Business and Personal.

The Charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Wanted-Address of Novelty Works. S.Pay, Peoria, Ill. Improved Skinner Portable Engines. Erie, Pa \$600.-Ent. Pat. Household Art. H., Sta. F., Phila. Wanted-Good Party to Manufacture Improved Store

Seat on Royalty. Wood or metal. S., Box 1973, Phila. "Rival" Steam Pumps for Hot or Cold Water; \$32 and upward. John H. . VicGowaft Co., Cincinnati, O.

Care for your feet if you would keep comfortable Use German Corn Remover. Sold by druggists. 25 cts. Skinner's Chuck. Universal, Independent, and Eccen-

tric. See adv., p. 268. Women cry and children shriek for Van Beil's "Rye and Rock" when sick.

Engines and Boilers. 16 x 48 and 13 x 30 inch Second-hand Horizontal Engines. Full stock of new Engines; also new and second-hand Locometive and Horizontal Tubular Boilers. Send for circulars. Belcher & Bagnall, 40 Cortland St., New York.

Blake's Belt Studs are the best fastening for Rubber and Leather Belts. Greene, Tweed & Co.

Drop Hammers, Power Shears, Punching Presses, Die Sinkers. The Pratt & Whitney Co., Hartford, Conn.

Portable Railway Track and Cars for Railroad Grading. Sugar Plantations, Mines, etc. F. W. Corey & Co., 162 Broadway, N. Y.; 95 Washington St., Chicago, Ill.

Perfection Belt Clamp. Cheapest and simplest clamp in the world for all kinds belting. Not patented. Engineers make it themselves. Full description, 50 cts. R. H. Black, Box 128, Bruin, Butler Co., Pa.

When your boiler front is covered with mud from the try cocks, it is a sure sign that no time should be lost in applying Hotchkiss' Mechanical Boiler Cleaner. Send for circular. 84 John St., New York.

Beauty in the feet may be found by using German Corn Remover. Sold by druggists. 25 cts.

For the best Jig Saw Blades, go to Wm. Cuddy, 108 Hester St., New York.

Money to Invest in Manufacture, Box 1084. Batavia, N.Y. Wanted, for Cash, Engines, Boilers, and Wood-working Machinery, in good order. Belcher & Bagnall, 40 Cortland St , New York.

Walrus Leather. A choice lot for Polishing Metals. Greene, Tweed & Co., 118 Chambers St., New York.

Safety Boilers. See Harrison Boiler Works adv., p. 252. Wanted-Patents and Specialties to sell. Special advantages offered. S. M. Thompson, Providence, R. I.

Inventors sending a three cent stamp to Inventors' Institute, Cooper Union, New York city, will receive a copy of the Industrial News free.

Rock Drill, with Hose and Portable Boiler. Ma chinery Exchange, 261 N. 3d St., Philadelphia, Pa.

The Eureka Mower cuts a six foot swath easier than a side cut mower cuts four feet, and leaves the cut grass standing light and loose, curing in half the time. Send for circular. Eureka Mower Company, Towanda, Pa.

The Newell Universal Mill Co., Office 7 Cortlandt St., New York, are manufacturers of the Newell Universal Grinder for crushing ores and grinding phosphates, bone, plaster, dyewoods, and all gummy and sticky substances Circulars and prices forwarded upon request.

L. Martin & Co., manufacturers of Lampblack and Pulp Mortar-black, 226 Walnut St., Philadelphia, Pa.

Pure Oak Leather Belting. C. W. Arny & Son, Ma-

nufacturers, Philadelphia. Correspondence solicited. Wren's Patent Grate Bar. See adv. page 237.

Jenkins' Patent Valves and Packing "The Standard."

Jenkins Bros., Proprietors, 11 Dey St., New York. Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J.

Wood Working Machinery of Improved Design and Workmanship. Cordesman, Egan & Co., Cincinnati, O. The "1880" Lace Cutter by mail for 50 cts.; discount to the trade. Sterling Elliott, 262 Dover St., Boston, Mass. Experts in Patent Causes and Mechanical Counsel.

Park Benjamin & Bro., 50 Astor House. New York. Split Pulleys at low prices, and of same strength and Yocom & Son's Shafting

appearance as Whole Pulleys. Yocon Works, Drinker St., Philadelphia. Pa. Malleable and Gray Iron Castings, all descriptions, by

Erie Malleable Iron Company, limited. Erie, l'a

Power, Foot, and Hand Presses for Metal Workers. Lowest prices. Peerless Punch & Shear Co. 52 Dey St., N.Y, National Steel Tube Cleaner for boiler tubes. Adjustable, durable. Chalmers-Spence Co., 40 John St., N. Y. Corrugated Wrought Iron for Tires on Traction Engines, etc. Sole mfrs., H. Lloyd, Son & Co., Pittsb'g, Pa. Best Oak Tanned Leather Belting Wm. F. Fore-

paugh, Jr., & Bros., 531 Jefferson St., Philadelphia, Pa. For Light Machinists' Tools, etc., see Reed's adv., p. 221. Stave, Barrel. Keg, and Hogshead Machinery a spe cialty, by E. & B. Holmes, Buffalo, N. Y.

Wright's Patent Steam Engine, with automatic cut off. The best engine made. For prices, address William Wright, Manufacturer, Newburgh, N. Y.

Rollstone Mac. Co.'s Wood Working Mach'y ad. p. 337. Nickel Plating. - Sole manufacturers cast nickel anodes. pure nickel salts. importers Vienna lime, crecus, etc. Condit. Hanson & Van Winkle, Newark, N. J., and 92and 94 Liberty St , New York.

For Mill Macb'y & Mill Furnishing, see illus. adv. p.237. Clark Rubber Wheels adv. See page 236.

