treating on laundry blue, blacking, inks, and flavoring extracts. A. We can supply the Techno-Chemical Receipt Book, $2.

(2286) S. H. P. writes: Can you tell me what will take the stains made by poison ivy juice out of a handkerchief? I pulled up some sprouts of ivy, and to save my hand from danger, covered it with a handkerchief, then threw that into a tub of water overnight, and the next morning it was covered with black spots, looking like ink or thin tar, and the usual washing and boiling didn't move them at all. A. We advise you to try the effect of Javelle water, followed by a weak solution (1 to 20 or less) of oxalic acid, washing out the handkerchief thoroughly between and after both applications.

(2287) A. E. H. asks for a receipt for making a paste or glue that will strongly fasten felt or thick woolen goods to iron or steel. A. Soak pulverized shellac in ten times its weight of strong ammonia. It will eventually form a transparent liquid. Or to rather thin hot glue solution add tannic acid until sticky and curdled and apply at once.

(2288) J. J. Y. asks: What cheap fluid, and one that will mix thoroughly, can be used to thin vegetable tar? A. Benzine or turpentine.

(2289) C. D. asks (1) how butter can be renovated and colored. A. Butter color is sold for the purpose. Bad butter cannot be renovated. Treatment with lime water and other chemicals has been suggested. 2. How can eggs be packed so they will keep fresh for winter markets? A. Eggs are preserved by being dipped in melted paraffin or by being packed in a barrel with lime water.

(2290) G. R. writes: By adding potash lye to flour and water you make a paste the same as by boiling. What can I add to this to prevent from souring? A. Add one part salicylic acid to 1,000 of the paste.

(2291) G. M. E.—The sample sent is galena or sulphide of lead.

(2292) O. McN. asks: How are crayons, such as those used in the public schools, made? A. By compressing proper materials, such as sulphate of lime.

(2293) W. E. A. asks: 1. What is the best make of dynamo and motor that one could use to transmit 40 horse power 200 yards over dikes, etc., where rope transmission would be impracticable? A. Any of the principal makers could supply you with machines for this purpose. 2. What power would be required to run the dynamo to obtain 40 horse power from motor? A. About 54 horse power. 3. Would a current of 110 volts E. M. F. with the proper strength develop 40 horse power in a suitable motor? A. Yes. 4. What is the least E. M. F. and amperage practicable to develop the above power? A. 746 watts constitute an electrical horse power; $746 \times 40 = 29,840$, the number of watts required. This amount divided by the E. M. F. will give the current in amperes, or if divided by the current in amperes it will give the E. M. F. in volts. 5. Can I build a dynamo and motor of the same pattern as the 8 light dynamo described in SUPPLEMENT, No. 600, to obtain the above mentioned power? A. Yes; but it would not be advisable for one inexperienced in dynamo building to attempt a job of this magnitude. It would be better and less expensive for you to purchase from reliable makers. 6. Are the different field magnets in use patented? Also, has not the patent on the Gramme armature expired? A. There are patented field magnets, but the ones commonly in use are not patented. The Gramme patent is not in force.

(2294) J. A. M. asks for a solution of the following questions by algebra: 1. Says B to A, give me one of your apples and I will have twice as many as you. No, says A to B, give me one of yours, and we will have both the same. A. The statement gives the following equations: Let A's apples $= x$, and B's apples $= y$

$$(1)\ y + 1 = 2(x - 1)$$
$$(2)\ x + 1 = y - 1$$

Solving by regular process, we find $x = 5$, $y = 7$. 2. In any right-angled triangle whose base is known (say 40 feet), and also the sum of hypotenuse and altitude (say 60 feet), to find length of hypotenuse and base respectively. A. Let $= x$ hypotenuse, and y = altitude. We then have the following equation from the properties of a right-angled triangle:

$$(1)\ y^2 + 40^2 = x^2, \text{ or } x^2 - y^2 = 1,600$$

From the statement we have the following equation:

$$(2)\ x + y = 60$$

Dividing (1) by (2) we have (3) $x - y = 26{\cdot}66$. Solving the simultaneous equations (2) and (3) we find:

$$x = 43{\cdot}333,\ y = 16{\cdot}666.$$

(2295) I. S. asks: Is it possible to succeed in photography with any of the advertised outfits, without first serving an apprenticeship to the business? A. Yes; with a few practical lessons from an experienced photographer you can succeed. To do satisfactory work, a good lens must be used.

(2296) C. E. W. asks for a recipe for making a cement or glue which will stick paper to polished iron. I wish to use it for covering pulleys. A. Roughen the face of the pulleys with a file, and use the toughest light brown glue that you can find, or fish glue.

(2297) C. F. H. asks for the formula of "paste diamonds." A. The following are representative formulas:

	I.	II.	III.
Silica	100	100	100
Red lead	156	00	164
White lead	00	171	00
Caustic potash (pure)	54	32	56
Boracic acid	7	9	6
Arsenious acid	3/16	1/8	1/100

Melt together to form a glass.

