brush. 7. Starch paste with which a little Venice turpentine has been incorporated while it is warm.

(7114) A. A. B. writes: Please give the very latest authority on velocity of transmission of light. Our authors vary from 186,000 miles per second to 187,000. The authority I use is Newcomb, who makes it about 186.317. A. We submit the following resumé of recent results by different authorities, with dates:

1879, Michelson...	186,357±31·7	miles	per	second.
1880, Young and Forbes...	187,273±164	"	"	"
1880 to 1882 Newcomb	186,232	"	"	"
	186,274	"	"	"
	186,396	"	"	"
1882, Harkness...	186,322±37	"	"	"

The average deduced from four of the best determinations gives 186,347±14·3 miles per second. The last of Newcomb's, 186,396, is considered the best single determination.

(7115) ●. P. B. writes: I have a storage cell which I connect in circuit with a 16 candle power lamp. 1. Will this affect the main current or any part of it? A. It will not affect the main current. 2. The cell charges very slowly; can I connect so as to charge quickly, and how? Circuit has 220 volts potential. A. Put it in series with more lamps, the lamps being in parallel. 3. I connect a Porter motor No. 2 in same manner as cell, but it will not run; neither will an induction coil. How can I employ the current to run motor and coil? Why? A. If your current is direct, the trouble is that there is too little, only one-quarter ampere. 4. How can the current be adapted to run simple motor described in "Experimental Science"? A. Do as recommended in answer 2. We assume that your current is direct.

(7116) G. R. asks: 1. What is the best method of charging one or several storage batteries from a 110 volt circuit? A. There is no good way under the usual conditions of house supply. To charge a battery, for each square foot of positive plate five amperes of current may be used. This is approximately the current which would be passed by ten lamps in parallel. Therefore, for a battery of this size the current from a ten lamp lead may be passed through ten lamps in parallel and then through the battery. Of course the battery consumes voltage, about 2½ volts per couple. This may be compensated for by adding one more lamp in parallel with the others for each ten or fifteen cells in series. The best method would be to connect in shunt with a suitable portion of the main circuit in parallel with the battery, but this is not practicable with ordinary house service connections. 2. Is a voltmeter made adapted to measuring the voltage of storage batteries, say with range from 1 to 3 volts? I refer to a moderate price instrument. A. Such voltmeters can be procured, but will always be somewhat expensive if reliable. 3. What do you consider the best book on storage batteries? A. We consider Salomon's work on "Accumulators," price $1.50 by mail, one of the most practical and useful. We have also "How to Make and Use the Storage Battery," by Warwick, price $1.50; "The Voltaic Accumulator," by Reynier, price $3 mailed. We can supply any of these by mail.

(7117) J. W. says: How can I solder and braze cast iron? A. Cast iron is not easy to braze or solder. The surfaces must be made perfectly clean by file scratching, and treated to a wash of a solution of muriate of zinc and sal ammoniac, then tinned with a soldering copper. For brazing rub the cleaned surfaces with sal ammoniac and zinc. Then apply borax and spelter as usual for brazing. Another plan is to rub an extemporized brass wire brush over the surfaces of the fracture. The surfaces thus become coated with brass and are supposed to take solder. Success in soldering cast iron under any conditions is more than doubtful.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

FEBRUARY 9, 1897,

AND EACH BEARING THAT DATE.