Saw Mill Machinery. Stearns Mfg. Co. See p. 237. Presses, Dies, Tools for working Sheet Metals, etc. Fruit and other Can Tools. E. W. Bliss. Brooklyn. N. Y. Saunders' Pipe Cutting Threading Mach. See p. 237. For Machinists' Tools, see Whitcomb's adv., p. 237. For the Cheapest Process of Manufacturing Bricks. see Chambers Bros. & Co.'s adv., page 254.

Cope & Maxweil M'f'g Co.'s Pump adv , page 252. For Pat. Safety Elevators, Hoisting Engines. Friction

Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423. Pottsville, Pa. See p.252. For Thrashing Machines, Engines, and Horse Powers, see illus, adv.of G. Westinghouse & Co., page 253.

Fire Brick, Tile, and Clay Retorts, all shapes. Borgner & O'Brien, M'f'rs, 23d St., above Race, Phila., Pa.

Turbine Wheels; Mill Mach'y. O.J.Bollinger, York, Pa For best Portable Forges and Blacksmiths' Hand Blowers, address Buffalo Forge Co., Buffalo, N. Y.

The Brown Automatic Cut-off Engine; unexcelled for workmanship, economy, and durability. Write for information. C. H. Brown & Co., Fitchburg, Mass. Brass & Copper in sheets, wire & blanks. See ad. p. 269. The Chester Steel Castings Co., office 407 Library St., Philadelphia, Pa., can prove by 15,000 Crank Shafts, and 10,000 Gear Wheels, now in use, the superiority of their Castings over all others. Circular and price list free.

Diamond Drills, J. Dickinson, 64 Nassau St., N. Y. The Improved Hydraulic Jacks, Punches, and Tube Expanders. R. Dudgeon, 24 Columbia St., New York. The I. B. Davis Patent Feed Pump. See adv., p. 269. Moulding Machines for Foundry Use. 33 per cent aved in labor. See adv. of Reynolds & Co., page 269.

Eagle Anvils, 10 cents per pound. Fully warranted. Akron Rubber Works, Akron, O. Moulded goods and epecial work of every description.

Geiser's Patent Grain Thrasher, Peerless, Portable, and Traction Engine. Geiser M'f'g Co., Waynesboro. Pa. For Superior Steam Heat. Appar., see adv., page 269. For best Duplex Injector, see Jenks' adv., p. 269.

Steam Engines; Eclipse Safety Sectional Boiler. Lam bertville Iron Works, Lambertville, N. J. See ad. p. 253. Pat. Steam Hoisting Mach'y. See illus. adv., p. 268. New Economizer Portable Engine. See illus. adv. p. 268.

Rue's New "Little Giant" Injector is much praised for its capacity, reliability, and long use without repairs. Rue Manufacturing Co., Philadelphia, Pa. For Shafts, Pulleys, or Hangers, call and see stock

cept at 79 Liberty St., N. Y. Wm. Sellers & Co Skinner & Wood, Erie, Pa.. Portable and Stationary Engines, are full of orders, and withdraw their illustra

ted advertisement. Send for their new circulars. Wm. Sellers & Co., Phila., have introduced a new injector, worked by a single motion of a lever.

The Sweetland Chuck. See illus. adv., p. 269.

Machine Knives for Wood-working Machinery, Book Binders, and Paper Mills. Also manufacturers of Solo man's Parallel Vise, Taylor. Stiles & Co., Riegelsville, N.J. Peck's Patent Drop Press. See adv., page 236.

Toope's Pat. Felt and Asbestos Non-conducting Re movable Covering for Hot or Cold Surfaces: 'Foope's Pat. Grate Bar. C. Toope & Co., M'f'g Agt., 353 E. 78th St . N.Y.

Use Vacuum Oil Co.'s Cylinder Oil, Rochester, N. Y. Don't buy a Steam Pump until you have written Valley Machine Co., Easthampton, Mass.

Use the Vacuum Oils. The best car, lubricating, en gine, and cylinder oils made. Address Vacuum Oil Co. No. 3 Rochester Savings Bank, Rochester, N. Y.

Houston's Sash Dovetailing Machine. See ad., p.269



HIN'TS TO CORRESPONDENTS.

No attention will be paid to communications unless accompanied with the full name and address of the

Names and addresses of correspondents will not given to inquirers.

We renew our request that correspondents, in referring to former answers or articles, will be kind enough to name the date of the paper and the page, or the number of the question.

Correspondents whose inquiries do not appear after a reasonable time should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them.

Persons desiring special information which is purely of a personal character, and not of general interest should remit from \$1 to \$5, according to the subject, as we cannot be expected to spend time and labor to obtain such information without remuneration.

Any numbers of the Scientific American Supple-MENT referred to in these columns may be had at this office. Price 10 cents each.

(1) J. A. M. asks: Is there any instrument made for determining the moisture of soils? A. We know of no special instrument for this purpose. The moisture is usually determined by weighing accurately a small average sample of the soil and then drying it at 212º Fah., until it ceases to lose weight. The difference between the first and last weights corresponds to the weight of moisture.

(2) H. K. T. asks for a formula for a aste which will cause labels to adhere to tin without first brushing the surface of the metal with hydrechloric acid. A. Try the following: Water, 1 pint; borax, 1 oz.; shellac. 5 oz.; boil until the latter is dissolved. Thin with boiling water if desired. It works most satisfactorily while hot.

