even if it does not entirely decolorize the patches in the latter case. A general whitening of the skin is produced in your neighborhood every year at that season.; Hardly by this lotion without any irritation. It is as well, however, not to apply it to any abraded surfaces. It has such as this, are not reported from some part of the been found far superior in practice to a preparation—which it somewhat resembles—soid at a high price in Paris under the name of Lait Antiphelique.

(6508) H. N. M. says: How can I ink typewriter ribbons? A. Take vaseline (petrolatum) of high boiling point, melt it on a water bath or slow fire, and incorporate by constant stirring as much lamp black or powdered drop black as it will take np without be-per square inch, and the mean pressure from 50 to 75 coming granular. If the fat remains in excess, the print is liable to have a greasy outline; if the color is in excess, the print will not be clear. Remove the mixture from the fire, and while it is cooling mix equal parts of petroleum, benzine, and rectified oil of turpentine, in which dissolve the fatty ink, introduced in small portions by constant agitation. The volatile solvents should be in such quantity that the fluid ink is of the consistence of fresh oil paint. One secret of success lies in the proper application of the ink to the ribbon. Wind the ribbon on a piece of cardboard, spread on a table several layers of newspaper, then unwind the ribbon in such lengths as may be most convenient, and lay it flat on the paper. Apply the ink, after agitation, by means of a soft brush, and rub it well into the interstices of the ribbon with a tooth brush. Hardly any ink should remain visible on the surface. For colored inks use Prussian blue, red lead, etc., and especially the aniline colors.

glycerine. Ink as before.

(6509) W. B., Jr., says: Will you please tell how I can make a gallon of perfumed violet writing ink? A. One and one-sixth ounce of so-called primula violet is dissolved in 3 quarts boiling distilled water. This may be converted into a copying ink by adding 4 ounces sugar, 4 ounces glycerine. N. B.-Primula violet is known also as dahlia or Hofmann's violet, of which there exist a number of different shades. Perhaps the finest is that known as No. 6. This coloring matter If you want only temporary protection, use vaseline. consists of salts of trimethylrosaniline and triethylrosaniline. Other times may be prepared from other aniline colors. It is best to add to the solution of an aniline color a small percentage (3 to 5 per cent) of alcohol, and also of glycerine (1 to 4 per cent). To perfume it add the essential oil, which will give the desired odor.

(6510) A. B. D. asks: 1. Why does the whistle of a locomotive in motion sometimes sound higher than it really is? A. Because the engine approaching virtually shortens the sound waves. 2. Are heat and light molecular or atomic forms of motion? A. " Radiant heat" so called and light are forms of ethereal energy; heat, properly speaking, is a form of molecular energy. 3. Is ether an atomic or molecular body? A. The ether is hypothetical and cannot be termed atomic or molecular. 4. If heat and light are molecular forms of motion, is electricity to be considered so also, as it can be changed to either of the former? A. Electricity is best treated as undefinable, and seems apt to remain

(6511) Gravity asks: What will prevent the formation of sulphate of zinc on the outside of the jars of a gravity telegraph battery? I am informed coal oil will give the desired result. Do you think it affects the working strength of the battery? A. Coal oil is used for the purpose named and has no ill effect. Simply coating the edges of the jar with melted paraffin wax will prevent creeping to a considerable extent.

(6512) W. G. R. asks whether there is a dynamo yet made that has no revolving wire. One without a commutator of any kind and producing constant current (not alternating) of high or low voltage. A. There is no dynamo answering fully your description. There is a theoretical or experimental one. Faraday's copper disk dynamo, described in the text books.

(6513) G. S., Jr., writes: I have got some armature punchings for the sewing machine motor described in Supplement, No. 759. Can these punchings be wound the same as the carriage washers, and do the projections on them add or take from the efficiency of the armature? Are they ever used in large machines? A. Projections such as you allude to are often used on the armatures of large dynamos. Projections facilitate winding and diminish slightly the reluctance of the magnetic circuit. They have but little influence on the efficiency of the machine, tending to increase it.

