counted for. [A. This is a very pretty experiment, which we do not remember to have seen put in this form before. The principle is not new. 'The edges of all objects seen through a prism or unachromatic lens are fringed with colored bands by the decomposition of the light into its various wave lengths. The production of green light by passing white light through yellow and blue light is not difficult of extlanation by "modern views" and accords with them, as may be easily proved by a spectro scope. The yellow seen in this case is opaque to and cuts off blue, indigo and violet; similarly the blue is opaque to and cuts offred, orange and yellow. The onlycolor which can pass through both the yellow and the blue is green. It is therefore seen whenever yellow and blue are so placed that we look through or at them together. It is easy of proof that the vellow and blue lights when mixed form, not green but white, that is, they are complementary colors. In a darkened room project upon the wall the vellow and then over it the blue, by some arrangement of mirrors or two lanterns, and where both lights fall on the same space, the wall is white.—EDS.]

(7407) S. M. P. writes: There is a large difference in opinion as to whether or not an object traveling a complete circle goes around everthing within that circle whether moving or not. A says a pulley fastened to a revolving shaft goes around the shaft. B claims that it does not, but that the pulley goes with the shaft. Which is right? A. A pulley or any other revolving body turns on its axis, which is an imaginary central line. The axis does not revolve. The shaft does revolve with the pulley; therefore, the pulley does not go around the shaft. B is correct.

(7408) W. L. E. asks: 1. If a 1/2 horse power motor is catalogued voltage 8, will an 8 volt current from four 2-volt accumulators run it for its full 1/2 horse power? A. An electrical horse power is 746 watts. One watt is 1 volt×1 ampere. Any number of volts multiplied by any number of amperes are so many watts. If then you have ½ horse power motor and the voltage is 8, the amperes to drive it will be found by dividing 1/4 of 746, or 373, by 8, which gives 47 about. You will need 47 amperes in your accumulators. 2. Can the rheostat described in Scientific American Supplement, No. 865, be used to regulate the speed of any motor, or is it only used to start the motor? A. A rheostat both starts and regulates the speed of a motor. Its office is to protect the armature coils from too much current while they are at rest or turning very slowly. 3. What is the voltage of the motors used in the World's Fair launches? If they had only 66 cells and they connected them in three sets of 22 each, they would only get 44 volts, wouldn't they? Or have the accumulators astrength of more than 2 volts. Please explain. A. See Scientific American for November 25, 1893, price 10 cents. There are no storage cells with more than 2 volts. 4. If a current of higher voltage than the motor is wound for is connected to the motor, will it hurn the motor out? A. It will overheat or burn the coils. 5. Iu making accumulators, is the only advantage in size a greater ampere hour capacity? A. The size of the cell should be proportioned to the work. A cell too large wastes current.

(7409) E. A. B. asks for a receipt for making a kind of resin which is of a more sticky nature than the common resin used for violins, a kind of resin which is sticky enough so that, if applied to a violin bow and drawn across a steel string (touching very lightly), it will take effect A. 1. For violin resin boil down Venice turpentine with a little water until a drop cooled on a piece of glass is of proper consistency. During the boiling cold water must be added from time to time. When sufficiently thick pour into cold water, knead well, and when cold break into pieces. Expose to sun until dry and transparent. 2. Select the best clear brown resin, melt it in a clean basin to nearly a boil, which will clear it of turpentine or other volatile oils. Pour in paper moulds.

(7410) J. T. H. asks which dynamo, the scries or the shunt, is used to the best advantage? A. The series dynamo is not self-regulating. Λn increase in the resistance of the external circuit causes a decrease in the E. M. F. of the machine. This necessitates a separate regulator. The shunt dynamo acts just the reverse of this. A combination of those two, or a compoundwound dynamo, is self-regulating.

(7411) C. C. R. asks: What is the per cent of economy of a common turbine waterwheel over a Barker or reaction wheel, all things being equal? Also how much more economical is a good marine engine than a good steam turbine, under the same circumstances? A. A common turbine wheel may have any economy from 60 to 70 per cent. The best turbines have an economy of from 85 to 87 per cent. A Barker's mill seldom reache an economy of 45 per cent. Reaction wheels of the Pelton and other types of impact jet wheels under high pressure range in economy from 80 to 87 per cent. The best types of triple or quadruple marine engines have reached an economy of 121/2 to 12 pounds of steam per horse power hour; the steam turbine, from 25 to 30 pounds of steam per horse power hour.

