Business and Personal.

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HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Minerals sent for examination should be distinctly marked or labeled.

(5427) C. H. — Answer by Professor Riley.—The peculiar masses described by you are, from the description, not determinable with absolute certainty. It is possible that the description might apply to a variety of forms of fresh water larvæ, such as an aggregation of egg masses of some crustacean, or, more likely, a fresh water polyzoan, or some form of fresh water sponge. Fresh water sponges are of gelatinous structure, and lack almost entirely the silicious filaments which form the spongy substance of most salt water species. This would, therefore, in a measure correspond with the description of your correspondent, but more particularly since they develop what are known as winter buds or gemmules, viz., small oval bodies surrounded by a shell of silicious structure, similar to the sponge structure of the larger species. On the drying up of ponds, on the approach of winter, the chief spongy mass disintegrates and disappears; but these buds or circular masses survive the winter or the drought and develop under more favorable conditions of renewed moisture on recurring summer. The eggs of frogs are frequently discovered in similar masses, and being more or less surrounded and inclosed by a jellyphenomena described. If more accurate determination is desired, it can be readily furnished if the circular bodies makes imple motor (Supplement, No. 641), and wind it mentioned be forwarded for examination.

you consider it safe to pile about 600 tons of pig iron in a space of 60 feet by 6 feet within 3 feet of the foundations of a five-story factory building, the three npper filled-in ground, and is piled throughout its 600 feet in length. A. The space occupied is 360 square feet and the load one and six-tenths tons to the square foot, not an unsafe load for the ground. As you say the factory is on piles throughout its length, the piling, if properly done, should carry the pressure of the walls of the building far below the influence of compression by the load of iron not in contact with the building. If the filling in is clean earth or sand, no harm can come from the load as

of the following phenomenon: Pine Bluff, Ark., Sept. 29.-A tremendous rain poured down here this evening,

difficult to walk. A. The appearance of frogs and other small animals during heavy rain storms may be due to two sources, either lifted from shallow ponds or marshes of the storm, or that the excessive rain has driven them from their burrows and hiding places to the surface of the ground. If in the above statement the animals were really frogs, they may have fallen as stated. If they were toads, they were probably driven from their holes by the rain. We think the millions would be nearer the truth if much divided.

(5430) J. C. asks: 1. Can carbon be obtained absolutely pure in its elementary state? If not, why? Charcoal, even diamond, is not pure carbon, because it leaves ashes after burning. Can CO₂ be decomposed, leaving the carbon in the elementary state? A. Diamond is almost pure. It is impossible for man ever to get anything absolutely pure. His best is an approximation. CO2 can be decomposed by heated magnesium, sodium, or potassium. 2. How is the carbon of electric arc lamp prepared? Leave any ashes in the lamp after burning? Is it analogous to ordinary combustion? A. Various methods are used. The powdered charcoal or carbon is mixed with sirup and water or other agglutinant, is moulded and baked. It produces ashes, and slowly burns. 3. The astronomers say that comets belong to the solar system; if this is correct, why don't they revolve around the sun, like planets? Where are the centers of their orbits? Does any come really cross the orb of any planet, or is it simply theory? A. Comets and their orbits are still mysteries. They undoubtedly enter the planetary area. 4. Are the tides of the oceans due to the attraction of the moon. Is this a theory or determined fact? A. Though a theory, it is without the least doubt a true one. 5. Can the phosphate from bones be extracted without boiling (as in making soup)? If I grind the bones to fine powder, and then throw over boiling water (as in making tea or coffee), can I obtain a solution of phosphate for making soup? If not, is there any other way without boiling? A. Bone phosphate is insoluble in water. For fertilizing purposes it is made soluble by treatment with acid. 6. If any food substance, such as beans, or any starch compounds, is burnt ac cidentally upon the bottom of the pot, what shall I use to send you catalogues with lowest N. Y. City prices. No takeoff the burning flavor from the remainder? A. You cannot remove the flavor. You should use a double sauce pan or water bath.