(3) E. P. M. asks: Can you give the formula for preparing good common logwood chrome ink? A. Distilled water 1.000 parts (by weight): logwood extract, 15 parts; carbonate of soda (cryst.) 4 parts, chromate of potassium, 1 part. Dissolve the logwood ex tract in 900 parts of the water by aid of heat, and let it stand to settle: draw off the clear liquid, beat to boiling, and add the carbonate of soda; lastly add, drop by drop, with constant stirring, the chromate (vellow chromate) previously dissolved in 100 parts of water. The color is not fully developed at once, but on standing for a few hours gradually deepens to a full bluish-black. The ink thus prepared flows well and dries quickly. The addition of a trace of clover oil will prevent mouldiness.

(4) S. R. J. asks (1) for a receipt for silver wash. A. The following bath for silvering by cold dipping gives excellent results: Dissolve in a small quanous solution of good bisulphite of soda until the precipitate at first formed in just redissolved. A momentary immersion of the thoroughly cleansed articles (copper, brass, or bronze) is all that is necessary. 2. Electro silverplating. A. See article on Electro-metallurgy,

(5) J. K. asks (1) if there is any such thing as waterproof powder. A. We know of no waterproof gunpowder. Dynamite, duann, gun cotton, and other blasting substances are not affected by water, but they are unsuitable for use in fire arms. 2. How long will powder last in an air-tight cartridge : A. If put up in a dry airtight cartridge ordinary powder will remain unchanged for an indefinite period. 3. Give the name of the best powder to use. A. Common war powder-a. Saltpeter, 75 parts; sulphur, 10 parts; charcoal, 15 parts. b. Saltpeter, 75 parts; susphur and charcoal, each 121/2 parts. Sporting powder-Saltpeter, 76.9; sulphur, 9.6; charcoal, 135. Blasting powder-Saltpeter, 62; sulphur. 20; charcoal, 18 See column of Business and Personal and Hints to Correspondents.

(6) E. K. B. writes: 1. Referring to Sci-ENTIFIC AMERICAN SUPPLEMENT, No. 160, what are the long terminal points of the induction coil made of? A. Brass On a large coil they might be tipped with platinum with advantage. 2. How are carbons made as for Bunsen battery? Will you please give the degrees of beat, etc.? A. Powdered coke or gas carbon is mixed into a uniform paste with thin coal tar, moulded by pressure, dried slowly in an oven, and then gradually heated to whiteness in muffles which exclude air. Repeated soaking in thin tanand reheating makes the surface hard and dense.

(7) C. F. M. asks: 1. Can dry plates be worked by Newton's process in a room lighted through yellow panes of glass? A. Yes. 2. In any photographic process, what is the exact color and shade of the glass which should be put in the window of the dark room? A. A clear dark yellow approaching orange. 3. Will not colored sheets of gelatine do as well as glass? A. Yes.

(8) E. F. C. writes: Some time ago you published a formula for a concentrated fertilizer to be used on potted plants, etc. Among the ingredients was biphosphate of ammonium. As no drug store or chemist's shop here has this chemical in stock, and no work on chemistry that I have consulted makes mention of it, I would be obliged to you if you would give the formula for making it. A. Macerate, .for twenty-four hours or more. 81 lb. fine bone ash with 147 lb. strong sulphuric acid: dissolve 24 lb. carbonate of ammonia (or a quantity of ammonia water containing 18 lb. real ammonia) tn 15 gallons of soft water, and gradually stir in the paste. After standing several hours draw off the liquid portion, agitate the remainder with a little fresh water; let settle, draw off the clear liquid, add it to the first liquid drawn off. If desired boil down this solutio of acid ammonium phosphate until it will solidify on cooling. The portion insoluble in water is chiefly lime sulphate.

(9) J. M. H. asks: 1. Is there any difference in a troy ounce and anavoidupois ounce? A. The troy pound contains 5,760 grains, the avoirdupois pound 7,000 grains; the troy pound contains 12 ounces of 480 grains each, the avoirdupois pound 16 ounces of 4371/2 grains. 2. What is the lifting capacity of one cubic yard of hydrogen gas? A. A cubic yard of air at 60° Fah., weighs about 11 ounces (avoirdupois), a cubic yard of hydrogen about 34 ounce; the difference or 'lifting power" is therefore about 1014 ounces per cubic yard of gas. 3. Will hydrogen penetrate common tin, or waste if confined in such a vessel? A. Hydrogen will not penetrate tin or tinned iron.

(10) E. E. T. asks: 1. How can I take a gallon of silver solution and find out how much silver and cyanide it contains ' A. Draw off two half-ounce samples, and to one add gradually (in the open air to avoid inhaling the fumes) about two ounces of pure hydrochloric acid, shake together, heat to boiling, and let settle. Decant the liquid, throw the precipitate on a small filter, wash with hot water, cover and set aside in a warm, dark place to dry; when dry weigh on an accurate balance, and multiply the weight by 153.6-the esult is the weight of metallic silver (approximate) per gallon of solution examined. Evaporate the other half ounce to dryness, weigh, multiply by 192, and deduct the weight of silver found. The result (if the bath was plain silver potassium cvanide solution) will indicate the weight (approximately) of cyanide of potassium per gallon of solution. 2. Will the same rule work on a copper and gold solution? A. No. 3. What can I dip brass into to turn it black without destroying the surface of the metal? How do they get the deep yellow color so much worn on jewelry? A. Dip the article bright in nitric acid, rinse, and place it in the following solution until it turns black. one ounce each white arsenic and iron sulphate and twelve ounces of hydrochloric acid; rinse, dry in sawdust, and polish with black-lead or lacquer. See article on Electro-metallurgy, page 116 current volume.

