on the sensitizing bath for five minutes, is then hung up to dry, and should be kept dry or in a vessel containing chioride of calcium placed in a false bottom. In printing one-third longer time is required than with silver paper. The print, which is only slightly discernible, is next dexterously floated on hot oxalate bath heated from 120° to 140° Fah. The developing oxalate bath is made as follows:

Oxalic acid...... Sodium chloro-platinite..... 2 

The picture quickly develops out according as it has been printed. It is then washed in dilute hydrochloric acid and water baths and dried. See also SCIENTIFIC AMERICAN SUPPLEMENT, No. 711, page 11360.

(3232) J. M. writes: Do you think from a sanitary standpoint it would be proper to discharge the bottom of which is loose, porous sand? The well will be 300 feet from the building. And if there would be hill opposite to the one on whose side the well will be deodorizers in the well; and do you think quicklime sufficient? A. From a sanitary standpoint it would not be proper to discharge the sewage into the well. The better way would be to make a tight cistern of ce-tones easily. ment in the ground to receive the sewage, the contents of the cistern to be periodically removed and spread on the ground at a distance from habitations, know of any substance to cover large nickel plated The well, if used as a receiver of sewage as you propose, would be likely to contaminate the spring and other waters near or distant, below the level of the bottom of the well. Quickime would be a poor disinfectant.

(3233) J. C. S. & Co. — The work on the specimen of etched glass received was done by means of hydrofluoric acid, either in the form of liquid or vapor. The entire glass, with the exception of the portion to be etched, is covered with a protective coating of varnish or wax. If liquid hydrofluoric acid is need, the glass is either dipped into it or a wax lip may be built up all around the plate and the acid poured on. paper. A. Tone with a bath made of-The etching requires 5 or 6 minutes. After the acid is poured off, the glass must be thoroughly washed with water. According to another method, powdered fluorspar is placed in a lead trough and sulphuric acid is poured over it. The glass is laid over the trough face down, and the etching is effected by the vapors. Great care is required in the use of this acid to avoid inhaling the vapors or allowing it to touch the skin.

(3234) T. H. W. asks: Is there a colorless wash or varnish that can be applied to a bright metal surface that will not easily rub off and prevent rust? A. Mastic or very thin white copal varnish may be used for bright work.

(3235) J. M. S. says: 1. Will you please tell me how an amateur can take photographs in colors? I have tried a mirror back of the plate, without success. Also if plates are manufactured for photography in colors, if so, where can I buy them? A. The Lipmann process of photographing in colors is only an experiment and is confined to the solar spectrum. No practical process has been formulated. Try Cramer's isochromatic plates, which reproduce the color values to better advantage. 2. Please give me a formula for making

(3236) R. P. P. writes: Please find inclosed sample of cement taken from a thermometer used by packers of canned goods and upon steam boilers, aich stands heat and pressure of about 300 degrees. It is used to form a steam tight joint between the thermometer tube and the brass casing. Will you be kind enough to inform a yearly subscriber of your paper how to make and use this cement, also if it will stand brine? A. The cementappears to be composed of plaster of Paris mixed with a solution of silicate of soda or soluble glass. You can obtain the silicate through the drug trade. It may be plaster of Paris mixed with strong solution of alum, or oxide of zinc mixed with a solution of chloride of zinc 10 to 20 per cent. Either cement is applied like plaster of Paris, and will stand brine reasonably well, especially the latter.

(3237) R. H. W. writes: I herewith inclose you a box of matches, just as it was opened, except troy ounces; 2.00 two matches taken out. Will you kindly explain, duced elsewhere. through the columns of your journal, how every match in the box could be charred in this way, the phosphorus all burned, and no greater combustion. The wood part of the match seems to be merely discolored. The box containing them shows no mark of violence, and is not burned. These matches were packed 1 dozen boxes in a paper which was sealed up nearly air tight. A. The composition on the end of the matches probably contained phosphorus mixed with some compound rich in oxygen. If the package was closely sealed, the ends of the matches if these became ignited. Moisture,  $Au_0O_4(NH_4)_2.3H_2O$ . 2. How is it manufactured? A. By precipitating a solution of gold with ammonium confine it to the tips. How the ignition occurred can only be a matter of surmise.