(2298) C. L. asks what country owns the fastest and best fighting ship in the world, and what our government is doing in this direction. A. The new British war ship Blake is claimed to be the fastest and most formidable war cruiser afloat. She has a displacement of 9,000 tons, length 375 feet, beam 65 feet, draught 25 feet 9 inches, twin screws, 20,000 horse power, maximum speed, 22 knots per hour, or over 25 miles. As a ram, at this high velocity and her great weight of 9,000 tons, it is doubtful if any vessel could withstand the shock. The Blake is constructed of steel throughout, has six inch armored turtle back steel deck covering the magazines, torpedo rooms, engines, and boilers. Fuel space, 1,500 tons. She is to carry two 9 inch 22 ton breech loaders and ten 45 pounder quick-firing guns, each capable of firing 12 times per minute, worked by two men, and will pierce 12 to 15 inches of armor plate. Cost, $1,840,000. We have as yet nothing that approaches this ship, but Congress has authorized the construction of one, known as cruiser No. 2, bids for which were recently opened at the Navy Department, Washington. It will be three years before she can be built, and the indications are that faster and better examples will be brought out in other countries. Armored cruiser No. 2 is to be of 8,100 tonnage, and is the largest vessel ever designed for the United States Navy. She will be armed with six 8-inch, and twelve 4-inch breech loading rifles, is to develop 16,000 indicated horse-power and a speed of twenty knots. Her dimensions are: length, 380 feet; extreme breadth, 64 feet 2½ inches; depth in hold, 41 feet 3 inches. Her armor varies from four to ten inches in thickness.

The new Russian torpedo boat Adler, lately built, proved on trial to be one of the fastest vessels afloat. Her mean speed during two runs was 26·55 knots per hour, or a litle over 30 miles per hour. She is 152 ft. 7 in. long, 17 ft. wide, 150 tons displacement, 2,300 h. p. It would seem as if a much larger vessel having a still higher speed might be designed and constructed. It would be a grand thing for some of our enterprising countrymen to accomplish.

(2299) W. M. asks for how long copyrights for books run, and whether the copyright is the same as a patent for an invention, and what is the fuss they are making in Congress about copyrights? A. A copyright runs for 28 years with privilege for a renewal of 14 years, making 42 years in all. A copyright is similar to and is virtually a patent. That is to say, a copyright secures to the holder the exclusive right to reproduce the book, and no one may print it without becoming liable as an infringer. Copyrights are granted to citizens of the United States, and to foreigners who are resident here; but foreigners who are not resident here cannot obtain copyrights. The "fuss" in Congress relates to an effort made to allow foreigners to take these 42 year copyrights or book patents. The bill has been defeated. It is being again urged, chiefly by the wealthy book publishers, as it would facilitate them in forming trusts to put up the prices of all books. One trust already has been formed, namely, the American Book Company, which has a capital of five millions of dollars, and has secured the control of the copyrights of most of the leading school books used in this country. It is believed the copyright law can be amended in such a way as to benefit foreign authors, and yet prevent publishers from forming combinations to advance the prices of books. The bill lately defeated was obnoxious chiefly because it secured little to authors, and nothing to the public, but helped the rich publishers to grow richer at the expense of the people.

(2300) W. M. asks how long a horse can go without food and water? A. We do not know as to horses, but it is stated that after the recent fire in the Neilson 750 ft. shaft of the coal mine at Shamokin, Pa., twelve mules were found alive in the mine that had been without food or water for 26 days.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

