ENGINEERING INVENTIONS.

A snow plow has been patented by Mr. Thomas Y. Woolford, of Augusta, West Va. This invention covers an improvement in that class of plows having a revolving wheel in front, with peripheral cutters or scrapers that dig into the snow and remove it to either side, being mounted on a truck or car and propelled by a locomotive.

MISCELLANEOUS INVENTIONS.

A washing machine has been patented by Mr. Albert M. Wilson, of Greenleaf, Kansas. This invention covers a novel construction and combination of parts in a machine designed to work easily and quickly cleanse the clothes, while being simple, inexpensive, and durable.

A dish washer has been patented by Mr. William D. Miller, of Florence, Mass. It consists of a bundle of connected links or rings of wire attached to a suitable rigid handle, whereby the washer may be conveniently and effectively used without putting the hands in water.

A nut lock has been patented by Dr. Aaron C. Vaughan, of Shane's Crossing, Ohio. It consists of a relatively thin spring nut having both the body of the nut and its thread curved, by bending the nut after threading, to clamp the bolt by its own elasticity just outside of the regular nut.

A folding fire blower has been patented by Mr. James M. McMeen, of Danville, Ill. It is made of two series of plates pivoted to a central strip, and connected at their outer ends to side strips carrying fasteners for engaging the jambs of the fireplace, the device being readily folded to occupy but little space.

A hat stretcher has been patented by Mr. Gustav E. Schellman, of New York City. Combined with an oval shaped divided main band, and a screw for adjusting its sections in or out, are independently adjustable outer curved wings to conform to the exterior of the sections, to make a hat conform to special or peculiar shapes of the head.

A leader for scarf neck bands has been patented by Mr. Michael D. Levy, of New York City. It is for attachment to the free end of the band of the scarf, for drawing the extremity of the band through the scarf, and consists of a long narrow body, flattened at one end and with hooks at the other end, with keepers for the points of the hooks.

A trousers stretcher has been patented by Mr. George H. Coursen, of Baltimore, Md. Combined with a rectangular frame and a cross bar fitted to slide on its side pieces, are a stationary and a sliding clamp, with other novel features, designed to make a stretcher that is easily manipulated, inexpensive, and that will be all in one piece.

A tricycle has been patented by Mr. Patrick Gallagher, of New York City. It has a front guide wheel and rear driving wheels mounted on a light and strong iron framework, with a suitable seat, the machine being propelled by a crank handle mounted in arms pivoted to uprights on the frame and secured in position by adjusting bolts.

A guide for sewing machines has been patented by Mary E. Hunter, of Osborn, Ohio. This invention covers a novel construction of gauge plate, especially adapted for use in sewing straw braid, and which may be applied to any sewing machine, whereby the braid may be held easily to place, so it can be rapidly and accurately stitched.

A washing machine has been patented by Alois Mueller, of Neillsville, Wis. It is a wash boiler and washing machine combined in one, the invention covering various novel features of construction and combinations of parts designed to make a machine very easy upon the clothes treated, while strong, simple, and convenient.

The manufacture of fibers of wood for spinning purposes forms the subject of a patent issued to Mr. Alexander Mitscherlich, of Freiberg, Baden, Germany. The wood is first boiled in a chemical solution, as sulphurous acid or bisulphite, the fibers then dried and softened in water, and afterward subjected to repeated mechanical pinchings.

A detachable fire pan for stoves has been patented by Gertrude N. Howe, of New York City. It is adapted to be set in the top openings of stoves, ranges, etc., for building a fire only beneath the vessel to be heated, and thus avoiding the necessity of heating the whole stove, being of very simple and economical construction, and designed to be very convenient in use.

A foot rest for stools has been patented by Mr. Gustave La Barbe, of Roseland, Ill. It consists of a pair of clamps, an adjustable ear for varying the inclination of the foot rest support, and an arm hinged to the adjustable ear adapted to receive the board forming the support for the feet, which may be attached in any desired position, let down when not in use, or folded up out of the way.

