matic, two sections in front and rear. 5. Would not can only produce adherence of a thin coating by simple the employment of a thicker celluloid film for negatives prevent the same from stretching and losing its true flat surface? A. Yes, but it would be more costly. Carbutt's films are thicker than others.

(2842) M. B. asks: 1. Can you develop dry plates after night by a ruby light in a small room, just the same as in a closet or dark room in daylight? A. Yes. 2. After fixing the negative and rinsing in water, can the plates be exposed to the light while drying, or must they be left in the dark room until perfectly dry? A. Day light will not hurt them. 3. In fectly dry? A. Day light will not hurt them. 3. In producing a positive, can you print from the negative without the raws of the sun? A. Gum arabic with enough without the rays of the sun? If so, in what way? A. Yes; by using bromide paper and a kerosene light.

(2843) J. H. asks: 1. Could you give formula for a ferrotype varnish which would dry very glossy when applied to the finished tintype cold or warm? A. A varnish may be made as follows:

Alcohol (95 per cent strong)......50 parts. White shellac ...... 12

To which add a few drops of oil of lavender. 2. There is a certain varnish sold as celluloid varnish, which smells strongly of hananas; could you give approximative formula of it? Would this last celluloid varnish not answer the purpose for tintype varnish? A. We think it is largely composed of pyroxyline and a solvent. It can be used on ferrotypes without heat, and should give a good gloss. The varnish is made by the Frederick Crane Chemical Company, Short Bills, N.J. 3. Please give a description of how to make the simplest constructed developing rocking machine, that will rock for at least half an hour. A. Suspend a pendulum rod three feet long from a bench, with a heavy weight attached to the lower end. Arrange a flat plate at upper end, on which rest the developing dish. Pushing the pendulum once in a while will keep it in motion, or a clock movement can be attached to do it.

(2844) F. A. H. asks how to prepare views for the magic lantern. A. Use the Eastman or Carbutt lantern slide plates, to be had from dealers in photo. materials. Consult Ellerslie Wallace's book "The Amateur Photographer," price \$1.

(2845) J. W. F. asks: 1. How to dissolve crude or virgin rubber so it will be perfectly pliable and absorb all waste gold around a finisher's bench in a book bindery. A. You need what artists use under the name of burned rubber. Its manufacture is described in "Rubber Hand Stamps and the Manipulation of Rubber." \$1 by mail. 2. How are the water marks made in sik? A. By hot calendering between engraved

(2846) C. R. M. says: I have a camera the bellows of which leaks light very badly. What application can I use which would afford an impervious coating, to repair the damage? A. Dissolve some shellac in alcohol, add lamp black till it is black, then apply with a brush until the holes are filled. If this does not answer, paste strips of thin rubber over damaged parts with rubber cement.

(2847) C. M. W. asks: Is the using of condensed steam in a boiler injurious to the boiler? Some claim that It eats the flues out more rapidly after having been condensed, that the acids from animal oil subricants is the cause, and that mineral oil !ubrication does not leave any injurious acid. Others claim it is some natural property of the condensed steam that causes the trouble, and not the fatty acids. Please state whether it is true that condensed steam reused in a boiler is injurious, and if so, please give fully the cause. A. The water from condensed steam does no harm to boilers. If the engine oil or tallow is carried in with the water, it is a damage to the boilers. It collects dirt and scale and forms an oil cake that may lodge on the shell over the fire or on the tubes and cause them to burn or bulge. The acids of fat lubricants are injurious to boiler tubes. If it is necessary to use the exhaust steam, it should be condensed and run into a separating tank, where the oil could be skimmed off.

(2848) M. E. M. writes I want to use an incandescent lamp of one candle power at night to see what time it is on my watch by pressing a button, lam pnot to be lighted any more than a minute at a time. A. Use two cells of Leclanche battery. If used for no other purpose, the battery should work well for at least six months without attention.