June 3, 1890,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Air feeding device, J. Burns 429,228
Air ship, C. E. Bechtel 429,373
Alloy, anti-friction, S. Singley 429,157, 429,158, 429,249
Animal trap, C. Hall 429,521
Anti-friction composition, S. Singley 429,248
Anvil, J. O'Brien 429,149
Autographic register, W. Assheton 429,495
Axle, car, W. F. Sherman 429,325
Axle set, W. F. Nightingale 429,245
Axle, wagon, H. G. Mitchell 429,385
Bake pan, W. Wainwright 429,551
Bale press, A. E. Cummins 429,188
Baling press, M. C. Jackson 429,240
Battery. See Medical battery. Secondary battery.
Beating machine, J. H. Burnham 429,114
Bell, gong, E. C. Barton 429,299
Belt replacer, F. Balderson 429,372
Belting, manufacturing flat woven gut, J. Griffin 429,270
Bird cage screen, M. G. Leonard 429,196
Board. See Drawing board. Game board.
Boat. See Tow boat.
Boiler. See Stand boiler. Steam boiler.
Boiler tubes, machine for bending the ends of, H. Edwards 429,263
Bolster guide, spring, G. M. Hughes 429,449
Bolt. See Shaking bolt.
Bolt cutter, stay, O. Johnson 429,571
Bolting reel, J. B. Dobson 429,339
Book covers, machine for pasting backing tape on, E. N. Martineau 429,173
Books, suspension link for, J. H. Brown 429,301
Boomerang thrower, M. Cummins 429,230
Boring and drilling tool, C. Croll 429,261
Boring and turning mill, F. W. Taylor 429,162
Bottle stopper, Oliver & Brooks 429,579
Bottle stopper, Roorbach & Tucker 429,482
Bottle wrapper, C. W. Bell 429,184
Box. See Fuse box. Packing box.
Box fastener, Davy & Dufau 429,510
Brace. See Ratchet brace. Railway rail brace.
Braiding machine, L. W. & N. Lombard 429,136
Brick machine, White & Boyd 429,296
Broom or whisk, J. H. McEldowney 429,469
Buckle, F. H. Loveless 429,137
Buckboard, J. T. Clarkson 429,260
Bung for pickle barrels, R. Hoffman 429,448
Burner. See Gas burner. Hydrocarbon burner. Oil burner.
Butter, making, J. Boyd 429,186, 429,187
Button, Jackson & Platt 429,530
Button setting machine, E. H. Taylor 429,394
Cable covering machine, J. D. Bishop 429,255
Cable grip, J. H. Masters 429,590
Cable, wire link, G. H. Ogilvy 429,174
Call and voting apparatus, electric, Wilkins & Reed 429,330
Can head cutter, A. S. Wadleigh 429,489
Candelabrum, T. McGovern 429,471
Cans, seal lock for, W. H. Stoops 429,288
Car coupling, A. B. Evenden 429,122
Car coupling, J. Hughes 429,194
Car coupling, A. McDougald 429,358
Car coupling, A. C. Merritt 429,539
Car coupling, G. S. Osmundson 429,151
Car coupling, C. E. Seabury 429,365
Car coupling, J. H. Talpey 429,189
Car coupling, A. Wetherell 429,399
Car coupling, Williams & Edelston 429,371
Car fender attachment, Casaday & Peak 429,501
Car heater, G. A. Barnard 429,183
Car heater, C. O. Newton 429,363
Car, railway, J. B. Low 429,216
Car seat lock, C. Parham 429,176
Car seat, railway, H. B. Comer 429,563
Car, stock, G. W. Cushing 429,509
Car wheel, H. W. Avery 429,407
Cars, air brake apparatus for, R. W. Bayley 429,332
Carbon filaments, manufacture of, A. De Khotinsky 429,534, 429,535
Carbureting apparatus, W. Dawson 429,426
Carpet fastener, P. Beamish 429,410
Carpet stretcher, F. V. Foster 429,567
Carrier. See Cash carrier. Cash and parcel carrier. Trace carrier. Trolley carrier.
Carving machine, J. Jacobson 429,213
Case. See Cell case. Show case.
Cash and parcel carrier, pneumatic, H. Miller 429,143
Cash carrier, A. R. Cory 429,338
Cash indicator, register, and calculator, combined, J. Sharpe 429,486
Cattle guard, J. Swegles 429,393
Cell case, E. D. Averell 429,406
Chain, A. B. Hendryx 429,444, 429,445
Chloroforming, mask for, C. Schimmelbusch 429,287
Churn, R. F. Collins 429,506
Churn, C. Miller, *et al* 429,356
Cigar lighter, self. West & Turner 429,329
Clasp. See Pocketbook clasp. Ticket clasp.
Clevis, T. G. Mandt 429,461
Clock, advertising, C. A. Ward 429,552
Clock, atop, R. M. Johnson 429,132
Clock striking mechanism, G. T. Keil 429,455
Clock winding mechanism, electrical, C. A. Ward 429,396
Closet. See Water closet.
Closet, G. H. Goetze 429,518