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

Air compressor, R. Toennes... 576,920
Armor plate, R. H. Sayre... 576,742
Artists' sketching outfit, S. Bernstein... 576,803
Ash pan, C. E. Campbell... 576,546
Ash receptacles, removable support for, E. R. Goodrich... 576,782
Asparagus buncher, E. Watts... 576,926
Autographic register, G. A. Huewe... 576,847
Automatic switch, Reger & Duerr... 576,890
Bag. See Bicycle tool bag.
Bag holder, J. Carlson... 576,974
Banjo or violin tail piece, H. O. Nichols... 576,606
Bank, savings, C. L. Dawson... 576,954
Bath tub support, adjustable, W. B. Sterrit... 576,911
Battery. See Galvanic battery.
Battery, F. B. Badt... 576,936
Bearing, bicycle ball, F. Douglas... 576,661
Bed, I. Laurin... 576,590
Bed, spring, C. Chase... 576,549
Bed table attachment, J. A. Norton... 576,933
Bell, bicycle, J. Gonorovsky... 576,814
Bell, bicycle, A. T. Morrill... 576,788
Bell, bicycle, F. A. Scranton... 576,985
Bell, bicycle, J. W. Starritt... 576,986
Belting, link, E. S. Leaycraft... 576,591
Bicycle, C. H. Bellamy... 576,538
Bicycle brake, W. L. Stewart... 576,912
Bicycle brake mechanism, P. E. Doolittle... 576,560 to 576,562
Bicycle, convertible, J. L. Dean... 576,557
Bicycle front steering fork, Accles & Renouf... 576,831
Bicycle gearing, R. L. Bonnell... 576,719
Bicycle lock, combination, S. W. Collins... 576,835
Bicycle pedal, J. M. Cassidy... 576,548
Bicycle saddle, J. A. Hunt... 576,968, 576,969
Bicycle seat spring, Getz & Westall... 576,726
Bicycle strengthening attachment, C. Foehl... 576,566
Bicycle support, Ober & Schottmuller... 576,883
Bicycle tool bag, Bender & McConnell... 576,832
Bicycles, etc., folding frame for, F. A. Reynolds... 576,926
Billiard cue chalker, C. Salmond... 576,897
Billiard table, W. F. Stebbins... 576,767
Bleaching, etc., apparatus for, H. Rowe... 576,620
Boat, transfer, W. G. Berg... 576,941
Boiler. See Multitubular boiler. Steam boiler.
Boiler attachment, G. A. Anderson... 576,752
Boiler furnace, E. B. Parkhurst... 576,686
Book clamp, W. S. Reynolds... 576,824
Book, paper cutter, blotter, envelop opener, etc., combination, J. M. Adams... 576,771
Book, safety check, M. Leventritt... 576,592
Books, pads, etc., cover for, E. J. Kauffmann... 576,785
Boot, C. N. Prouty... 576,765
Boots or shoes, manufacture of, H. J. Doughty... 576,811
Bottle, E. Campbell... 576,805
Bottle indicator, P. M. Coffin... 576,658
Bottle, non-refillable, J. Stretch... 576,913
Bottle stopper mould, Hickling & Slater... 576,966
Box. See Garbage box. Outlet box.
Box, E. Fanning... 576,664
Box binding machine, C. Leffler... 576,863
Box lid and display card holder, Schneider & Geddes... 576,743
Bracket. See Lamp bracket. Shelf bracket.
Brake. See Bicycle brake. Car brake.
Bread raiser, J. M. Tinker... 576,632
Breast strap iron, H. R. Spencer... 576,908
Brick drier, B. F. Weber... 576,639
Bridges, means for raising swing, J. E. Roembeld... 576,825
Brush, A. C. Estabrook... 576,978
Brush, F. N. Look... 576,866
Brush, fountain shaving, E. V. Santee... 576,898
Brush, reservoir blacking, W. Hayball... 576,992
Buggy top, G. P. Mitchell... 576,599
Burner. See Gas burner. Oil burner.
Bushing, tap or bung hole, E. C. Post... 576,611
Button, tack fastened, T. R. Hyde, Jr... 576,759
Button, tack fastened, A. J. Shipley... 576,905
Cabinet, self measuring lace, G. M. Thompson... 576,796
Camera, flashlight attachment for photographic, I. F. Pheils... 576,821
Can. See Ice making machine can. Oil can.
Can opener and burring device, J. E. Campbell... 576,547
Canceling machine, check, J. M. Willbur... 576,750
Car brake, F. Wagner... 576,925
Car brake beam, W. P. Bettendorf... 576,539
Car coupling, A. L. Arney... 576,533
Car coupling, R. B. Chritton... 576,550
Car coupling, J. P. Johnson... 576,851
Car coupling, H. E. Welsh... 576,707
