

on manufactured goods from England. I have also tried experiments with the points of scratch brush; also the positive end of battery, with the goods hanging in a cyanide solution. This last gave me the best results, but is evidently not the thing. A. A "dead luster" is imparted to articles of copper or copper alloy by dipping them for a few minutes in a bath composed of—

Nitric acid (36°)..... 20 pounds.  
Sulphuric acid (66°)..... 10  
Salt..... ½ pound.  
Zinc sulphate..... ½ "

Mix the acids gradually, add the zinc salt, then the salt a little at a time (out-of-doors to avoid the acid vapors), stir well together, and let it get cold before using; rinse thoroughly, and pass through the cyanide before putting in the plating bath. When such a surface is plated with silver it presents the frosted appearance required. Dead luster gilding is produced by the slow deposition of a considerable quantity of gold, by giving the metallic surface a dead luster before gilding (by means of acids, by first preparing a coating of frosted silver or by depositing the gold upon a heavy copper deposit produced with a weak current in a bath of copper sulphate. See "Electrometallurgy," in SUPPLEMENT, No. 310.

(28) O. P. inquires for a simple method of preserving iron surfaces without paint. A. Captain Bourdon has devised simple forms of apparatus for coating iron with Barff's magnetic lacquer. In the course of his experiments he found that the coat of oxide could be formed by the air in the following manner: The serpentine part of a sheet iron reservoir communicates with air which is heated to 248° Fahr. The current of hot air, after circulating through the serpentine, reaches the cylinder which contains the articles to be lacquered. The escape spout communicates with a water aspirator regulating the flow of air, which should be very gentle. The internal pressure is little more than one atmosphere, the apparatus being in communication with the open air. The temperature of the air in the cylinders is 536° Fahr.; the operation lasts five hours, giving a coat of 0.05 of a millimeter thick (0.002 inch), of a beautiful greenish black, resisting the action of fine emery paper and of dilute sulphuric acid. After the articles are taken from the cylinder they are rubbed with a greasy rag, and spots are removed by fine emery paper or scouring grass. Spots may generally be avoided by suspending the pieces, so that they will not touch each other or the walls. If the temperature is raised to about 572° Fahr., a thick coat is secured, but it is apt to scale. Articles thus lacquered have been exposed to snow and rain for a month without getting any spots of rust. If the black coating is removed by emery paper, there is a grayish layer on which rust does not take much hold; the spots can easily be removed by a bit of hard wood. Barff has observed the same peculiarity in articles which have been steam-lacquered.

(29) E. M. B. writes: Will you please inform me, under Notes and Queries, of one or two best modern books on steam boilers? A. "Barr on Steam Boilers;" "Catechism of the Locomotive," Forney; Wm. H. Shock, U. S. Navy, on "Boilers;" "Heat and Heat Engines," by Trowbridge.

(30) N. S. asks: Would it pay to work a mine of pure mica, if in large sheets, with say \$15 or \$20 freight per ton to San Francisco? A. See article on Mica and its Utilization, page 257, current volume.

(31) W. G. R. writes: In the SCIENTIFIC AMERICAN, dated December 14, 1878, on page 371, you describe a small foot lathe with directions for making the same. If the holes, instead of being babbited, are bored, and the bars forming the shears are turned, and I should make my own turning and boring, what do you think would be the probable expense of making such a lathe? A. The materials would cost from \$5 to \$6.

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

N. F. W.—It is a silicious clay of fair quality. An analysis such as you require would cost \$5.

#### [OFFICIAL.]

### INDEX OF INVENTIONS

FOR WHICH

**Letters Patent of the United States were Granted in the Week Ending**

November 22, 1881.

**AND EACH BEARING THAT DATE.**

[Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for 25 cents. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

Alarm. See Burglar alarm.  
Amalgamating gold and silver ores, apparatus for and process of, A. E. Griffiths..... 249,925  
Amalgamator and concentrator, C. W. Patten..... 249,791  
Amalgams, preparing, W. G. A. Bonwill..... 249,880  
Animal shears, J. K. Alwood ..... 249,866  
Ant trap, S. T. Arnett ..... 249,870  
Anvil, vise, and drill, combined. Ware & Fleming (r)..... 9,944  
Bag. See Feed bag.  
Balancing press, Dean & Martin ..... 249,908  
Balancing press, P. C. Hudson ..... 249,837  
Bark cutting machine, W. Chicken ..... 249,825  
Barrel cover, adjustable, W. F. Hood ..... 249,939  
Bason valve, catch, J. B. Laumann ..... 249,956  
Bed bottom, J. Bowen (r) ..... 9,941  
Bed bottom, spring, J. Bowen ..... 249,882  
Bed bottom, spring, W. H. Laycock et al. .... 250,044  
Bed, revolving, D. C. Otis. .... 249,787