Cloth pressing machine, D. Gessner 429,268
Clothes drier, B. F. Fuller 429,378
Clothes pin, M. E. Thrall 429,550
Clothes pounder, N. Propst 429,476
Clothes prop, C. L. Burge 429,227
Clothes wringer, J. A. Russell 429,178
Clutch coupling for pipes, combination, J. B. Genin 429,126
Clutch, friction, E. L. Babcock 429,298
Clutch, friction, L. J. Hirt 429,446
Clutch, friction, W. A. Wilkinson 429,402
Conductors, machine for stripping the lead covering from, D. Thatcher 429,292
Cooking utensil, H. Bodenstein 429,256
Copying device for manifold, L. H. Clark 429,336
Copying pads moist, receptacle for keeping press, C. L. Wise 429,163
Corn or cotton thinner, G. L. Webb 429,328
Corset, G. D. Nichols 429,542
Cotton delivering machine, J. B. Allin 429,493
Cotton gin, J. S. Edgcomb 429,119
Coupling. See Car coupling. Clutch coupling. Shaft coupling. Thill coupling.
Crushing mill, roller, M. G. Mosher 429,146
Cultivator, H. Gale 429,343
Cultivator lister, Milroy & Hoak 429,541
Cultivator, listing, R. W. Hagel 429,520
Curling iron, F. D. Miller 429,279
Cutter. See Bolt cutter. Can head cutter. Feed cutter. Thrashing machine band cutter.
Cycle handle, H. H. Brown 429,416
Detergent, J. J. Gilbert 429,435
Diamond washer, L. W. Levy 429,276
Dish, pie, E. Egbertson 429,513
Disinfecting device, M. B. Manwaring 429,384
Door closing device, S. Loe 429,278
Door hanger, G. W. Warner 429,295
Draft and land gauge for plows, etc., O. T. Owens 429,220
Draught equalizer, I. J. Stoner 429,222
Drawing board, C. E. Sajous 429,203, 429,586
Dredger, C. Lardner 429,351
Drier. See Clothes drier. Lumber drier.
Drill. See Grain drill.
Drilling and reaming machine, W. B. Hughes 429,526
Dust collector, L. W. Haskell 429,347
Dye, red, G. Koerner 429,350
Electric circuits, maintaining a uniform current in, J. M. Bradford 429,333
Electric conductor, H. B. Cobb 429,304, 429,305
Electric conductor joint, H. B. Cobb 429,306
Electric currents, apparatus for rectifying, F. Anderson 429,109
Electric motor, continuously operated, W. D. MacQuesten 429,314
Electric subway cover, J. Stafford 429,251
Electric tramway and car, A. L. Lineff 429,277
Electric wires, underground conduit for, H. B. Cobb 429,307
Electrical converter, G. Pfannkuche 429,583
Electrode, secondary battery, C. Hering 429,272
Electrodes, making secondary battery, C. Hering 429,274
Elevated or bridge structure, I. S. McGlehan 429,470
Elevator indicator, J. P. Cushing 429,189
Engine. See Hot air engine.
Engines, automatic cut-off for rotary, N. Wallerich 429,204
Engraving apparatus, J. L. Mills 429,280
Extractor. See Pen extractor. Stump extractor. Tack extractor.
Fabric. See Wire fabric.
Fanning mill, R. K. Floeter 429,565
Faucet, vent, Frey & Loges 429,433
Feed cutter, S. Freeman *et al* 429,432
Fence machine, wire, D. E. Deeter 429,232
Fence post, W. H. Rogers 429,547
Fence, wire, J. A. McCarthy 429,244
Filter, J. A. Bowden 429,112
Filtering apparatus, oil, J. Dooner 429,340
Fire alarm and extinguishing apparatus, electric, C. E. Ongley 429,318
Firearm, Armington & Briggs 429,110
Firearm, revolving, D. B. Wesson 429,397
Frame. See Umbrella frame.
Fruit pitting machine, C. W. Elkins *et al* 429,209
Furnace charging device, J. M. Pagnoul 429,200
Fuse box, C. E. Kammeyer 429,133
Fuse box, N. S. Possons 429,584
Gaff jaw, J. Parker 429,474
Game, C. E. Johnstone 429,531
Game, W. H. Marshall 429,312
Game, G. W. Snell 429,326
Game apparatus, W. H. Reiff 429,585
Game, baseball, J. W. Maxcy 429,354
Game board, H. & H. Sperl 429,250
Garment supporter, E. A. Doty 429,208
Garment supporter, E. S. Smith 429,549
Gas, apparatus for the manufacture of, M. S. Greenough *et al* 429,309
Gas burner, regenerative, C. Westphal 429,398
Gas meter, J. J. Culmer 429,423, 429,424
Gas meter, B. P. Moors 429,313
Gear for rolls, expansion, J. N. Wise 429,331
Gear pinion or wheel, R. N. Allen 429,108
Generator. See Steam generator.
Glazed structure, W. H. Coulson 429,375
Glove fastener, M. D. Shipman 429,179
Glove fastening, E. Pringle 429,117