Car coupling unlocking levers, locking device for, P. Hien... 576,673
Car fender, W. J. & A. S. Body... 576,652
Car fender, H. S. Brickell... 576,946
Car fender, J. P. Kane... 576,853
Cars on grades, operating, Lynch & Foster... 576,868
Cards, stop motion and alarm for woolen finisher, P. H. Walsh... 576,749
Carpet sweeper, W. J. Drew... 576,837
Carriage guiding attachment, baby, G. L. Rothermel... 576,617
Carriage protector, O. F. Bovier... 576,991
Carriage top curtain, G. P. Mitchell... 576,598
Cart, garbage, J. Healy... 576,727
Caster, H. Ill... 576,675
Chain, G. F. Ballou... 576,799
Chest protector, F. McNutt... 576,880
Chopper. See Cotton chopper.
Clamp. See Book clamp. Mould clamp. Plumber's clamp.
Clip. See Hat clip.
Clock pendulum clamp, F. Kroeber... 576,587
Clocks, thermal winding mechanism for, A. Ulli... 576,830
Clod crusher, leveler, and harrow, combined, S. B. Jones... 576,852
Cloth cutting machine, J. Pohlsen... 576,610
Cloth pressing machine, D. Gessner... 576,666
Clothes drier, C. Grant, Jr... 576,815
Clothes line support, G. R. Carman... 576,907
Clothes wringer, C. D. Shaw... 576,700
Coal storing apparatus, J. M. Dodge... 576,977
Cock locking device, gas, J. Boyle... 576,956
Cocks, etc., fastening for gas, J. A. Hamilton... 576,669
Coffin, M. Karnicki... 576,676
Copper plates to wood blocks, anchor or device for securing, G. W. A. Abelmann... 576,711
Corn sheller, I. P. Cadman... 576,754
Corset eye, D. F. Dalton... 576,976
Cotton chopper, J. R. Miller... 576,877
Coupling. See Car coupling.
Cradle, swing, and clothes drier, combined, W. F. McMordie... 576,603
Crayon holder, E. H. Taylor... 576,629
Crusher. See Clod crusher.
Cultivator, Marsee & Morford... 576,595
Cultivator, C. Tanner... 576,748
Curtain drying frame and pedestal, folding, H. Hey... 576,981
Curtain pole and bracket, combined, C. H. Van Note... 576,637
Cutter. See Vegetable cutter. Weed cutter.
Cyclometer, C. T. Higginbotham... 576,967
Dental appliance, H. S. Lowry... 576,593
Dental handpieces, tool moistening device for, W. Caille, Jr... 576,722
Desk lid support, D. W. Tower... 576,972
Die stock, G. Wagner... 576,924
Distilling apparatus, H. A. Steber... 576,910
Door check, W. K. Henry... 576,965
Door, combined screen and storm, J. K. Uhr... 576,634
Dovetails, etc., machine for cutting, J. R. Rickard... 576,614
Drawing frame, Threlfall & Mills... 576,736
Drier. See Brick drier. Clothes drier.
Drying machine, P. Dillon... 576,757
Drill. See Ratchet drill. Rock drill.
Driving device, multiple spindled, B. S. Woodward... 576,988
Dust collector, J. E. Mitchell... 576,876
Egg tester, Carstens & Peters... 576,808
Electric circuits, ventilated fuse plug for, H. C. Wirt... 576,710
Electric lighting for vehicles, J. A. Ageron... 576,933
Electric switch, M. Schalscha... 576,621
Electrical regulating device, J. F. Kelly... 576,732
Elevator. See Tobacco elevator.
Elevator, W. M. Frisbie... 576,568
Elevator drive wheel, G. S. Fouts... 576,960
Engine. See Gas engine. Steam engine. Traction engine.
Envelop, clasp, T. J. Gorman... 576,783
Eraser, T. Wasserbach... 576,638
Excavating mineral bearing earths, G. W. King... 576,857
Extension frame for window screens, etc., E. M. Kemp... 576,760
Extract of suprarenal gland, S. Frankel... 576,781
Eyeglass frame, C. H. Flaig... 576,812
Fare register, J. J. Kennelly... 576,786
Faucet, measuring, W. W. Newcomb... 576,685
Fences, spring tension ratchet for wire, G. W. Field... 576,958
Fences, tool for erecting wire, N. D. Wintersteen... 576,930
Fender. See Car fender.
Fertilizer, P. Huff... 576,848
File, newspaper, W. Whitney... 576,928
Firearm, magazine, G. P. Hastings... 576,964
Firearm, magazine, D. S. Seymour... 576,744
Fire door apparatus, thermostatic, O. H. Kingsland... 576,733
Fire escape, portable, W. F. Evans... 576,780
Fireplace, M. I. Cohen... 576,775
Fireproof blind, W. R. Kinnear... 576,586
