With a tackle and fall, by the same rule, you hook your movable block to an object, and move it 1 foot; in doing so you have moved 20 feet of fall, which is 20 to 1. 100 lbs. power applied gives 100 x 20 = 2,000 (less friction). For a series of gears turned by a crank: A weight is winding up by a rope and has moved 1 foot; the crank is 1 foot long and has made 30 revolutions. A crank 1 foot long travels around a circle of 6 2/3 feet circumference; this, multiplied by 30 revolutions, makes 186 feet, the distance the power applied travels to every foot of rope wound up; and 186 multiplied by the power applied in pounds would give weight raised, less the friction. "With these rules and examples, I hope the readers of the SCIENTIFIC will be able to make their own calculations without troubling our editor, so that he may be able to give us something more valuable and interesting."

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined with the results stated:

J. S. H. P.—The specimen is limestone conglomerate, of no value, unless a chemical analysis should show the presence of some metal.

F. J. P.—Clay ironstone, interspersed with veins of limestone.

J. J. T.—The specimen is the debris from some disintegrated sandstone rock.

R. H. McG.—No. 1 is iron pyrites, used for the manufacture of oil of vitriol. Whether it will pay to mine, depends upon whether it would pay to manufacture sulphuric acid in your locality. No. 2 is a mixture of sandstone, clay, mica and oxide of iron, of no value.

B. K. D.—The specimens are quartz pebbles.

COMMUNICATIONS RECEIVED.

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

- On Carbonic Acid in Wells. By F. A. H.
On Elliptic Pulleys. By F. H. R.
On Traction Engines on Public Roads. By H. B. P.
On Spectacular Exhibition of Diffraction. By A. E. D.
On the Easterly Current. By J. E. V.
On the Fireless Locomotive. By J. P.
On Boiler Explosions. By —
On the Providence Pumping Engine. By D. B. K.
On a New Reactive. By J. T.

Also enquiries from the following: H. C. B.—Z. G. T.—W. H. B.—F. T. H.—H. B.—J. J. D.—J. G. M.—J. O'N.—A. L. H.—A.—F. S.—J. P. C.—H. M. McK.—W. H. C.—R. H. R.—J. V. R.

Correspondents in different parts of the country ask: Who makes the best files in the United States? Which is the cheapest ice making machine? Where can devil fish be bought by the dozen? Makers of the above articles will probably promote their interests by advertising, in reply, in the SCIENTIFIC AMERICAN.

Correspondents who write to ask the address of certain manufacturers, or where specified articles are to be had, also those having goods for sale, or who want to find partners, should send with their communications an amount sufficient to cover the cost of publication under the head of "Business and Personal" which is specially devoted to such enquiries.

[OFFICIAL.]

Index of Inventions

FOR WHICH

Letters Patent of the United States WERE GRANTED FOR THE WEEK ENDING

October 7, 1873,

AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

- Ankle supporter and filler, S. S. Berschmidt. 143,537
Auger, undermining, P. Sheldon. 143,535
Awning, H. Sykes. 143,542