(3238) O. McK. writes: 1. I want to make a dynamo from which wires run to the motor which drives the machine. If you have a SUPPLEMENT telling how to make such a dynamo, please say what number it is. A. SUPPLEMENT No. 600 contains full information on the construction of an 8 light dynamo. 2. What is a laminated armature? A. A laminated arplates separated by insulation. 3. What candle power lamp would this run? A. The dynamo above referred to runs eight 16; candle power lamps. 4. Does distance between dynamo and motor have any effect on the speed? A. The distance makes a great difference if not compensated for by an increased cross section of conductor. If the resistance is kept down, the distance

me any preparation for softening the wings of butterflies and moths, after they have become brittle? Can that have been naturally stained red and yellow

you tell me of something that will take parasites off worms without killing them, and keep large beetles from becoming odorous? A. The wings of butterflies are softened by placing the insect on a piece of hot clean paper laid on wet sand contained in a jar. In the effect on the quartz. 4. Where can I buy agate and course of 2 to 5 hours the wings are sufficiently soft to jasper in the rough, in vicinity, and price per lb., also permit of spreading the same. Parasites can be taken Mexican onyx that is used in New York, and any other off caterpillars by means of a fine pair of pliers, but the semi-precious stones for ornamental and fancy work, in results are usually not very satisfactory. Large beetles are best opened on the tail or belly and the inner organs removed to avoid rapid decay and smell. (See Supple-MENT catalogue.)

.(3240) H. G. wants a formula for albumenizing and silvering paper for photographic printing, one that will make paper which will keep for some time if possible. A. You can purchase albumenized paper with less expense than will be required to make it. To sensitize albumenized paper that will keep for some sewage of a hotel into a dry well, twenty feet deep, the time, prepare a nitrate of silver solution by dissolving sixty grains of silver to the ounce and do not let it get lower than 50 grains to the ounce, testing occasionally any danger of contaminating the water of a spring 1,600 with the hydrometer. After solution of the silver, feet from the well and which runs from the base of a add citric acid drop by drop, until the slight precipitate of citrate of silver formed is just redissolved. Float located? It is the intention to use disinfectants and the paper on the bath from three to five minutes, and on removing, place between sheets of clean blotting paper, which may be used over again. Paper thus prepared has been kept white and good for nine months and

> (3241) G. G. writes: I wish toask if you wrought and cast iron work to stop corrosion during transmission to South American ports. From experience I know that brass instruments covered with lacquer, notwithstanding being carefully packed, turn black and have to be shipped in air tight tinboxes. A. A good protection for nickel plated goods for export is it possible to reduce the resistance in a vacuum tube paraffin applied hot, and the goods then wrapped in for the passage of the electric current to an equivalent paraffin or wax paper. Waxed paper bags make an excellent waterproof and air tight package,

(3242) T. B. asks for a formula for toning wood prints black, or the color of prints on albumen

Chloride of gold...... 1 gr. Pulverized borax......60 \* Water...... 4 oz.

See page 225 of Scientific American, April 13, 1889, (3243) J. A. R. says: Please give me a

good formula for making a preparation which will kill the bed bug and destroy its eggs. A. Use corrosive sublimate, to be had at drug stores. Druggist will tell you how to use it.

(3244) T. D. McC. writes: In your answer to query No. 3180, I notice what looks like a slight ferror. You say, "If you divide the voltage by the number of watts, you will have the current in amperes required." As  $W=C\,E$ , dividing the number of watts the voltage will give the required current, which is 0.845 ampere. The resistance of motor should be 130 ohms.

(3245) D. McC. S. S. writes: 1. I notice plied into a volt. If you require one-eighth horse power, in this week's issue of your valuable paper, you state in you will need about 93 watts. Your E. M. F. is 110 answer to query 3152, "What is the difference between volts; therefore, if you divide the number of watts by a square foot and a foot square? A. There is no dif- the voltage, you will have the current in amperes reference in area or quantity of surface, but there may be blue print paper that will keep for a long while? A. a great difference in shape," etc. Now it seems to me For a blue printing formula see SCIENTIFIC AMERICAN that though this answer is, when applied to one square foot, perfectly correct, it would be liable to be misleading when applied to more than one. Thus, for instance two feet square would be equal to  $2^2 = 4$  square feet, and I therefore think that the number of square teet in a given area of feet square would be best expressed by the formula x F. sq. =  $x^2$  sq. F. Please inform me whether this is not correct. A. This is right as far as carrier pigeons in this country, and would these be capable of carrying small packages of say 4 to 8 oz., or can they only carry very light letters? A. Carrier pigeons can only carry light letters. Their price varies with their age, breeding, and proved abilities. 3. Also and what is the present and what the average price of such? A. We have no very recent figures. In 1887, the production of platinum in Russia was placed at 113,724 troy ounces; 2,000 or 3,000 ounces additional were pro-

