Business and Lersonal.

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.

Lubricene.—A Lubricating Material in the form of a Grease. One pound equal to two gallons of sperm oil. R.J. Chard, New York.

Elevators, Freight and Passenger, Shafting, Pulleys, and Hangers. L. S. Graves & Son, Rochester, N. Y.

Quick Speed Drill sent for \$2.50; with frame, \$3.50. Send stamp for circular. J.D. Foot, Box 2279, New York.

Wanted.—150 feet 21/4 or 21/2 inch rough or turned Shafting, new or second-hand. Address Smith & Chupp, Lithonia, Ga.

Telephones,-J.H.Bunnell, 112 Liberty St., New York Hearing Restored.—Great invention by one who was deaf for 20 years. Send stamp for particulars. Jno. Garmore, Lock Box 905, Covington, Ky.

Patent Table and Bedstead. Send stamp for circular. W K. Sawyer, Patentee, Three Oaks, Mich

Sheep's Gut Belting.-Makers will please address Wilson & Hendrie, Montague, Mich.

Bolt Forging Machine & Power Hammers a specialty. Send for circulars. Forsaith & Co., Manchester, N. H.

A Lee Moulding Machine, second-hand, but as good cutters that cost over \$150. I.N. Keyes, Worcester, Mass.

Catalogue of Scientific Books. Mailed free on applica tion. E. & F. N. Spon, 446 Broome St., New York

Wanted.-A good second-hand or new Bolt Heading Machine, with latest improvements. Address Frick & Co., Waynesboro, Franklin Co., Pa.

For the most durable and economical Paint for cars, roofs, bridges, iron, brick and wooden buildings, address Pittsburg Iron Paint Company, Pittsburg, Pa.

J. C. Hoadley, Consulting Engineer and Mechanical and Scientific Expert, Lawrence, Mass.

For Town and Village use, comb'd Hand Fire Engine & Hose Carriage, \$350. Forsaith & Co., Manchester, N. H.

Boilers ready for shipment, new and 2d hand. For a good boiler, send to Hilles & Jones, Wilmington, Del.

Foot Lathes, Fret Saws, 6c., 90 pp. E. Brown, Lowell, Ms. Sperm Oil, Pure. Wm. F. Nye, New Bedford, Mass. Power & Foot Presses, Ferracute Co., Bridgeton, N. J.

WaterWheels, increased power. O.J.Bollinger, York, Pa.

North's Lathe Dog. 347 N. 4th St., Philadelphia, Pa

Punching Presses, Drop Hammers, and Dies for work ing Metals, etc. The Stiles & Parker Press Co., Middle

All kinds of Saws will cut Smooth and True by filing them with our New Machine, price \$2.50. Illustrated Circular free. E. Roth & Bro., New Oxford, Pa.

Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing Metals. 2 of current volume. E. Lyon & Co., 470 Grand St., N. Y.

Cheap but Good. The "Roberts Engine," see cut | and 1928, Scientific American Supplement. Also horizontal and in this paper, June 1st, 1878. vertical engines and boilers. E. E. Roberts, 107 Liberty St., N. Y.

The Cameron Steam Pump mounted in Phosphor Bronze is an indestructible machine. See ad. back page. 1,000 2d hand machines for sale. Send stamp for de scriptive price list. Forsaith & Co., Manchester, N. H.

Presses, Dies, and Tools for working Sheet Metals, etc. Fruit and other Can Tools. Bliss & Williams, Brooklyn, N. Y., and Paris Exposition, 1878.

Manufacturers of Improved Goods who desire to build up a lucrative foreign trade, will do well to insert a well displayed advertisement in the SCIENTIFIC AMERICAN Export Edition. This paper has a very large foreign

Improved Wood-working Machinery made by Walker Bros., 73 and 75 Laurel St., Philadelphia, Pa.

Bound Volumes of the Scientific American. sell bound volumes 4, 10, 11, 12, 13, 16, 28, and 32, New Series. for \$1 each, to be sent by express. Address John Edwards, P. O. Box 773, New York.