(11) A. F. writes: My table gives size of drive pipe for No. 5 hydraulic ram, 2 mches; discharge pipe. 3/2 inch. My friend claims I cannot use a larger discharge pipe. 1 claim it makes no difference what size is used after leaving nozzle of ram, whether 34 inch or 36 inch, save that there would be less friction in using the larger pipe. Which is right? A. You are right. Strictly, the proper proportions depend upon the relative height from which the water is received and that at which it is delivered, but makers have satisfied themselves that for general use, the delivery pipe sbould be abouthalf the diameter of the receiving pipe, and so make them.

(12) R. Q. T. writes: 1. We desire to supply our town with water; have a reservoir about 150 feet above the town, 41/4 miles distant-area 100 acres, depth six hydrants in case of fire? A. 10 inches. 2. Towhat tity of cold water an ounce of fused nitrate of silver, the size of the mains to furnish water to a population and the mixture is heated in a leaden pan until it has Clutch Pulleys, Cut-off Coupling, see Frisbie's ad. p. 252. | and gradually add, with constant stirring, a strong aque- of 10,000? What would be the probable consumption lost its granular character. It is then diluted largely

for three months in the winter? A. Allow 35 gallo s per day for each inhabitant. The above are only approximate. If you wish accurate information you should employ a hydraulic engineer to survey, examine, and es timate.

(13) W. M. A. wants information in regard to preparing brimstone in a paste form. I am engaged in working what they call locust timber into wagon hubs, and I want something to fill up the cracks or checks in the timber. Brimstone is cheap and it is the same color and it becomes hard. A. Heat the sulphur in an iron pan over a moderate fire until it melts to a thin liquid; too much heat thickens it. Ou cooling the sulphur regains its former appearance and qualities. It can be used advantageously in the liquid form as a filler.

(14) J. C. A. asks: How may Lincrease the cold of an ice box? My experiments teach me if I apply salt to ice in open air the ice will melt. Now, if I should make an ice box, and confine the ice crushed with salt, mixed in tubes, would the salt have the same effect on the ice, or would it have the opposite tendency and save the ice? A. Other conditions being equal, saltwill liquefvice in a closed tube as quickly as in the open air. The volume of salt ice water resulting will not absorb a greater total quantity of heat than the ice from which it was produced, though the salt liquid will be sensibly much colderthan ice at first. Ice liquefied by salt in tubes will freeze water surrounding them, but the ice thus produced will be considerably less in quantity than the ice melted by salt to produce it. There is no way by which ice may be melted by chemical means without making the ice water unfit for potable purposes. See Tyndall's "Heat as a Mode of Motion."

(15) A. A. D. writes: In the SCIENTIFIC AMERICAN, of February 5, 1881, page 87, in article entitled "Filtration and Decolorization," by C. G. Pfander, London, occur the following sentences: "Three parts dried clay to four of blood, sometimes vegetable charcoal is added. The mixture is moulded into lumps, dried, mixed with equal bulk of granulated clay, and then carbonized in a retort." If blood is carbonized are not its peculiar cleansing qualities destroyed? I supposed the albumen of blood, coagulated by heat, formed a drag net or screen, which swept impurities to the surface of the liquid. Would not clay mixed with molasses and then carbonized answer as well as clay mixed with blood and then carbonized? It would obviate objections and difficulties. A. The product is similar in its action to the animal charcoal used extensively in sugar refiners' filters. It does not depend upon the action of albumen, but upon the decolorizing action of animal charcoal in a finely divided state. Blood or albumen clarifies by removing suspended impurities; charcoalchemically deprives of coloring matter, etc. Clay and molasses would not answer as well.

(16) A. G. asks for a recipe for a preparation known as Allen's crystals for the bichromate battery. A. To 31/6 oz. of finely powdered bichromate of potassium (or ammonium) gradually stir in 1 oz. cold sulphuric acid, and rub thoroughly together.

(17) J. C. asks for a deodorizer for benzine and the proportions. A. Agitate itviolently and repeatedly with about three per cent of sulphuric acid, let stand a few hours, draw off the clear portion, and slowly redistill, the vessel receiving the distillate being replaced by anotherfrom time to time. Select the contents of those receivers containing the portions freest from odor and discard the other portions

(18) H. F. B. asks: 1. How are the leather packings for hydraulic jacks pressed or formed to prevent fulling at the edges? A. The leather is well softened in water, and then pressed in cast iron formers and dried. 2. How can I straighten a long two-inch brass tube which is slightly bent? A. Draw the tube carefully on the hollow side.

(19) M. B. asks (1) how to braze steel wires without a blowpipe. A. This is sometimes done by placing the wires, properly charged with flux and silver solder, between two white hot blocks of cast iron. 2. Is there a composition of some kind of a hard solder which, if kept in a molten state in a crucible, we could put on, and in which we could dip the ends of such wires for a moment for the purpose of brazing them? The blow pipe takes out temper. A. Brazing cannot be done in the manner proposed, and it cannot be done in any way without destroying the temper. The blowpipe method of brazing or soldering small articles is the

(20) J. K. writes: 1. I have sunk a tube well to the depth of about forty feet through blue clay, on to what is termed hard pan, which seems very hard and unyielding, so that I can drive deeper only great difficulty. Now, how shall I proceed to drive clear through that hard pan, under which I expect to find plenty of water that will not be affected by drought? A. We think you should use a drill (inside the tube) to drill through the hard pan, before driving the tube. 2. How can I take the first muddy and sandy water from the tube? My pump will not work on account of mud and sand, which stop up the openings in the screen at the bottom, thus preventing the water from entering the tube, also works up into pump cylinder and locks the pump. A. Use a rough sand pump that will not clog 3. How can I tell when deep enough down and when to stop driving, so as to leave the screen or bottom of tube in the best bed or supply of water, and thus obtain the best well? There is water in the well now, but I cannot pump it on account of mud that accumulates on the point which adheres and sucks into the openings of the screen so close that the water cannot enter the tube, but is shut out so perfectly and complete that the suction of the pump is not sufficient to suck it through into the screen and pump. This is the main difficulty: is there no remedy ? A. We know of no way except by trial. You had better consult some one of experience in putting down drive wells.