> (3246) B. M. I. asks: 1. How is wood made into pulp, and how is wood pulp converted into paper? etc. A. For wood pulp we refer you to our SUPPLEMENT, Nos. 293, 299, 311, and 570. 2. What is Frankford black" and how is it made? A. It is a kind of black, said to be made by burning grapevine twigs or cuttings, used in printer's ink.

combustion would for want of air be confined to the of indefinite composition. A typical formula would be tensity of the combustion, and might by itself suffice to hydrate and boiling in an excess of the same; or by digesting auric hydrate in a solution of ammonium sulphate. 3. What is its explosive power compared to nitroglycerine? A. Probably 1/2 that of nitroglycerine. 4. What is the bighest explosive known? A. Of the commercial explosives, nitroglycerine. 5. Can fulminate of silver or mercury be exploded without drying or removing from the liquids from which it is produced A. Safety is secured by keeping them immersed in water, yet explosion while so immersed is at least a mature is one in which the core is formed of thin iron possibility. 6. Will nitric acid and glycerine produce enough heat on uniting to explode itself? A. No.

(3248) L. M. asks: 1. I have some specimens of satin spar that have been cut into gems for setting. They are beautiful, but are very soft. Is there any way of hardening them, also can they be colored, and how? A. They cannot be hardened nor satisfactorily dyed. 2. What way is there of preserv. A ing natural colors, in dried and pressed flowers, etc.? (3239) C. G. A. asks: Can you give A. Only by avoiding exposure to light. 3. I have specimens of quartz, clear and white trystals, etc.

by sulphur, iron and alum. What chemicals or receipt can I use that will clean them and remove the stains without injuring the specimens? A. You can boil in strong hydrochloric or sulphuric acid without rough and polished? A. Address Tiffany & Co., or Eimer & Amend, of this city.

(3249) J. R. N. asks: What is the metal gallium? Where found? What are its uses? And how long has it been known? A. Gallium is an exceedingly rare metal, and hitherto only a chemical curiosity. It is found in zinc blende from the Pyrenees and other localities. It was found in 1875, by Boisbaudran.

(3250) G. A. D. asks: 1. What is an alum cell? What is an iodine cell, and how can I construct them? The above are mentioned in "Experimental Science," on page 189, under radiometer. A. An alum cell is a tank with plate glass sides filled with a strong solution of alum. It stops most of the heat rays while allowing the light rays to pass. For use in an ordinary lantern, the cell should be % inch thick. An iodine cell may be made with glass sides, but rock salt is used when perfect results are required. The cell should be 2 inches thick. The solution is made by dissolving iodine in bisulphide of carbon. The solution should be a saturated one. This cell stops the light rays and allows the heat to pass. 2. Also a selenium cell, and how can it be made? A. Selenium is rubbed on a heated brass grating; the heat melts the selenium, and some of it enters the spaces in the grating. When the selenium has cooled and crystallized, the cell is ready for use. You will find a full description of the photophone in "The Telephone," by G. B. Prescott. 3. Is of, let us say, the resistance of dilute sulphuric acid? A. It would be impossible to reduce the resi-tance to that extent. The resistance of an ordinary vacuum tube is about as small as it can be. 4. How much are five degrees Fahrenheit expressed in heat units? A. A heat unit is the amount required to raise the temperature of one pound of cold water one degree Centigrade. The Centigrade scale can be converted into Fahrenheit according to the following formula:

Centigrade  $\times 9$  + 32 = Fahrenheit.

5. Where could I buy an air pump (piston pump) of good reliable make which would not be too expensive? A. You can buy air pumps from any of the dealers who advertise in our columns.

