

(34) J. H. H. W. asks: 1. What battery power is required to decompose the ferrocyanide in Bain's telegraph? A. A current of one Weber or less is sufficient. 2. Would more or less be required if starch paste and iodide of potassium were substituted? A. Less, if an excess of starch is not used, and the paper not too thick or dry. 3. Would it require less battery power if an induction coil (such as is used in medical batteries) were connected? A. No. 4. Would a common medical magneto-electric machine be strong enough for the same purpose? A. Yes. 5. What is "sludge" acid? A. The name has been applied to the impure oil of vitriol from one of the operations in the purification of petroleum.

(35) J. A. asks: Will the inhalation, 4 or 5 hours daily of vapor rising from a vat containing a solution of 1 part oxalic acid and 3 parts alkali, in 2,000 parts water at a temperature environing 160° Fah., prove injurious to the health of the operator? A. Probably more injury would result from the constant steaming than from anything the vapor may contain.

(36) G. K. asks: Can water be raised practically for irrigation by means of a siphon out of a well in which the water stands 30 feet below the surface and 3 or 4 feet deep, to irrigate a plain which is about 35 feet below the level of the water in the well, and which (the plain) is about 200 or 300 yards distant from the well? Will such a siphon, of 4 or 6 inches diameter, if the water holds out, flow continually? Can you give me the quantity of water which a siphon of 3, 4, 5, or 6 inches diameter would discharge per minute? A. We do not think you could secure very efficient action under the conditions stated.

(37) W. B. asks: Is there a point that does not move in a revolving perfectly true shaft? A. All of the metal in a revolving shaft moves.

In filing a piece of softiron I noticed that the filings were magnetized. What caused them to become so? A. Files often become magnetic by use. The filings receive their magnetism from the file.

During the talk last year about the moons of the planet Mars, I noticed that they appeared very plainly in a mirror. But what caused my surprise was that they (the moons) kept the same position in regard to the mirror, not to the poles of the planet. Could you tell me the reason? A. The moons of Mars cannot be seen in an ordinary mirror. You simply saw the reflections of the planet on the two surfaces of the glass.

(38) E. B. L. writes: I have a small boiler and engine called 2 horse power, and we use it at about 60 lbs. pressure. We have water coming to our cellars in a 1/2 inch enameled iron pipe, distance about 1,200 feet, with a fall of 150 feet. Have I got pressure enough in this pipe of water to force itself into my boiler while running? The water runs about 5 gallons a minute or a trifle over. A. We doubt whether the pressure will be sufficient, but you can easily settle the question by connecting a gauge to the pipe.

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

R. McC.—Galena—lead sulphide. A valuable ore of lead.—S. L.—Pyrites—iron sulphide.—J. H. & J. F. S.—It is a bituminous lignite containing 5 to 6 per cent of ash. A excellent fuel.

COMMUNICATIONS RECEIVED.

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

- A Suggestion to Railroad Companies. By H. M. Color Blindness. By J. B. B. Vision. By A. Van B. Time and Motion Model of the Globe. By W. H. T. E.

HINTS TO CORRESPONDENTS.

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.

Many of our correspondents make inquiries which cannot properly be answered in these columns. Such inquiries, if signed by initials only, are liable to be cast into the waste basket.

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.

[OFFICIAL.]

INDEX OF INVENTIONS FOR WHICH Letters Patent of the United States were Granted in the Week Ending June 11, 1878, AND EACH BEARING THAT DATE.

[Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, and remit to Munn & Co., 37 Park Row, New York city.

Alloy for making shot, T. W. Sparks 204,856 Amalgamating chloridized ores, J. O. Stewart 204,773 Animal trap, D. R. Nichols 204,753 Animals, device for marking, Housum & Hill 204,736 Axle tree washer, Aspinwall & Clark 204,700 Bale tie, A. Jingsels 204,787 Bale tie, Rutherford & Hawkins 204,764 Battery, counterpoise, B. Kennon 204,831 Bee feeder, J. M. Shuck 204,767 Bee hive, J. E. Morgan 204,678 Bee hive, J. K. P. Venable 204,696 Bench hook, S. Smith 204,853 Binder, temporary, Brower & Adams (r) 8,277 Bit stock, H. C. Hart 204,727 Blind fastening, G. & J. Runton 204,762 Boiler plates, inserting bolts in, N. S. Barritt 204,650 Boiler, steam, Menzies & Blagburn 204,750