> (5431) C. A. B., Iowa, writes: 1. While riding in the river bottom one day this fall, I noticed that the corn on one side of the road was badly frozen, while that on the other side was comparatively unharmed. Quality of ground seemed to be the same in both fields, and the elevation of the frozen field was a trifle greater than the other. Should judge not more than four or five feet. What caused this phenomenon? A. The causes tending to produce frost in certain fields or localities cannot be exactly defined. Unequal radiation in places near together or a slight difference in elevation may make just enough difference in radiation between adjacent fields to produce frost in one and not in the other. In the case cited the difference of a few feetelevation probably allowed the ground fog to be drifted toward the low land by the slow movement of the air, and thus protect it from loss of heat by radiation, while the higher field would be covered by a clearer surface atmosphere, which would increase radiation to the frost line of temperature. 2. Can you tell me how to remove wheels and collars from shafts, upon which they have been shrunken, without injury to either of them? A. If convenient to heat the shaft and wheel or collar to a low red, or possibly a black heat, just below the red and slowly cool it, so as not to injure the parts, the shaft may often be driven out of a wheel or collar without injury.

(5432) G. H. L. writes: 1. I noticed in Books referred to promptly supplied on receipt of a recent issue of Scientific American, a query by E. F. P. (No. 5377), in which he asks why a current of 1,800 volts taken from a primary battery would not have the same effect on the human body as a current of the same number of volts taken from a dynamo. Now, what interests me is, supposing a circuit breaker making and breaking the circuit many times per second were put in the battery line and both terminals grasped, what would be the effect? A. An interrupted current is much more severe on the human system than a steady one. The circuit breaker would greatly increase its severity. 2. How would you advise a person without necessary funds, in terested in scientific researches (especially electrical), both experimental and inventive, to get an education in that line? Would such a person be able to procure a situation in some prominent laboratory? A. Go into an electric light station, work at anything to start, and then work up. Laboratory positions are hard to get.

(5433) M. C. asks whether a common filar micrometer could be used on a telescope with equatorial mounting not driven by a clockwork attachment. A. Good work can be done with a filar micrometer, even without any screw movement, by a little practice with the eye in transiting objects for both position and distance. It is in common use on simple equatorial mountings, which, when provided with tangent screws and handles, makes micrometrical work a pleasure.

(5434) F. M. M. writes: 1. I want to for current from ? cells storage battery, to be charged (5428) Hercules, New Haven, asks: Do with 8 gravities. Should I use could not be seen that the second of the secon with 8 gravities. Should I use coarser wire in winding? respectively? A. Make no change. 2. Would 12 plates to each cell, each plate 8×10, be large enough, or what stories running light machinery? The building is built on would be the best size? A. Yes. 3. What horse power would above two cells develop in motor? A. 1/8 horse

> (5435) Subscriber writes: You recently published an invention for a cockroach trap. Permit me to suggest a more simple and effective mode for the nui-Use empty wine bottles with the smallest quantity of wine remaining in them. These pests are hardly able to get out. The fumes of the wine are too much for them. I have seen bottles of them thrown overboard.

(5436) F. R. asks: 1. How many cells (5429) E. R. P. writes for explanation of storage battery will be required to light eight sixteen candle power twenty volt lamps? A. Eleven cells in series. 2. Where can the lamps be obtained and price?

part of the town were so covered with them that it was gravity batteries in which the copper and zinc each bas an active surface of eighteen inches do for forming and charging? A. Yes. 5. Can storage batteries be charged in sets of say three? If so, how many gravity cells will by a tornado or waterspout, and distributed along the path, it take? A. Yes, charge with five cells of gravity to two of storage, all in series

> (5437) N. F. Library, Newton, Kans., aks if water can be lifted from the bottom of a well 100 feet deep, 85 feet of water in it, by putting a check valve every 16 feet in the pipe, a foot valve at the bottom of pipe, the pipe filled with water. Or is it possible to lift it over 33 feet? A. The check valves are of no value in adding to the lift of the pump, but rather a hindrance, by their weight. Water in solid column can only be lifted possibly 33 feet, but practically about 28 feet from the pump bucket.