(6514) P. C. T. asks: Can you give the size of German silver wire that will equal in resistance 5 strands of No. 20 German silver? Also what size, using & strands, will equal 5 strands of No. 20? The nearest calculation and the probable variance. A. A single lead of No. 13 wire is about 11/4 per cent too large; a double strand of No. 16 is about 12 per cent too large

(6515) H. R. O. asks: When the mutator of a dynamo is turned off there is almost always one segment worn deeper than the rest. What causes it to be so? A. Possibly the winding is a little out of balance, and sparking and arcing is accentuated at tha

(6516) W. W. M. writes: I send a same ple of a deposit which we think to be sulphur. It must have been deposited on the night of the 19th of March, as it was not noticed until the 20th, when it was seen to be accumulating at the edges of ponds and all other bodies of water throughout this section. It drifted in some places till it reached a depth of 1/4 inch, wherether water left it high and dry, and I gathered the inclosed sample to-day by picking it up with my fingers. Some of the old inhabitants say that this deposit occurs here every spring just after a big rainfall. But this time there was no rainfall. It seemed to come with a hard west wind. We have a sulphur mine west of here some 75 miles in Calcasieu Parish; it probably is the source of this deposit. We wan! to know exactly what it is, and how it came to be here. To-day, while gathering the sample. I noticed thousands of small bugs which seemed to be feeding on the material. A. The yellow powder which you send consists of the spores of a species of

ment of ephelis, and always greatly ameliorating lentigo, pine. The pine trees flower in spring, and this accounts for the presence of the spores as a sulphur-like deposit a year passes in which supposed "rains of sulphur, conntry

> (6517) A. A. S. asks how to figure the horse power of gas and gasoline engines. A. Theproper way to obtain the mean engine pressure is with an indicator and card register in the same manner as with the steam engine. The variation of initial pressure of explosion varies very much, say from 100 to 150 pounds pounds, averaging a mean pressure of about 60 pounds Square the diameter of the cylinder and multiply it by 0.7854 for the area. Then, if the explosive effect is every other revolution, one-half the number of revolutions per minute multiplied by the length of the stroke in feet or decimals of a foot will be the active travel of the piston under presence. Then

pressure×area×stroke×1/2 revolution 33,000

If the explosion is at every revolution, the full number must be put in the formula. If there is cushioning or eompression of the air and gas in the cylinder, it must be deducted from the mean pressure. See "Gas and Petroleum Engines," by Donkin, \$6.50 by mail. For the method by Prony brake see Scientific American Sup-PLEMENT, No. 992; 10 cents mailed.

(6518) R. B. D. writes: For the past two days we have experienced a succession of heavy vibrations with a simultaneous roar as of a distant explosion. The sky in the direction of the sound (W.S.W.) is clear with a light S.E. wind. Is it possible for us to hear the reports from the Sandy Hook grounds? If not, what can it be? We are at least 60 miles from Sandy Hook light. A. The vibrations and noise were probably from the gun trials at Sandy Hook.

(6519) F. W. S. asks: What preparaion would you recommend to be applied to the bright steel and nickel parts of a bicycle to prevent rust? A. Try a colorless lacquer. You can find such in the market made from celluloid. It is very hard and durable,

(6520) H. P. says: Please give formula for best black varnish for small wooden articles, and the pest method of tempering small wire spiral springs. A. Black japan varnish:

Dark gum anime..... 8 '

Fuse, add 12 gallons linseed oil; boil, then add ofdark gum amber, 10 pounds, previously fused and boiled in 2 gallons linseed oil; next add q. s. of driers and thin with oil of turpentine. How to temper a small spring. 1. Heat the spring to a light red, plunge in cold water; hold the spring over the flame of a small fire of shavings until it becomes black, then hold in the fire until the black dls. appears. Cool the spring by swinging it in the air. 2 Heat the spring to a cherry red, plunge iu cold water, and hold over a small fire until warm. Cool with tallow and burn off the tallow over the fire; repeat this process two or three times, cool in water.

(6521) F. E. H. writes: Will you please give me information on the following subject? I have a spring of water that furnishes 21 cubic feet per minute with a fall of 100 feet in a distance of 300 feet. Please tell me the size of pipe necessary to carry this water. How much power would there be if one of Leffel's new jet wheels were used, and what size nozzle would use all of the water? How much power could be procured with same water, 21 cubic feet with a head of 60 feet, and what size nozzle would it take? A. A 21/2 inch pipe will deliver the quantity flowing from the spring with an open end pipe. For power purposes you require a pressure head, for which a larger pipe, 3 inches or 3% inches is a better size. Use a 3% inch nozzle, which will spout 140 gallons per minute, which will run an impact motor of the Pelton or Leffel type at 400 revolutions per minute, and give you 3 horse power. You will lose head by trying to use all the water on the motor. At 60 feet with the same quantity of water you may use a 1 inch nozzle and realize 1% horse power.