(7412) C. A. H. says: I have understood that by introducing oxygen gas into an arc light (of the same intensity as used for street lighting purposes) that a heat could be obtained of 18,000 degrees Fahrenheit, or sufficient to fuse marble. Is it true? If not, will the introduction of oxygen gas into the arc light increase its intensity, and to what extent? A. The temperature of the arc light is quite high enough to reduce marble to calcium oxide without introducing oxygen. We doubt if an arc, except in the electric furnace, will fuse (melt) the calcium oxide. The introduction of a stream of oxygen blows the arc and cools it. If the arc were immersed in oxygen, it would doubtless be hotter and would consume the carbon more rapidly than in open air. The temperature of the electric arc is taken to be about 6,000 degree

(7413) C. C. S. asks: 1. How to attach wires for charging American storage batteries? A. To charge a storage battery send the charging current in the opposite direction to that in which the discharging current flows. 2. How do you arrange the bank of lamps for resistance on 110 volt circuit? A. Connect the lamps in series for the amount of resistance needed to produce the drop in voltage required and then add similar series till the amount of current required will flow through the

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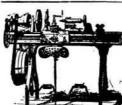
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INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

APRIL 12, 1898,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these pate	ents.]
A brading mechanism, W. A. McCool	602,349
Adding machine, C. C. Clifford	C02.154
Air brake J. J. Nef	602,094
Air brake, J. J. Nef. Air compressor, hydraulic, W. F. Stark Ant trap, C. W. Selvidge	CO2 247
Ant tran C W Salvidge	602,410
Agnorague holder C H Oortle	602,097
Asparagus holder, C. H. Oertle. Atomizer, W. S. Frost	602.070
Automatic lubricator, A. A. De Witt	602,010
Axle, safety, T. N. Crook	C02,308
Ball. See Foot ball.	402,308
Bath tub seat, W. Burrows	COO 105
Data tub seat, W. Burrows	002,123
Battery. See Galvanic battery. Secondary bat-	
tery. Storage battery.	200.000
Bearing, center, P. H. Murphy	602,050
Bearing, venicle wheel axie, R. C. Patterson	002,100
Bed, E. E. Munger. Bed attachment, T. H. Campbell.	602,341
Bed attachment, T. H. Campbell	602,055
Bicycle, G. P. Ohlgart	C 02,354
Bicycle crank shaft, G. M. Beard	602,049
Bicycle driving gear, W. S. Kellogg	602,162
Bicycle frame, A. B. Simonds	602,369
Bicycle handle bar and handle, G. H. Newell	602,095
Bicycle lock, automatic, G. L. Grass	602.391
Bicycle propelling mechanism, I. W. Conselyea	602,230
Bicycle retainer and lock, J. Battersby	602,279
Bicycle rest, F. F. Hawkes	CO2.134
Bicycle stand, J. R. Moore	CO2.415
Ricycle support. H. Geidt	602 318
Bicycle support, C. C. Plaisted. Bicycle support, H. T. Sackett.	602.141
Bicycle support. H. T. Sackett.	602,270
Bicycles, etc., seat or saddle support for, S. C.	002,210
Whitlow	602,389
Whitlow	602,266
Block system, electric, F. Burger	602,208
Bobbin, H. D. Klots	602,200
Pobbin C Pandlaton In (09.90)	602 241
Bobbin, G. Pendleton, Jr	602 193
Polt See Socket holt Stay holt	002,100
Bolt. See Socket bolt. Stay bolt. Bolt case, H. B. Sarg ent	602,271
Book holder, A. L. Platt	602 160
Book, manifolding cash sales, J. H. Murphy	602,405
Book aupport I A T offstedt	600 164
Book support, J. A. Loftstedt	002,104
Bookbinding, J. E. Hewett	002,401
Boot, wool, E. Roos	002,407
Bottle, L. K. Larrison Bottle, non-refillable, H. C. Fuhlmann	002,338
Bottle, non-remiable, H. C. Fuhlmann	602,156
Bottle washer, G. P. Goulding Box. See Collapsible box. Match box. Packing	602,071
BUX. See Collapsible DOX. Match DOX. Packing	
box.	
Brace holder, S. Shanahan	602,367
Bracket. See Lantern bracket. Roof bracket.	
Brake. See Air brake. Wagon brake.	
Decembeldes T Debald	COO 042