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An experience of forty-four years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on beth continents, and to possess unequaled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and all foreign countries may be had on application, and person contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 381 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

October 10, 1893,

AND EACH BEARING THAT DATE.

[Seenote at end of list about copies of these patents.]		
l Armor bistes. Improving the quality of steel. A.	506,643	Fo Fo Fo Fo
Schmitz Axle box lid, car, A. C. McCord. Axle lubricator and dust guard, E. O. Bryden Bag. See Feed bag. Bag bother Dwa & Roettner		Fr Fr Fu
Bag holder, Dye & Boettner. Band cutter and feeder, R. E. Dorton Bearing, ball, H. R. Wellman Bearing spindle, G. H. Allen Bed folding, F. C. Hannahs Bed lounge, folding, E. Rossiter.	506,422 506,409 506,616 506,316	Fu Ga Ga Ga
Bedstead, A. A. Cameron	506,262 506,246 506,468 506,608	Ga Ga
Reli conveyer I R Adt	500,450	Ga Ga Ga
seit arrection J. Wright stoyale A. H. Clark. Bloycle A. H. Clark. Bloycle Jack, W. H. Hart, Jr. Bloycle support. J. Marks. Bloycle support. J. Marks. Bloycle tricycles, etc., spring framefor, G. W. Bit Sandridia bit.	506,454 506,495 506,600	Ga Gl
Gardiner. Bit. See Bridle bit. Blotter frame, A. Ludwig.	506,313 506,520 506,320	Gla Gla Gr
Biotter frame, A. Ludwig. Boiler, Dever & Cotter. Boiler deficetor, E. S. T. Kennedy (r). Boiler furnace, locomotive or other, A. F. Kings- ley, Book, bill, W. S. Decker. Bookbinding, A. H. Kelly.		Gr Gr Gv
Book, bill, W. S. Decker. Book bilding, A. H. Kelly. Book, blank, J. W. Hannen. Book cover making machine, W. P. Jackson. Box See Paper box. Box fastener, J. Miracle. Box strap, packing, W. J. Pierpont. Brake. See Railway brake. Vehicle brake. Bridge, lift, J. A. L. Waddell. Bridle bit, J. Z. Merriam. Bridle bit, J. Z. Merriam. Bridle bit, O. H. Muntz. Brush machine, M. Hellwig. Brush, rotary air, Wertsbaugher & McCune. Bung for barrels, etc., G. W. Smith. Burner. See Oil burner. Vapor burner. Button, collar, M. Henry.	506,628 506,512 506,634 506,402	Gu Gu Gu
Box fastener, J. Miracle	506,370 506,337	Ha Ha Ha
Bridle bit, O. H. Muntz. Brush machine, M. Hellwig.	506,244 506,526 506,397	Ha Ha Ha Ha
Bring, barrel, Otto & Reinacher Bung for barrels, etc., G. W. Smith Burner. See Oil burner. Vapor burner.	506,334 506,278	He
Cabinet, wall, A. B. Schermerhorn	500,002	He Hi Hi
Camera. See Roll holder camera. Can, Freeman & Emmerich. Cane and umbrella, combined, E. Weber. Car coupling, F. P. Dark Car coupling, R. L. Garlick Car coupling, B. W. G. Jewell. Car coupling, J. T. Kooh Car coupling, J. T. Kooh Car coupling, J. W. Robonogh. Car coupling, Y. Price. Car coupling, Y. Price. Car coupling, J. H. Scogrin.	506,289 506,583 506,314 506,235	Ho
Car coupling, J. T. Koch	506,598 506,528 506,543 506,644	Ind Ind Ind
 Car coupling, J. H. Scoggin. Car coupling, J. Wadleigh. Car fender, C. H. & E. M. Green. Car fender, railway, E. W. Harding. Car lighting system, electric, F. E. Kiusman. Car seat, R. R. Pease.	505,287 506,315 506,306 506,237	In In In
Car seat, R. R. Pease. Car, vestibule, M. Dickerson. Car vestibule, A. P. Williams. Car wheel, P. Arbei.	506,373 506,421 606,293 506,199	Iro Iro Iro Ja