(6522) E. J. P. asks: About how much coal does one of the great ocean steamers like the City of Paris burn in twenty-four hours, at the usual five and a half or six day rate of speed? A. The great ocean steamers burn about 400 tons of coal per day.

### TO INVENTORS.

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### INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

April 30, 1895,

AND EACH BEARING THAT DATE

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

1	Air brakes, automatic lock for stop cocks of.	Fencing, barbed, T
1	Air brakes, automatic lock for stop cocks of, Tower & Rich	File, detachable ar
1	Alarm system, high pressure, E. G. Shortt	File, saw, A. Weed Filter, F. A. Reicht Filter, J. M. Wells.
1	Armature for dynamos and electric motors, Penn & Lowndes	Finger ring lock, C.
1	& Lowndes	Fire escape, T. Ler Fire escape, T. J. I Fire escape, Wilbe Fire extinguisher.
1	schmidt. 538,553 Axie cap for vehicles, lubricating, F. E. Harvey. 538,553 Axie lock, vehicle, L. Harweyer. 538,372 Bail catcher's hand protector, E. L. Wilson. 538,572 Sept. Acceptable of the control	Fire extinguisher. Fire extinguishers
į	Axle lock, vehicle, L. Hagmeyer	Fire tube check, E Flexible counting.
i	831 catcher's hand protector, E. L. Wilson.       538,572         83th apparat us, shower, J. Kelly.       538,521         83th tab hand clamp, L. M. Hooper.       538,490         8athtub hand clamp, L. M. Hooper.       538,490         8eam, Joist, etc., G. M. Viernow       538,562         8ed. A. R. Turner.       538,560         8ed and table, folding, Vocke & Lungstras.       538,470         8ell, bicycle, storm & Hunter.       538,607         8ell, pong, N. T. Mills.       538,332         8elt fastener, I. Jackson.       538,332         8licycle, L. A. Cooper.       538,333         8licycle, theels, making wooden rills for. H. G.	Flue cap, F. E. Hei Flue stopper, Habe Fuel, machine fo
1	Beam, joist, etc., G. M. Viernow	Albrecht
į	Bedand table, folding, Vocke & Lungstras 538,470   Bell, bicycle, Storm & Hunter 538,607 Bell, acros N. W. Mills	Furnace. See Boll Furnace, G. A. Bel Game board, G. A.
i	Belt fastener, I. Jackson	Garment presser, (
	Bicycle, L. A. Cooper. 538,238 Bicycle wheels, making wooden rims for, H. G. Shepard. 538,541 Bicycles, variable speed gearing for, J. M. Scobee 538,287	Gas or other meter H. Green
	Binder for pamphiets, etc., temporary, A. Neil-	Gate, L. Fetch
	800. 389,031 Bit brace and band drill, C. D. Cutts. 538,323 Bit jack and bolder, W. A. Grove. 538,234 Block. See Tackle block. 538,254	rator.
]	Block. See Tackle block. blowing engine, C. F. Schaller	Glass, method of a of wire, C. H. T Grain drill, O. B. F
l	blowing engine, C. F. Schaller 538,352 Boat or vessel, C. A. De Lambert 538,527 Boiler. See Hot water boller. Water tube boiler.	Grain drill, O. B. P. Grate fuel-saving
	Double	Grate fuel-saving: Guard rail, R. B. F Gun breech mecha Harness, W. D. Fr Harness, and cutte
į	Book check, H. H. Angell	Harrow. sod cutte Richter Harrow tooth, spr
i	Boots or shores and making same, metallic fasten- lng for, P. A. Coupal. 538,322	Harvester grain b
	Ing for, P. A. Coupal. L. E. Kane. 588, 322, 80 title expping machine, L. E. Kane. 588, 269 bottle stopper, C. K. Fuchs. 588,644 Bottling machine, B. Stahl 589,290 Box. See Musical box.	Hat band clasp, M Hay carrier track Swacick
	Box flee Musical box.  Box fleing machine, C. H. Palmer et al	Hay rake, I. G. Lu Hay rake and load
	Rraco Noa Rithraco Ladder hraco	Headlight, chang beck