Bookbinder's dry press, etc., J. W. Jones 204,741 Book holder, E. & E. R. Young & Hafely 204,872 Boot legs, smoothing, etc., M. V. B. Ethridge 204,662 Boots and shoes, making, C. C. Ballou 204,785 Boxes, making wooden, A. A. & R. B. Hawley 204,668 Brake, automatic car, G. A. Neal 204,879 Brick kiln, E. W. Bingham 204,651 Brick machine, Z. Phillips (r) 8,284 Brick machine, S. Shreffler, Jr. 204,688 Bridge, truss, J. M. McDonald (r) 8,280 Bridle bit, J. A. Fairbanks (r) 8,278 Brush bridle, C. Boeckh 204,652 Burglar alarm, Taylor & Johnson 204,861 Button, E. S. & J. E. Wheeler 204,866 Button, sleeve, W. Bourke 204,706 Can, jacketed, W. S. Dyer 204,718 Cans, manufacture of sheet metal, E. T. Covell 204,656 Car, refrigerator, M. Haughey 204,729 Car seat and couch, N. B. Sherwood 204,848 Car, sleeping, E. Robinson 204,684 Car, sleeping, A. M. Smith 204,855 Carriage door, D. E. Gale 204,807 Carriage seat, C. H. Stratton 204,859 Cartridge extractor, G. H. B. Hooper 204,670 Centrifugal machine, P. B. Lawson 204,834 Chain, ornamental, H. A. Church 204,800 Chimney cowl, P. A. Dugan 204,804 Cigar tuck protector, G. E. Gumpert 204,815 Clothes drier, P. Dunbar 204,658 Coffee mill, R. L. Webb 204,865 Coffee pot and strainer, H. C. Rice 204,683 Colors, methyl aniline violet, H. Caro 204,797 Column, fireproof, P. B. Wight 204,867 Corn crib door, A. C. Holmes 204,738 Corn sheller, T. Brennan 204,653 Cotton gin and lint feeder, F. Streuby 204,690 Cotton, grain, etc., cleaning, J. Fitts 204,805 Crushing and pulverizing machine, G. E. Sherwin 204,849 Curtain fixture, C. W. Stowe 204,858 Dish, covered, S. W. Babbitt 204,784 Dock, dry, J. E. Simpson 204,689 Drawers, H. Cohn 204,714 Drill, cotton seed, W. E. Kelley 204,671 Dummy, adjuster, J. N. Lawrence 204,833 Dye stuffs, ethyl rosaniline, H. Caro 204,798 Dye stuffs produced from methyl aniline, H. Caro 204,796 Dye stuffs produced from naphthylamine, H. Caro 204,799 Ejector for oil wells, T. B. Gunning 204,725 Elevators, hatch for street, P. Hinkle 204,821 Engine regulator, steam, C. C. Jenkins 204,828 Evaporating pan, A. D. Martin 204,745 Eyelet making machine, Delkescamp & Bradley 204,716 Faucet, J. G. Schmidt 204,847 Feather renovator, B. Slater 204,769 Feed water regulator, H. E. Maxim 204,747 Fence barb, rail, C. P. Housum 204,735 Fence post, A. B. Smith 204,771 Fence wire fastener, R. W. Hargrave 204,818 Fences, driving barts into, C. P. Housum 204,734 Filter, cooler, and water forcer, J. Gainey 204,663 Firearm, breech-loading, J. McAlpine 204,675 Firearm, breech-loading, J. D. Slate 204,768 Firearm, magazine, F. W. Tiesing 204,863 Fire extinguisher for lint rooms, Z. N. Morrell 204,840 Fruit picker, McConnell & Dickerson 204,748 Gas burner, J. Mathewman 204,835 Gas burner, electro-magnetic, W. W. Jacques 204,822 Gas burners, making, G. Bray 204,709 Gear cutting machine, J. A. Peer 204,756 Governor controlling machine, J. S. Wilson 204,693 Governor, engine, C. C. 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Forrest 204,806 Last block fastener, C. C. Johnson 204,830 Leather waterproofing compound, W. P. Jenney 204,829 Liquid forcing apparatus, J. Neil 204,680 Lock, hasp, T. V. Allis 204,779 Loom shuttle attachment, W. A. Doherty 204,717 Lubricator, J. L. Knight 204,672 Mangle, J. F. Baldwin 204,701 Meat cutter, A. R. Gillis 204,811 Middlings separator, T. Newell 204,681 Motor, double acting fluid, D. G. Haskins 204,728 Nut lock, A. T. Hill 204,731 Nut machine, J. R. Blakeslee 204,705 Oatmeal machine, S. Miles 204,837 Ores, etc., crushing and grinding, T. McGlew 204,676 Organs, valve tremolo for, J. H. Holden 204,732 Packing, piston, M. Schneble 204,766 Packing, steam and hydraulic, C. S. C. Symonds 204,860 Pail, milk, S. Crane 204,802 Paper bag, J. Arkell 204,780 Paper chair seat and back, N. Harwood 204,667 Paper folding machine, W. Spalckhaver 204,772 Pavement, composition, J. C. Russell 201,763 Peat bricks, manufacture of, F. Hack 204,816 Pen, fountain, J. W. 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