Car seat, R. R. Pease. Car, vestibule, M. Dickerson. Car westibule, A. P. Williams. Car wheel, P. Arbel. Cars from leaving the rails, device for preventing railway, C. W. McBryer. Carbon for electric arc lamps, R. E. Ball. Carbonated liquid fountain, O. Zwietusch. Card. playing, McGeorge & Banks.	506,439	Je Jo Kr La
Carding engines, feeding mechanism for wool, D.	506,648	La La La La
	506,472 506,233	La La
Casting battery plates, apparatus for, E. W. Timmis	506,281	Le Li
Casting steel or other ingots, apparatus for, O. F. Leibet Cattle guard, M. L. Lynch. Centrifugal machine, L. F. Haubtman. Chair. See Dental chair. Check delivery apparatus, coin-actuated automatic, H. A. Herr. Chlorine package, liouid, R. Knietsch.	506,518 506,242 506,230	Lo
Check delivery apparatus, coin-actuated auto- matic, H. A. Herr. Chlorine package, liquid, R. Knietsch	506,400 506,640	Lo Lu Lu
matic, H.A. Herr, Collorine package, liquid, R. Kuletsch. Chlorine, process of and apparatus for making liquid, R. Knietsch. Churn, Balley & McNorton. Churn, J. P. Ky te. Cigar burching machine, J. H. Abraham.	596,639 506,300 506,404 506,615	Lu
Churn, Bailey & McNorton. Churn, J. P. Ky te. Cigar bunching machine, J. H. Abraham. Cigar lighter, electric, C. B. Struble. Cigariette machine, H. Bilgram. Camp. See Rope clamp. Chp. See Rope clamp. Clock, alarm, N. Case Cloth pilling machine, J. B. O'Bryan	506,347 506,412	Ma Ma Ma
Clock, alarm, N. Case. Cloth piling machine, J. B. O'Bryan	506,625 506,536 506,460 506,395	Ma Ma Ma
l Coloring matter and making same, blue. Ulrich &		Ma (M
Condensing and feedwater apparatus, combined, Wheeler & Lyon.	506,284 506,292 506,357	Me Mi Mi
		Mi Mi Mo Mo
Cooler. See Water cooler. Copying cloth, letter press, R. Spurgin Core machine, A. E. Hammer. Cores for casting pipe elbows, etc., machine for making, A. E. Hammer. Cores for casting pipe tees, etc., machine for mak- ing, A. E. Hammer Corn Insker and fodder shredder, G. W. Packer Cotton splitting machine, R. E. Poindexter. Cotton gin, saw, N. Whaller.	506,227 506,228	Mo Mo Mo Mu
Corn husker and fodder shredder, G. W. Packer Corn splitting machine, R. E. Poindexter Cotton gin, saw, N. Whalley Coulding. See Car coupling	506,642 506,440 506,452	Na Na Ne Nu
Coupling device for vehicle eveners, E. B. Perry. Cultivator, A. C. Wickham Curtain fixture, J. F. Snapp Curtain fixture, J. W. Stearns	506,250 506,575 506,344 506,346	Nu Oil Oil
Corn splitting machine, R. E. Poindexter. Cotton gin, saw, N. Whaller. Coupling, See Car coupling. Coupling device for vehicle eveners, E. B. Perry. Cultivator, A. C. Wickham. Curtain fixture, J. F. Snapp. Cut-out, E. Thomson. Cut-out, E. Thomson. Cutter. See Band cutter. Glass cutter. Dental apparatus for grinding teetb, D. E. Morse Dental chair, G. W. Archer. Dental disk holder, W. H. Towne. Desk, G. W. Wasson. Desk and seat, school, J. Hauss.	506,383 506,522 506,200	Ore Pa
Dental (fish, G. W. Accier, Dental (fish, G. W. H. Towne.) Desk, G. W. Wasson, Desk and seat, school, J. Hauss. Diamonds, etc., setting for, N. M. Seidlitz. Diaplay case or cabinet, M. Corgini	506,350 506,351 506,496 506,200	Pa Pa Pa
Display case or cabinet, M. Corsint	506,474	Pe