(2849) T. D. W., Jr., asks: Can you give me any information or any book in which I can find how to place a photograph on a brick so as to use it as a paperweight? I have a brick from an old church that has been pulled down, and the lot sold. On this brick I wish to place a photograph so that it can be easily seen. Would it be possible to make it smooth enough to put a film on it, as in the wet plate process, and if so how could the brick be made smooth enough to do this? A. See Scientific American Supplement, No. 382. Get some stone cutter to polish the surface of the brick, brush over it a silicate of soda solution; when dry brush over a solution of gelatine 5 grains dissolved in water 10 ounces. Then make a positive print of the picture on Eastman's transferrotype bromide paper, and squeegee it on to the brick. After removing the paper and drying, protect with a coating of diamond varnish.

(2850) W. H. writes: You sent me a recipe for a magnesium compound composed as follows: Chlorate of potash...... 3 paris. Perchlorate. 

Magnesium powder ......4 " Now I have tried to obtain perchlorate of potash at all the largest chemical places in Boston, without success. One chemist said he could make me some, but it would immediately be converted into chlorate upon exposure to the air. A. It is made by projecting powdered chlorate of potash into warm nitric acid, and on standing, or if necessary after evaporation, the crystals separate, as it is not very soluble. It can be prepared by any competent chemist and will not decompose as stated in

(2851) J. R. W. asks how a deposit of copper deposited from a bath of copper sulphate may be made to adhere permanently to a red of soft iron. It will deposit rapidly, but is easily washed off. A. You

immersion. To get a thick one you must use a battery and preferably a cyanide solution of copper. See our SUPPLEMENT, No. 310, for details, etc.

(2852) W. H. asks: Which is the poorer conductor of heat, glass, china, stone, or earthenware, and can they be modeled in any shape or form? A. We should think there would be little difference. Almost any shape can be given them.

(2853) R. M. L. asks in what numbers of Scientific American he can find good paste solutions oil of cloves to give a slight perfume is excellent. See SCIENTIFIC AMERICAN, vol. 53, No. 15. We have many times published postage mucilage in the queries. Tight sticking is considered desirable.

(2854) G. F. C. asks: 1. If I place a lighted lamp (oil or spirit) or a candle in a jar or vessel and immediately hermetically seal it, when the light is extinguished, what will the vessel contain? What will the pressure on the inside of the vessel be? Or what fraction of a vacuum will I obtain? A. The pressure will be slightly reduced on cooling, so as to produce a slight vacuum of perhaps one or two pounds to the square inch less than atmospheric pressure. 2. Can I ignite an oil or spirit lamp with a battery? If so, what number of cells will I require? A. You can by arranging a fine platinum wire across the wick, and heating it to white heat. Three or four bichromate cells should suffice. It is not a very practical method. 3. What material could I substitute for a lamp which would readily ignite and take up the oxygen? A. Phosphorus will absorb oxygen without igniting. Nitric oxide and water will do the same. A hydrogen flame will be effectual also. 4. Can a vacuum or partial vacuum he obtained by means of a battery? A. A rod or filament of carbon made incandescent will combine with the oxygen of the air and form carbonic acid gas. If a little caustic sods or lime is in the vessel, this will shsorb the gas in question, and on cooling there will be a reduction of pressure of about 3 lb. to the square inch.

(2855) H. B. L. asks: What to put into silver polish paste mixed with water to keep it from drying up. A. Glycerine.

## TO INVENTORS.

An experience of forty years, and the preparation of more than one hundred thousand applications for pa-tents at home and abroad, enable us to understand the is we and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons 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 tensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broad-