Fireproof building construction, T. Bailey... 576,712, 576,713
Fireproof building construction, J. W. Rapp... 576,632
Fireproof flooring and ceiling, F. B. Abbott... 576,770
Fireproof pipe sleeve, R. Scott... 576,899
Fire protection for cities, S. White... 576,797
Fish cleaning machine, E. A. Murphy... 576,879
Fish trap net, D. L. Claflin et al... 576,844
Fishing apparatus, D. M. Kittle... 576,680
Flax or hemp, retting or steeping, Loppens & Deswarte... 576,867
Flower pot, H. Iken... 576,850
Flue cleaner, L. J. Wolf... 576,931
Forge, W. Ross... 576,794
Frame. See Extension frame.
Fruit picker, B. F. Thompson... 576,630
Furnace. See Boiler furnace.
Furnace, E. Benedict... 576,650
Furnace, J. B. Sweet... 576,970
Furnace for heating metal sheets, T. R. Ludford et al... 576,734
Furnace front, Tibbitts & Allen... 576,919
Furnace fronts, metallic arch for, W. M. Mathisen... 576,872
Furnace grate, H. F. Weinland... 576,927
Furnace or stove door, Meyer & Harms... 576,597
Furniture, E. Redgate... 576,694
Furrow splitter, A. W. Legg... 576,864
Galvanic battery, H. J. Brewer... 576,720
Garbage box, D. Crimmans... 576,952
Garment hanger, S. H. Tolman... 576,823
Gas burner, W. H. Paine... 576,819
Gas burner, acetylene, M. Levy... 576,682
Gas burner tip, I. Gloo... 576,668
Gas engine, L. H. Nash... 576,604
Gas generating apparatus, acetylene, M. W. Kidder... 576,585
Gas generator, acetylene, D. J. Reynolds... 576,893
Gas generator, acetylene, H. C. Sergeant... 576,826
Gas heater, fireplace, M. I. Cohen... 576,774
Gas holder, acetylene, H. C. Sergeant... 576,827
Gas manufacturing apparatus, W. R. Addicks... 576,529
Gas meter coin controlled mechanism, G. R. French... 576,961
Gas, method of and apparatus for generating, J. A. Deuther... 576,955
Gas, process of and apparatus for manufacturing, F. G. Bates... 576,801
Gate, C. Ilgen, Jr... 576,581
Generator. See Gas generator. Steam generator.
Gate. See Railway gate. Road gate. Roadway gate.
Glass. See Object glass.
Glove, W. H. Tyler... 576,922
Gold extracting apparatus, W. H. Hyatt... 576,580
Grain separator and grader, S. Barnes... 576,990
Gunpowder, manufacture of, G. G. Andre... 576,532
Hammer, power, J. G. Roseman... 576,616
Handle. See Opera glass handle.
Handle bar, adjustable, J. R. Gould... 576,573
Hanger. See Garment hanger. Shade hanger. Shade roller hanger.
Harvester, corn, J. I. Ashbaugh... 576,647
Harvester cutter bar, Ball & Bailey... 576,534
Harvester, motor driven, C. A. Kullberg... 576,588
Hat and edge binding therefor, T. W. Bracher... 576,973
Hat blocking and pressing machine, D. E. Foley... 576,567
Hat clip, E. S. Shower... 576,701
Hat forming machines, fur feeding attachment for, F. F. Poole... 576,984
Hat pin, J. D. Bliss... 576,715
Headlight, T. C. Millen... 576,875
Heater. See Gas heater. Water heater. Water and air heater.
Heating and cooling coil, J. E. Koester... 576,859
Heating apparatus, electric, A. Robertson... 576,766
Hinge, F. J. McMenamin... 576,737
Hinge for cooking utensils, etc., E. W. Pratt... 576,887
Hoisting device, Ettenger & Rupley... 576,779
Hoof pad, C. H. Dix... 576,559
Hook. See Whiffletree hook.
Hook attachment, K. Leonhardt... 576,865
Horse blankets, etc., fastening device for, G. V. Cornell... 576,553
Horse releasing device, draught, J. Marquardt... 576,594
Horseshoe roughing attachment, F. Heppner... 576,816
Hose and garment supporter, W. H. Cornell... 576,659
Hub attaching device, C. H. W. Relyea... 576,892
Ice making machine can, O. Hammond, Jr... 576,672
Ice saw, G. A. Foster... 576,724
Impregnating and filtering apparatus, W. Raydt... 576,792
Indicator. See Bottle indicator. Medicine time indicator. Station indicator.
Iron. See Breast strap iron. Sad iron.
Joint. See Rail joint.
Joint fastener, L. Gohlke... 576,572
Knife. See Surgeon's knife.
Knitting machine stop motion, W. W. Burson... 576,544