A life buoy has been patented by Mr. Philip Hichborn, of the U. S. Navy, Washington, D. C. It is a float with torch attached, having a chamber for combustibles, and a breakable or detachable seal which normally closes the mouth of the chamber water tight, being held suspended at the side or stern of a vessel, to be instantly released and allowed to fall into the water when required for use.

A pump has been patented by Mr. Hiram J. Wells, of Nashville, Tenn. The cylinder has an air-valved outlet at its lower end, the cover having a valved tube or cylinder at its upper end, and the plunger having a tubular rod with a series of air inlets at its upper end and a valve at its lower end, the design being to purify and remove extraneous substances from the water as it is being pumped.

A door or other mat has been patented by Mr. Alanson Cary, of New York City. It consists of a series of connected corrugated parallel flexible strips set edgewise, with their convex portions facing the concave portions of the adjacent strips, making a mat designed to be largely self-cleaning, and presenting a scraper-like rubbing surface for removing mud and dirt from boots or shoes.

A gate has been patented by Mr. Urbian L. Shaw, of Westfield, Ind. It consists of a series of vertical strips or slats to which diagonal and parallel bars are pivoted in such manner that the gate may be opened by folding the parts up at one side, the construction being simple, while the gate will not be easily clogged by snow or ice, and cannot be readily raised by animals.

A wall heating system has been patented by Mr. John D. Parker, of Fort Riley, Kansas. A series of flues is formed in the walls, communicating with a furnace in the lower part of the building, so that the heat of the furnace may be communicated to the walls and thence through the building, there being grates in the apartments to regulate the temperature by supplying the remainder of the heat necessary.

A mustard package has been patented by Mr. William P. Crary, of Brooklyn, N. Y. It is preferably made of glass, with a lid fitted upon it, combined with a sheet of lead and a sheet of paper placed between the lead and the contents of the package, the package being sealed at the edge of the lid by a strip of paper or other material secured by an adhesive substance both to the lid and the body of the package.

An apparatus for stopping and starting vehicles has been patented by Messrs. John J. Hooker, of Tideswell, Stockport, Derby County, and Herman Lescher and Robert G. Schwarz, of London, England. It consists of a spring barrel sliding on one of the wheel axles, with friction clutch and other gear, whereby power may be stored on descending hills and in stopping, and given out to the axle for propelling the car in starting.

A wire fence building apparatus has been patented by Messrs. John A. Hooton and Gilbert L. Wiard, of Clifton, Neb. This invention is designed to provide an inexpensive spool rack and connected tension devices by which the wires may be held and fed in pairs to the twisting device, and maintained at uniform tension to assure proper weaving in of the pickets, accomplishing the work with economy of time and labor.

An apparatus for casting traps has been patented by Mr. William M. Smeaton, of Camden Town, Middlesex County, England. It has a sectional core consisting of two movable sections at approximately right angles to each other, two hinged sections carried by one of the movable sections, while there are loose sections on the latter, with other novel features, for casting a complete trap for water closets, etc., in one piece, without seam or joint.

A well digging apparatus has been patented by Mr. William Lowman, of Marionville, Pa. This invention covers an improvement on a former patented invention of the same inventor, in apparatus for digging wells for water, oil, or gas, which may be quickly set up and taken down, is easily folded and carried by a single wagon, and in which the leverage is such that one man can operate the drill to sink wells with advantage and facility.

A process for reducing ores has been patented by Messrs. Theodore Michaut, Pierre Connoy, and Frank J. Wiest, of Boulder City, Col. It consists in mixing the pulverized ores with a pulverized compound of stated proportions of feldspar, carbonate of lime, silica, carbonate of potassa, etc., and then subjecting the mixed mass to heat, the process being especially designed for desulphurizing auriferous pyrites and other sulphurous ores.

A right and left hand stop and waste faucet has been patented by Mr. William Briggs, of Brooklyn, N. Y. The faucet casing has two sets of pin-receiving apertures at right angles to each other in one end, surrounding the key bore, the key extending through such bore and having transverse projections on its projecting end, with other novel features, providing a means whereby one device may be made to serve as a right or left hand faucet.