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February 10, 1891,

AND EACH BEARING THAT DATE

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Cart, dumping, T. Flanigan		146,289 146,084
case. Cash indicator and register, J. F. Goodridge 446	I Lamp. W. A. Wright 4	445,950 446,4 <b>0</b> 0 146,108
Cash register, C. H. Drury	8,30   Lamp, electric arc, C. J. Schwarze 4	146,361
Cash register and indicator, B. Moser. 446 Ceiling, metallic, W. R. Kinnear 46 Chair. See Reclining chair. Tilting chair, Chair, J. W. Craig. 466 Chack book K. G. Barate 466	Lamps, lens for signal or other, Thorne & Burr	146 HX7
Check hook, K. G. Bareis 446 Churn, J. McBride. 446 Churn closure, S. D. Palmer. 446 Churn operating device, W. J. Knox. 446 Clar mould, A. Jaenicke. 446 Cigar mould, Meyer & Huppmann-Gerard. 446 Cigar or cig arette holder, E. B. Burr 446 Cigar or cig arette track cleaner.	2277 Lantern. electric signal and search light, G. W. 5,263 Martin	46.142
Churn operating device, W. J. Knox	1,031 Latte, prvot, 5. Schweizer 1,098 Letter box, house door, I. G. Lane 1,099 Letter box, street, I. G. Lane	
Cigar mould, Meyer & Huppmann-Gerard	1.998 Letter box, street, I. G. Lane	146,U38 146,130
Cleaner, See Car track cleaner. Closet, See Crematory closet. Clothes drier, M. L. W. Martinot. Clothes drier, W. A. Newman. 446 Clothes line, H. E. Percival.	Lightning rod, G. W. Downey	446,317
Clothes line, H. E. Percival 46 Clothes line, pinless, H. E. Percival 46 Cock, cylinder, W. I. & W. C. Dodge. 445 Cock for mixing gas and air. R. Goehde 46 Cock polar and package I. Hock		
		446,246 446,245
Collar fastening, horse, Johnson & Reichert	J. C. Gross	146,288 146, <b>085</b>
Cotton stalk puller, L. I. Womack 446 Cotton, storage of, L. Smith 448 Countershaft, A. D. Pentz 446 Coupling. See Car coupling. Shaft coupling.	100 Webb	140,177
I fill coupling.	1 100th Shuttle billuer, J. W. Davis	146,039 146,113
Crane, counterbalanced jib, P. L. & A. A. Weiner 446 Crate, E. H. Flory. 466 Creaming machine, D. M Weston 446 Crematory closet, ventilated, W. L. Fuller. 466	i.043   Loom warp stop motion, C. I. Kane	446,100 <b>446,</b> 094
Crematory closet, ventilated. W. L. Fuller	1.00m wett fork P. Ensling 1.201 Looms for weaving wire, take-up and let-off 1.340 mechanism for C. S. Strowbridge 1.350 Lounge, R. S. Wright 1.319 Lubricant block, W. Friend 1.226 Lubricator, J. Wood 1.388 Manhole cover, R. Munroe 1.399 Map holder, W. F. Semple 1.390 Match box and holding frame therefor, J. Forshaw	446,03 <b>5</b> 146,206 4 <b>4</b> 6,243
H. Baxter. 446 Culinary purposes, time alarm for, W. E. Groves. 446 Cultivator, balanced, J. M. W. Long. 449	J.319 Lubricant block, W. Friend. J.226 Lubricator, J. Wood. J.388 Maphole cover R. Munroe	445,988 446,049 446,151
Cup. See Oil cup.	Map holder, W. F. Semple Match box and holding frame therefor, J. For-	46,021
Cutter. See Bolt or rod cutter. Fruit and vege- table cutter. Paper cutter. Vegetable cut- ter.	Mattress, woven wire, W. S. Seymour	146,193 146,259
Cuff, shirt, W. E. Simonds	5.357 Meat noider, K. W. Randie. 5.192 Mechanical movement, G. W. Baker	146,318 146,068
Davit, boat, G. F. Lawley Disinfecting paying composition, J. Fottrell	5.357 Metal planers, attachment for, C. H. Myers	446.074 446.300 446,077
Doors, pneumatic apparatus for operating, C. A.	5.592 Milk refrigerating and transporting can, P. M. Forrester	146.254