i	Brake.       See Electrical brake.         Bridge or culvert.       M. A. Nicbols       538,432         Brusb holder, E. D. Priest       538,279         Bung extracting tool, D. Poggenburg       538,279         Burner.       See Incombustible burner.       538,416         Button, w. Hornich       538,436         Button, bose, J. E. Goggin       538,436         Ca binet or safe, curtain, A. McKenzle       538,430         Car, air pipe, and steam pipe coupling, combined,       538,533         R. L. Munson       538,236         Car bolster, railway. C. T. Schoen       538,236	Hinge, spring, J. I Hog catching and Hoisting tackle, at Horse ice shoe, A.
-	Button, W. Hornich	Hospital screen, B Hot water boiler, House. See Ice h
	Button, nose, J. E. Goggin	Ice house, C. C. Cl Incombusible burn Iudex, banker's da
	Car, air pipe, and steam pipe coupling, combined R. I. Munson S88,533 R. I. Munson S88,538 Car bolster, railway, C. T. Schoen S88,538 Car bolster, railway, C. T. Schoen S88,538 Car coupling, T. H. Gward Car coupling, R. W. Aigler Car coupling, G. J. Porrey S88,542 Car coupling, J. M. Gallagher S88,583 Car coupling, J. M. Harrison S88,583 Car coupling, J. M. Harrison S88,584 Car coupling, J. M. Harrison S88,586 Car fender, C. E. Montell S38,586 Car fender and trip, C. Mahon S88,581 Car freight, A. J. Adamson S88,456 Car freight, A. J. Adamson S88,459 Car freight, A. J. Adamson S88,249	
	Car brake adjuster, J. Howard 588,418 Car center bearing, railway, S. Walters 538,563	Insulating materia Invalid's, table, M.
	Car coupling, G. J. Forrey	Invalid's, table, M. Ironing table, C. Jack. See Bit jack Jar drying appara Journal box lid, 8.
	Car coupling, J. M. Harrison 538,645 Car coupling, S. J. Meeker 538,339	Kiin, See Lumbe
!	Car fender, C. E. Montell	Kitchen cabinet, o
. ;	Car, freight, A. J. Adamson	Lacing stud or book Ladder brace, ster
. !	Car fender or guard, 6. Thomas. 53,553 Car frieight, A. J. Adamson 53,439 Car life-saving attachment, street, J. P. Fleming, 538,249 Car life-saving attachment, street, O. Beck 538,239 Car safety attachment, street, O. Beck 538,349 Car minoading device, J. McMyler 538,340 Car withintor, J. Timms 538,239 Cars entilator, J. Timms 538,239 Cars entilator, J. Timms 538,239 Cars means for ventilating electric motors on. J. 538,341 Cars means for ventilating electric motors on. J.	Lacing stud or boo Ladder brace, step Ladder, step, F. V Lamp, C. Maschm
i	Car sentilator, J. Timms	Lamp gas attachn
	Nelson 538,341 Cars, means for ventilating electric motors on, J.	Lamp wick raiser, Last and last supp Lathe, turning, R.
!	J. Devine	Lathing, metallic,
I	Cara cothing for attachment to hata, machine	Leaf creasing clar Life lines, device Lifting lack, J. H.
-	Carriage step, T. Beecher 538,316 Carrier apron, S. Ferguson 538,443	Lifting Jack, J. H. Lightning rod, H. Lime, apparatus Reid
:	Cartridge, W. W. McKsy. 588,620 Case or cabinet, J. E. Mszwell 508,592 Caster Noull no F. Fradwickner 508,249	Liquid raising ma
İ	Castings, manufacturing soft steel, F. W. Hawkins 538.646	Lock Strike, T. J. Lock strike, T. J. Log transfer, stea
ļ	Chain package and packing chains, J. Sinciair 538,629	Loom doth cutter
ĺ	Chair ian attachment, rocking, J. Weigel	Lubricating mate B. & G. H. Wa Lumber drying ki
:	Chair fan attachment, rocking, J. Weigel. 58,566 Chairnef fap laying machine, W. L. Barrell 58,637 Chuck, lathe, J. A. Lidback 58,334 Cigar lighter, electrical, H. G. O'Neill 58,272 Clamp. See Bathtub band clamp. Leaf creasing	bam
ì	Clean Rec Mat hand clean	Magneto generato Magneto transmit Mandrel, flexible,
i	Closet seat cover or lid, L. Schonfeld	Measuring and ( Palmer. Jr., &
	Boynton	Meat softener. W Mensuration form Metal shearing ar
	for wool, J. H. Rogers	Milling machine,
į	Condenser and oil separator, steam, E. Rowe 538,600	Mouiding moulds Moulds, apparatu
:	Condensing or evaporating and refrigerating fluids apparatus for, E. Theisen	Mop wringer, F. ( Mossic work, app Motor. See Way