8	Dredge pump attachment, H. W. Yerrington Dreding, machine, C. Gullmann Drum, heating, G. Q. Slocum	506,354 506,592 506,379
l	Dry closet or commode, H. A. Jukes (r) Dynamo regulator, W. H. Elkins	
,	Dry closet or commode, H. A. Jukes (r). Dynamo regulator, W. H. Elkins. Bar and ball for cooking vessels, G. W. Bowers. Eige beater, J. D. Harvey. Electric battery cell, B. J. Wheelock. Electric ight, G. Fitch. Electric motor, Davis & Fowden	506,302 506,636 506,353
,	Electric light, G. Fitch	506,488 506,209 506,297
) ! !	Electrica switch, F. Stevens. Electrica conductors, moulding for, R. A. Fessender	506,663 506,311
f	Floatrical transformer or induction device I M	
֡ ֝֝֞֞֞֞֞֞֜֞֞֞֜֞֝֞֜֞֞֞֜֞֞֞֩֞֞֞֩֞֞֞֞֞֩֞֞֞֞֞֡	Electrice for account of the company	506,577 506,650 506,540 506,367 506,390 506,519
1	Enameling metal ware, H. Claus. End gate, M. J. Lovett Engine. See Gas and air engine. Steam engine. Toy steam engine.	506,390 506,519
• 	Engines anything apparatus, C. A. Hatch	506,229 506,565
•	Evaporator. See Fruit evaporator. Exhibition structure, G. M. Wheeler.	506,565 506,555 506,291
	Extractor. See Nail extractor. Fan, fly, D. J. Rogers.	506 549
9	Fan, fly, D. J. Rogers. Fan motor, C. P. Elieson Far er egister, A. H. Dollard. Farm gate, J. Wadleigh	506,481 506,629 506,289
1	Fastening devices, manufacturing, W. H. Berri- gan, Jr. Faucet, H. E. Thomas. Faucet, measuring, J. A. Hess.	506,202 506,611
•	recu bak, E. Bland	506,202 506,611 506,502 506,239 506,569
8	tellie T Hanshaw	506,431 506,259
• !	Fence, wire, J. L. Riter	606,378
;	Fen der. See Car fender. Fifth wheel, spring vehicle, A. Schubert.	506,638 506,376
	Fitth wheel, spring vehicle, A. Schubert. Fiter, J. E. Bright. Fire alarm system, automatic, G. W. Brown. Fire arm magazine case, J. P. Lee.	506,376 506,304 606,582 506,322 506,238
	Firearm ingazine case, J P. Lee. Fire escape, J. M. River, J P. Lee. Fire caperd and soot catcher, F. W. Stockton. Fire hose spanner, W. D. Miller Fishing rod winch fitting, O. S. Ruddock.	506,279 506,279 506,326
	Fishing rod winch fitting, O. S. Ruddock. Floor, E. Molloy. Floors, uniting a probes etc. construction of P.	506, 607 506, 521
.	Flooring, etc., device for adjusting P. D.	506,478
5	Mitchell Flushing device, closet, H. J. Gilcher Folding machine, W. Scott Folding table, G. A. Bowen Foreign Star box For J. T. A.co	506,44E
3 6	Fountain. See Carbonated liquid fountain.	506,622 506,576
8	Fruit evaporator, C. Sebastian	506,377 506,651
7 2 9		506,553 506,530
6	Furniture base or support, M. Samuels	506,407
688	pressing, N. Howling. Garbage, etc., apparatus for treating, N. Dowling Garbage, process of and apparatus for treating,	506,361
5	Gas and air engne, E. Field	506,363 506,486 506,489
6	Gate Closer, T. C. Dickson Gathering or daubling machine, H. D. Klots	
5 0	Gathering or doubling machine, H. D. Klots	506,406
3	Hill. Glass making apparatus, T. A. Edison. Glass, making plate, T. A. Edison.	506.215
0 4	Governor, centrifugal shaft, G. S. Neeley. Grain cleaning and separating machine, J. O. King	506,534 506,513
5 8 2	Graphophone, coin-controlled, C. S. Tainter Grinder, cutter, H. A. Wilbur Guard. See Cattle guard. Fire guard.	506,348 506,613
$\frac{2}{4}$	Gnn, magazine, J. P. Lee	506,322 506,321 506,339