Tucker	Mill. See Fanning mill. Grinding mill. Sawmill. Windmill. Windmill.	
Drilling device, track, B. F. Smith	Dwight Mines, system of electrical distribution for, E. A.	445.981 446.030
Dye, yellow, W. Pfitzinger. 466  Dyeing straw goods, etc., apparatus for, J. A.	5,225 Sperry 5,009 Moistening and sealing devices, fountain feed for, P. J. Schrei ber	
Electric currents, automatic potential regulator	Motor, J. R. G. Huffman	146,134
for, A. L. Ellis	6234 Mower, lawn, Dille & McGuire	446,329 44 <b>6,3</b> 16
Electric motor regulator, L. S. Harris. 446 Electric switch, E. A. Sperry. 446 Electrode, secondary battery, M. M. M. Slattery. 446 Elevator. See Pneumatic elevator.	6.229   Mijsical instrument. J. L. DeGood 4	46.255
Elevator. See Pneumatic elevator. Elevator, C. E. Ongley 446	Oil cup, W. A. Downes. Oil, lubricating, R. R. Graf.	446 250
Elevator, C. E. Ongley 446 Klevator, A. Sundh 446 Elevators, bolsting drum for, P. L. & A. A. Weimer. 446	6.137 Oil, lubricating, R. R. Graf. 3,897 Oiler, F. P. Noera. Oiling device, windmill, W. R. Wright. 1,014 Optometer, C. G. Stevens.	446.401 446.032
Embroidering machine, H. Hochreutener. 446 End gate, wagon, B. S. Kearney 446 Engine. See Rotary engine,	3.184 Ore concentrator, M. Castelnau	446,344
Engines, governing the movement of pistons in steam, R. Hill 446 Envelope machine, D. Rau 446 Extractor. See Stump extractor.	Paint from residuum of vegetable oils, G. W. 6.183 5,124 Paint, making, G. W. Scollay	446.018 446,019
Extractor. See Stump extractor. Fan, automatic, T. R. Evans	Scollay. G. W. Scollay. Paint, making, G. W. Scollay. Paint, making, G. W. Scollay. Pan. See Bake Pan. Dust pan. Pan lifter and turner, J. Ericson. Pan lifter and turner, J. Ericson. Paper cutter, A. Malm. Paper bolder and cutter, roll. J. H. Cornelison. Paper bolder and cutter. roll. J. H. Cornelison. Page bolder and cutter. Roll. Page bolder and Roll. Page	446.11 <b>4</b> 446.359
Fastening, W. S. Richardson	5.139 Paper bolder and cutter, roll, J. H. Cornellson	4 15.975 4 16.: 32 445.987
Fence machine, Cline & Detwiler 44/ Fence, portable farm, Claussen & Jones 446 Fencing machine, slat and wire. R Hoover 446	6,327 Paper holder and cutter, roll, C. K. Pickles, 6,112 446,010 to 446.012, 6,255 Paper machines, stuff regulating apparatus for	446,336
Fastening, W. S. Richardson. 446 Feeder and band cutter, Clark & Greenies. 445 Fence, flood. Casselman & Fletcher. 446 Fence machine, Cline & Detwiler . 446 Fence, portable farm, Claussen & Jones. 446 Fencing machine, slat and wire, R. Hoover. 446 Fender. See Car fender. Fertilizer, ntrogenous. J. Van Ruymbeke. 446 Fillien H. Goodser. 446 Fillier H. Goodser. 446 Filler H. Goodser. 446	5.112 446,010 to 446.012, Paper machines, stuff regulating apparatus for, W. C. Edwards. 5.088 Paper pulp boiler, S. R. Wagg. 6.168 Pegging jack. J. J. Wikle 6.1632 Pen filler, fountain, F. C. Brown 6.153 Permntation lock, J. B. Miller. 6.151 Phosphate and making the same, J. Van Ruym 6.001 beke. 6.286 Photographic camers, F. Whitney.	445.985 446.041 446.312
Filter, J. S. Roske 44	6.153 Pen filler, fountain, F. C. Brown 6.153 Permutation lock, J. B. Miller	446,202 446,071
Filing papers, etc., cabinet for S. G. Browne. 446 Filter, H. Goodacre. 446 Filter, J. S. Roske. 446 Fire armor, Finn & Papps. 446 Fire escape, G. Mulier. 446 Fire escape, F. Schuell, Sr. 446 Fire indicator and extinguishing system, S. Broichgans. Firepiace, J. P. O'Brien. 446 Fishing reel, J. B. Moscrop. 446 Flour bolt, C. A. Schied. 446 Food storing and preserving apparatus, L. Smith, 446,024 Freezing apparatus, J. Erny et al. 446	6,001 beke	44 6.087 446,045