(3251) C. A. H. asks: In rewinding a small electric motor, say about one-eighth horse power, to adapt it to Edison 110 volt circuit, what should the resistance be in the fields and armature, and the best way to connect up shunt or series? A. The resistance of the machine should be such as to use the amount of current required for the power needed. An electrical horse power is 746 watts. A watt is one ampere multiquired, which is 0.84 ampere. Now, to arrive at the total resistance of the machine, you will divide the voltage by the amperage, which will give you 130 ohms. Of this amount, if the machine is series wound, the resistance of the field magnet should be about one-half that of the armature, while if it is shunt wound, the resistance of the field magnet should be about fourteen times that of the armature.

(3252) F. H. B. writes: I have been rewinding a small motor for 110 volts, and about the same it goes, but your formula only applies to squares, and does not take rectangular figures within its scope. 2. have been questioning its correctness in my own mind Also, could you inform me what is the value of ordinary, and would like to ask you if am not correct and your answer is wrong; 746 watts divided by 1/2 gives 93 watts required. Now, you say divide the voltage by the number of watts and gives 1.18 amperes; but I think to divide the watts by the voltage is correct, which gives 0.84+ampere. Now divide the voltage by amperes, and what is the world's total output per annum of platinum, it gives 130 6+ohms resistance of wire, instead of 92 ohms. I think this way is correct, because watt is voltage multiplied by amperes. Now, having the watts and voltage, the ampere must be the number of times the voltage is into the watts, instead of watts into voltage, as you state in that answer. A. You are correct in your conclusions in regard to determining the amperage and resistance of the motor. The reply referred to was erroneous, the same is corrected in this number of

#### TO INVENTORS.

(3247) H. W. asks: 1. What is the chemical formula for aurate of ammonium?

An experience of forty years, and the preparation of more than one hundred thousand applications for packing the properties of the preparation of the chemical formula for aurate of ammonium?

A. It is equaled facilities for procuring patents everywhere. A laws and practice on both continents, and to possess my equaled 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 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 our extensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 381 Broadway, New York,