Knitting machine stop motion, circular, Sullivan & White... 576,967
Knitting machine, straight, J. Nelson... 576,881
Label lock, C. H. R. Godfrey... 576,571
Lace fastener, shoe, F. W. Loder... 576,761
Lamp, E. Boesch... 576,716
Lamp bracket, F. T. Williams... 576,769
Lamp burners, insect guard for, R. P. Robinson... 576,895
Lamp, electric arc, H. Baurlin... 576,802
Lamp or oil stove burners, extinguisher for, W. Brandon... 576,944
Lamps, wick adjuster for central draught, J. C. Miller... 576,876
Lead, production of basic carbonate of, O. Hamilton... 576,670
Leaf turning device, W. O. Campbell... 576,656
Lemon squeezer, E. Walker... 576,706
Letter, sign, Pearson & Letzig... 576,885
Life lines, projectile for carrying, W. P. Shaw... 576,625
Life preserver, Bell & Carson... 576,649
Linotype trimmer, T. H. Keller... 576,584
Lock. See Bicycle lock. Label lock. Trunk lock.
Lock, I. Anderson... 576,531
Lock, Owings & Carter... 576,609
Locomotive and railway system therefor, electric, M. Schalscha... 576,622
Log turner, steam, J. Evered... 576,565, 576,583
Loom shuttle, O. B. Truesdell... 576,921
Loom warp stop motion, J. H. Northrop... 576,582
Lubricating device, A. Reimann... 576,613
Lubricator, V. A. Emond... 576,778
Malting machine, J. A. Tilden... 576,631
Match, cigarette and cigar holder, combined, F. S. Bowlby... 576,653
Matrix cleaning machine, W. E. Taylor... 576,971
Measuring instrument, H. Scott... 576,900
Medicine time indicator for bottles, B. A. Chapman... 576,833
Medicine time indicator for glasses, B. A. Chapman... 576,834
Metal, apparatus for electrically heating, G. D. Burton... 576,545
Metal, apparatus for producing feather or shot, D. Broderick... 576,773
Milling machine, automatic, J. Gregory... 576,979
Mine shaft skip, Gipson & White... 576,667
Mould. See Bottle stopper mould.
Mould clamp, A. Kenworthy... 576,678
Moulding machine, F. Kepp... 576,679
Monkey wrench, Kelly & Bowman... 576,855
Motion to movable bodies, device for imparting, A. L. Sjoberg... 576,906
Mower grass catcher, lawn, T. J. Lowell... 576,787
Mowing machine, H. Stromsmo... 576,914
Multitubular boiler, J. Scott... 576,901
Name plate, bicycle, G. E. Wheelhouse... 576,642
Nozzle, oil can, D. True... 576,702
Object glass, P. Rudolph... 576,896
Oil burner, E. R. Weston... 576,641
Oil can, lubricating, Gaskins & Brown... 576,841
Opera glass handle, J. W. Patterson... 576,687
Ordnance, high explosive throwing, C. A. Thomas... 576,917
Ore concentrator, A. M. Rouse... 576,618
Outlet box, J. J. J. De Rycke... 576,810
Oxygen, apparatus for making, A. Sweetser... 576,915
Pad. See Hoof pad.
Paint removing compound, A. Ernst... 576,957
Paper box machine, G. E. Grimm... 576,980
Paper cutting machine rolling gage, F. Wilkening... 576,643
Paper, device for displaying wall, T. C. Wright... 576,645
Paper feeding machine, E. Dummer... 576,776
Pen, J. S. Bard... 576,800
Pen, fountain, H. J. Cowger... 576,555
Pen, fountain marking, C. D. Marsh... 576,596
Pencil holder, E. Sharp... 576,903
Photographs, embossing, G. R. A. Weimann... 576,640
Picker. See Fruit picker.
Picks, etc., fixing working points or ends of, J. Barlow... 576,535
Picture exhibitor, G. W. Brown... 576,542
Pin. See Hat pin.
Pipe. See Sheet metal pipe. Tobacco pipe.
Pipe attachment, C. B. Brenneman... 576,945
Planter and fertilizer distributer, seed, J. A. & F. M. Harmon... 576,575
Planter, corn, J. Selby... 576,624
Plowshare blank, Moore & Rawley... 576,817
Plumber's clamp, J. H. Griffin... 576,758
Postal card, folding, J. A. Cook... 576,552
Pot. See Flower pot.
Power, heating and ventilating apparatus for buildings, R. P. Bolton... 576,718
Printing and dyeing fabrics, F. Schreurs... 576,623
Printing patterns, cliche for, E. Quennoy... 576,889
Projector, MacHaffie & Faure... 576,684
Projectors, controlling mechanism for, MacHaffie & Faure... 576,683