For Solid Wrought Iron Beams, etc., see advertisement. Address Union Iron Mills, Pittsburgh, Pa., fo lithograph, etc.

The Scientific American Export Edition is published monthly, about the 15th of each month. Every number comprises most of the plates of the four prece ing weekly numbers of the SCIENTIFIC AMERICAN, with other appropriate contents, business announcements etc. It forms a large and splendid periodical of nearly one hundred quarto pages, each number illustrated with about one hundred engravings. It is a complete record of American progress in the arts.

We make steel castings from 1/4 to 10,000 lbs, weight 3 times as strong as cast iron, 12,000 Crank Shafts of this steel now running and proved superior to wrought iron. Circulars and price list free. Address Chester Steel Castings Co., Evelina St., Philadelphia, Pa.

Scroll Saws, Universal Wood-workers, etc., manufactured by Bentel, Margedant & Co., Hamilton, Ohio.

Mill Stone Dressing Diamonds. Simple, effective, and durable. J. Dickinson, 64 Nassau St., N. Y.

Machine Cut Brass Gear Wheels for Models, etc. (new list). Models, experimental work, and machine work generally. D.Gilbert & Son, 212 Chester St., Phila., Pa.

Holly System of Water Supply and Fire Protection for Cities and Villages. See advertisement in Scientific American of last week

Kreider, Campbell & Co., 1030 Germantown Ave., Phila., Pa., contractors for mills for all kinds of grinding.

The only Engine in the market attached to boiler having cold bearings. F.F.& A.B.Landis, Lancaster, Pa. if in error,

Self-feeding Upright Drilling Machine of superior construction; drills, holes from 1/2 to 1/2 inch diameter.
Pratt & Whitney Co., Manfrs., Hartford, Conn.

Solid Emery Vulcanite Wheels-The Solid Original Emery Wheel — other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, N. Y.

Hydraulic Cylinders, Wheels, and Pinions, Machinery Castings; all kinds; strong and durable; and easily worked. Tensile strength not less than 65,000 lbs. to square in. Pittsburgh Steel Casting Co., Pittsburgh, Pa The Turbine Wheel made by Risdon & Co., Mt. Holly,

N.J., gave the best results at Centennial tets For Shafts, Pulleys, or Hangers, call and see stock kept at 79 Liberty St. Wm. Sellers & Co.

Wm. Sellers & Co., Phila., have introduced Injector, worked by a single motion of a lever.

NEW BOOKS AND PUBLICATIONS.

OODWARD'S NATIONAL ARCHITECT. II. By George E. Woodward. Published by the American News Company. Price \$7.50.

This is another volume by an architect who has prepared a number of similar works, containing original designs, plans, and details on working scale for city and country houses. The designs are tasteful, and with the details extend over 100 large plates. There are several good plans for city houses; also of country villas, the last being quite handsome as well as moderate in as new, cost \$900, will be sold for \$500, including a lot of price. Works of this character are always useful to the profession for which they are intended, and not merely the architects but the public generally are indebted to Mr. Woodward for the establishment of better standards of taste than those which commonly prevail in our rural architecture. It is almost always as cheap to construct a house that is pleasing to the eye as one which is not so, the question of interior planning aside, and the showing of how to do this is not the least of the many good qualities of Mr. Woodward's work.

> CHEMISTRY, THEORETICAL AND PRACTICAL AS APPLIED TO THE ARTS AND MANUFACTURES. Illustrated. Philadelphia: J. B. Lippincott & Co. Parts 31 to 35.

These parts carry Messrs, Lippincott & Company's "New Encyclopedia of Chemistry" through opium, paper, perfumery, petroleum, phosphorus, Best Steam Pipe & Boiler Covering. P.Carey, Dayton, O. raphy, pigment, platinum, and potassium. Of the gen eral scope and character of the work mention has already been made.