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Gate. See Bridge gate. End gate. Railwaygate. Sliding and swinging gate. Gate, J. P. Irwin. Gate. W. R. White. Gearing. frictional, C. C. Yates. Governor, E. Courtright. Governor, E. Courtright. Governor, steam engine, C. K. Longenecker. Grading machine, road, C. M. Dodson. Grain binder cord knotter, A. Stark Grain drill, J. Hayden. Grain register and sacker, J. Lukaszevig. Grinding mower knives, machine for, R. Dutton. Grindstone dresser, J. M. Housel. Guard. See Door guard.	456,956 456,974 457,100 456,981 457,322 456,986	Shi Sho Sho Shi Shi
Grain binder cord knotter, A. Stark Grain drill, J. Hayden Grain register and sacker, J. Lukaszevig Grinding mower knives, machine for, R. Dutton Grindstone dresser, J. M. Housel.	457,163 457,277 457,283 457,079 456,354	Sig Sig Ska
Gun loading attachment, H. A Spiller	457,233	Ski Ski Ski Sli
Hammer, steam, G. Guild. Hangler. See Bag handle. Hanger. See Pantaloon hanger. Harness, spring appliance for, C. A. Hill. Harp, W. W. Batchelder, Jr. Harrow, J. A. Rube. Harrow, W. Strait. Harvester, coron, M. Burns. Harvester, cotton, G. N. Todd. Hat rack, wall, H. W. Matthles. Hatrounding machine, S. T. Newman. Hatchway door, K. Gold. Hay rake, horse, T. Miltenberger. Hay stacker. H. C. Selle. Heater. See Bugpy heater.	457,156 456,977 457,218 457,095	Spa Spa Spa
Harvester, cotton, G. N. Todd. Hat rack, wall, H. W. Mattbies. Hat rounding machine, S. T. Newman. Hatchway door, K. Gold.	457,329   457,163 457,055 457,026	Spr Spr Sta Sta
velope holder. Paper holder. Pipe or cigar	457,134	Sta Sta Sta Sta
Hook. See Ice book. Whiffletree book. Horse banket, J. S. Grant		Sto Sto Sto
Ice hook and pick, A. Sanford	457,260 457,013 457,042 457,219	Su Sw Sw
cator. Ingots, protective tip for, W. R. Hinsdale Ingots, protective tip for, W. R. Hinsdale Invalid's table, M. A. Hawley. Iron. See Sad iron. Smoothing iron. Ironing board blankst, J. J. Sanders. Jack. See Lifting jack. Wagon jack. Journal bearing, adjustable, J. B. Cornwall. Knife sharpener, F. Ecaubert. Knitting indicator, P. P. Olsson. Knitting machine, Frelloehr & Tisch. Knitting machines, stopping mechanism for, A. T. L. Davis.	456,953 457,039 456,990	Ta Ta Te Te
Ironing board blanket, J. J. Sanders. Jack. See Lifting jack. Wagon jack. Journal bearing, adjustable, J. B. Cornwall. Knife sharpener, F. Ecaubert. Knitting Indicator, P. P. Olsson.	457,033 457,302 457,148 457,166	Tie Tie To
Knitting machine, Frellochr & Tisch. Knitting machines, stopping mechanism for, A. T. L. Davis. Knitting machines, supporting spring, etc., for straight, E. Tiffany.	457,265 457,307 457,061	To To To Tr
Knitting machines, supporting spring, etc., for straight, E. Tiffany purporting spring, etc., for straight, E. Tiffany purporting spring, etc., for Lamp, C. O. Pellikan. Lamp electric arc, X. Wertz. Lamp socket, incandescent, W. C. Bryant. Lamp socket, incandescent electric, J. Criggal. Lamp wick raising device, E. S. Hollister. Lamps, coupling for electric incandescent, I. J. Flagg Lantern, J. W. Orphy. Lathe, W. Buckley.	456,963 457,141 457,072 457,109	Tu Tu Tw Tw
Lamps, coupling for electric incandescent, I.J. Flagg Lantern, J. W. Orphy. Lathe, W. Buckley	457,063 457,141 457,070 457,070	Ty Ty Ty Un Va
Lantern, J. W. Orphy.  Lantern, J. W. Orphy.  Laundry tub, artificial stone, T. P. Dunne.  Lavatory, J. H. De Neut.  Lawn sprinkler, J. S. Woolsey.  Leather crimping machine, S. W. Jamison  Leather staking machine, C. F. Stackpole.  Letter box, house door, J. Van Volkenburg  Lifting jack, E. Covert.	457,268 457,099 457,200 457,014	Un Va Va Va
Lock. See Signal Indicator lock. Vehicle seat	457,136 456,972 457,183 457,276	Ve Ve
Lock case, bag or satchel, W. Roemer	457,216 457,0 7 457,084 457,093	Ve Ve
Looms for weaving with short wefts, automatic, feeding attachment for, I. Lindsley	456,973	W
lubricator. Marking pot, F. S. Ketchum Mast support for vessels, adjustable, J. T. Mat- thews Measure, tailor's, A. Liebl Meat cutter, C. V. Pugh Meber. See Fluid meter. Mill. See Cider mill. Crushing and grinding	457,120 457,323 457,124 457,212	W
		W
Motor. See Railway motor. Water motor. Motor and pump, E. Courtright. Musical instrument, C. W. & J. Anderson. Muzzle, blanket, N. Gillespie. Nails, machinery for making rolled wire, W. O. Tyers. Nippers, police, J. Blakely.	457,143 457,193 457,237 4,56,936	W
Tyers.  Nippers, police, J. Blakely.  Nitro-glycerine, making, E. K. Mitting.  Ore concentrator, C. E. Seymour.  Ore sampling machine, H. L. Briagman.  Organ swell, J. Peloubet.  Oven, bake, G. A. Fisber.  Pantaloons hanger and stretcher, C. A. Evans.  Paner holder and cutter, roll. E. C. Phillips.	457,002 456,968 457,145 457,131 457,191	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
Pantaioons hanger and stretener, C. A. Evans, 457,189, Paper holder and cutter, roll, E. C. Phillips. Pilnow, sham, D. G. Cameron.	457,190 456,964 456,966 457,180	Zii
Paper holder and cutter, roll, E. C. Phillips	456.943 457,064 457,113 457,192	<b>Z</b> ii
Planter, check row, Gard & Shoolinge.  Plastic materials, mould for, H. B. Garrigues  Post. See Fence post.  Pott. See Marking pot.  Potato masher, J. S. Blinn  Power by means of compressed air, apparatus for transmitting, C. Cummings.  Power means for transmitting, J. Meier  Power press. A. A. Rheutan	<b>456</b> ,937	Be Cl
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Printing presses, adjustable holder for inking rollers of, A. J. Ford Printing presses, adjustable holder for inking rollers of, J. H. Vivian Printing presses, jogging device for, H. F. Bow- ers.	457,139 457,248	Oi Pa
Printing presses, web roller for, J. L. Cox	457,255	Pa Pa Pe
Puller. See Stump puller. Pulp into different grades, machine for separating ground wood, E. F. Mil lad. Pulp screen machine, G. D. Rowell Pump and pumping engine. Bailey & Lindemann. Pump, beer, C. A. Barthiff. Pump, deep well, J. Bean Pump, ejector, S. Dailson. Punch, L. O. Crocker. Rack. See Hat rack. Railway, ejectric, Wheatley & Schlosser	457,022 457, 43 457,244 456,984 456,983	Pe Po
Rack. See Hat rack. Railway, electric, Wheatley & Schlosser Railway gate, B. L. Crocker Railway gate, automatic, J. Bolt Railway motor, electric, N. C. Bassett.	457,240 457,043 457,247 457,102	Pr Pr Re
Rack. See Hat rack.  Railway, electric, Wheatley & Schlosser.  Railway gate, E. L. Crocker.  Railway gate, automatic, J. Boit.  Railway motor, electric, N. C. Bassett.  Railway signal, W. C. Serrell.  Railway spike, W. R. Funk.  Railway switch, J. N. Marso.  Railway, switch, T. S. McKinnell.  Railway time signal, J. Wayland.  Railway tracks, apparatus for oiling, T. L. Ennis.  Railway trolley, electric, S. H. Sbort.	457,135 457, 67 456,961 457,004	Re
Railway tracks, apparatus for oiling, T. L. Ennis Railway trolley, electric, S. H. Sbort	457,045 457,015	Sa So St
Register. See Cash register. Grain register. Regulator. See Pressure regulator. Temperature regulator. Revolvers, lock mechanism for, A. C. Houston	457,278	To W
Revolvers, lock mechanism for, A. C. Houston Rheosta, J. A. Mosher (lock drill, C. Chrampings Roofing for buildings, I. C. Thompson Rule attachment, Fraduated, M. A. Dahl &ccharification of amylaceous matter, apparatus for the V. C. A. M. Rondonneau.	457,090 456,942 456,971 457,077	Tr
Rule attachment, Fraduated, M. A. Dahl		Ca
Sandpapering machine, E. F. Autenrieth	457,321 457,068 456,949	a.n iss 25
Sash, window, M. E. Reilly. Saw helper, spring, A. Middleton. Saw machine, hand F. McDonough	457,010 457,000	of Br
Saw set, Buence & Schuetz Saw set, S. J. Crouch Saw set, S. J. Crouch Screen. See Window screen. Screw press, J. E. Sheridan. Scoop, I. L. Hall	457,184 457,225 457,271	If ini Ye