Bedstead, folding, P. Kotlowsky.....	249,973	Fire rescue apparatus, R. Macdonald.....	249,847	Railway signal, D. C. Baughman .....	249,873
Bedstead, invalid, A. J. Goodwin.....	249,924	Flax puller, S. W. Gaines.....	249,921	Railway signal, electric, W. W. Gary.....	250,042
Belt fastener, P. J. Flanagan.....	249,828	Fog horn, J. Bien.....	249,877	Railways, safety device for, C. Rutulini.....	250,005
Blasting apparatus, John & Bradley.....	249,841	Folding chair, I. N. Dann. ....	249,905, 249,906	Rake. See Hand rake. Hay rake.	
Blind slat tenoning machine, M. M. Kitz.....	249,950	Fork. See Pitchfork.		Refrigerating apparatus, J. Tiffany.....	250,016
Block. See Saw millhead block.		Fruit drier, J. Mongene.....	249,972	Refrigerator, J. T. Gurney .....	249,758
Blower, W. D. Smith.....	249,802	Furnace. See Metallurgic furnace. Ore roasting furnace.		Refrigerator, J. Hammerl.....	249,929
Board. See Electric switch board.		Furnace, Brown & Norris.....	249,891	Register. See Fare register.	
Boot and shoe clamp, E. S. Pratt.....	249,795	Furnace and pot stand, M. A. Laska .....	249,955	Regulator. See Electric light regulator.	
Boot and shoe sole napping machine, J. W. Rogers	250,002	Gauge. See Mortising machine gauge.		Rinz. See Metal ring. Suspending ring.	
Boot or shoe, J. E. Bloom.....	249,733	Gas burner, J. H. Smith.....	250,010	Rivet, tubular, M. Bray.....	249,886
Boot tree, J. A. Ambler.....	249,867	Gas from petroleum, process of and apparatus for generating, A. I. Ambler (r).....	9,940	Roller. See Field roller.	
Box. See Hop picker's box. Packing and toy box.		Gate. See Farm gate.		Rolling billets for plow beams, roll for, C. P. Buckingham.....	249,742
Box, bracket, etc., interconvertible, H. Bogardus.	249,823	Gear, F. J. Gilliland.....	249,752	Roof bracket, S. F. Black.....	249,737
Bracelet, H. Unger.....	249,861	Generator. See Steam generator.		Rotary motor, hot air, O. G. Oldner.....	249,832
Bracket. See Exhibiting bracket. Roof bracket.		Glass, window, S. Darling.....	249,745	Roving, machinery for the manufacture of, E. W. Kelley.....	250,243
Brick press, W. W. Potts.....	249,987	Glassware, machine for finishing open-ended, J. J. Gill.....	249,751	Rubber from rubber waste, recovering, N. C. Mitchell.....	249,970
Bridge, draw, E. A. Wible.....	250,027	Globe and shade and chimney, combined, W. M. Marshall.....	249,955	Saw guard, circular, R. W. Taylor.....	249,806
Bridle, E. E. Venable.....	250,019	Gold and silver ores, smelting, R. Pearce.....	249,981	Saw mill head block, G. H. Zschech.....	250,034
Broom, J. W. Bradshaw.....	249,884	Grain separator and grader, H. P. Edmonds.....	249,911	Scaffold, G. W. Green.....	249,757
Buckle, A. H. Frost.....	249,829	Grinding and polishing plow colters, etc., apparatus for, J. T. Duff.....	249,746	Scale, platform, W. W. Reynolds.....	249,994
Buckle, trace, J. P. Hisley.....	249,836	Guard. See Pulley cord guard. Saw guard.		Screw plate, L. W. Stockwell.....	249,860
Buffing pad, J. W. Rogers.....	250,003	Hame, G. J. & J. Letchworth.....	249,858	Seeding machine, H. Ogborn (r).....	9,938
Buffing wheel, J. A. Eno.....	249,914	Hand rake, T. D. Davis.....	250,040	Separator. See Grain separator.	
Bung, W. A. Vreeland.....	250,021	Handle. See Dish handle.		Sewing machine attachment, W. A. Alrich.....	249,733
Burglar alarm, Pearson & Eastman.....	249,982	Harness pad, W. V. Kay.....	249,771	Sewing machine attachment, Johnson & Reynolds	249,768
Burner. See Gas burner.		Harness trimming, R. J. Welles.....	249,810	Sewing machine embroidery attachment, G. W. Baker.....	250,037
Button, J. McBride.....	249,781	Harrow, G. Galmore.....	249,830	Sewing machine table, J. E. Donovan (r).....	9,937
Button, sleeve, Hancock & Richards.....	249,760	Harvester, Kromer & Rinkleff.....	249,774, 249,775	Sewing machines, edge forming attachment for, J. Benjamin.....	249,875
Button, sleeve, C. L. Watson.....	250,022	Harvester pitman fender, G. R. Parker.....	249,980	Shears. See Animal shears. Lamp trimming shears.	
Buzz and top, A. E. Garrison.....	249,922	Hay rake, horse, C. A. Werden.....	249,811	Shearer. See Corn shearer.	
Cake machine, D. M. Holmes.....	249,888	Holder. See Cigar holder. Dental drill tool holder. Cigar holder, pencil holder.		Shoe, D. B. Felt.....	249,916