- (1) H. C. B. asks: Is it dangerous to use ater from a cooler lined with zinc? Cistern water and ice, some say, in a cooler lined with zinc, is poison. A. See article on this subject, p. 369, vol. 36, Scientific AMERICAN.
- (2) F. & Co.—See reply to J. H. K. in No.
- (3) H. P. B. asks: I want to know how to Nickel Plating.—A white deposit guaranteed by using silver the inside of a glass globe. I wish to use crysour material. Condit, Hanson & Van Winkle, Newark, N.J. | tals of silver or nitrate of silver. A. See pp. 1670, 921,
 - (4) E. R. J. asks for a good recipe for a head wash or shampoo, something that is effective and not injurious to head or hair. A. You may use a rather dilute solution of good glycerin soap in alcohol, to which a little cologne water has been added. Wash it out with plenty of water, and rub the scalp with a clean and not too wiry brush.
 - (5) D. H. B. asks: What is about the average frequency of each letter of the alphabet in ordinary printing? A. Taking 110,000 letters, which gives round numbers for every letter, the alphabet is used in printing in the English language in the following proportions: a, 8,600; b, 1,600; c, 3,000; d, 4,400; e, 12,100; f, 4,500; g, 1,700, h, 6,400; i, 8,600; j, 400; k, 800; l, 4,300; m, 3,000; n, 8,000; o, 8,000; p, 1,700; q. 500; r, 6,200; s, 8,000; t, 9,000; u, 3,400; v, 1,200; w, 2,000; x, 400; y, 2,000; z, 200.
 - (6) G. C. writes: I wish to build a steam launch of ahout 50 feet in length. I wish to develop as much horse power as can be had in so small a launch, I do not care so much for convenience as I do for speed, I have the facilities for building the engines, and would undertake to build the hull (if advantageous for speed) of steel. A. We think you will get the information in the Scientific American Supplement, Nos. 14, 69, 75,
 - (7) I. B. C. asks how the most improved telephonic alarm is made. A. There are several in exconsist of a small magneto-electric machine and a call says; "Like poles neutralize each other's attraction for change in the cross sections at different points and if istence. We believe they are substantially alike. They
- (8) J. B. asks how to make a japan to use on paper or leather. A. Burnt umber, 8 ozs.; true asphaltum, 3 or 4 ozs.; boiled linseed oil, 1 gallon; grind the umber with a little of the oil, add it to the asphaltum, previously dissolved in a small quantity of the oil by heat, mix, add the remainder of the oil, boil, cool, Special Planers for Jointing and Surfacing, Band and and thin with a sufficient quantity of oil of turpentine. What is the simplest method of making an oven, 3% feet long, 3 feet wide, 3 feet deep, to get a regular heat of 180° Fah.? I have no steam. A. Make it like a common stove oven. Any sheet iron worker can make
 - (9) J. R. asks: What kind of revolver is approved by the United States for army and navy? Are the self cocking kind approved of? A. The self-cocking revolvers are not adopted as the standard in either branch of the service. We believe the Remingtonsingle barrel pistol is used almost exclusively in the navy, and that in the army, up to a late date, no positive recommendation had been made for the exclusive adoption of a single pistol. We shall be glad to receive corrections