A machine for puncturing sheet metal has been patented by Messrs. George F. Waelde and Herman G. Cery, of Brooklyn, N. Y. Combined with a table and reciprocating frame having a series of longitudinal slotted tool-carrying bars, are clamps sliding on the bars, and other novel features, making a simple and durable apparatus, especially adapted for puncturing the members of mouldings in sheets of iron or other metals.

A horse power has been patented by Mr. Allen Sampson, of Victoria, Texas. The machine has a tilting carriage, a lever fulcrumed on its frame being connected to the machinery to be driven, while weight boxes are held to the lever and travel on the carriage during its tilting movement, with mechanism for rocking the lever and thereby tilting the carriage, making a machine by or from which a cotton gin, grist mill, sawmill, etc., may be run.

A lamp wick has been patented by Mr. Adolfo S. Yanez, of Havana, Cuba. The wick tube has a supplemental open-ended mouth piece, to form longitudinally extending spaces between the tube and mouth piece, with spacing projections, and a granular filling is used on the top of the wick in the spaces, with other novel features, designed to produce a flame which will not easily become ragged or irregular from protracted burning, while the wick can be easily cared for.

A paper box has been patented by Messrs. John F. Diemer, of Elizabeth, N. J., and Paul E. Gonon, of New York City. It has a metallic bottom plate with side bends, metallic strips on its sides, a locking plate, and other novel features, making a box for filing folded papers, documents, etc., of which the parts can be conveniently shipped in folded condition, the invention being an improvement on a former patented invention of the same inventor.

A doubling winding machine has been patented by Mr. Alphonse Ryo, of Roubaix, Nord, France. Its construction is such that, by the oscillation of a vertically swinging frame or bracket, the axis of the yarn guides is raised and they are arrested at the same level by an adjustable stop bar, to throw their eyes well forward within reach of the attendant, to render easy the piecing up of the yarn, the invention also covering various novel features of constructionand the arrangement of parts.

A machine for cutting key seats has been patented by Mr. George Benson, of Durham, England. It is for cutting key seats in wheels or pulleys, and is a reciprocating cutter in a frame having a slotted bed plate with adjustable clamps, and other novel features, being adapted to hold the saw or cutter to its work and automatically relieve it in its up stroke, to accurately adjust for the depth of cut, and provide for holding wheels of different thickness and diameter.

A regenerative gas furnace has been patented by Mr. Gottfried Pietzka, of Witkowitz, Moravia, Austria-Hungary. It is designed for reverberatory furnaces used for smelting pig metal, reheating, puddling, etc., the gas generators being at one end of the furnace and the regenerators having reversing valves and being connected with the ends of the furnace, the waste gases being passed through the regenerators, after which air is passed through them in connection with the gases from the generators.

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.

Notes & Queries

HINTS TO CORRESPONDENTS.

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

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

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

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

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

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(1) G. W. C. asks: 1. When a filter is used between steam pumps and boilers, why is it generally put between the heater and the boiler instead of between pumps and heater? A. The filter is put between heater and boiler to catch the precipitated particles of lime salts set loose from solution by heat. In heaters holding a large body of water that is quiet, these particles of lime settle at the bottom or are lodged on plates or other materials placed in the

heater for that purpose. 2. What is the chemical reaction that causes the pulp of an apple to become reddish when cut open and exposed to the air? A. All fruit and vegetables, when cut, expose the juice and pulp to the oxidizing effect of the air. In some kinds of fruit (sweet apples for instance) the saccharine matter commences to combine with the oxygen of the air at the instant of cutting. 3. What is "setting one's teeth on edge"? A. This is a nervous condition caused by the contact of bitter or sour substances with the nerve tracks of the tongue and gums.

(2) B. G. W. asks: What substance would be best to nse to fill in the decayed part of a large tree to prevent rain from soaking in? A. Use any hydraulic cement and sand, equal parts, with a coat of tar on the surface.