0	Halter, J. C. Covert	506,299 506,475
1	Handle. See Saw handle. Hanger. See Sbade or curtain hanger.	506,514
6	Harness rack, J. T. Kitching. Harness rack J. E. E. Goward. Harvester, corn. J. E. Perkins. Harvester header, O. B. Hollis. Head clamp for relleving pain, electrical, L.	£06,491 506,541 506,504
8	Lane	506,516
9	P. Davies	506,477 506,614
9	Hitching weight, A. P. Watson Hoe, N. T. Peddycord	506,632 506,649 506,338
3 4 5	Hollow articles, apparatus for forming or shap- ing, F. Moorfield Hydraulic press, F. Blomberg	506,247 506,464
8	Index. J. Thorne	506,566 506,647
4 17 5	Indurating and waterproofing articles, S. R. Hradiey	506,623 506,368
16 17	Injector, oil, F. H. Cornell	506,418 506,480
n 13 19	Ironing board, Tracy & Graham Ironing machine, H. L. Gee	506,283 506,428
	Joint. See Pine toint	506,621
9 5 8	Knob attachment, D. Clark. Lacing hooks, machine for setting, J. J. Norwell. Ladder, T. B. Bennett.	506,388 506,333
7		606, 411
2	Ladle for handling molten steel, etc., F. Morris Lamp, electric arc, C. Hoffmann Lamp or burner, G. Barthel	506,411 506,325 506,503 506,201
	Lamp, potential Card. Lamps, dioptric appliance for street, A. Nieuwen-	506,411 506,325 506,500 506,201 506,307
8	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwen- huys. Isathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson	506,411 506,325 506,503 506,201 506,337 506,336 506,336
1	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwen- huys. Lather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle	506,411 506,325 506,500 506,201 506,307
	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwenhuys. Isathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. Seal lock. Lock, G. A. Beckwith. Lock nut. B. Kirkpatrick et a.	506, 411 506, 532 506, 201 506, 307 506, 303 506, 303 506, 573 506, 573 506, 573 506, 573 506, 573
1 8 2 0	Lamp, occket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwenhuys. Lasthe, pulley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. Seal lock. Lock, G. A. Beckwith. Lock nut, R. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom, W. Britain, Jr.	506,411 506,325 506,500 506,201 506,337 506,338 506,573 506,573
18	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwenhuys. Isathe, pulley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Lock. G. A. Beckwith. Lock nut. R. Kirkpatrick et al. Locomotive. electric J. F. S. Branth. Loom W. Britain, Jr. Loom take-up mechanism, Sawyer & Lahue. Lubricator. See Axie lubricator.	506, 401 506, 505 506, 505 506, 207 506, 307 506, 308 506, 308 506, 407 506, 506 506, 467 506, 254
1 8 2 0	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwenhuys. Isathe, pulley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Lock. G. A. Beckwith. Lock nut. R. Kirkpatrick et al. Locomotive. electric J. F. S. Branth. Loom W. Britain, Jr. Loom take-up mechanism, Sawyer & Lahue. Lubricator. See Axie lubricator.	506, 451 506, 327 506, 327 506, 327 506, 337 506, 335 506, 335