(21) T. R. asks (1) how phosphorus is made 30 feet. What size of pipe will we need to supply, say, from white burnt bone. A. The ground bone ash is mixed into a cream with twice its weight of water and elevation can water be thrown? A. About 70 feet. a quantity of sulphuric acid (bone ash, 100; water, 200; depending upon length of hose. 3. What should be acid, 78 lb). In twenty-four hours more water is added,

with water and transferred to tall casks to settle. after which the clear liquid is drawn off, the residue washed with water, the clear washings added to the liquid, and the whole evaporated down in copper or leaden pans. The clear liquid is then drawn off from the calcareous deposit, the sediment drained on a filter, and the liquid evaporated to the consistence of honey and mixed with charcoal powder (9 lb. for 100 lb. bone ash). The mixture is then dried in iron pots and heated to incipient redness, cooled, and put into earthen retorts well luted and dried. Heat is applied around the sides of the retort in an air furnace. The beak of the retorts are connected with copper tubes which dip a quarter inch beneath the surface of lukewarm water, at the bottom of the vessel containing which the phosphorus which distills over collects. It is purified by squeezing it through chamois leather under water. While melted (under water) it is drawn up into glass tubes and transferred to cold water, where it solidifies and drops out of the tubes. These sticks must be kept under water. 2. What per cent of phosphorus do they contain? A

- (22) E. M. asks: Can you give me a good receipt for making manifold paper? A. Saturate fine unglazed paper with the following preparation. When dry it is ready for use: "allow, 2 oz.; graphite (blacklead) in finest powder, 1/2 oz.; linseed oil, 1/4 pint; lampblack, q. s. to make it of the consistence of cream; melt and rub well together in a mortar.
- (23) H. S. W. asks for the best method of cutting a double, triple, and quadruple thread. A. There is no difficulty in doing it on a screw-cutting lathe; you determine the pitch of the thread, and you can then divide the thread into two, three, or four parts by changing the position of the cutting tool.
- (24) N. B. P. asks: What will remove grape stains from a carpet? A. Wash out with warm soapsuds and a little ammonia water.
- (25) S. R. B. writes: A wart has been growing on the right side of my nose for several years, and is now about the size of a large shot. Can you inform me how to remove it without leaving a scar, and whether there would be any bad result afterward? Several friends have suggested means for its removal, but I prefer to hear from you. A. By the system of Dr. Barnes -the use of an ordinary burning glass-the excrescence could be removed, leaving as little of a scar probably as by any method.
- (26) H. D. P. writes: I have a piece of machinery which is almost constantly covered with a light rust: what can I apply to keep it off? A. Camphor, ½ oz.; dissolve in melted lard, 1 lb.; take off the scum and mix in as much fine blacklead (graphite) as will give it an iron color. Clean the machinery and smear with this mixture; after twenty-four hours rub clean with a soft linen cloth. It will keep clean for months under ordinary circumstances.
- (27) A. C. S. writes: I have a compound engine, small cylinder, 3 inches diameter by 6 inches stroke; large cylinder, 7 inches diameter. I wish to build a boat suitable for the engine. Please give me dimensions, also diameter and pitch of screw. A. About 16 feet long, and 3 feet 8 inches to 4 feet beam; screw about 18 inches diameter and 2 feet 9 inches pitch. 2. What should be the stroke of treadle for foot lathe, driving wheel, or large cone, 26 inches diameter? A. From 6 to 8 inches. The stroke should be adjustable to the ease of the person using it. What would be right for one would be too long or too short for another.
- (28) J. S. asks: 1. Which is the best gasoline gas machine in use? A. For this information see our advertising columns and Hints to Correspondents. 2. What is the best absorbent for gasoline? A. Infusorial silica is about the best thing. Sisal hemp is often used.
- (29) H. S. H. asks: 1. What pressure will a copper boiler, 1/4 thick, 2 feet long, 18 inches diameter; with 40 one-inch copper flues, depth of fire boxfromgrate to crown 8 inches, space between fire box and outside shell 34 inch, copper flanged head and flue sheet the same, copper rivets 1/4 inch diameter and double riveted both ways, or every seam and head to be double riveted. A. 35 lb., if all parts are equal in strength to the shell. 2. I would like to know whathorse power it would be, burning coke or hard coal? It is to be a vertical boiler. A. About 2 horse power. 3. What would be the power of two cylinders, 2 inches bore and 3 inches stroke, connected at right angles, running 300 revolutions per minute? A. With 80 lb. steam, 2 horse power. 4. What would be most durable, brass or iron cylinders? A. Cast iron.
- (30) R. B. F. writes: We are in search of a handy and rapid means of retaining a copy of short notes, telegrams, etc., without the aid of the copying press. The stylographic process seems to be about the thing, but the manner of using the carbon sheet in the veral ways we have been able to secure are un and not adopted to our wants. I want to try and improve the methods employed, and would like to know how to prepare the carbon sheets. The sample inclosed is good, durable, and furnishes a clear line free from smut, more like ink than the usual smutty sheets used produce. Can you explain the process in your paper of making the sheets? A. Try the following: Tannic acid, 10 parts (weight); pure sulphate of iron, 15; glycerine, 35; indigo sulphate paste (nearly neutral), 1; warm the glycerine, add the tannic acid, and rub together in a mortar to dissolve; powder the iron salt, divide into two portions, and calcine one by stirring it about on an iron plate over a fire until it becomes brown. Mix with the other portion, and gradually triturate into the glycerine; add in a similar manner the indigo, and rub all well together. Saturate thin unsized paper with this (adding more glycerine if too thick), hot. pass between a pair of smooth iron rolls under strong pressure, and hang up in the air for half an hour before packing for use. See answer to E. M, this page.
- (31) M. A. H. writes: I wish to put in a new boiler to runa 12x24 engine, to be run at 60 revolu-tions per munte. Am divided in opinion between these tions per minute. Am divided in opinion between these bollers, namely: a. A two flue (flues 15 inches diameter, 24 feet long. b. A Norton flue book and colds, G. H. Smith 239,562 Remedy for coughs and colds, G. H. Smith 239,564 Spinning machinery, W. C. Bramwell, Pyde Park, Y. Earthenware vesses, ear for, M. T. Geren 239,484 Riveting machine, hydraulic. T. Critchlow 2 9,454 Steam regulator, F. W. Eames, Water, two flue (flues 15 inches diameter, 24 feet long. b. A Norton flue blectric cable, W. W. Jacques 239,504 Rock and cold drilling machine, J. H. Ferguson Steam heating apparatus, T. A. Ritson, Buffalo, N. Electric condenser, D. W. De Forest 239,302, 239,324 Wire, manufacture of, H. Splidorf, New York city.