Broichgans and extinguishing system, S. Broichgans 44 Fireplace, J. P. O'Brien 44	Photographic camera, F. Whitney. Photographic camera, C. Whitney, 446,368, 446,369, 446,372, Photographic cameras, supply case for roll hold-	446,374
Fishing reel, J. B. Moscrop	photographic cameras, supply case for roll holders. C. Whitney. 446,570, plan odamper, J. W. Granger. 6,825 Plane, bench. J. Siegley. Planter, corn, J. D. Schofield. Planter, potato, F. Storck. Plastering, composition for, R. G. Farnham. 6,820, ploy and fertilizer distributer, combined, S. McLean.	446.373 446.371 446.097
Freezing apparatus, J. Erny et al	6,025   Plane, bench. J. Siegley	446,19 <b>4</b> 4 <b>4</b> 6,118 4 <b>46,2</b> 7)
Furnace. See Blast furnace. Hot air furnace. Game board, Brown & Crosby	Restering, composition for, R. G. Farnham	446,382 446,389
Gas, apparatus for the reduction of petroleum into, F. Durr	Pneumatic elevator and storage station, L. Smith of the pole safety attachment, vehicle, H. W. Roberts.	416.029
Game board, Brown & Crosby	5,989 Press. See Baling press. Hay press, 6,086 Printing and adding numbers, apparatus for, G. 6,016 B. Massey.	446, <b>26</b> 1
Gate. See End gate. Rallway crossing gate. Gate, F. C. Cash. 446 Gate, R. S. Taylor. 446 Gearing mechanism, back, B. G. Luther. 446 Generator. See Steam generator.	6,218 Printing carpet yarns, apparatus for, W. Shaw 6 Protector. See Book protector. 6,325 Puller. See Cotton stalk puller.	
	6.222 Pump, force, F. F. Danaher. Pump operating mechanism, C. A. Frost	445,990
Glass beveling machine, P. Wiederer.	6.196] windmill, A. O. Melaas. 6.040] Quilting, D. H. Coles. 6.230] Rail Joint fastening, J. R. Burgess.	446,410 446,328 445,971
Grain silo. floating, L. Smith	Pump operating mechanism, C. A. Frost.  Pumps, appliance for regulating the action of windmill. A. O. Melaas.  6,040 (uiting, D. H. Coles.  6,027 Rail joint fastening. J. R. Burgess.  6,027 Rail joint, pressed steel. C. T. Schoen.  Railway, Wegmann, Jr. & Bates.  Railway and contact device therefor. electric, E.  6,117 Railway brake shoe. P. Reilly.	446,017 446,10 <b>6</b>
Grease, process of and apparatus for purifying, G. Race	M. Bentley Railway brake shoe. P. Reilly 6,170 Railway, cable street. L. M. Clement	446 376 446,2 <b>3</b> 6 446,221
Grain transfer, storage, and preservation station, pneumatic, L. Smith. Graase, process of and apparatus for purifying, G. Race Grinding and polishing machine, B. E. Sperry.  44 Grinding machine, A. B. Landis. 44 Grinding mill, J.& A. J. Jones. 44 Guard. See Hailway cattle guard. Guns, safety device for breech-loading, F. A. Hollenbeck.	6.117 Railway brake shoe. P. Reilly 6.170 Railway, cable street, J. M. Clement 6.181 Railway cattle guard, J. T. Hall 6.219 Railway crossing gate. F. M. Spaulding. 44°.082. Railway, cievated, J. N. Valley 46°.272.	446.229 446.083 446.279
Guis, safety device for breech-loading, F. A. Hollenbeck. 444 Handle, See Tool handle, Harrow, Downey & Green. 444	6.166 Railway rails, combined support and fastening for T. J. Bush. Railway signals, track instrument for, M. S. Con-	446,282
Harrow, M. J. Todd	6.251 ley	446.405