bracket. See Lantern bracket. Roof bracket.
Broom holder, I. Rybold
Brush, H. W. Hasey.
Brush, C. A. Meuert.
Brush, C. A. Meuert.
Brush, polishing, G. F. Cooper.
Bruter cake and means for making same, Burger & Wilhams.
Cabinet, J. W. Place.
Cabinet, J. W. Place.
Cabinet, Jace or ribbon, C. H. Martin.
Caisson air lock, S. Mattson.
Can filling apparatus, oil. Campbell & Urie.
Canning food, E. Norton.
Canra J. Hoyt.
Car coupling, I. Jow.
Car coupling, W. C. Perkins.
Car door, grain, Newstrom & Miller.
Car fender, F. A. Harris et al.
Car lighting systems, dynamo for electric. Preston & Gill.
Car pulot, railway, E. P. McKaig.
Carpenter's tool R. Eviller. 602,182 602,226 602,130 602,348 & Gill.

Carpilot, railway, E. P. McKaig.

Carpenter's tool, B. Fuller.

Carpet fastener, stair, G. F. Murdock...

Carriages, suspending batteries on, Brougham & Bersey...

Collar folding and shaping machine, A. Farina. 672,067
Combination lock, L. C. Thompson 602,116
Compresses, bagging attachment for roller, D. C.
Ball. 602,114
Conveyor, T. A. Edison. 612,064
Conveying apparatus, F. B. Knight. 612,064
Cooking apparatus, G. D. Fox. 612,317
Copying press, J. M. Moore. 612,417
Cotton opener, J. O'Connell. 612,265
Cotton picking machine, Hamerschlag & Price. 612,265
Cotton picking machine, Hamerschlag & Price. 612,265
Coupling, See Car coupling, Thill coupling.
Crate, collapsible shipping, W. O. Parker 612,237
Crate corner, M. C. Ryan. 612,227
Crate corner, M. C. Ryan. 612,227
Cultivator, garden, A. Fiscus. 612,227
Cultivator, garden, A. Fiscus. 612,227
Cuttain and window shade holder, combination,
T. McCormick. 612,108
Cutter, See Feed cutter, Milling cutter.
Cyclist's riding record, H. S. Brodie. 612,031
Dentist's arm support. I. P. J. V. Kjoer 612,084
Desk, writing, H. Heine. 612,085
Dishs, mechanism for controlling action of oscillating, J. Thomson. 602,079
Drill. See Well drill.
Drilling and tapping machine for door knob spindies, F. B. Shuster. 672,279

Drill. See Well drill
Drilling and tapping machine for door knob spindies, F. B. Shuster.
Dumping platform, S. F. Evans.
Educational appliance, S. Kimble.
Edg beater, F. S. Bellanger.
Egg tester, I. S. Vedder.
Electric cord adjusting device, F. N. Lawton.
Feltoric cord adjusting device, F. N. Lawton.
Feltoric cord adjusting device, F. N. Lawton.
Feltoric motors, automatic device for removing
resistance in starting, G. H. Whittingham.
Electric transformer, L. Gutmann.
Electropositing, process of and apparatus for,
E. L. Dessolle.

602,212

(Continued on page 270)