(fines 6 inches in diameter), 48 inches diameter, 16 feet Electric currents, regulating the generation of, long. c. A twenty-four flue (tubes 4 inches diameter). 46 inches diameter, 14 feet long (tubular). I am aware that these are not the same horse power, but either will answer, and I want your opinion on the following points: 1. Is there any difference in the durability under the same treatment in the boilers? A. The two-flue boiler will wear longest and is easiest cleaned. 2 Which will use the least fuel to produce the steam necessary for engine? A. Boiler with 4 inch tubes. 3 Which is the most likely to leak first, the tubular at end of tubes, or the flued to crack at end of flues? A. The tubular at the tube heads. 4. Which do you consider the best for economy of fuel, safety from explosion, and general use for the engine named? A. Eitheris safe from explosion under proper care, but the two-flued boiler is easiest managed.

MINERALS, ETC. - Specimens have been received from the following correspondents, and examined, with the results stated:

C. C. D.—The sulphur colored substance is pine pollen carried by the wind.—F. M. D.—Silica similar to your sample is used in the preparation of cements, glass, enamels, silicate of soda, and artificial stones. It is also used for polishing and scouring purposes, and also filtertering. See Hints to Correspondents.

COMMUNICATIONS RECEIVED.

On the Cheops Pyramid. By G. V. On the Propulsion of Ships. By J. G.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending

■March 29, 1881.

AND EACH BEARING THAT DATE.

Those marked (r) are reissued patents.]

A printed copy of the specification and drawing of any patent in the annexed list, also of any patent issued since 1866, will be furnished from this office for one dollar. In ordering please state the number and date of the patent desired and remit to Munn & Co., 37 Park Row, New York city. We also furnish copies of patents granted prior to 1866; but at increased cost, as the specifications not being printed, must be copied by hand.