(3) J. F. B. asks: A good receipt for polishing iron in tumbling barrels. A. Much care is required in assorting iron for tumble polish, to avoid wearing away corners and edges of small pieces by contact with heavy work. For smoothing and clearing of scale, use sharp sand in the tumbler, enough to cover the castings or pieces, and coarse or fine to suit the work. A second tumbler should be used for polishing if the work warrants it. Use in this scraps of leather or skivings, coarse sawdust, chips from a planing machine, etc., with charcoal, pulverized pumice, rouge or plumbago for various styles of polish or for different kinds of goods. It requires a few trials to find the right material for your requirement.

(4) G. G. G.—There is not enough difference in the cost of high or low pressure steam heating, where you require high pressure for power, to be worth the attention necessary for arranging and managing two steam systems in the same house. Calling 12 square [feet heating] surface in your boiler equal to one horse power, you will need 120 square feet radiating surface in ordinary rooms, which will heat 12,000 cubic feet of space, or in this proportion for various sized rooms.

(5) J. M.—There is no material for springs as good or durable as steel. Hard brass is the next best that is reasonably cheap. You can buy the hard rolled brass in sheets or strips through the brass trade. German silver hard-rolled makes a fair spring, but expensive. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 20, "How to Make Spiral Springs."

(6) H. J. K. asks: What power would an eight foot overshot water wheel afford, supplied from a spring that runs one gallon per minute? A. $\frac{1}{555}$ of a horse power.

(7) W. E. C. asks the proper temperature for the withdrawal of engraving tools from an oil tempering bath. The tools are intended for cutting silver, gold, German silver, etc. They come hard and have to be drawn. A. Such tools should be hardened by immersion in water or oil from a cherry red heat. The drawing of the temper in an oil bath is not reliable unless you insert a thermometer that has a scale running up to 500° Fah. You will require a temperature of about 450° for gravers. A far better way is to brighten the end of the graver on a water stone and heat in a spirit lamp until it turns a light brown color. Even this is not always an indication of hardness or toughness, as there is a great difference in the hardening process, due to quality of the steel, its hardening heat, and the kind of cooling bath.

(8) G. J. D. asks the best formula or process for coppering iron. A. Try 3 oz. sulphate copper and 1 oz. sulphuric acid to 1½ gallons clear water. The articles must be made perfectly clean by pickling in muriatic acid 1 part, water 3 parts, scrubbing bright or tumbling in sand. Dip in the copper bath for few seconds only, moving the articles about, and rinse in hot water with a little sal soda and dry quickly in sawdust. The cleaner the articles are made, the brighter the copper coating will be. Too long immersion makes the copper dull.

(9) C. C. J.—Native hematites, limonite, and magnetite iron ores are used in Pennsylvania in the manufacture of iron and steel. Other ores, the magnetites of New Jersey and Northern New York, the specular ore of Wisconsin, and the Spanish hematites are also largely used as mixtures for special grades of iron and steel. We cannot say from your description what the value of your ore would be. An analysis from fair average samples would indicate its use and value, but partially. We advise you to make fair sample lots, and submit to the steel works of Eastern Pennsylvania for trial.

(10) S. R. T. asks the approximate heating value, and the relative bulk, of a ton each of good soft bituminous coal, anthracite coal, and coke, for use in cook stoves, hot air furnaces, and grates. A. Both anthracite and bituminous coal vary in heating value, owing to varying amount of ash, so that a special comparison can only be made with coals of similar amounts of combustible to the pound. The best coals of either kind are nearly alike for given weights. The bituminous coals from different mines vary so much, and the method of firing is so variable, that the results of experimental tests do not agree, as for instance trials on the Baltimore & Ohio Railroad determined the evaporative effect of one ton Cumberland as equal to 1·25 tons anthracite. Other experiments make bituminous coal 13 per cent more effective than coke for equal weights. The average of a long series of experiments on U. S. naval vessels makes anthracite 41 per cent more effective than bituminous. For domestic purposes, as cooking and heating, the cleanliness, durability, and convenience of an anthracite fire set it far ahead of any other coals or coke.