- can recommend Bourne's "Catechism" and "Handbook of the Steam Engine," and Reed's "Engineer's Handbook."
- (11) G. W. asks whether it is necessary to procure a license for a small boat, 20 feet long, 8 feet beam, run by steam and intended for pleasure purposes entirely. If so, please give me the necessary instructions in order to secure one, and the price of same? A. Yes. Apply to the local inspector in your district.
- not show water at the gauge cocks unless we open the whistle valve, which is accompanied by a peculiar noise. Would you please tell us the cause? A. We judge that there is a vacuum in the boiler, the steam having condensed. It is well to prevent this by opening a valve. 2. What is the rule to get the pitch of propeller? A. Make it about 11/2 time the diameter. 3. vanized iron life boats? A. Insert a notice in the "Business and Personal" column
- (13) C. B. \mathbf{F}_{i} asks where to get a good caloric engine. A. Insert a notice in the "Business and Personal" column if what you want is not noticed in our advertising columns. We never recommend special machines in this department of the paper.
- (14) W. T. N. writes: Suppose it were necessary to make a man insensible for a short time, how long would it take to make him so by the use of chloro-inventor, yes. 2. Is it of a clear white color? A. We form to get him in that condition? A. If applied to believe not. 3. What is the formula for making it? A. the exclusion of air, ordinarily about three minutes, but this depends in a great measure upon the person's temperament and state of health. The administration of coloroform by inexperienced persons is a dangerous proceeding. See p. 395, SCIENTIFIO AMERICAN, and p. 105, vol. 36,
- (15) P. C. writes: I have a brass dial with oil painting on a portion of its surface. I now desire to silver plate the unpainted part only, and I wish to the painting that when it is dipped in the bath it tar, into suitable iron moulds, and subject it in the will not be affected? A. Paraffin applied warm will muffle to a heat gradually approaching low redness. doubtless answer the purpose.
- (16) W. A. writes, in vol. 39, p. 75, query No. 20, that he is running an 18 inch saw, and has trouble with boxes heating. I had same trouble, and windows thoroughly. A. Use a little fine whiting overcame it by using raw hide nicely fitted by cutting moistened with lime water, rinse with clean water, and out a portion of Babbitt, softening raw hide in water, putting mandrel in place, screwing down caps. Let remain until dry. Then a few drops of oil two or three times a day were sufficient. The pieces lasted eight months, and no more hot journals.-E. J. O.
- (17) A. L. K. asks: What are the uses of powdered charcoal when used on a large scale? A. As If so, how? A. Use gas tar, and after joining heat a non-conducting material for packing the walls of ice houses, etc., and the manufacture of gunpowder and fireworks; in metallurgy for deoxidizing and carbureting metals; to decolorize saccharine and other liquids; for the purification of potable water, etc., and the preservation of meat; in medicine, externally, as an antiseptic and disinfectant; internally sometimes in dyspepsia, diarrhea, dysentery, and heartburn. It is also used mixed with pitch, oil, etc., as a preservative paint, and for crayons, tooth powder, etc.
- (18) W. J. H. asks: Does the practice of whistling prove detrimental to the singing properties of the voice? A. We think not.

How can photograph proofs be made permanent, and how reproduce the glossy surface of a new photograph upon old ones? A. Soak them for a few minutes in a strong aqueous solution of sodium hyposulphite, rinse with clean water, and pass through three separate portions of water, containing about 1/2 of 1 per cent of sodium hypochlorite, allowing 3 or4 minutes for each immersion; then wash in clear water and dry.

use the cement recommended on p. 250, vol. 38, Scien-TIFIC AMERICAN.

Can you give me the best professional time for a 1 cloth, warm, and filter as before. mile walk? A. Wm. Perkins, of London, in 1874, walked 1 mile in 6 m. 23 sec.

Can you give mea recipe for making gold and silver ink used for writing? A. See recipes on pp. 11 (38), 250 (2) and (4), and 251 (60), vol. 38.

- (19) J. R. asks (1) how to braze brass together with a blowpipe? A. You will find directions for soldering in Scientific American Supplement No. 20. 2. How can I make a good shellac varnish to use on gun stocks? A. Dissolve gum shellac in alcohol. 3. Is a shaft of 10 feet in length as liable to twist as one hickory bow of same cross section throughout strung that is 20 feet long, both shafts to be of the same diam-, and ready for use. What is the curve formed by the
- (20) S. K. S. writes: "Natural Philosophy" unmagnetic iron." Then by way of explanation says: 'Immerse the positive poles of two magnets separately in iron filings. On withdrawing them, both will be covered with large tufts. Now bring them together, and the filings will immediately drop off from both. The result will be the same if the experiment be tried with the negative poles of two magnets." I have tried the experiment with a couple of bar magnets 4 x 1 x 1/4. Each would support a piece of iron $4 \times \frac{1}{4} \times \frac{1}{4}$, and not a particle would fall off. Then I tried it with small to the finely ground surface by means of a rotating nails, and only two or three would fall. The filings tool covered with pitch or with silk. were taken from common bar iron. What is the mat ter? A. The magnets should be of equal strength. We find no difficulty in performing an experiment successfully. Are you not mistaken as to the poles of your
- (21) H. writes: A. buys a farm for \$40,000 and sells it to B. for \$45,000. B. becoming tired of the farm sells it back to A. for \$35,000. How much does A. clear? A. Atthe end of the transaction A. has his farm and \$10,000.
- (22) J. V. B. asks: What are the proportions of silicate of soda and water to get a good solu- A. No.