:	Condensing or evaporating apparatus surface, E. Theisen	
i	Conveying apparatus. T. S. Miller. 588,455 Cooling and preserving apparatus, E. C. Brown. 588,233 Copper, process of and apparatus for making compressed electrolytic, F. L. M. Urruty. 588,233 Copy holder, E. P. Richardson. 588,235 Corn cutter and harvester, T. A. Chapman. 588,236 Corn shock leader J. Shapks	Mucilage bolder, Music bolder, F. Music leaf turner
l	Copy bolder, E. P. Richardson	Musical box, F. S Necktie, S. L. Bac Necktie fastenin
ļ	Corn sbock loader, L. Sbanks. Corn sbellers, ear corn conveyer for, J. Q. Adams 538,400 Couch and storage chest, combined, Caruthers &	Noodlo throader
ļ	Savage	Oculists' testing i
İ	Savage	Nut and bolt lock Oculists' testing i ple for, G. W. Oil burner, A. J. Optical sight. M. Orange sizer, A. Ore separator, ce
ļ	ling. This coupling.	Ore separator, or
	Crucible, electrically and chemically beated, H. G. O'Nelll. 538,271	Ora sangrator me
	Crate, bleycle, H. Keller Cruchilo electrically and chemically heates, H. Cruchilo electrically and chemically heates, H. Cruchilo ere, etc., machine for, H. H. Blake	Oversube Instelle
i	Cut-out device, thermal, C. A. Rolfe	Paper folding ma
	Curtain bracket, J. Reigart 533,385 Cut-out device, thermal, C. A. Rolfe 538,285 Cut-out device, thermal, C. A. Rolfe 538,285 Cutter. See Corn cutter. Loom cloth cutter. Cycle frame. C. W. Brown 538,232 Damper forfireplace grates, D. Slates 538,367 Dental chair, A. W. Browne 538,467 Dental chair, J. Peyton 538,467	Paper folding ma Paper folding ma Paper, safety, J. Pen, drawing, V. Pen, fountain, G. Pen, fountain, F.
	Dental chair, J. I. Peyton	Pen, fountain, G. Pen, fountain, F. Pen, fountain ma
	Desk, money drawer, and distributer, combina- tion, A. D. Coldren et al	Pencil sbarpener Perambulators of
ŀ		ering or hoist Phonograph reco Photographer's
.	Door, screen, A. Schreiner 538,533 Draught attachment for farm implements, J. L.	Well
1 :	Keagle 538,376 Draught equalizer, plow, H. C. Ritterbusch 538,537 Draw bar attachment, continuous, J. Seath 538,538	W. Lundahl.
٠,	Drill. See Grain drill.  Drill. J. S. Surbaugh 588.33	Pile or post drive Pipe coupling, E. Pipe threading m
:	Drill, J. Surbaugh. 688.33 Drill, J. Surbaugh. 688.33 Drum, beating, J. W. Joh. 180n. 538.518 Drying granular materials, apparatus for, E. M. 538.23	Pipe threading n Pipes, external n Planter clutch. c
ا!	Cook       588,23         Dust beater, C. B. Cadman       588,43         Dusting cloth bolder, H. O. Neagles       539,23	Planter, com, Gu Planter, paris gre W. E. Everitt
. !		
	Electric elevator. N. O. Lin dstrom	Pow der holder, I Press. See Print Printing press, E Propulsion host
'	ton	Propulsion, boat Puller. See Stur Pulp, making mo
	Electrical coupling, Koenig & Mann	Pumn attachmer
	Playetur Ros Martrin slavetur.	Pump, rotery J.
	Enameling cradle, reversible, O. Marschuetz 638,456 Engine. See Blowing engine. Electric engine.	Railway switch, Railway, underg
,	Rotary engine. Traction engine. Engine, W. F. Schmidt	Kanways, block s E. Langen
	Evaporating and condensing liquids, apparatus for, E. Theisen	Railway, underg Railways, block s E. Langen Rake. See Hay Range finder, B. Ratchet wrench,
3	Emery wheels, mechanism for wetting, E. R. Hyde	Refrigerating ap Refuse preparat
6	Explosive rods or grains, apparatus for making, H. Maxim	and process of Register. See
Š 7	Facing for flattening stones, C. Conqueror	Register, J. P. C. Register actuation
1	Feedwater regulator for steam boilers, D. & F. D. Almy	Rewinding mach Rock crushing ar
	Fence, ft. F. Dickey	Rod coupling. de
9	Fence, f. F. Dickey 538,40 Fence stay, wire. Thompson & Bulla 538,55 Fences, device for attaching stay wires in wire, H. C. Pratt. 538,38	Rolling machine Roofing, metallic