Grading and ditching machine, R. M. Thompson 429,368
Grain binder, J. P. Monroe 429,465
Grain drill, F. R. Packham 429,320
Grain meter, G. B. Howland 429,589
Graphite, separating metallic impurities from, M. W. Parrish 429,386
Grinding mill, F. W. Ihne 429,529
Guard. See Cattle guard.
Gun, blow, W. M. Bunsen 429,499
Gun rack for tents, B. Watson 429,370
Gunpowder, manufacture, R. Von Freeden 429,516
Hammock holder, A. Beals 429,409
Hand, artificial, S. Lucas 429,243
Handle. See Cycle handle. Kitchen utensil handle. Tool handle.
Hanger. See Door hanger. Pipe hanger.
Harness, Bigelow & Davis 429,496
Harness, S. M. Rhone 429,545
Harrow and cultivator, spring tooth, Bridenbaugh & Oellig 429,500
Harrow, disk, A. J. Glass 429,437
Harvester, corn, W. Fuhlhage, Jr 429,211
Harvester, corn, H. L. Jones 429,511
Hat and garment hook, A. E. Hall 429,346
Hat sweat, P. I. Field 429,341
Hatchway, elevator, Z. Goodell 429,519
Head rest, tourist's, H. A. Bond 429,207
Header attachment, T. J. Brown 429,257
Heater. See Car heater. Water heater.
Heating apparatus, electric, C. E. Carpenter, 429,559, 429,560
Heating apparatus, steam, G. A. Barnard 429,182
Heating, electric, C. E. Carpenter 429,562
Hinge, M. Slane 429,391
Hitching post, E. A. Farish 429,123
Hoisting apparatus, C. W. Hunt 429,450
Hoisting gear, G. Fletcher 429,308
Holder. See Hammock holder. Paper holder. Sales slip or sheet holder. Sash holder.
Hook. See Hat and garment hook. Snap hook. Whiffletree hook.
Hoop shaving machine, W. P. Curtiss 429,376
Horse power apparatus, Johnson & Holtman 429,382
Horse tail tie, C. D. Haldemann 429,569
Horseshoe, L. B. Linn 429,460
Hot air engine, J. J. McTighe 429,281, 429,282
Hot air engines, operating, J. J. McTighe 429,283
Hub band, T. J. Reid 429,479
Husking pin, H. H. Perkins 429,475
Hydraulic shaping press, Hobson & Hull 429,349
Hydrocarbon burner, H. C. Brill 429,414
Indicator. See Cash indicator. Elevator indicator.
Inhaler, Ramey & Rollins 429,321
Inkstand, C. G. Backus 429,555
Insect exterminator, T. Gray 429,345
Insole, Robinson & Morgan 429,480
Insulator for electric railways, W. D. MacQuesten 429,315
Iron. See Curling iron. Sad iron. Soldering iron.
Joint. See Electric conductor joint.
Journal bearing, M. A. Andrews 429,554
Keyboard player, mechanical, E. Capitaine 429,419
Key fastener, G. H. Huttenlocher 429,239
Kitchen utensil handle, F. W. Judd 429,453
Knitting machines, intermittent feed mechanism for, S. L. Otis 429,319
Ladle, converter, S. C. Collin 429,337
Lamp, T. Gordon 429,440, 429,441
Lamp, G. W. Woodward 429,181
Lamp, electric arc, C. F. Keller 429,573
Lamp, portable, electric, J. H. Irwin 429,172
Lamps, apparatus for feeding oil to, V. Di Marzo 429,353
Latch, A. O'Keefe 429,150
Latch and lock combined, C. Sandford 429,322
Latch for car doors, Chaffin & Cone 429,502
Latch, gate, W. W. Clements 429,505
Lathe, H. C. Albee 429,297
Letter sheet, H. N. H. Lugrin 429,575
Life-saving garment, J. H. Grady 429,269
Liquids, apparatus for decolorizing, filtering, etc., B. Lavigne 429,459
Lock. See Car seat lock. Permutation lock. Vehicle seat lock.
Lock, P. McMahon 429,361
Lock, E. C. Smith 429,159
Locomotive, electro-magnetic, R. N. Allen 429,107
Loom let-off mechanism, G. Park 429,583
Loop forming machine, W. O. Miller 429,540
Lubricator, J. M. Evans 429,4 1
Lubricator, F. F. Santenard 429,155
Lumber drier, W. McPherson 429,473
Machinery, mechanism for driving, A. Kleinstiver 429,134
Magnet for dynamos, field, E. Wagemann 429,490
Malt, apparatus for manufacturing, C. Fey 429,124
Marker, land, O. B. & A. E. Rockwell 429,481
Matching machine attachment, C. P. Flanders 429,170
Measuring and carbureting air or gas, apparatus for, F. H. Hambleton 429,271
Measuring vessel, C. Robinson 429,201
Medical battery, F. P. & W. A. Hoeneman 429,447
Medicine, remedy for diphtheria, L. M. Pierson 429,152
Metal and at the same time pointing and threading the adjacent ends thereof, dividing rods of, C. D. Rogers 429,388
Metal working machine, combined, H. B. Sevey 429,324