Table listing various inventions and their patent numbers, including items like Axle, vehicle, T. F. Coleman; Bayonet socket, B. Burton; Bed bottom, A. Turnbull, (r); Bed bottom, spring, Ames & Frost; Bedstead, etc., fastening for, J. M. Baird; Bedstead, sofa, S. M. & S. A. Winn; Bellows for furnaces, operating, H. Crumlish; Belt fastening, P. Subit; Billiard table ball holder, H. W. Collender; Blinds, machine for wiring, C. McGill; Bolster, pillow, etc., C. P. Cooper; Boot jack, F. Dorsett, Sr.; Bullet, Rein & Stock; Burial case, J. B. Cox; Buttons, fastening, Johnson & Worth; Car coupling, A. W. Bobaker; Car coupling, Merrill & Kempton; Car coupling, S. A. Otis; Car coupling, J. B. Tracy; Car coupling attachment, Brown et al., (r); Car, hand, L. H. Kenyon; Car lamp, J. L. Howard; Car running gear, railroad, J. S. Lester; Car, stock, T. J. McCarty; Car stove, Mooney et al.; Carbueter, W. T. McMillen; Carbueter, I. W. Shaler; Carriage, child's, H. M. Richardson; Carriage and wagon seat, C. K. Lehmann; Carving machine, B. J. Tayman, (r); Chimney or flue attachment, J. E. Starnes; Chisel, C. E. L. Jelliffe; Cloth, manufacture of felt, J. E. Pollard; Coach and car truss, G. F. Chalender; Commode, J. D. Averell; Corset, J. Waterman; Corset clasp, J. Burke; Curtain fixture, H. H. Burritt; Dyeing, mordant for, G. A. Hageman; Electric railway signals, F. L. Pope; Engine, rotary steam, S. B. Frank; Envelope, Kuhn & Atkinson, (r); Feather renovator, R. B. Cooper; Fence, wood, R. F. Ward; Firearms, attaching magazine to, H. Metcalfe; Fountain and aquarium, J. Moore; Furnace, blast, E. B. Andrews; Furnace, cupola and other, L. Quincke; Furnace for tempering, etc., W. M. Watson; Furnace, hot air, O. S. Kelsey; Furnace, tyre heating, J. G. Rogers; Furnaces, operating bellows for, H. Crumlish; Gaining machine, J. Richards; Game register for cards, J. W. Sheppard; Gas machine, portable, B. Sloper; Gate, automatic, E. P. Wheeler; Gate, farm, W. S. Brown; Grain register, G. W. Nesmith; Hammers, die for forging, T. Daffin; Harrow, D. B. Maze; Harvester binder attachment, J. H. Garnhart; Heater, steam, P. H. Merrill; Heel burnishing machine, C. W. Glidden; Hemmer, O. L. Brown; Hoisting apparatus, G. B. Massey; Hoisting apparatus, Massey & Darling; Hook, sliding, P. J. Coon; Horses, grooming, J. J. Greenough, (r); Horses, device for attaching, S. Sykes; Hose bridge, E. Batzel; Hose coupling, W. Kilburn; Inking apparatus, F. L. Bailey; Knitting machine, L. D. Sanborn; Ladder, fire escape, G. Pfeeger; Lamp, F. Kampfe; Lamp, car, J. L. Howard; Lantern, signal, I. W. Shaler; Leather skiving machine, G. Andrews; Leather straps, waving or embossing, D. H. Unger; Liquids, freezing, S. S. Fitch; Lock, seal, J. E. Thomson; Locomotive head light, W. Westlake; Loom stop mechanism, Wheeler et al.; Lubricator, W. A. Pratt; Lubricator, J. Ross; Matter, treating refuse, C. Whittier; Medical compound, J. P. Barnett; Medical compound, F. Stitzel; Metal for casting plows, G. K. Smith; Mill, fanning, E. M. Gilbert; Musical instruments, pedal for, H. Haas; Nail extractor, G. J. Capewell; Ore, etc., separating, H. Bradford; Oven, baker's, D. McKenzie; Paper pulp, fibrous, A. Ungerer; Pavement, concrete, G. Bassett, (r); Picture frame, F. Reifschneider; Picture holder, stereoscopic, Samson & Smith; Pitman, J. Swan; Planter, corn, E. E. Henegan; Plow carriage, H. M. Bullitt; Press, book-holding, L. Heltkamp; Privies, sinks, etc., cleaning, R. R. Retowsky; Pulley block, A. S. Dickinson; Punching and shearing, S. R. Houser; Punching sheet metal, M. Stephens; Purifier, middlings, Brandon & Wiggin; Railroad rail joint, T. Rodes; Railroad signal, W. Wickersham; Railroad ticket holder, J. C. Maloy; Railroad tie, P. S. Devlan; Railroad time signal, G. B. Cummings; Ratchet rod, adjustable, E. H. Smith; Rein holder, E. Fahrney; Rivets, machine for heading, J. A. Wells; Roofing, sheet metal, R. A. Smith; Sad iron, B. Jones; Saw set, T. E. Grimes; Scaffold pole clamp, Haering & Alles; Seale pan, J. P. Chatillon; Screws, making metal, N. C. Hubbell; Separator, middlings, R. L. Downton; Sewing machine and water wheel, I. Hyde, (r); Sewing machine ruffler, A. Rush; Shears, A. Lapham; Shoe fastening, Fitch & Jones; Shutter fastening, A. J. Palmberg; Shutter worker, L. Muller; Slag, iron, etc., granulating, C. Wood; Slaughtering apparatus, M. Brenner; Soap alkalies, J. W. Wyle; Spinning machine condensing tube, J. Good; Stamp, ore, L. D. Webb; Staves, cutting gores in, C. Ruggles; Stove, car, Mooney, Van Dorn & Winterburgh; Stove flues, extension for, F. Warriner; Stove grate, G. W. Eltonhead; Stove grate, W. H. Stryker; Stove platform, C. Brownell; Streets of snow, clearing, R. A. Shinn; Suspenders, Potter & Smith, (r); Tables, slide for extension, Zen et al.; Teeth, artificial, W. C. Tracy; Teeth, retaining filling in, E. Osmond; Tenoning machine, Richards & Berry; Tobacco, etc., packing, J. H. 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Tables, slide for extension, Zen et al. 143,554
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Wire, machine for pointing, F. H. Aiken 143,486
Wood, etc., apparatus for graining, C. Falke 143,444
Wood paint, etc., Snow & Davis 143,472
Wood splitting machine, D. Milliken 143,455