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	<i>OF X 14 GI X 1</i>	**
	· · · · · · · · · · · · · · · · · · ·	
1	Emery wheel dressing tool, C. E. Roberts End gate, S. D. Metcalfe Engine. See Motive engine. Rotary engine.	602,106
	Engine. See Motive engine. Rotary engine.	4 02,100
пц	Steam engine.	ene nan
M	Steam engine. Enkine, D. L. Dresser. Enkines, automatic safety stop for, J. K. Wright.	602,385
10	Exvelop S. B. Sigesmond. Excavating machinery, Cryer & Newby. Faucet, C. W. Brackett. Feed cutter, A. Mattijetz.	602.411
7	Faucet. C. W. Brackett	602,300
	Feed cutter, A. Mattijetz	602,345
TII '	Fence. G. R. Greer	602,217
١М,	Fender. See Car fender. Fertulizers, making, W. E. Rowlands. Filter, C. E. Chamberland. Filtration, purifying condensation water from oil by C. Olberg.	602,363
	Filter, C. E. Chamberland	c 02,304
la-	by, G. Olberg. Finger dilator, R. A. Lucchesi.	602,098
En- chi-	live harness hanger M. Harcourt	602,191
ng;		
ng;	h Juid motor and motor I II Direct	602,223
dy	Fly catcher, C. A. Kimbel	C02,083
nds ect	Fly trap, T. Clement	602,126
CCL	Fly catcher, C. A. Kimbel. Fly trap, T. Clement Foot ball, B. Arnold Forkink solid metal car wheels, die for, S. H. Kalston.	002,234
s,	HalstonFrame. See Display frame.	602,196
	Frame. See Display Frame. Furnace. See Ore roasting furnace.	
	Furnace. See Ore roasting furnace. Furnace, E. E. Starr	602,372
ľ	Gage. See Saw table gage. Gage for liquid in vessels. Foltz & Phillips	c 02.069
	Galvanic battery, W. Rowbotham	C02,362
_	Game apparatus, T. Renwick	602,187
POBE. It	Furnace, E. E. Starr. Gage. See Saw table gage. Gage for liquid in vessels, Foltz & Phillips. Galvanic battery, W. Rowbotham. Game apparatus, T. Renwick. Game board, H. L. Haskell	602,358
pay	Garden tool, L. B. Smith	602,370
ma-	Gas generating apparatus, acetylene, J. A. Vin-	002,010
shop a v e	Con lighton T N MoNish	602,189
f	Gearing, A. F. Bertles	602,298
&	Game board, W. H. Perry. Garden tool, L. B. Smith Garment supporter, A. S. Grimm. Gas generating apparatus, acetylene, J. A. Vincent. Gas lighter, T. N. McNish. Gearing, A. F. Bertles. Girder, sheet or plate, C. B. Sill. Glass furnaces, means for keeping glass clear in regenerative, G. Schluder.	602,274
	regenerative, G. Schluder. Glass mold cooling table, W. Haley. Glass mold cooling table, W. Haley. Gold separating machine. B. W. Sweet. Grain, hay and stock rack, combined. E. McKim Grinding and polishing device. G. H. Byer. Grinding machine, ball, R. & L. F. Schulze.	602,111
t's	Glass mold cooling table, W. Haley	602,399
RS.	Grain, hav and stock rack, combined, E. McKim	602,113
oved	Grinding and polishing device, G. H. Dyer	602,213
n be	Grinding machine, ball, R. & L. F. Schulze	612,365
erent	Gun rack, L. M. Wiler	602,198
ugh, dex.	Handle. See Saw handle. Sheet metal handle. Hanger. See Clothes hanger. Fire harness hang-	
tekiy	AP	
tee].	Harvester, corn, G. Gowen. Harvester, corn, W. H. Gray Harvester, mint, O. E. Abbey. Hat brim curling machine, G. Segschneider	602,216
6. A.	Harvester, mint, O. E. Abbey	602,292
	Hat brim curling machine, G. Segschneider	602,246
	Hat brins, machine for froning straw, A. Boosien Hay rake and stacker, R. A. Simpson	602,145
	Hide. skin or leather machinery, W. Evans	602,066
•	Hat brins, machine for Ironing straw, A. Bobsien Hay rake and stacker, R. A. Simpson. Hide. skin or leather machinery, W. Evans. Hitching or unbitching device, W. S. Endslow. Hoisting and conveying apparatus, H. R. Palmer. Hook. See Coat hook. Whiffletree hook.	602,168
hines	Hook. See Coat book. Whittletree hook. Hoop. See Trundle hoop.	- ,-50
of all	Hoop. See Trundle hoop. Horn or similar material, process of and appara-	
nera	tun for utilizing A Mitashoulish	C00 01/2

Hay rake and stacker, R. A. Simpson 602,145
Hide, skin or leather machinery, W. Evans 602,066
Hitching or unbitching device, W. S. Endslow 602,313
Hoisting and conveying apparatus, H. R. Palmer. 602,168
Hook. See Coat book. Whiffletree book.
Hoop. See Trundle hoop.
Horn or similar material, process of and appara-
tus for utilizing, A. Mitscherlich 602,237
Horseshoe cushioned, P. Krumscheid 602,387
Horseshoe, elastic, T. M. Miller
Hose reel, E. Cliff
House. See Portable house.
Hubs, couplings, or the like to shafts, means for
connecting, G. C. Howard
Hydraulic lubricator, J. E. Spenser 602,371
Hydrogen, apparatus for manufacturing carbu-
reted, W. H. & G. E. Russell
Implement, changeable, C. J. Ericson
Ironing board, E. A. Prescott
Jack. See Lifting jack. Wagon jack.
Joint. See Rail joint. Railway rail joint. Wheel
rım joint.
Journal box, T. W. Green 602,287 Kneader, R. B. Griffin 602,398
Kneader, R. B. Griffin
Lamp burner and wick, combined, V. Burklin 602,391
Laron electric ero i Mueller 602 404