	Fencing, barbed, T. V. Allis	8,401
9 : 8 :	Fencing, barbed, T. V. Allis File, detachable arch, C. H. Stoelting	88,605 88,500 63 906
2	Filter, F. A. Reichardt	8.348 8,360
 4 j	Finger ring lock, C. Bartlett	8,477 8,613
8	Fire escape, T. Lemond 55 Fire escape, T. J. Lindsay 55 Fire escape, Wilbor & Larger 55	88,833 88.615
3   6	Fire extinguisher, automatic. J. Naylor, Jr	18,593 16,146
6 2 2 1	Fire tube check, E. Kemble	38,349 38,386
5	Flue cap, F. E. Heinig	8,513
0	Albrecht	88,475 88,369
0	Funnec, See Boller furnace, Furnace, See Boller furnace, Furnace, G. A. Bell. Game board, G. A. McKenzie Garment presser, C. N. Lansing. Garment stretcher, J. H. Way. Garment supporter, A. S. Grimm Gas or other meters, stop register apparatus for, H. Green. Gate, I. Fetch. Gate, I. A. Whitney Generator. See Magnetogenerator. Steam generator.	38,226
9 · 2 · 9 ·	Garment presser, C. N. Lansing 55 Garment stretcher, I. H. Way 55	38,425 38,564
1	Garment supporter, A. S. Grimm	38.488
7	H. Green. 5 Gate, L. Fetch. 5	39,582 38,370
3 4	Generator. See Magnetogenerator. Steam generator.	38,307
2	rator.  Glass, metbod of and apparatus for manufacture of wire, C. H. Tondeur.  Grain drill, O. B. Pickett.  Grate fuel-saving appliance, A. Glud.  Guard rail, R. B. Poole.  Gun breech mechanism, Benet & Mercie.  Harness, W. D. Frederick.  Bichter  Richter, and roller, combined disk, G.  Richter	38,396
7	Grain drill. O. B. Pickett	38,276 38,511
4	Guard rail, R. B. Poole	98,220 38,227 38,236
	Harrow, sod cutter, and roller, combined disk, G. Richter	38,536
)4 :	Harrow. sod cutter, and roller, combined disk, G. Richter	38,397
22 19 14	Hat band clasp, M. & I. Grenthal	38,583
90	Swacick 5 Hay rake, I. G. Lunday 5	38,293 38,530
35	Hay rake and loader, J. E. Van Nostran	38,394
} 32 ·	beck. 5 Heating apparatus, G. F. Anderson. 6 Hinge, spring, J. Henry. 5	38,635 38,448
31 79	Hog catching and lifting machine, P. S. Driver 5	38,442
16	HOUSEING CREAKE, MIRRE DIOCK IOF, J. D. SWAGICK. D. HOFSEIGE SHOE, A. E. Makel. 5. HOSPITAL SCREEN, Brown & Spaulding. 5. Hot water boiler, B. Chaffee. 5. HOUSE. See Ice house. 10. C. C. Clifton. 5.	38,4 <b>52</b> 38,318
95 36 31	House. See Ice house.	38.441
33	Incombusible burner, C. Westphal	38,568 38,438
36 18	Indicator. See Engine indicator. Insulating material J. W. Kidwell	38,614
83 : 62 65	Hospital screen, Brown & Spaulding.  Hot water boiler, B. Chaffee.  House. See Ice house.  Ice house. C. C. Clifton.  Incombusible burner, C. Westpbal.  Index, banker's daily balance, T. P. Thomas.  Indicator. See Engline in dicator.  Insulating material, J. W. Kidwell.  Invalid's, table, M. I.esser.  Ironing table, C. R. Mills.  Jack. See Bit lack. Lifting jack.  Jar drying apparatus, fruit. E. B. Ball.  Journal box Id., S. Irvin.  Kiln. See Lumber drying kin.  Kiln. See Lumber drying kin.  Kiln. See Lumber dabric, E. D. Friedlander.  Knitten cabinet, combination, J. Tischer.  Knitten machine, circular, H. A. Houseman.  Ladder paterned fabric, E. D. Friedlander.  Knitting machine, circular, H. A. Houseman.  Ladder stato or book, E. Mayne.  Ladder, step, F. White.  Lamp, C. Maschmeyer.  Lamp, electric arc, J. A. Mosber  Lamp gas attachment, W. H. Hill.  Lamp wick raiser, L. J. Atwood.  Last and last support. J. N. Parker.  Lathing, metallic, W. C. Schaper.  Lathing, metallic, W. C. Schaper.  Lathing, sheet metal. G. Hayes.  Leaf oreasing clamp, J. Keehn.  Lift lines, device for throwing, A. Schmitt.  Liftling jack, J. H. Sheridan.  Lightning rod, H. Simpson.  Lime, apparatus for forming milk of, Cook & Reid.  Liquid raising machine, R. Weener.  Lock. See Finger ripp lock.	38,266