(11) J. T.—The steam engine receives steam at 212° up to 400°, and discharges it from the exhaust or through the condenser at 100° to 180° F. This difference is the loss of heat you speak of. A pound of steam at 100 lb. pressure will expand to about seven times its volume in doing work. Its volume is 691 cubic inches. A pound of water always gives a pound of steam.

(12) T. D. McC. asks: 1. Why is it that a main line telegraph current, strong enough to give a very severe shock when broken, or to make a spark visible in broad daylight, will only just move the lever of a 20 ohm sounder which can be worked satisfactorily on one cell gravity battery? A. The shock is due to extra current developed on breaking a circuit which contains coils of wire. It is much more intense than the original current on the line. 2. What cement is unaffected by solution of blue vitriol? A. The majority of cements, such as sealing wax, are unaffected.

(13) J. L. P. asks: Would the slack from a coal mine be good as a fertilizer? A. It might be of use on a clay soil, but would act mechanically, and afford little or no real nutriment to plants.

(14) A. L. R. asks: Is there any rule for estimating the expansion of coal gas for each additional five or ten degrees of temperature? A. For each degree Fahrenheit rise in temperature, the gas expands $\frac{1}{491}$ part of its volume at 32°; as an approximation allow $\frac{1}{5}$ of one per cent for a degree.

(15) J. C. M. asks: 1. Is there any metal known to science that has more affinity for gold and silver than quicksilver? A. At ordinary temperatures, mercury is the only available metal for gold extraction. 2. Is there any way of increasing its affinity for the precious metals, more than it is when bought out of the stores? If so, what are they, and how are they prepared? A. A little sodium is often added to cause it to amalgamate better with "rusty" gold.

(16) H. D. Q. writes: 1. Am just completing the 8 light dynamo described in your paper and would be obliged to you if you will kindly give me advice on the following questions: 1. Are lamps to be a low or high resistance, and of what resistance? A. The resistance of the lamps is 50 ohms. 2. What size wire should be used to conduct the current from dynamo to lights 500 feet distant and return? A. No. 10 copper wire. 3. The manner in which the machine is wound and connected is called what? Series, parallel, or what? A. Series. 4. How are lamps to be connected? Is the inclosed sketch correct? A. In parallel, not in series, as you have shown them.

(17) J. M. E. asks how to construct a wigwam. A. The height and size should correspond with your want of accommodation. A rustic framework, using small trees and hoop poles for framing would be appropriate for a large or small wigwam. The rough side of the bark should be outside, all over. To make a knockdown wigwam, the framing should be lashed together with ropes or twine, and the bark tied to the rafters with twine. This can be done by boring holes through the bark and lapping the courses to cover the tying.

(18) R. H. S. asks a method of etching on steel that will leave the etching a gold bronze. A. The gilt inscriptions on cutlery are put on after the biting in, and before the etching wax is removed, by battery attachment in a gold solution. A superficial gilt lettering may be produced by printing the background of the design with gums that resist ether, and then dipping the article in an ether solution of gold, or dropping a small quantity of ether solution on the bright part with a camel's hair brush.

(19) E. A. G. asks if there is anything with which leather can be treated or soaked so it will not absorb or allow kerosene to pass through or penetrate it, as he desires to treat leather so as to use it as a valve against leakage from kerosene or gasoline. A. Use any soft leather that is entirely free from grease or oil. Saturate at a heat of about 150° with a mixture of 1 part by weight of good glue to 10 parts glycerine, the glue to be soaked in warm water until it swells and is soft like jelly, when the excess of water is poured off and the glycerine added, bringing the whole to a boil. Then cool it to 150°, and soak the leather thoroughly. Hang up until cold and cut the valves.

(20) C. M. D. asks if there is anything with which he can treat the inside of a new wood cistern, that will penetrate the wood and act as a preservative and at the same time not affect the water. A. Apply melted paraffine with a paint brush to the dry wood; moisture will prevent penetration.