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9 0 8 3 7 5	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 239 Ore washer, S. R. Ruckel 239	39,479 39,503 39,385 39,367 39,569 39,381 39,566 39,525 39,396 39,449 39,554	Truss, H. E. Garst. Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock. Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken. Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, 100, W. B. Romig (r) Wash board, C. Ernst.	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9.624 239,474
9 0 8 3 7 7 5 0	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 239 Ore washer, S. R. Ruckel 238 Organ, table reed, L. Mason 239	39,479 39,503 39,385 39,385 39,367 39,566 39,566 39,566 39,525 39,396 39,525 39,396 39,525 39,	Truss, H. E. Garst. Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock. Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken. Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, 1ron, W. B. Romig (r) Wash board, C. Ernst. Wash board, J. T. Foster.	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9.624 239,474 239,477
9 0 8 3 7 5 0 4	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 230 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 230 Oiler, A. McMullen 239 Oiler, Force feed crank pin, A. W. Morrell 230 Ore feeder, E. Coleman 239 Organ, table reed, I. Mason 233 Outlines, method of and apparatus for producing,	39,479 39,503 39,385 39,385 39,569 39,566 39,566 39,566 39,566 39,566 39,555 39,554 39,554 39,554 39,554 39,554 39,551	Truss, H. E. Garst	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9.624 239,474 239,477 289,318
9 0 8 3 7 7 5 0 4 1	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 238 Nut lock, J. F. Smith 239 Oiler, A. McMullen 230 Ore feeder, E. Coleman 239 Ore washer, S. R. Ruckel 239 Organ, table reed, L. Mason 239 Outlines, method of and apparatus for producing, A. C. Fenety 239	39,479 39,503 39,385 39,385 39,569 39,566 39,566 39,566 39,566 39,555 39,554 39,554 39,554 39,521 39,322	Truss, H. E. Garst Turret, armor clad. McLean & Coloney Valve, injector, J. T. Hancock Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard Vehicle spring, H. Timken Vehicle spring brace, G. W. Cooper Ventilator, L. J. Wing Wagon, ice, G. P. Bernd Wagon platform, non, W. B. Romig (r) Wash board, C. Ernst Wash board, J. T. Foster Washing machine, J. K. Dugdale Watch regulator, J. A. Jolmson	239,326 239,430 239,471 239,406 239,452 239,359 239,306 9.624 239,474 239,477 239,318 239,387
9 0 8 3 7 7 5 0 4 1 4	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore washer, S. R. Ruckel 239 Organ, table reed, L. Mason 239 Outlines, method of and apparatus for producing, A. C. Fenety A. C. Fenety 239 Oven, hot blast, P. L. Weimer 239	39,479 39,503 39,385 39,385 39,347 39,569 39,566 39,566 39,566 39,566 39,566 39,566 39,564 39,554 39,521 39,322 39,414	Truss, H. E. Garst. Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock. Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken. Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, 1701, W. B. Romig (r) Wash board, C. Ernst. Wash board, J. T. Foster. Washing machine, J. K. Dugdale. Water cooler for refrigerators. F. S. Gwyer.	239,326 239,336 239,450 239,571 239,406 239,452 239,359 239,306 9,624 239,477 239,477 239,318 239,387 239,387
90 837 7 50 4148	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 230 Ore washer, S. R. Ruckel 239 Organ, table reed, L. Mason 230 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oven, hot blast, P. L. Weimer 230 Oyster flost, D. G. Weems 239	39,479 39,503 39,385 39,385 39,347 39,569 39,566 39,566 39,566 39,566 39,566 39,566 39,564 39,554 39,521 39,322 39,414	Truss, H. E. Garst	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9,624 239,477 239,477 239,318 239,387 239,489 239,572
90 837 7 50 4148	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore washer, S. R. Ruckel 239 Organ, table reed, L. Mason 239 Outlines, method of and apparatus for producing, A. C. Fenety A. C. Fenety 239 Oven, hot blast, P. L. Weimer 239	39,479 39,503 39,385 39,385 39,347 39,569 39,566 39,566 39,566 39,566 39,566 39,566 39,564 39,554 39,521 39,322 39,414	Truss, H. E. Garst. Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock. Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken. Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, 1701, W. B. Romig (r) Wash board, C. Ernst. Wash board, J. T. Foster. Washing machine, J. K. Dugdale. Water cooler for refrigerators. F. S. Gwyer.	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9,624 239,477 239,477 239,318 239,387 239,489 239,572
90 837 7 50 41481	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 239 Nut lock, J. F. Smith 239 Oiler, A. McMullen 239 Oiler, force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 230 Ore washer, S. R. Ruckel 239 Organ, table reed, L. Mason 230 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oven, hot blast, P. L. Weimer 230 Oyster flost, D. G. Weems 239	39,479 39,503 39,385 39,385 39,387 39,569 39,566 39,566 39,525 39,396 39,521 39,521 39,522 39,414 39,592	Truss, H. E. Garst	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9,624 239,477 239,477 239,318 239,387 239,489 239,572
90 837 7 50 41481	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 230 Nut and die holder, E. Squires 230 Nut lock, J. J. Graham 230 Nut lock, J. F. Smith 230 Oiler, A. McMullen 230 Oiler, A. McMullen 230 Ore feeder, E. Coleman 230 Ore washer, S. R. Ruckel 230 Organ, table reed, L. Mason 230 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oven, hot blast, P. L. Weimer 230 Oyster flost, D. G. Weems 230 Packing for axle boxes and bearings, Riker & Dennis 230	39,479 39,503 39,385 39,385 39,387 39,569 39,566 39,525 39,525 39,525 39,521 39,521 39,322 39,414 39,592 39,549	Truss, H. E. Garst Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, non, W. B. Romig (r). Wash board, C. Ernst. Wash board, J. T. Foster Washing machine, J. K. Dugdale. Watch regulator, J. A. Jolmson Water cooler for refrigerators. F. S. Gwyer Water elevator, automatic, J. H. Taylor Water pipe, sheet metal, J. E. Leadley Waterproof fabric, W. H. Towers (r).	239,326 239,336 239,430 239,571 239,406 239,452 239,359 239,306 9.624 239,474 239,477 239,318 239,387 239,489 239,572 239,572 239,572
90 837 7 50 41481	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Nut shield, H. Selvage 239 Nut lock, J. J. Graham 239 Nut lock, J. J. Graham 239 Oiler, A. McMullen 239 Oiler, A. McMullen 230 Ore feeder, E. Coleman 230 Ore washer, S. R. Ruckel 239 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oven, hot blast, P. L. Weimer 230 Oyster flost, D. G. Weems 239 Packing for axle boxes and bearings, Riker & Dennis 239 Paper bag machine, W. C. Cross 239,455 to 239	39,479 39,503 39,385 39,385 39,385 39,366 39,566 39,566 39,526 39,526 39,521 39,322 39,414 39,592 39,459 39,549 39,5592 39,449 39,5592 39,459 39,5592 39,459 39,5592 39,549 39,5592 39,549 39,5592 39,549 39,459	Truss, H. E. Garst Turret, armor clad. McLean & Coloney. Valve, injector, J. T. Hancock. Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard. Vehicle spring, H. Timken. Vehicle spring brace, G. W. Cooper. Ventilator, L. J. Wing. Wagon, ice, G. P. Bernd. Wagon platform, 1701, W. B. Romig (r) Wash board, C. Ernst. Wash board, J. T. Foster. Washing machine, J. K. Dugdale Water regulator, J. A. Jolmson. Water elevator, automatic, J. H. Taylor. Water pipe, sheet metal, J. E. Leadley. Waterproof fabric, W. H. Towers (r). Watering stock in cars, J. R. McPherson.	239,326 239,336 239,450 239,452 239,456 239,452 239,359 239,306 9,624 239,477 239,318 239,387 239,572 239,572 239,572 239,572 239,528
90 837 7 50 41481 11	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 230 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 238 Nut lock, J. F. Smith 230 Oiler, A. McMullen 239 Oiler, Force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 239 Ore washer, S. R. Ruckel 230 Organ, table reed, L. Mason 230 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oyster float, D. G. Weems 230 Packing for axle boxes and bearings, Riker & 280 Dennis 239 Paper bag machine, W. C. Cross 239,455 to 239 Paper bag machine, L. Planche 230	39,479 39,503 39,385 39,385 39,387 39,566 39,566 39,525 39,566 39,525 39,521 39,521 39,521 39,522 39,544 39,592 39,544 39,592 39,544 39,592 39,543 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,592 39,544 39,545 39,544 39,	Truss, H. E. Garst	239,326 239,450 239,457 239,457 239,452 239,359 239,362 239,362 239,474 239,477 239,318 239,347 239,572 239,572 239,572 239,572 239,572 239,572 239,572
90 837 7 50 41481 113	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 239 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 238 Nut lock, J. F. Smith 239 Oiler, A. McMullen 230 Oiler, force feed crank pin, A. W. Morrell 239 Ore washer, S. B. Ruckel 239 Ore washer, S. B. Ruckel 239 Outlines, method of and apparatus for producing, A. C. Fenety 239 Oven, hot blast, P. L. Weimer 230 Oyster flost, D. G. Weems 239 Packing for axle boxes and bearings, Riker & Dennis 239 Paper bag machine, W. C. Cross 239,455 to 239 Paper bag machine, L. Planche 239 Paper-loox, slide, A. G. Wilson 239	39,479 99,503 99,569 99,549 99,549 99,549 99,549 99,549 99,549 99,549 99,549 99,549 99,549 99,543 99,543 99,544 99,592 99,549 99,543 99,	Truss, H. E. Garst Turret, armor clad. McLean & Coloney Valve, injector, J. T. Hancock Valve operating mechanism, W. R. Park. Vapor condenser and spirit cooler, Bevis & Cook. Vehicle brake apparatus, N. Talard Vehicle spring, H. Timken Vehicle spring brace, G. W. Cooper Ventilator, L. J. Wing Wagon, ice, G. P. Bernd Wagon platform, non, W. B. Romig (r) Wash board, C. Ernst Wash board, J. T. Foster Washing machine, J. K. Dugdale Water cooler for refrigerators. F. S. Gwyer Water elevator, automatic. J. H. Taylor Water pipe, sheet metal, J. E. Leadley Watering stock in cars, J. R. McPherson Wheelbarrow, C. W. Hunt Wig form holder, F. Drueke	239,326 239,450 239,450 239,452 239,359 239,362 239,362 239,364 239,477 239,318 239,387 239,489 239,572 239,514 9,628 239,330 239,468
90 837 7 50 41481 11	Mining machine, coal, Franstze, Johnsen, & Wall 239 Moth trap, R. F. Ivey. 239 Multiplication block, J. E. Irwin 239 Musical instrument, mechanical, W. H. Allen 239 Necktie shield, H. Selvage 230 Nut and die holder, E. Squires 239 Nut lock, J. J. Graham 238 Nut lock, J. F. Smith 230 Oiler, A. McMullen 239 Oiler, Force feed crank pin, A. W. Morrell 239 Ore feeder, E. Coleman 239 Ore washer, S. R. Ruckel 230 Organ, table reed, L. Mason 230 Outlines, method of and apparatus for producing, A. C. Fenety 230 Oyster float, D. G. Weems 230 Packing for axle boxes and bearings, Riker & 280 Dennis 239 Paper bag machine, W. C. Cross 239,455 to 239 Paper bag machine, L. Planche 230	39,479 39,503 39,347 39,569 39,381 39,566 39,525 39,525 39,525 39,525 39,525 39,525 39,521 39,521 39,521 39,521 39,521 39,521 39,521 39,521 39,521 39,521 39,541 39,541 39,543 39,	Truss, H. E. Garst	239,326 239,430 239,450 239,452 239,559 239,359 239,359 239,356 9,624 239,474 239,477 239,477 239,478 239,572 239,572 239,572 239,572 239,526 239,330 239,526 239,330 239,536