(10) Young Engineer writes: I want to get | tion? A. It is requisite to boil the silicate with the waa book that will teach me all the principal points about ter for some time to effect complete solution. The an engine, and will assist me to get my license. A. We commercial silicate usually contains more or less free can recommend Bourne's "Catechism" and "Hand, silica, which is insoluble in water and of course remains as a residue after extracting the soluble glass. You may dissolve about 3 ozs. of the silicate in a pint of boiling water, taking care to replace fresh water for that lost by evaporation.

(23) D. M. asks: Has there been a lens or glass for a kind of spectacle that can be worn on the eye invented, which will enable one to see, on an ordidary dark night, in a closed room, the time of night on a clock face, or the features of another person ten feet (12) J. L. B. writes: 1. We have a steam from him, without the aid of artificial light-solar tubular boiler (locomotive type) which when cold will light being admitted through two ordinary windows, unshaded? A. As we understand you, no.

How can I distill on a small, cheap scale a strong quality of oil of vitriol (H2S2O7) for experimental purposes from sulphate of iron, the green vitriol ing no cost? A. Heat the ferrous sulphate until de-prived of the greater part of its water of crystallization; place it in a suitable earthenware retort, expose Could you give me the address of any firm selling gal- the retort to a strong red heat, and as soon as the acid begins to distill over, adapt and lute the beak of the retort to a capacious earthen receiver containing a very small quantity of water, or, better, of ordinary sulphuric acid. During the distillation the receiver must be kept cool in running water.

Can I get sufficient heat from a gas burner to fuse the copperas? A. No.

1. Can vegetable ivory, manufactured from India rubber and magnesia, be used for handles which require a nice polish? Also can it be carved? A. According to the inventor, yes. 2. Is it of a clear white color? A. We It has not been published.

What is the best saw blade for cutting steel and iron, and how can I temper a thin saw blade for that purpose? Stubs'; harden the blade in oil; temper by heating the blade until the oil blaze

(24) O. F. L. asks: Which is the best way to make gas carbon, and how to solidify, that is, make it into buttons? A. They may be cut from the dense plates of carbon used in galvanic batteries. Or press know if there is any method by which I can so protect the dust of gas carbon or coke, made adhesive by gas Then repeatedly saturate it with a thick sirup of gas tar and heat in the muffle as before. See pp. 187 (2) and 213 (2), vol. 37, Scientific American.

Pleasegive a good method of cleaning plate glass dry with soft, unsized paper.