51 65	Jar drying apparatus, fruit. E. B. Ball. 5 Journal box lid, 8. Irvin 5	38,313 38 <b>,258</b>
39 56 91	Kiln. See Lumber drying kiln. Kitchen cabinet, combination, J. Tischer	38,632
31	Knitting machine, circular, H. A. Houseman	38,518 38,428
19 83	Ladder brace, step. J. T. Miller	38,531 38,570
64 40 98	Lamp, C. Maschmeyer	38,427 38,457
41	Lamp wick raiser, L. J. Atwood	38,476 38,623
25	Lathe, turning, R. Wagner	38,304 38,467
89	Lathing, sheet metal, G. Hayes	38,256 38,520
19 16	Lifting Jack, J. H. Sheridan	38,392 38,603
43 20	Lime, apparatus for forming milk of. Cook & Reid	38,577
92 42	Liquid raising machine, R. Wegner	38,565
46 29	Lock strike, T. J. Johnston	38,421 38,613 38,573 38,507
	Loom sbuttle. G. O. Iraper	
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11.2	bam	38,413 38,329 38,328
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302		
Rotary engine, F. J. Haeseler.	538,514	-
Rotary engine, F. J. Haeseler. Sad iron, J. Banwell. Sash bolder, P. Bonus. Sawmill set works, E. E. Thomas. Scale, A. J. Gaston. Scale, and the platform A. W. Parkhurst	538,363 538,231	
Sawmill set works, E. E. Thomas. Scale, A. J. Gaston.	538,630 538,252	•
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Separator. See Ore separator. Sewing machine, book, W. Beecroft	538,478	2
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Toy catinon, C. F. Karr	538,588 538,574	
Trap. See Animal trap. Tricycle, Doan & Stokles. Trimmer. See Wick trimmer. Trolley, J. D. Swacick. Trolley breaker, W. R. Scott. Trolley pole restrainer. F. Wheeler. Trolley pole restrainer. F. Wheeler. Trolley wheel, C. C. Burton. Trolley wire banger, W. R. Scott. Trunk or sample case, traveler's, F. J. Palica. Tuning peg, R. Kuenstler. Typewriter cabinet, W. A. Stoddard. Typewriting machine, L. S. Crandall. Typewriting machine, L. S. Crandall. Typewriting machine, W. H. Whittemore. Valve Torair brakes, engineer's, E. G. Sbortt. Valve mechanism, air brake, E. G. Sbortt. 538,543, Valve mechanism for air brakes, engineer's, E. G. Sbortt.	538,482	
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Valve mechanism for air brakes, engineer's, E. G. Shortt Velocipede. Ice, W. Balser. Ventilator. See Car ventilator. Ventilato	538,550 538,493	
Ventilator. See Car ventilator. Ventilator and chimney top, G. Cooper	538,366	
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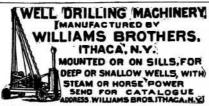
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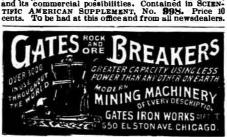
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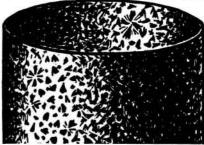
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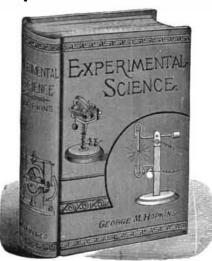


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