(21) E. A. H. writes: The basement walls of my house have a coating of tar on the inside. What mixture of paint can I use that will dry thoroughly on the tar? Can I mix anything with cement that will cause it to adhere to the tar? A. A solution of shellac in alcohol may be used, and applied like paint over tar that is to be painted. Its high expense prevents the application of this on a large scale. Cement cannot be made to adhere.

(22) J. B. asks (1) whether it be possible to make a complete or partial magnetic screen. A. No. 2. Whether a soft iron sphere around the magnet, or a soft iron plate or hemisphere between the magnet and its armature, will answer? A. You merely replace the armature by the sphere. The armature will be less attracted, and the sphere will be strongly held in place.

(23) D. E. F. M. asks: What would be the chemical reaction, in burning of the solidified petroleum referred to in SCIENTIFIC AMERICAN September 1, page 131, col. 2? In what sort of apparatus could the heated mixture be safely prepared in a small way? A. The reactions would involve ordinary combustion of the hydrogen and carbon of the petroleum, and would be retarded by the solidified condition of the mixture. A glue pot would answer for experimenting with it. It should be heated with great care, best in the open air. If over a flame, a large pan of water should be kept directly under the flame. If over a range, it should be heated in a large pan of water.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

September 4, 1888,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

Air motor, compressed, O. W. Godkin 388,964
Annunciator, electric, Crockett & Allen 388,837
Annunciator, magnetic, W. Humans 388,876
Axle, wagon, Hotz & Conrad 388,975
Baling cord or yarn, machine for, S. Brown 389,054
Barrel blanks, cutter head for cutting or trimming gores of, J. W. Philp 389,006
Barrel filler, L. Miller 388,899
Batteries, switch mechanism for electric, C. E. Ongley 389,001
Battery. See Galvanic battery.
Battery plates, manufacture of secondary, J. O. Ellinger 388,960
Bearing, safe lock, Stapleton & Carmody 389,116
Bed, folding, G. A. Nelson 388,999
Bed, folding, P. L. Shepardson 389,018
Bell, electric, M. G. Crane 388,836
Bell, electro-magnetic, W. Humans 389,080
Belt, sprocket, J. B. St. Louis 389,173
Bench. See Gas retort bench.
Bicycle, T. O'Brien 388,906
Bicycles, shoe attachment for, H. M. Carter 388,949
Boat. See Torpedo boat.
Boiler. See Hot water boiler. Steam boiler. Wash boiler.
Bolt. See Flour bolt.
Bolt cutter, G. B. De Arment 388,957
Book holder, L. S. Hollidge 388,972
Boot or shoe, J. E. Crosby 388,838
Boot tree, G. H. Clark 388,831
Bottle stopper fastening, Gemunden & Gartner 388,854
Box. See Musical box.
Box fastener, C. & E. H. Morgan 388,992
Brick cleaning machine, J. H. Williams 388,939
Brick for transportation to market, preparing, J. C. Anderson 389,043
Brick setting, W. V. Cecil 388,827
Bridge bars, die for upsetting, F. H. Smith 389,115
Bridge gate, H. R. Karstens 389,086
Bridge gate, safety, Coddington & Popp 388,838
Buckle, suspender, C. A. Mann 388,892
Buildings from without, apparatus for the inspection of, E. A. Trapp 388,934
Buoy, life, P. Hichborn 388,971
Burner. See Hydrocarbon burner. Lamp burner. Oil burner.
Button, J. U. Adams 389,042
Button fasteners, implement for removing, H. S. Ginther 389,145
Buttonhole stitching machine, Reed & Beale 389,010