- (25) H. M. A. asks: 1. Is there any telephone that can be heard several feet from diaphragm? A. Not distinctly. 2. If so, will a larger spool of wire help it any? A. No. 3. Can a broken piece of carbon 2½ inches by 1 inch and 8 inches long be glued together? slowly to low redness in a muffle.
- 1. What chemicals are used in a barometer? A. Pure mercury only is used. 2. Can one be made from a glass tube 8 inches long, sealed airtight? A. No. The tube must be at least 33 inches long.
- (26) J. H. writes: 1. By boiling peach seed kernels in distilled water to a strong solution, will it be a poisonous article? A. The crushed kernels of peaches when boiled with water yield a liquid distillate containing hydrocyanic (prussic) acid, which is extremely poisonous, and the wash or undistilled portion usually retains a trace of the substance. 2. Would it be safe to take inwardly? A. No.
- (27) J. B., Jr., asks how to manufacture a first class sewing machine oil, that will not gum. A. Youmay prepare a fine lubricant as follows: Digest olive oil for about 30 days with a quantity of clean lead turnings (sufficient to nearly fill the vessel); thenfilter the clear oil through 24 inches or more of clean (free from dust) granular charcoal. Or agitate good sperm How can gutta percha be best repaired? A. You can oil by injected steam for about half an hour, and after reducing its temperature to about 40° Fah., press the fluid portion through several thicknesses of fine linen
 - (28) E. C. D. asks if there is any truth in the popular superstition that splitting a crow's tongue will make it talk. A. No.
 - (29) C. J. C. writes: I hold horizontally between my two hands a small spring scale. I exert power enough with both hands to cause the scale to register 24 lbs. How much power do I exert with each hand? A. 24 lbs.
 - (30) E. A. H. writes: Suppose an ordinary outer edge? Is it a true circle? After the how has been distended by drawing the arrow, what is the curvethen? If neither of these curves is a circle, can a bow in the so, what change will affect it? A. It would be impossible to give a general answer to the above questions. since the curve will probably vary a little in the case of every bow, rendering it necessary to determine the curve experimentally for each example.
 - (31) C. W. C. asks how the extra fine finish is given to microscopic and telescopic lenses. A. Rouge or putty powder is applied in the form of paste
 - (32) C. J. B. would like to know how to etthe valves of double engine with slide valves scientifically, say a locomotive. A. You will find full information in Auchincloss' treatise on "Link and Valve Motions," also many rules in back numbers of the Sci-ENTIFIC AMERICAN. We could not treat the subject properly in the limited space afforded in these columns.
 - (33) A. G. W. asks: Is it an accepted theory by physiologists that each individual at birth is endowed with a certain amount of "life nower," vital force, which is or maybe expended, but never regained?

(34) J. H. H. W. asks: 1. What battery power is required to decompose the ferrocyanide in Bain's telegraph? A. A current of one Weber or less is sufficient. 2. Would more or less be required if starch paste and iodide of potassium were substituted? A. Less, if an excess of starch is not used, and the paper not too thick or dry. 3. Would it require less battery power if an induction coil (such as is used in medical batteries) were connected? A. No. 4. Would a common medical magneto-electric machine be strong enough for the same purpose? A Yes. 5. What is "sludge" acid? A. The name has been applied to the impure oil of vitriol from one of the operations in the purification of petroleum.

(35) J. A asks: Will the inhalation, 4 or 5 hours daily of vapor rising from a vat containing a solution of 1 part oxalic acid and 3 parts alkali, in 2,000 parts water at a temperature environing 160° Fah., prove injurious to the health of the operator? A. Probably more injury would result from the constant steaming than from anything the vapor may contain.

(36, G. K. asks: Can water be raised practically for irrigation by means of a siphon out of a well in which the water stands 30 feet below the surface and 3 or 4 feet deep, to irrigate a plain which is about 35 feet below the level of the water in the well, and which (the plain) is about 200 or 300 yards distant from the well? Will such a siphon, of 4 or 6 inches diameter, if the water holds out, flow continually? Can you give me the quantity of water which a siphon of 3, 4, 5, or 6 inches diameter would discharge per minute? A. We do not think you could secure very efficient action un der the conditions stated.

(37) W. B. asks: Is there a point that does not move in a revolving perfectly true shaft? A. All of the metal in a revolving shaft moves.

In filing a piece of softiron I noticed that the filings were magnetized. What caused them to become soft A. Files often become magnetic by use. The filings re ceive their magnetism from the file.

During the talk last year about the moons of the planet Mars, I noticed that they appeared very plainly in a mirror. But what caused my surprise was that they (the moons) kept the same position in regard to the mirror, not to the poles of the planet. Could you tell me the reason? A. The moons of Mars cannot be seen in an ordinary mirror. You simply saw the reflections of the planet on the two surfaces of the glass

(38) E. B. L. writes: I have a small boiler and engine called 2 horse power, and we use it at about 60 lbs. pressure. We have water coming to our cellars in a 1/2 inch enameled iron pipe, distance about 1,200 feet, with a fall of 150 feet. Have I got pressure enough in this pipe of water to force itself into my boiler while running? The water runs about 5 gallons a minute or a trifle over. A We doubt whether the pressure will be sufficient, but you can easily settle the question by connecting a gauge to the pipe.