Metallic wheel, H. W. Avery 429,408
Metallic wheel, E. D. Wassell 429,253
Meter. See Gas meter. Grain meter.
Mill. See Boring and turning mill. Crushing mill Fanning mill. Grinding mill. Rolling mill.
Mines, timber structure for, G. J. Goodhue 429,439
Mirror supporting and adjusting device, R. P. Elliott 429,430
Mixing or stirring vessel, J. J. Schillinger 429,464
Mosquito canopy. A. Miller 429,355
Motor. See Electric motor. Railway motor. Water motor.
Motor, F. L. Gilbert 429,379
Mouse trap, H. J. Barry 429,254
Nailing machine, J. Hyslop, Jr 429,527, 429,528
Night soil absorbent, C. W. Doughty 429,190
Oil burner, J. J. Busenbenz 429,302
Oil burner, C. F. Wood 429,588
Oil burner, fuel, C. O. Wilder 429,205
Ore, machinery for separating, R. H. Richards 429,154
Oven slide, H. T. Gilbert 429,380
Packing box, J. George 429,517
Painter's implement, M. Fred 429,515
Pan. See Bake pan.
Paper box making machine, G. M. Griswold 429,236
Paper folding machine, R. Cundall 429,262
Paper holder and cutter, roll, Ford & Jacobs 429,566
Paper holder and cutter, roll, H. T. Henderson 429,524
Paper holder and cutter, roll, J. Rovane 429,548
Paper winding apparatus, equalizing mechanism for, C. D. Bingham 429,497
Pavement, street, D. W. Campbell 429,303
Paving compound, D. C. Cregier 429,117
Pen extractor, J. McElroy 429,218
Pen, fountain, G. Armeny 429,405
Pencil sharpener, E. Hambujer 429,130
Permutation lock, W. F. Feistner 429,192
Photographs, oil finish for, A. C. Brendecke 429,558
Piano, E. Gabler 429,434
Pigment, apparatus for the manufacture of sulphate of lead, J. B. Hannay 429,523
Pigment, manufacturing sulphate of lead, J. B. Hannay 429,522
Pin. See Clothes pin. Husking pin.
Pipe hanger R. McBee 429,357
Pipe rack, C. H. Coit 429,421
Pipe wrench, T. W. Bryant 429,258
Pipes, apparatus for detecting leaks in, W. W. Rosenfield 429,286
Planing machine, pressure bar for, J. R. Thomas. 429,395
Planter, corn, E. A. Johnson 429,532
Planter, potato, A. E. Brumwell 429,498
Plow, F. B. Hunt 429,451
Plow, cultivating, G. B. Hart 429,179
Plow, garden, W. C. McTyeire 429,219
Plow points and mould boards, die for forming, P. G. Pagett 429,543
Pocketbook clasp, C. G. Pfingsten 429,246
Portfolio, J. M. Carrere 429,166
Post. See Fence post. Hitching post.
Power, appararus for the transmission of, E. E. Porter 429,153
Press. See Bale press. Baling press. Hydraulic shaping press.
Press for fruit, pulp, or other substances, R. Heaton 429,238
Printing calico, J. J. Hart 429,131
Privy seat, H. J. Mitchell 429,145
Pulley, C. M. Conradson 429,507
Pulley, G. C. Cowles 429,116
Pulley, friction clutch, A. P. Kjoller 429,456
Pulley, wood split, J. B. Cornwall 429,564
Pulp, machine for making hollow articles from, C. M. Starr 429,366
Pump, R. Bean 429,411
Pump, C. L. Merrill 429,464
Pump governor, steam, E. C. Johnson 429,570
Pump, wave force, Day & Cole 429,231
Punch, roller, A. Hamill 429,442
Rack. See Gun rack. Pipe rack.
Railway bedding, H. L. Gillette 429,436
Railway motor, electric. F. J. Sprague 429,527
Railway rail brace, G. E. Daggett 429,168
Railway, rope or similar, B. V. Garces 429,235
Railway signal, R. T. Bowne 429,185
Railway signal, Shephard & Forncrook 429,340
Railway signal, electric, H. A. Parrish 429,532
Railway signal flag and staff, J. Lanius 429,214
Railway signaling apparatus, electric, C. H. Rudd 429,483
Railway system, electric, W. D. MacQuesten 429,199
Railway system, interlocking electric. Ramsey, Jr., & Weir 429,478
Railway tracks, construction of, C. L. Gibbon 429,128
Railway tracks, construction of side bearing, C. L. Gibbon 429,127
Railway trolley, electric, W. S. Blauvelt 429,413
Railway water column, A. K. Mansfield 429,141
Range, cooking, T. Rogers 429,546
Ratchet brace, J. Herm 429,525
Rattan construction, J. Ellis 429,264
Razor strop, J. R. Torrey 429,293
Recorder. See Time recorder.
Reel. See Bolting reel.
Refrigerating apparatus, P. J. Macdonald 429,198
Register. See Autographic register.
Rivet setting machine, Bray & Van Horne 429,534
Roller mills, adjustable scraper for, J. Harvey 428,381
Rolling mill, F. H. Daniels 429,425
Sad iron, A. Rosa 429,202
Sales slip or sheet holder, J. H. Lawson 429,215
Sample record, G. Widule 429,401
Sash attachment, G. H. King 429,536
Sash balance, G. C. Gardner 429,212
Sash fastener, R. D. Curtiss 429,167
Sash holder, P. J. Chassagne 429,503
Sash holder, J. Schofield 429,364
Sash weight attacher, N. Zogg 429,403
Saw gummer, W. H. Bennett 429,165
Saw level, J. H. Miner 429,144
Saw tooth, H. W. Wheeler 429,400
Saws, adjustable base for grooving, W. Millard 429,142
Saws, gang of circular, G. E. Elliott 429,514
Scaffold, folding, C. M. Dearborn 429,427
Scale beam and weight therefor, I. L. Purdy 429,477
Scraper, mud, G. A. Mangum 429,217
Scraper, wheeled, F. A. Rathbun 429,387
Screen. See Bird cage screen. Window screen.
Screw, Julian & Guillaume 429,241
Seat. See Car seat. Privy seat. Valvesea. Vehicle seat.
Secondary battery, C. Hering 429,273