Calendar rolls, dampening device for, J. M. Shartle 388,921
Camera, G. Eastman 388,850
Candle holder, G. C. Masson-Chevallier 388,894
Car coupling, J. Carlson 388,948
Car coupling, J. Bound 388,815
Car coupling, J. Goettel 388,956
Car coupling, E. G. Ribault 389,107
Car coupling, J. T. Wilson 389,181
Car seat, reversible, W. Sutton 389,174
Car seat, supplemental, J. H. Young 389,041
Cars, drawhead for railway, J. J. Knight 388,882
Cars, ventilating railway, A. B. Harris 388,865
Carding machines, feed guide for, S. Bates 389,133
Cards, case for holding playing, G. W. Mintzer 389,093
Carpet stretcher, G. A. Hall 388,864
Carrier. See Cash and parcel carrier. Sheaf carrier.
Cart, road, J. W. Coombe 388,885
Case. See Clock case. Spool case.
Cash and parcel carrier, electrical, G. F. Green 388,859
Cash register and indicator, T. Carney 388,825
Casting traps, apparatus for, W. M. Smeaton 389,019
Cement, rubber, H. A. Clark 389,055, 389,056
Chair. See Convertible chair.
Check receiver, R. Mills 388,901
Chuck, drill, G. W. McIntyre 388,987
Cigar box catch, H. W. Heffener 388,868
Clamp. See Wire rope clamp.
Clasp. See Shoe clasp.
Cleaner. See Flue cleaner. Sink cleaner.
Clock case, alarm, D. B. Tiffany 389,120
Closet. See Dry closet.
Cock or faucet, E. A. Newman 389,097
Colors, production of new azo, H. Wolff 389,127
Convertible chair, J. Nichols 389,163
Copying press, T. B. Boyd 388,817
Cork extractor, L. M. Devore 388,844
Cork extractor, Linsley & Curtis 388,888
Corkscrew, W. N. Barrett 388,945
Corn cutting machine, G. H. Fetzer 389,066
Corset, L. Schiele 389,015
Corset, W. Young 389,130
Cotton scraper, chopper, and cultivator, J. C. McCandless 388,985
Coupling. See Car coupling.
Cranberry gathering machine, J. O. Shaw 389,114
Crimping machine, H. Donovan 388,845
Cultivator, J. W. Clark 388,832
Cultivator, J. W. & N. P. Lehr 389,088
Cultivator and plow, J. A. Elliott 388,853
Cultivator, corn, H. L. Pharris 388,912
Cultivator, wheel, E. P. Lynch 389,158
Curtain hanger, Dorrington & Fay 388,846
Cut-off for water service supply pipes, automatic thermo electric, E. A. Newman 389,096
Cutter. See Bolt cutter. Envelope cutter. Meat cutter. Shell cutter. Tart cutter.
Dampers, ratchet for stove, D. W. Roland 389,109
Derrick, O. Crosby 388,839
Desk, reading, A. J. Williford 389,038
Digger. See Potato digger.
Dish washer, W. D. Miller 388,990
Door and window screen and means for securing wire gauze in screen frames, E. Hipolito 388,870
Door catch, C. H. Roselius 389,110
Door or other mat, A. Cary 388,826
Doubling winding machine, A. Ryo 389,172
Draught apparatus vehicle, C. Dreher 388,847
Draw bars, making, J. T. Wilson 389,182
Drier. See Grain drier.
Drill grinding attachment, twist, F. Mossberg 389,095
Dry closet, E. C. Condit 388,951
Electric generators, commutator for, O. Zech 389,184
Electric machine, dynamo, A. L. Riker 389,011
Electric machine, magneto, W. Humans 388,877
Electric machine regulator, dynamo, A. G. Waterhouse 389,029
Electric machines, regulation of dynamo, A. G. Waterhouse 389,030
Electric signal, H. T. Hill 388,869
Elevator. See Water elevator.
Elevator signal, J. E. Riley 388,918
Emery wheel dresser, C. H. Douglas 388,864
Engine. See Hot air engine. Rotary engine.
Engine cross head, D. P. Whitesell 388,987
Engines, regulator for steam pumping, M. Greenwood 388,860
Envelope and stamp moistener, J. R. Porter 388,914
Envelope cutter, J. S. Holmes 388,872
Evaporating and condensing liquids, apparatus for, J. J. Hayes 389,075