Harrow. Downey & Green 484 Harrow M. J. Todd 444 Harrow and pulverizer, sulky, C. D. Roberts. 444 Harvesting machine, A. Rank, Sr. 444 Hasp and Staple, C. Hancock 444 Hasp lock, W. R. Morse. 444 Hat making machines, expansible cone for, k. M. Starr. 444 Hay press, J. R. Morsemen 444	6.409 Railway track, L. Chilson	446.313
Hasp lock, W. R. Morse.  Hat making machines, expansible cone for, F. M. Starr	8,187 Ratchet wrench and boring bit, combined, C. H. Myers Ratchet wrench and drill, C. H. Myers Ratchet wrench and drill, C. H. Myers	
Hay press, J. B. Boresman	5.986 Ratchet wrench and screwdriver, combined, C. 6.157 H. Myers	
Heat regulating systems, switch board for, C. W. Brieder Hester See Hot sir steem and hot mater heat		
Heater. See Hot air, steam, and hot water heater. Heater, F.C. Pet eler. 44 Heel making machine, Fahnley & Taylor. 44 Heel making machine, Fahnley & Taylor. 44	Regulator. See Electric motor regulator. Rivet set, W. A. Wilson 6.008 Roaster, W. D. Stillman 6.334 Rod. See Lightning rod.	446,048 446,033
Heel seat forming and edge setting machine, M.  I. Wright Heeling machine, Glidden & Elliott	Roller. See Land roller. 6,399 Booding paper, H. Cunningham	446.145
Hog trap, N. C. Bader. 44 Holder. See Cigar and cigarette holder. Coin holder. Jarholder. Mapholder. Meathold- er. Paper holder. Photographic plate	6,215 Rope fastener, guy, A. L. Seelbach. Rotary engine, L. J. Everest.	446,020 446,061
	6.334 Rod. See Lightning rod. Roller. See Land roller. 6.395 Rofing paper, H. Cunningham 6.391 Rofing, sheet metal, J. L. Dickelman Rope fastener, guy, A. L. Seelbach. Rotary engine, L. J. Everest. Roundabout, J. Frueh Salts, treating Stassfurt, B. Peitzsch. Saw guide, band, C. E. Wright. Sawmill, band, E. S. Richards. Sawmill, band, E. S. Richards. Sawmill carriages, log turner for, Hall & Sweet- ser.	446.162 446.267 446.127
Hook. See Check hook. Horse checking device, Wardwell & White 44 Horse, controlling gear for draught, R. S. Kin-	Sawmill, band, E. S. Richards Sawmill carriages, log turner for, Hall & Sweet-	446,293 446,346
kead	6,067   Sawmill, gang, T. S. Wilkin	446.197
Horsesboe blanks, machine for forming, W. J. Kent.  Hot air furnace, P. C. Hoyt. Hot air, steam, and hotwater heater, combined. W. H. Denslow. Hub, anti-friction, C. J. Applequist. Hub, vehicle, J. T. Hart. Lee machine, E. J. Hardy Lee making and refrigerating, T. Rose. 44 Lee tongs, J. Brinkerhoff.	Kover.  Scale, weighing, J. P. West. Scoop, weighing, L. Bartlett. Screen. See Gas pipe screen. Window screen.	446.309 446,179
Hub, vehicle, J. T. Hart.	(8.16) Screen. See Gas pipe screen. Window screen. (8.40) Seat. See Bicycle seat. (8.41) Seed, machine for removing lint from cotton, O.	
Ice machine, E. J. Hardy	18.245 Seed methins for removing lint from cotton, O. 16.205 Sewing machine, C. E. Wheeler Shatt coupling, Q. C. Pyle Shett coupling, Q. C. Pyle Shett metal cutting machine, C. Willis.	446.399 446.123
Incubator C & E Von Culin	6.090   Sheet metal cutting machine, C. Willis	
incubator, A. P. Hazard. Indicator, See Cash indicator. Fire indicator. Station indicator. Instands, fountain attachment for, J. V. Bergen 44 Insulating coupling block and cut-out, Bergmann		446.063 446.185 446.146
& Klein	16 190 Shope, clamp for holding vamps and quarters for	
Ironing board. A. Sommerfeld	M. B. Stimpson Shutter fastener, R. J. Berdan Silme. etc., sizing apparatus for, C. A. E. Meinicke. Meinicke.	446,275
Jack. See Pegging Jack. Truck jack.	participate	E4U:19#