Seed meal into cakes, machines for forming cotton, J. S. Price 429,544
Seeder, broadcast, J. A. Callaway 429,229
Seeder, broadcast hand, B. F. Keeney 429,454
Seeding machine, J. H. Jones 429,572
Sewing machine, Willcox & Gibbs 429,206
Sewing machine presser foot, C. Timm (r) 11,061
Shaft coupling, vehicle, W. G. Himrod 429,275
Shafting, compound tubular, G. H. Ogilvy 429,175
Shaking bolt, M. G. Mosher 429,147
Sheet metal ware, enameled, H. Niedringhaus 429,578
Ship propulsion, S. B. Goff 429,436
Ships, construction of, S. Stuart 429,289
Ships or other vessels, construction of, S. Stuart, 429,290, 429,291
Shoe, L. Eckhart 429,429
Shoe, J. C. French 429,267
Show case, R. H. Van Schaack 429,488
Shutter fastener. D. Chamberlain 429,259
Signal. See Railway signal.
Skate, A. E. Fiedler 429,266
Skillet, M. T. Durgy 429,169
Slag, treating, S. T. C. Bryan 429,225, 429,226
Sled. C. J. Fendel 429,265
Snap hook, N. Nelson 429,362
Soda recovering apparatus, H. Burgess 429,417
Soldering iron, electric, C. E. Carpenter 429,561
Spark arrester, L. C. Mable 429,136
Spigot for refrigerators or water coolers, N. Engquist 429,121
Spring. See Vehicle spring.
Stand boiler, W. B. Bruce 429,335
Steam boiler, G. E. Tregurtha 429,252
Steam boiler, A. Worthington 429,164
Steam generator and feed water heater. J. S. Lewis 429,574
Stool, piano. F. Kraemer 429,458
Stopper. See Bottle stopper.
Stove, hot blast, C. H. Foote 429,342
Stoves or furnaces, fire parting fork for, O. P. Elterich 429,120
Stump extractor, H. S. Clark 429,504
Sulky, H. C. Hill 429,348
Supporter. See Garment supporter.
Switch and signal apparatus, test lock for, J. T. Hambay 429,193
Syringe attachment, A. E. Charlesworth 429,374
Table, W. Hassett 429,443
Tack extractor and hammer, E. B. Crane 429,508
Target and toy gun, combined, J. Kley 429,457
Target, flying, H. C. Warren 429,491
Telegraph, printing, J. Burry 429,115
Telegraph, printing, A. T. McCoy 429,576, 429,577
Telegraphy, S. M. English 429,477
Telegraphy, multiple, E. N. Dickerson, Jr 429,233
Telephone, magneto, N. B. Ginochio 429,129
Tether, C. Bailey 429,111
Thill coupling, T. G. Mandt 429,462
Thill coupling, J. H. Schriver 429,485
Thrashing and separating machine, A. Kleinstiver 429,135
Thrashing machine, W. Butler 429,418
Thrashing machine band cutter and feeder, McHenry & O'Donnell 429,472
Ticket clasp, P. McMenamin 429,148
Tie. See Horse tail tie.
Time recorder, watchman's, J. F. McLaughlin 429,360
Tires to the rims of wheels, securing, D. M. & T. H. Parry 429,221
Tool, G. B. Durell 429,118
Tool handle, J. H. Wundes 429,223
Tooth, artificial, Page & Bloom 429,285
Tow boat, A. McDougall 429,467
Tow boat, steam, A. McDougall 429,468
Toy game apparatus, M. P. Stewart 429,367
Toy toboggan, A. M. Wood 429,493
Trace carrier, G. W. Brooks 429,224
Trace carrier, A. P. Waddell 429,369
Trace fastener, E. E. Johnson 429,452
Trap. See Animal trap. Mouse trap.
Trolley carrier, B. F. Brown 429,113
Trolley wires, tension bracket for, W. D. MacQuesten 429,316
Truck, H. Martin 429,463
Truck, hand, F. B. Mallory 429,140
Truss, B. Bannister 429,556
Typewriting machine, R. H. Ingersoll 429,195
Typewriting machine, J. F. McLaughlin 429,359
Umbrella, A. W. Berne 429,557
Umbrella, S. B. McConnico 429,466
Umbrella frame. J. H. Sprague 429,160
Umbrella or parasol, W. J. Chambers 429,420
Undergarment, W. A. Harder 429,310
Urn, coffee, L. Malen 429,139
Valve, G. Vining 429,294
Valve eccentrics, device for shifting, G. Brown 429,415
Valve for sewer pipes, automatic discharge, C. H. Shepherd 429,156
Valve, gas meter, H. Logue 429,383
Valve seat, R. Bean 429,412
Vamp marking machine, J. F. Rogers 429,389
Vehicle seat, T. J. Kerstetter 429,533
Vehicle seat lock, Lombard & Rankin 429,352
Vehicle spring, J. Schmidlapp 429,217
Vehicle, two-wheeled, J. J. Ludwick 429,196
Velocipede, S. Gissinger 429,344
Velocipede saddle, G. T. Warwick 429,587
Vent for casks and barrels, Schutz & Weber 429,323
Vessels, cleaning the bottoms of, W. Freeborn 429,125
Walking stick or cane, combination, W. Flam 429,234
Washer. See Diamond washer.
Washing compound, C. E. Starr 429,161
Washing machine, J. Dietrich 429,428
Washing machine, T. Laffey 429,538
Water closet, J. M. Anderson 429,494
Water closet valve, N. A. Conklin 429,422
Water conduits, sand box for, C. N. Earle 429,191
Water heater, S. Bernstein 429,300
Water heating apparatus, T. Hall 429,237
Water motor, S. Smyth 429,392
Water motor, J. S. Teed 429,487
Welding machine, cross, G. R Green 429,568
Wells, automatic check for oil, J. O'Neil 429,317
Wheel. See Car wheel. Metallic wheel.
Whiffletree hook, Neiman & Shetter 429,284
Windlass and capstan, steam, Andrews & Kelley. 429,404
Windlass, portable, J. I. Kinkead 429,242
Window screen, W. H. Flesher 429,210
Wire coiling machine, W. Edenborn 429,511, 429,512
Wire fabric, I. Kinney 429,537
Wire with plastic material, apparatus for covering, D. D. Parmelee 429,581
Wrench. See Pipe wrench.
Wrench, F. M. & J. Wirtz 429,553
Wringer. See Clothes wringer.