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

R. McC.-Galena-lead sulphide. A valuable ore of lead.-8 L.-Pyrites-iron sulphide.-J. H. & J. F S -It is a bituminous lignite containing 5 to 6 per cent of ash. An excellent fuel.

COMMUNICATIONS RECEIVED.

The Editor of the Scientific American acknowledges with much pleasure the receipt of original papers and contributions on the following subjects:

A Suggestion to Railroad Companies. By H. M. Color Blindness. By J. B. B.

Vision. By A. Van B.

Time and Motion Model of the Globe. By W. H. T. E.

HINTS TO CORRESPONDENTS.

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.

Many of our correspondents make inquiries which cannot properly be answered in these columns. Such inquiries, if signed by initials only, are liable to be cast into the waste basket.

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.

[OFFICIAL.]

INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending June 11, 1878,

AND EACH BEARING THAT DATE.

Those marked (r) are reissued pat

A complete copy of any patent in the annexed list, including both the specifications and drawings, 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.

Alloy for making shot, T. W. Sparks 204,856

Amalgamating chloridized ores, J. O. Stewart 204,773	Planing timber, machine for, H. Atkinson 204 781
Animal trap, D. R. Nichols 204,753	Planter, cultivator, etc., Sarlls & Kelman 204,765
Animals, device for marking, Housum & Hill 204,736	Planter, seed, R. O. Bean
Axle tree washer, Aspinwall & Clark 204,700	Plants, distributing poison on, J. Goodheart 204,720
Bale tie, A. Jingels 204,787	Plow attachment, J. D. Munson
Bale tie, Rutherford & Hawkins 204,764	Plow, steam, J. Beard 201,790
Battery, counterpoise, B. Kennon	Pocket for garments, B. Greenebaum 204,723
Bee feeder, J. M. Shuck	Pole tip, vehicle, S. Maneer
Bee hive, J. E Morgan 204,678:	Pot lid, W. Geary 204,810
	Press for moulding plates, etc., G. Gardner 204.808
Bench hook, S. Smith	Press, hay, J. Price 204,757
Binder, temporary, Brower & Adams (r) 8,277	Presses, mat for oil, Lausten & Lawther 204,742
	Printer's quoin, H. A. Hempel
	Printing surfaces, metallic plate for, J. Brown 204,795
Boiler plates, inserting bolts in, N. S. Barritt 204,650	Railway switch, J. Briody 204,710
	Railway switch, E. H. Bronson 204,711