Propelling apparatus, boat, N. Therien... 576,768
Pruning shears, A. Barling... 576,989
Pruning shears, C. E. Perry... 576,698
Pump, T. J. Peters... 576,630
Pump, A. W. Thierkoff... 576,916
Pump, J. D. Wilcox... 576,920
Pump, irrigating, C. H. Seaman... 576,699
Pump, single or connected helico centrifugal, A. Maginot... 576,870
Pumping machine, spring, Hanks & Purdy... 576,963
Purse, J. Ritter... 576,894
Rack and stand, combination, R. Blake... 576,651
Radiator, W. M. Lynn... 576,969
Rail joint, A. Bonzano... 576,943
Rail joint, W. Robinson... 576,793
Railway gate, J. J. Filippin... 576,959
Railway gates, means for operating, F. Newell... 576,789
Railway, pleasure, D. Urch... 576,704
Railway, pneumatic, H. Haupt... 576,975
Railway switch, Harris & Breisch... 576,845
Railway switch, automatic, W. A. Newton... 576,605
Railway switch mate, E. B. Entwisle... 576,564
Railway track cleaner, M. Power... 576,612
Range gas burner attachment, L. Stockstrom... 576,795
Ratchet drill, E. H. Atkins... 576,753
Razor, J. P. Leboki... 576,862
Register. See Autographic register. Fare register.
Rein holder, G. Laube... 576,681
Rice, bleaching, G. A. Lanaux... 576,860
Riveting machine, O. W. Davis... 576,556
Road gate, W. Wilson... 576,709
Roadway gate, F. H. Nichols... 576,738
Rock drill, F. & W. F. Cramer... 576,660
Rolling fantail axles, mill for, G. E. Rhoads... 576,741
Rolling machine, metal tube, A. Pilkington... 576,822
Rolling mill weighing device, M. M. Suppes... 576,627
Roofing and siding, board, G. A. Gemmer... 576,569
Rope driving apparatus, J. H. Hoadley... 576,674
Rope drum apparatus, W. F. Coursen... 576,554
Sad iron, reversible, E. Preston... 576,888
Sanitary appliance, A. O'Brien... 576,790
Sash fastener, S. Dinsmore... 576,558
Sash fastener, J. H. Johnson... 576,582
Sash weights, moulding, W. Mann... 576,871
Saw, hack, L. S. Starrett... 576,626
Sawmill carriage, G. H. Patullo... 576,820
Saw set, J. D. Bannerman... 576,940
Scaffolding, iron, Knopfe & Roder... 576,858
Scale attachment, weighing, M. W. Gilmartin... 576,962
Sealing wax holder, C. M. Garrison... 576,725
Separator. See Grain separator.
Separator, J. B. Allfree... 576,646
Sewing machine, Weston & Legg... 576,708
Sewing machine binder, E. Bukles... 576,947
Sewing machine loop former, J. B. Dobyne... 576,723
Shade attachment, window, N. J. Felix... 576,839, 576,840
Shade hanger, extensible, E. H. Bottenberg... 576,540
Shade roller hanger, J. W. Crigler... 576,951
Shears. See Pruning shears.
Shears or scissors, E. Bailey... 576,937, 576,938
Sheep shearing machine, J. D. Scouler... 576,902
Sheet metal, expansible drum for coiling, A. Kenworthy... 576,677
Sheet metal pipe, C. S. Hamlin... 576,671
Shelf bracket, adjustable, J. Baines... 576,939
Sheller. See Corn sheller.
Shoes, composition for preventing squeak in, A. L. Thompson... 576,918
Sign board, metal, F. V. Eavenson... 576,662
Skate, J. Stutz-Muller... 576,747
Slicer and grater, combined, H. Perk... 576,886
Smoke, apparatus for removing impurities from, E. E. Duller... 576,838
Soapstock, apparatus for barreling, W. C. Ahrenbeck... 576,934
Sowing wheel for drilling machines, adjustable, A. Kern... 576,856
Spike machine, G. Barr... 576,536
Spinning mule, S. Jackson... 576,730
Spittoon, Kane & Dinsmore... 576,589
Spraying apparatus, W. J. McGraw... 576,818
Spring. See Bicycle seat spring.
Stacker, pneumatic straw, A. E. Price... 576,740
Stamp, automatic time, J. C. Wilson... 576,844
Stamp, ore, A. M. Rouse... 576,619
Stanchion, Brent & Wheeler... 576,541
Station indicator, Keen & Roberts... 576,854
Stave planing machine, C. S. Algren... 576,935
Steam boiler, V. O. Strobel... 576,828
Steam engine, G. A. Anderson... 576,751
Steam engine, Haughn & Bufkin... 576,576
Steam generator, R. W. Mewes... 576,874
Stool, camp, W. A. Urbanus... 576,636