Candy sticks, package for shipping, W. B. Howe (r).....	9,942	Honeycomb uncapping machine, J. Bourgmeier.....	249,881	Shoe fastening, F. J. Lippitt.....	249,961
Canteen, W. M. Johnston.....	249,769	Hook. See Lacing hook.		Shoe press, A. S. Rogers.....	250,001
Car, cattle, J. M. Lincoln.....	249,777	Popicker's box, F. A. Fargo.....	249,915	Signal. See Railway signal. Switch s'nal.	
Car coupling, A. W. Clark.....	249,898	Horses, device for fastening, J. W. Eldridge.....	249,748	Skates, ankle support for, E. G. Macomber.....	249,964
Car coupling, W. C. Kelly.....	249,772	Horses' tails, device for holding, W. B. Butchers.....	249,743	Square, combination, S. H. Bellows.....	249,821
Car coupling, A. L. Miller.....	249,752	Hub attaching device, A. Warth.....	249,809	Stamp, hand, W. D. Wesson.....	249,863
Car coupling, M. Robeson.....	249,999	Huller. See Clover huller.		Stamp, perforating, H. H. Norrington.....	249,975
Car, dumping, J. S. Halsey.....	249,928	Hydrant, W. J. Clark.....	249,892	Stand. See Furnace and pot stand.	
Car mover, C. T. Barnes.....	249,815	Hydraulic engine, G. Code.....	249,900	Staple or tag fastener, G. W. McGill.....	249,851
Car starter, W. E. Young.....	250,038	Ice tool, J. B. Fischer.....	249,827	Steam engine, J. Wheelock.....	249,864
Car, stock, L. Yancey.....	250,031	Indigo, manufacture of artificial, A. Baeyer.....	250,035, 250,036	Steam generator, F. Shriver.....	250,008
Car switch manipulator, H. H. Welch.....	250,024	Injector, J. Benson.....	249,876	Steel tempering united lengths of band, T. Donahue.....	
Cars, safety batch for railway, A. H. Reiley.....	249,796	Insect trap, C. T. Harned.....	249,931	Stone, 249,009	
Carpet fastener, stair, A. H. Ohmann-Dumesnil.....	249,976	Iron and steel, manufacture of, E. Samuel.....	250,006	Stone, artificial, J. Irion.....	249,839
Carriage dash boards, bead for, J. Smith.....	249,801	Journal bearing, anti-friction, L. Kaufman.....	249,948	Stool, piano, G. A. Ramseyer.....	249,991
Carriage top, L. K. Brubaker.....	249,741	Knife. See Pocketknife.		Stopper. See Tube stopper.	
Carrier. See Egg carrier.		Lacing hook for boots and shoes, G. Van Horne..	250,018	Store service system, J. C. White.....	250,025
Cartridge implement, J. Pontefract.....	249,986	Lamp, W. Brown (r).....	9,936	Stove attachment, vapor burning, Klein & Woodward.....	
Caster, J. R. Payson.....	249,792	Lamp, electric, A. E. Brown.....	249,824	Stove, 249,842	
Chain, O. S. Judd.....	249,947	Lamp, self-extinguishing, D. C. Baughman.....	249,874	Stove for burning petroleum, H. Koch.....	249,952
Chain work for jewelry, E. Vieille.....	250,020	Lamp, signal, E. S. Piper.....	249,794	Stove, heating, J. A. Milliken.....	249,854
Chair. See Commode chair. Folding chair.		Lamps, shade ring for extension, A. H. Jones.....	249,946	Stove platform, H. L. Palmer.....	249,797
Chair, W. B. Allen.....	249,865	Lantern, F. J. Müller.....	249,785	Street, underground, N. Jacobsohn.....	249,945
Churn, A. H. Conkling.....	249,901	Links, manufacture of, J. M. Baker.....	249,871	Stump puller, J. Dunn.....	249,747
Churn, H. B. Gates.....	249,750	Liquids, apparatus for dispensing aerated, G. Rehfuß.....	249,933	Suspending ring, G. W. McGill.....	249,849
Cider press, J. Mercier.....	249,852	Lock, E. Parker.....	249,789	Switch signal, R. B. Ireland.....	249,944
Cigar holder, E. S. May.....	249,848	Locomotive engine, E. Longstreth.....	249,962	Table. See Sewing machine table.	
Cigar machine, F. P. Hart.....	249,833	Loom picker motion, W. C. Knowlton.....	249,951	Table leaf support, D. D. Brockway.....	249,888
Clamp. See Boot and shoe clamp.		Loom shuttle, R. W. Porter.....	249,857	Tablet, writing, F. S. Hasbrouck.....	249,932
Clasp. See Corset clasp.		Loom shuttle, C. T. Pratt.....	249,988	Tank. See Oil tank.	
Clevis, M. Hubbell.....	249,941	Lubricating compound, J. B. Norris.....	249,766	Telegraph receiving apparatus, J. W. Fuller.....	249,920
Clock, case, cut glass, J. H. Welch.....	249,882	Mash, machine for making sour, J. C. Peden.....	249,793	Tellurian, J. A. Bowyer.....	249,739
Clocks, strike spring for eight day, B. B. Lewis.....	249,845	Meat draining device, P. Springstein.....			