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1	Bookbinder's dry press, etc., J. W. Jones	
	Book holder, E. & E. R. Young & Hafely Boot legs, smoothing, etc., M. V. B. Ethridge	
l	Boots and shoes, making, C. C. Ballou204,785,	204,786
	Boots, etc. bat former, A. A. & R. B. Hawley Boxes, making wooden, R. M. Williamson	
i	Brake, automatic car, G. A. Neal Brick kiln, E. W. Bingham	
l	Brick machine, Z. Phlllips (r)	8,284
ļ	Brick machine, S. Shreffler, Jr Bridge, truss, J. M. McDonald (r)	204,688 8,280
	Bridle bit, J. A. Fairbanks (r) Brush bridle, C. Boeckh	8,278 204,652
l	Burglar alarm, Taylor & Johnson	204,861
l	Button, E. S. & J. E. Wheeler	204,866 204,706
	Can, jacketed, W. S. Dyer	204,718
	Car, refrigerator, M. Haughey	204,729
	Car seat and couch, N. B. Sherwood	
	Car, sleeping, A. M. Smith	204,855
	Carriage door, D. E. Gale	204,807 204,859
	Cartridge extractor, G. H. B. Hooper	204,670 204,834
	Chain, ornamental, H. A. Church	204,800
•	Chimney cowl, P. A. Dugan	
•		204,658 204,865
	Coffee mill. R. L. Webb	204,683
	Colors, methyl aniline violet, H. Caro	
!	Corn crib door, A. C. Holmes	204,733
į	Cotton gin and linter feeder, F. Streuby	204,690
	Cotton, grain, etc., cleaning, J. Fitts	204,805 204,849
	Curtain fixture, C. W. Stowe	204,858
	Dock, dry, J. E. Simpson	204.689
1	Drawers, H. Cohn	
	Dummy, adjuster, J. N. Lawrence	204,833
	Dye stuffs, ethyl rosaniline, H. Caro	204,796
i	Dye stuffs produced from naphthylamine, H.Caro Ejector for oil wells, T. B. Gunning	
	Elevators, hatch for street, P. Hinkle	204,821
1	Engine regulator, steam, C. C. Jenkins Evaporating pan, A. D. Martin	
	Eyelet making machine, Delkescamp & Bradley. Faucet, J. G. Schmidt	
	Feather renovator, B. Slater	204,769
	Feed water regulator, H. S. Maxim	
	Fence post, A. B. Smith	204,771
ļ	Fences, driving barbs into, C. P. Housum	
i	Filter, cooler, and water forcer, J. Gainey Firearm, breech-loading, J. McAlpine	204,675
į	Firearm, breech-loading, J. D. Slate	204,768
l	Fire extinguisher for lint rooms, Z. N. Morrell	204,840
	Fruit picker, McConnell & Dickerson	204.835
l	Gas burners, making, G. Bray	204,826
	Gear cutting machine, J. A. Peer	204,756
	Governor controlling machine, J. S. Wilson Governor, engine, C. C. Jenkins	
	Grader, road, M. Ammel	204,699
į	Grater, D. Block	204,791
ļ	Hame fastening, M. Calhoun	
1	Harrow, wheel, F. Bramer	204,793
	Heater, portable, G. L. Thorne	204,862
I	Heater regulator and damper, P. Schaefer Hinge, lock, D. T. Rundlet	
	Hog cholera compound, T. M. Wilson	204,694
	Horses, blinder for, B. Rice	204,844
	Hose clamp, S. C. Smith	204,770 204,719
	Hydraulic power apparatus, E. M. Butz	204,659
	Ingot mould, B. T. Babbitt	204,726
	Iron, case hardening, G. S. Roberts Ironing board, G. E. Palmer	
	Ironing machine, E. L. Wilson	204,777
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ļ	Knitting machines, narrower for, W. Aiken Lamp for lighthouses, self-lighting, J. Forrest	204,806
	Last block fastener, C. C. JohnsonLeather waterproofing compound, W. P. Jenney.	204.830
	Liquid forcing apparatus, J. Neil	204,680
١	Lock, hasp, T. V. Allis	204,779 204,717
	Lubricator, J. L. Knight	204,672
	Mangle, J. F. Baldwin	204,811
	Middlings separator, T. Newell	204,681 204,728
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	Nut machine, J. R. Blakeslee Oatmeal machine, S. Miles	204.837
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Rake, horse hay, J. H. Melick (r)	
Rivet setting machine, M. Bray (r),	8.276 204 899
Rope holder, J. Mizner	204,692
Sad iron polisher, E. G. Rowe	
Baddle, harness, F. Koch	
Sash balance, E Eberly	204,660
Bash fastener, J. Broughton	204,794
Sash holder, G. H. Earnest	
sash holder and lock, E. Tobin, Jr	
Saw gummer, G. Mercer	204,782
Saw mill, circular, H. Atkinson	204,697
Sawing machine, drag, D. Gates	204,809
Sawing machine, drag, Miller & Johnson	204,886
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Sewing machine, broom, L. Varicas	
Sewing machine, button hole, E. Moreau	
Sewing machine needle clamp, H. Barclay	
Sewing machine shuttle, G. W Hunter (r) Sewing machine table, M. Gritzner	
Sewing machine treadle attachment, C.B. Veronee	
Shackles, prisoner's, G. S. Hickox	
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spoke throating machine, G. R. Cramer	204,801
pool holder, E Rice	204,758
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furn table, C. A. Greenleaf	
Valve for engines, piston, R. W. Aitken	2 04,649
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