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١	Scooter and shovel plow, G. C. Green	457,047 457,263
•	Sewing machine fan attachment, J. H. Nell Sewing machine rufflers, separator plate for, M.	457,167 457,254
	Sewing machine 18th M. Lachment, J. H. Whell Sewing machine rufflers, separator plate for, M. G. Cook. Shirt coupling, Montague, Jr., & Lea. Shirt, H. W. Messer. Shoe horn and jack, M. Gysin. Shoe slugging machine, S. M. Cutter. Shutter worker, J. H. Davidson. Sickles to be ground, device for holding, D. C.	457,2 <b>0</b> 9 456,999
	Shoe slugging machine, S. M. Cutter	457,257 457,306
١	Signal. See Electric track signal. Railway signal.	456,938
	Clapp Signal. See Electric track signal. Railway signal. Railway time signal. Signal indicator lock, J. T. Hambay Skate, roller, L. J. Masterson	456,952 457 129
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!		
	ardson Spring, See Car spring. Elliptic spring. Spring setting machine, E. Cliff. Sprinkler. See Lawn sprinkler.	457,073
•	Sprinkler. See Lawn sprinkler. Stamp, hand, F. H. Cross	457,304 457,279
İ	Stapling machine, J. Helm. Steam boiler, S. H. Benson. Stitching machine, book, S. Elliott. Stone cutting machine, D. Rettiger. Stone drill, J. W. A. Gullick, Stone, manufacturing rock-faced artificial, C. W. Stevens.	457,049 457,103 456 946
	Stone cutting machine, D. Rettiger.  Stone drill, J. W. A. Gullick.  Stone drill, J. W. A. Gullick.	457,213 456,951
İ	Stevens	457,231 456,960
	Stump puller, W. B. Morris. Stump puller, H. J. Mohme. Supporter. See Garment supporter.	457,054
!	Stone, manufacturing rock-faced artificial, C. W. Stevens. Stove, drum tubular sectional, Leonard & Stowe. Stump puller, W. B. Morris. Stump puller, H. J. Mohme. Supporter. See Garment supporter. Swinging chair, C. Johnson. Switch. See Flectric switch. Railway switch. Switch operating mechanism, J. F. Batchelor, 21.	457,085
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	Tobacco leaves, treating, W. E. Johns. Toilet cabinet, J. E. Griffiths.	457,029 457,270
	Toy parachute, C. Dillenback Toy, sounding, A. Decoeur	456,944 457,259
İ	Ties. See Baie tie. Timetable or indicator, adjustable, W. C. Klauser Tobacco leaves, treating, W. E. Johns. Tollet cabinet, J. E. Criffitha. Tongue, harvester, J. S. Davis. Toy parachute, C. Dillenback Toy, sounding, A. Decoeur. Track tleaner, rotary, N. Newman Treadle, R. Frisbey Tub. See Laundry tub. Tube drawing annartus, J. P. Serve.	457,315
ļ	Twine reel, J. H. Holbrook Twisting machine, Chadderton & Hitchins	457,082 457,181
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Ì	Watch cases, etc., ornamenting, F. Ecaubert Watchmaker's tool, M. Wollman	457,150 456,975
	Water meter, S. B. Goff	457,194 457,117
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Ointment, W. 1. Vescelius	
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#### PROPOSALS.