Stool, folding, J. L. Chapman... 576,657
Strainer, W. C. Baldwin... 576,798
Sugar, refining, E. Langen... 576,961
Superheater, W. Schmidt... 576,698
Surgeon's knife, W. Autenrieth... 576,648
Switch. See Automatic switch. Electric switch. Railway switch.
Swivel for chains or pulleys, J. A. Guinn... 576,574
Syringe, W. C. Bunce... 576,654
Table. See Billiard table.
Tacking tool, hand, A. F. Preston... 576,823
Tank. See Watering tank.
Tank, vented float, outlet valve and pipe system, combination, G. E. Montague... 576,601
Teakettle, T. E. Carlin... 576,806
Telephone apparatus, C. E. Buell... 576,804
Telephone system, A. S. Hibbard... 576,577
Telephone transmitter, M. E. & E. C. Clark... 576,551
Telephone transmitter, J. F. Gilliland... 576,813
Temperature and density tester, liquid, J. Barry... 576,547
Thrashing machine, E. G. Clymans... 576,755
Tile, cornice, C. J. Bogert... 576,942
Tire for bicycles, elastic, R. Routh et al... 576,697
Tire, pneumatic bicycle, B. A. Bidle... 576,772
Tire, vehicle, R. W. Churchill... 576,809
Tires, repair tool for bicycle, Porter & Carpenter... 576,690
Tires to rims, means for securing, A. H. Culley... 576,836
Tires, tool for mending punctures in bicycle, Oettinger & Schutt... 576,607
Tobacco elevator, A. J. Luther... 576,735
Tobacco pipe, P. O. Vettermann... 576,923
Tool, combination, S. M. Cole... 576,756
Tool, combination, F. Elliott... 576,563
Top, C. W. Long... 576,992
Toy, W. H. Reiff... 576,891
Trace fastener, J. Mitchell... 576,600
Traction engine, A. E. Price... 576,764
Train order holding device, C. J. Quay... 576,691
Transplanter and weeder, W. W. Tyson... 576,703
Trestle, suspension, J. Ratledge... 576,693
Trolley system, W. G. Caffrey... 576,721
Truck, adjustable, E. Ireland... 576,729
Truck and support, combined barrel, J. P. Hoff... 576,578
Trunk lock, R. T. Shelley... 576,745
Trunk trimming, D. Osterweil... 576,608
Truss, W. N. Smith... 576,907
Tubes, machinery for manufacturing metal, A. Pilkington... 576,739
Tubes or rods to mains, plates, etc., connecting device for securing, F. Albrecht... 576,530
Tug, shaft, Barry & Shaughnessy... 576,714
Turret machine, J. L. Bogert... 576,717
Typesetting appliance, Johnson & Low... 576,731
Typewriter attachment, W. P. Butler... 576,948
Typewriting machine, E. S. Shimer... 576,904
Valve, Starrett & Welsh... 576,909
Valve, nozzle, S. Palmer... 576,762
Vegetable cutter and grater, J. Wagner... 576,705
Vehicle wheel, C. Toomey... 576,633
Velocipede wagon, J. M. Spangler... 576,746
Ventilator, J. F. O'Gara... 576,791
Ventilator and thimble, combined, R. L. Underwood... 576,635
Violin chin rest, M. H. Coloney... 576,950
Vise and screw cutter, combination, W. E. Melhorn... 576,873
Voting machine, A. J. Gillespie... 576,570
Walls, etc., construction of supports for building, R. S. Gillespie... 576,843
Walls, etc., means for constructing supports for building, R. S. Gillespie... 576,842
Water and air heater, B. W. Taylor... 576,628
Water heater, F. B. Peterson... 576,763
Water supply apparatus for drinking fountains, T. F. Wood... 576,932
Water supplying and heating apparatus, J. G. Hermes... 576,846
Water wheel, D. Hug... 576,728, 576,849
Watering tank, stock, J. S. Eltemiller... 576,777
Weed cutter and cultivator, A. Roesch... 576,615
Weighing machine, E. R. Jones... 576,583
Well and device for driving same, pipe, N. W. Davis... 576,953
Well wall support, A. M. Kauffman... 576,784
Wheel. See Elevator drive wheel. Sowing wheel. Vehicle wheel. Water wheel.
Wheel, D. Hunt... 576,579
Wheels, etc., to shafts, means for attaching, S. H. Farrar... 576,965
Whiffletree hook, J. E. Patterson... 576,894
Whip holder, F. O. Reeves... 576,695
Windmill attachment, N. Burr... 576,543
Wrench. See Monkey wrench.
Wrench, J. A. McCawley... 576,602
Wringer. See Clothes wringer.
Writer's apparatus, sign, H. C. Carver... 576,949