DESIGNS.

Wool washer, F. G. Sargent (r)...

Belt bag, P. W. Lambert	12,206
Carpet, C. Chambellan	
Carpet, A. L. Halliday12,199,	12,200
Carpet, Halliday & Neil	12,210
Carpet, H. Horan	12,202
Carpet, H. Hunt	12,203
Carpet, W. L. Jacobs	12,211
Lamp, F. G. Palmer	12,204
Scarf, neck, T. J. Flagg	12,197
Stove, cooking, G. W. Gill	12,198

English Patents Issued to Americans.

From March 25 to March 29, 1881, inclusive. Bottle stopper, N. Thompson, Brooklyn, N. Y. Carriage dashboard fastening, C. F. LittleJohn, New Haven, Conn. Cop tube, J. C. Vanlohe. Providence, R. I.

Furs, ornamenting. L. Havasy, New York city. Garments, reversible, S. Rosentbal, Baltimore, Md. Gas, manufacture of, C. F. Lawton et al.. Rochester. N. Y. Gas, preserving substances by, C. F. Lawton $et\ al.$, Rochester, N. Y.

Governor for steam engine, P. Jordan, Paterson, N. J. Guns, J. R. Haskell, Passaic. N. J. Hominy, treating, W. S. Boon *et al.*, St. Louis, Mo. Lock, Eagle Lock Company, Terryville, Conn. Oil burner, C. Holland, Chicago, Ill.

Paper stock, apparatus for cooking, H. Coker, West Point, Neb. Railway brake, J. Meissner et al.. New York city. Spinning machinery, W. C. Bramwell, Hyde Park, Mass. Steam regulator, F. W. Eames, Watertown, N. Y. Steam heating apparatus, T. A. Ritson, Buffalo, N. Y.