ı	Journal box, T. W. Green	602,287
ı	Kneader, R. B. Griffin	602,398
	Lamp burner and wick, combined, V. Burklin	602,391
ı	Lamp, electric are, J. Mueller	602,404
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	Lens cutting machine, F. G. Blanchard	C02,207
	Letters, etc., apparatus for keeping, T. B. Vernon	602,116
	Level, Danton & Burgher	C02.137
	Lifter. See Pan lifter.	
	Lifting jack, F. W. Chickering Limb, artificial, Donaldson & Kespohl	602,056
	Limb, artificial, Donaldson & Kespohl	602,386
	Load sustainer for weight lifters. Eades & Mat-	
	thews	602,312
١	Lock. See Bicycle lock. Caisson air lock. Com-	
	bination lock.	
	Lock, W. D. Roberts	C02,144
	Locomotive, R. J. Diplock	602,310
	Looms, selvage weaving device for, J. K. Schu-	
	macherLubricating apparatus, A. Cruz	CO2,366
	Lubricating apparatus, A. Cruz	602,155
ı	Lubricator. See Automatic lubricator. Cup	
	lubricator. Hydraulic lubricator.	***
	Lumber storage plant, V. J. Emerson	602,395
	Match box or safe, B. W. Karst	602,333
	Measuring mechanism for box or can filling ma-	200 000
	chines, Hoyte & Wood	602.330
	Metal working machines, F. G. Echols	602,062
	Metallic articles, manufacturing cold drawn, W.	000 415
	A. McCool	6 02,417

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Lumber storage plant, V. J. Emerson 60
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Match box or safe, B. W. Karst 60
Measuring mechanism for box or can filling ma-
chines, Hoyte & Wood
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Metallic articles, manufacturing cold drawn, W.
A. McCool
Metalloceramic resistances, fabricating, L. Par-
villee
Meter. See Fluid meter. Water meter.
Milk, preserving, A. Fernandez
Mill. See Crushing mill. Stamping and crush-
ing mill.
Milling cutter for metal working machines, A.
Klay
Motive engine, A. Howard
Motor. F. M. Mackey
Music turner, sheet, C. A. Comp
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Musical instrument tailpiece, R. E. Lackner	CO2,337
Nail setting machine, A. M. Simmons	
Nut, lock, B. Edgar	C02,232
Nut lock, B. Edgar	
Nut lock, A. S. Wright	602.120
Nut wrench, H. L. Butler	CO2.054
Ore roasting furnace. H. Harlan	CO2,400
Ore sorter, J. Ancel	CO2.250 .
Overalls, leggings, trousers, etc., attachment for,	,
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Packing, rod, T. H. Holmes	602.328
Pad. See Stamp pad.	002,
Paint pigment, Kittson & Browne	CO2.163
Pan lifter, A. Hautsch	
Paper box making machine, Palmer & Denmead	CO2.140
Paner holder G H Kent	CO2 126
Paper bolder, G. H. Kent	C 02,186
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Paper or other machines, lath carrying device for wall, J. H. Suydam, Sr	602,375 602,253 602,109 602,165 602,355
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Paper or other machines, lath carrying device for wall, J. H. Suydam, Sr Paper trimming machine, wall, J. M. Brady. Paramidophenol, making salts of, I. Roos. Pen, drawing, F. Lutterberg. Pencil, W. Painter Piano tone modifying attachment, J. C. King Picker stick, J. Begins.	602,375 602,253 602,109 602,165 602,355 602,135 602,297
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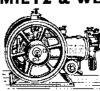
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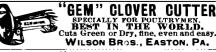
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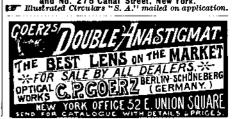
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