TRADE MARKS.

Alloys and ordnance metals, metal, C. N. Choate... 29,570
Antiseptic tablets, A. C. Liepe... 29,565
Axes, J. H. Mann... 29,573
Beer and porter, Goebel Brewing Company... 29,566
Corsets' Warner Brothers Company... 29,562
Corsets and parts thereof, Kops Brothers... 29,561
Cotton fabrics, Naumkeag Steam Cotton Company... 29,564
Cutlery, razors and scissors, pocket, McIlwaine, Linn & Hughes... 29,572
Flour, wheat, Duluth Imperial Mill Company... 29,569
Ironware polish, A. M. Dumoulin... 29,571
Lacings, Neverbreak Shoestring Company... 29,563
Malt extract, Bernheim Brothers... 29,567
Malt extract, Val. Blatz Brewing Company... 29,568

DESIGNS.

Bicycle saddle clamp head, E. J. Toof... 26,620
Brush, cycle, J. T. Burulp... 26,619
Burner fixture, E. Lindner... 26,617
Chair, S. Kline... 26,623
Coat hanger, C. M. Clinton... 26,615
Engines, casing for fluid pressure, F. M. Comstock... 26,624
Lamp bulb, incandescent, L. H. Dolan... 26,616
Necktie holder, J. F. Berg, Jr... 26,618
Stocking supporter, F. Kern... 26,621
Toy slipper blank, H. S. Kerr... 26,612
Truck side frame, car, W. F. Richards... 26,622
Vehicle wrench, E. D. Moore... 26,618

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