APPLICATIONS FOR EXTENSIONS.

Applications have been duly filed, and are now pending for the extension of the following Letters Patent. Hearings upon the respective applications are appointed for the days hereinafter mentioned: 27,065.—COFFEE MILL.—J. & E. Parker.—Jan. 21. 27,262.—FARE BOX.—J. B. Slawson. Dec. 31.

EXTENSIONS GRANTED.

25,726.—BLIND WIRING MACHINE.—B. C. Davis. 25,738.—DOUBLE FRICTION COUPLING.—J. Hendy. 25,747.—EMERY WITH CAOUTCHOUC.—T. J. Mayall. 25,767.—CUTTING AND PANNING CAGES.—J. H. Shrote.

DESIGNS PATENTED.

6,900 to 6,908.—CARPETS.—R. R. Campbell, Lowell, Mass. 6,909 to 6,931.—CARPETS.—O. Heingke, New York city. 6,932.—CARPETS.—H. Horan, East Orange, N. J. 6,933.—LATHE DOG.—B. L. Lathrop, New Haven, Conn. 6,934.—CARPETS.—L. G. Malkin, New York city. 6,935.—MACHINE FRAME.—J. H. Marston, Boston, Mass. 6,936 & 6,937.—CARPETS.—D. McNair, Lowell, Mass. 6,938 to 6,941.—CARPETS.—E. J. Ney, New York city. 6,942 to 6,945.—CARPETS.—J. H. Smith, Enfield, Conn. 6,946.—TOY BANK.—T. Swann, Philadelphia, Pa. 6,947.—BUTTONS.—J. E. Wheeler, Westport, Conn. 6,948.—LAMP FOOT.—T. B. Atterbury et al., Pittsburgh, Pa. 6,949.—BUTT HINGE.—M. Bradley, Springfield, Mass. 6,950.—CARPET.—H. F. Goetz, Boston, Mass. 6,951.—OIL CLOTHS, ETC.—C. T. Meyer et al., Bergen, N. J. 6,952.—HATS.—J. S. Fayerweather, Bridgefield, Conn. 6,953.—SWORD HILT, ETC.—V. Price, New York city. 6,954.—PRINTING TYPE.—E. C. Ruthven, Philadelphia, Pa. 6,955.—ADVERTISING FRAME.—C. H. Shackford et al., Syracuse, N. Y.

TRADE MARKS REGISTERED.

1,481.—GIN.—J. W. Culbert, New York city. 1,482.—IRON AND STEEL.—Leng & Ogden, New York city. 1,483 to 1,486.—LIQUORS.—M. M. Smith, Chicago, Ill. 1,487.—SOAP.—W. L. Troxell, Brooklyn, N. Y.

SCHEDULE OF PATENT FEES:

Table with 2 columns: Description of fee and Amount. Includes: On each caveat \$10, On each Trade-Mark \$25, On filing each application for a Patent (17 years) \$15, On issuing each original Patent \$20, On appeal to Examiners-in-Chief \$10, On appeal to Commissioner of Patents \$20, On application for Reissue \$30, On application for Extension of Patent \$50, On granting the Extension \$50, On filing a Disclaimer \$10, On an application for Design (3 1/2 years) \$10, On an application for Design (7 years) \$15, On an application for Design (14 years) \$30.

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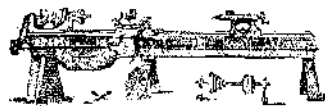
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