DESIGNS.

Bottle, G. D. Glaser 19,864
Bottle, A. Kohn 19,866
Clock case, F. E. Morgan ..... 19,868 to 19,870
Glassware, ornamentation of, T. G. Hawkes 19,865
Hoods, etc, ornament for, C. T. La Tour 19,867
Mantel, W. Anderson ..... 19,872, 19,873, 19,875 to 19,877
Raisin boxes, inside wrapper for, H. J. Crocker 19,874
Tableware, J. E. Miller 19,871

TRADE MARKS.

Beef, spiced and seasoned, extracts of, Armour & Co 17,970
Beer, lager, J. A. Medina 17,978
Boots, shoes, and slippers. H. Robitsek & Co 17,991
Buggies and other spring vehicles, J. H. Mahler 18,002
Cheese, A. L. & J. J. Reynolds 17,968
Cleaning and polishing preparations, Glassine Company 17,992
Clothing for men and boys, outside, F. B. Q. Clothing Company 17,973
Corn, pulp of green, Forestville Canning Company 17,986
Corsets, S. Lindauer & Co 17,998
Files, G. L. Primrose 17,989
Flour, buckwheat, The Estate of G. V. Hecker 18,000
Gin, Union Distilling Company 18,003
Hosiery, Waukenhose Company 17,995
Leather, J. C. Lappe & Sons 17,977
Medicinal compounds for the blood, E. Backus 17,971
Oil for culinary purposes, cotton seed, Whitman Brothers 17,988
Oil for illuminating and heating, refined, Blue Flame Manufacturing Company 18,001
Oil, refined illuminating and heating, Blue Flame Manufacturing Company 17,999
Oils, lubricating, Clarkson & Ford 17,974
Oils, lubricating, White Cycle Company 17,996
Overalls, T. E. Omohundro 17,967
Oysters, fruits, and vegetables, M. Wagner Company 17,980
Pills, powders, and bitters, J. H. McKnight 17,979
Remedy for neuralgia and rheumatic ailments, H. F. Campbell 17,972
Saw guides, band, Goodell & Waters 17,975
Sewing machines, Singer Manufacturing Company 17,985
Shades, embossed leather window, Wilson & Fenimore 17,994
Shirts, men's, T. E. Omohundro 17,983, 17,984
Soap, cleaning and polishing, United Asbestos Company 17,997
Thermometers, clinical, H. Hirschberg Optical Company 17,976
Toilet deodorants, Ward & Darlington 17,982
Umbrella and cane heads, thimbles, cups, tableware, and napkin rings, Simons, Bro. & Co 17,987
Underwear and clothing for men and boys, I. Lesem & Co 17,966
Veterinary remedies, F. G. Stewart 17,990
Veterinary use, medicated foods and condition powders for, L. Van Norman 17,969
Woven cotton goods, Massachusetts Cotton Mills, 17,961, 17,962

A printed copy of the specification and drawing of any patent in the foregoing list will be furnished from this office for 25 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway, New York.

Canadian Patents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of $40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 361 Broadway, New York. Other foreign patents may also be obtained.

ELECTRICITY, LIGHT AND HEAT.—A lecture by Prof. C. F. Brackett, delivered before the New York Electric Club—Facts about electrical conductors. Production of electric light in the cheapest possible way. The relations between the three vibratory forces and the significance of Hertz's recent experiments. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. **683** and **684.** Price 10 cents each. To be had at this office and from all newsdealers.

ON MECHANICAL ENGINEERING in Electrical Industries.—An address by Prof. John Perry, D.Sc., F.R.S., discussing the importance to electricians of a thorough knowledge of engineering. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. **727.** Price 10 cents. To be had at this office and from all newsdealers.

SAFE BOILERS FOR AMATEUR WORK By G. D. Hiscox.—Description of several types of safe steam generators for the use of amateurs—the pipe coil boiler, the pipe boiler, pipe sectional boiler. With 3 illustrations. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. **702.** Price 10 cents. To be had at this office and from all newsdealers.

THE STEAM ENGINE; ITS PRINCIPLES, its development, its future and perfection.—A paper by E. N. Dickerson, giving an outline of the history of the steam engine, and discussing the principles upon which it operates and which limit its capacity. With 2 figures. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. **686.** Price 10 cents. To be had at this office and from all newsdealers.