1 8 2 0	Lamp, pocket, G. C. Card. Lamps, dioptric appliance for street, A. Nieuwenhuys. Isthe, pulley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. Seallock. Lock. G. A. Beckwith. Lock nut. R. Kirkpatrick et al. Locomotive. electric, J. F. S. Branth. Loom w. Britain, Jr. Loom, W. Britain, Jr. Lubricator, See Axie lubricator. Lubricator, Ritter & Lunken Lumber kin loading device, H. G. Wadley. Magnet, electro, I. A. Timmis Mail bags, etc. frame for, G. A. La Fever. Mail marking machine, W. C. Howard.	506, 526 506, 327 506, 327 506, 327 506, 333 506, 333 506, 333 506, 333 506, 333 506, 333 506, 333 506, 333 506, 334 506, 334 506
1 82 0 0 9 04 57	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Isathe, puley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. Seal lock. Lock, G. A. Beckwith. Lock nut. R. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom W. Britain, Jr. Loom take-up mechanism, Sawyer & Lahue. Lubricator. See Axle lubricator. Lubricator, Ritter & Lunken. Lumber kiln loading device, H. G. Wadley. Magnet, electro, I. A. Timmis. Mail bags, etc., frame for, G. A. La Fever. Mangle, R. Koenig. Marbling or enameling process and apparatus, H. Clans. Masson's implement, brick, C. A. Derby.	606, GIII 506, SIX 506, SIX 50
1 82 0 0 9 04 57	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Isthe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Lock, G. A. Beckwith. Lock nut. R. Kirkpatick et al	506, GIII 506, 307 506, 307 506, 307 506, 307 506, 307 506, 307 506, 308 506, 308 506, 308 506, 407 506, 308 506, 408 506, 408 506, 408 506, 308 506, 308 50
1 82 0 0 9 04 57	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Isathe, pulsey, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. Seal lock. Lock, G. A. Beckwith. Lock nut. R. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, See Axle lubricator. Lubricator, Ritter & Lunken. Lubricator, Ritter & Lunken. Lumber kiln loading device, H. G. Wadley. Magnet, electro, I. A. Timmie. Mail bags, etc., frame for, G. A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Matrices and means therefor, drying, A. L. Thomas. Mayonnaise mixer, J. D. Harvey. (Medical.) Treating diseases electrically, S. Sisbee.	506, 312 506, 322 506, 325 506, 300 506, 307 506, 307 506, 307 506, 308 506, 308 506
1 820 00 904572 5605798 4	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lastie, putiey, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith. Lock nut, B. Kirkpatrick et al. Locomotive, electric J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, N. Britan, J. H. Duncan. Lubricator, N. J. H. Duncan. Lubricator, N. J. H. Duncan. Lubricator, Ritter & Lunken. Magner electric J. F. Timmis. Mas Dags, etc. frame for, G. A. L. S. Fever. Mail bask, etc. frame for, G. A. L. S. Fever. Mail bask, etc. frame for, G. A. L. S. Fever. Mail bask, etc. frame for, G. A. L. S. Fever. Mail bask, etc. frame for, G. A. L. S. Fever. Mail bask, etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Mail bask etc. frame for, G. A. L. S. Fever. Match safe, J. J. Brenk. Match safe, J. J. Brenk. Match safe, J. J. Brenk. Mayonnaise mizer, J. D. Harvey. (Medical.) Treating diseases electriculty, S. Sisbee. Metal cutting and working machine, M. F. Smith. Metals, plating, C. Vatcky.	506, 412 506, 322 506, 502 506, 307 506, 307 506, 307 506, 507 506, 507 506, 507 506, 450 506, 450 506, 450 506, 303 506, 303 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 578 506, 578 506