Engineer Office. Boston, Mass. July 10, 1841. Scaled propossis, in triplicate, will be received at this office until noon of August 10, 1851, for dredging from Chatham Harbor, Mass., 10,000 unite yards, more or less, of material. Attention is invited to the Acts of Congress a piproved Feb. 26, 1885, and Feb. 23, 1887, Vol. 25, page 332, and Vol. 24, page 414, Statutus at Large. For full information analy to Vol. 25, page 332, and Vol. 24, page 414, Statutus at Large. For full information apply to S. M. MANSFIELD, Lieut. Col. of Engineers.

U. S. Engineer Office, Boston, Mass. July 29, 1891. Scaled proposals, in triplicate, will be received at this office until noon of August 21, 1891, for the delivery of 7,000 bils, more or less of American Hydraulic Coment, at Fort Warren, Mass. Attention is invited to the Acts of Congress approved Feb. 26, 1885, and Feb. 28, 1887, Vol. 23, page 32, and Vol. 24, page 414, Statutes at Large. For full information apply to S. M. MANSFIELD, Lieut. Co. of Engineers.

U. S. Engineer Office. Hoston, Mass. July 20, 1891. Sealed proposals, in triplicate, will be received at this office, until no on of August 24, 1891, for the delivery of 3,000 bils, more or less, of American Hydraulic Cement, at Bennett's Wharf, Boston Harbon, Mass. Attention is myited to the Ass of Congress approved seb. 28, 1895, and seb. 21, 1897, Vol. 28, page 332, and vol. 4, page 44, Statutes at Large. For full information apply 50. M. MANSFIELD, Lieut. Col. of Engineers.

TO CONTRACTORS.—Sealed proposals for construction of about 7,000 feet of 48 inch brick sewer and 1,200 feet of 48 inch brick sewer will be received by James M. Lambing, Mayor of the city of Corry, Pa., until 7 o'clock P. M., Monday, Aug. 17, 1891. For further particulars and specifications, address the Main Sewer Committee or City Clerk, Corry, Pa.

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S. B. DUNHAM,
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