1 820 00 904572 5605798 4 27	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putey, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith. Lock nut. B. Kirkpatfick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator. See Axie lubricator. Lubricator. See Axie lubricator. Lubricator. Ritter & Lunken. Lubricator, N. J. H. Duncan. Lubricator, Ritter & Lunken. Lubricator, Ritter & Lunken. Lumber kiln loading device, H. G. Wadley. Magnet, electro, I. A. Timmie. Mail bags, etc. Irame fon, G. A. La Fever. Mail marking machine, W. C. Ho ward. Mangle, R. Koenig. Marbling or enameling process and apparatus, H. Clans. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Matrices and means therefor, drying, A. L. Thomas. Milling machine, E. W. Bemis. Mosquito net frame, H. H. Rumble. Motor. See Electric motor. Fan motor. Motor. W. Sweet. Addrich. Mower track cleare F. D. Loose Mccliage holder, R. La Fever. Nut lock, W. Gledhill. Nut lock, J. W. Heeter. Oil burner, F. I. McCahan. Oiler, Fleming & Mack. Ore concentrator, C. E. Seymour.	506, 417 506, 327 506, 327 506, 327 506, 327 506, 327 506, 577 506, 585 506, 585 506
1 820 00 9045772 56605798 4 279 06 7 8202 05463 200	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putey, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith. Lock nut. B. Kirkpatfick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator. See Axie lubricator. Lubricator. See Axie lubricator. Lubricator. Ritter & Lunken. Lubricator, N. J. H. Duncan. Lubricator, Ritter & Lunken. Lubricator, Ritter & Lunken. Lumber kiln loading device, H. G. Wadley. Magnet, electro, I. A. Timmie. Mail bags, etc. Irame fon, G. A. La Fever. Mail marking machine, W. C. Ho ward. Mangle, R. Koenig. Marbling or enameling process and apparatus, H. Clans. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Matrices and means therefor, drying, A. L. Thomas. Milling machine, E. W. Bemis. Mosquito net frame, H. H. Rumble. Motor. See Electric motor. Fan motor. Motor. W. Sweet. Addrich. Mower track cleare F. D. Loose Mccliage holder, R. La Fever. Nut lock, W. Gledhill. Nut lock, J. W. Heeter. Oil burner, F. I. McCahan. Oiler, Fleming & Mack. Ore concentrator, C. E. Seymour.	506, 411 506, 322 506, 325 506, 327 506, 327 506, 327 506, 577 506, 577 506, 587 506, 588 506, 588 506
11 820 00 9044572 56695798 4 2779 06 7 8202 05463 20	Lamp, pocket, G. C. Card. Lamps, dioptric appliance forstreet, A. Nieuwenhuys. Lathe, putley, M. C. Henley. Leather board cutting machine, J. M. Watson Lever or clamp, binding, S. C. Reed. Light. See Electric light. Lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. See Indicator lock. Nut lock. Puzzle lock. G. A. Beckwith Lock nut, B. Kirkpatrick et al. Locomotive, electric, J. F. S. Branth. Loom take-up mechanism, Sawyer & Lahue. Lubricator, W. Britani, J. L. Domican. Lubricator, T. J. H. Duncan. Lubricator, T. J. H. Duncan. Lubricator, Ritter & Lunken. Lumber kin loading device, H. G. Wadley. Magnet, electro, A. La Fever. Mail marking machine, W. C. Howard. Mangle, R. Koenig. Mason's implement, brick, C. A. Derby. Match safe, J. J. Brenk. Match safe, J.	506, 417 506, 325 506, 325 506, 327 506, 327 506, 327 506, 577 506, 585 506, 565 506, 467 506, 568 506, 467 506, 568 506, 467 506, 568 506, 467 506, 568 506, 568 506