Evaporating apparatus, W. Marr 389,160
Excavator, R. R. Osgood 388,910
Excelsior, apparatus for the manufacture of, D. T. H. MacKinnon 388,890
Expansion joint, Pratt & Wainwright 388,915
Extractor. See Cork extractor. Tree extractor.
Fabrics, machine for uniting looped, W. Beattie 389,134
Fastening device, automatic, E. Wilkinson 389,037
Feed water heater, Pratt & Wainwright 388,916
Feed water regulator, Cook & Thoens (r) 10,957
Fence, D. Boyd 388,816
Fence building apparatus, wire, Hooton & Wiard 388,974
Fence machine, J. M. Wright 389,129
Fencing, making barbed, E. Jordan 389,154
Filter, J. P. Gruber 388,863
Firearm, breech-loading, E. Whitney 389,036
Fire escape, C. J. Clark 388,829
Fire sprinkler, automatic, W. Neracher 388,905
Fish line reel, C. F. Gillet 389,070
Flask. See Moulder's flask.
Flour bolt, H. J. Gilbert 388,855
Flour mixing and sifting machine, C. Roehl 389,165
Flue cleaner, L. Duennisch 388,848
Flue stopper and collar, J. I. Flanagen 388,961
Fork. See Hay turning fork.
Freight record, M. M. Kirkman 388,881
Furnace. See Gas furnace.
Galvanic battery, A. K. Eaton 389,140
Garment stay, Wheeler & MacQuesten 388,936
Gas, apparatus for manufacturing, H. C. Rew 389,103
Gas, apparatus for manufacturing water, G. S. Dwight 388,849
Gas, apparatus for the manufacture of, H. C. Rew 389,104, 389,105
Gas furnace, regenerative, G. Pietzka 389,009
Gas lighter and extinguisher, electrical, G. L. Hogan 389,151
Gas, making, H. C. Rew 389,106
Gas retort bench, A. Coze 388,953
Gas scrubber, W. Morava 388,903
Gate. See Bridge gate.
Gate, J. Good 388,857
Gate, U. L. Shaw 389,017
Generator. See Steam generator.
Gilding, etc., adhesive powder for, M. J. Masters 388,984
Goods from shelves, device for lifting, J. H. Jeffrey 388,978
Grain drier, J. Black 389,048
Grain separator, J. L. Owens 389,002
Grinding chisels and other tools, machine for, H. J. Gosling 388,966
Grinding mill, W. D. Gray 388,968
Grinding mill, roller, W. D. Gray 388,967
Grindstones, tool holder for, J. M. Dillon 388,958
Hand rest, M. L. Brown 389,053
Hanger. See Curtain hanger.
Harrow, A. C. Downey 389,138
Harrow, spring tooth, Babcock & Baird 389,044
Harvester, corn, R. L. Pearson 389,004
Harvester, low level self-binding, Pitkin & Steward 388,913
Harvester, self-binding, G. H. Spaulding 389,022
Harvesting machine, corn, J. A. Stone 389,117
Hat bodies, coating, plaiting, and napping, G. Atherton 389,131
Hat stretcher, G. E. Schellman 389,014
Hay turning fork, Frech & Missel 389,069
Heater. See Feed water heater.
Heating apparatus, mural, J. D. Parker 389,003
Heel machine, A. J. Langelier 388,884
Heel nailing machine, Horne & Henderson 389,077
Hoisting gear, D. L. Brown 389,052
Hoisting tackle lock, A. M. Kerr 389,155
Holdback, vehicle, I. C. Burgett 389,049
Holder. See Book holder. Candleholder. Mucilage holder. Ticket holder.
Horse detacher, J. K. P. Timmons 388,931
Hose thimble for the walls of buildings, L. F. Stevens 389,025
Hot air engine, J. L. Bair 389,045
Hot water boiler, E. S. Manny 388,893
Hub, vehicle, T. O'Brien 389,101
Hydrant, A. J. Tyler 389,176
Hydrocarbon burner, S. McMurry 388,988
Ice cream freezer, C. Spornhauer 388,925
Indicator. See Load indicator. Shoal water indicator. Station indicator. Street and station indicator.
Joint. See Expansion joint. Metal joint.
Joint for tubular framework, D. Wiggins 389,120
Journal boxes, apparatus for lining, G. W. Topham 388,933
Key seats, machine for cutting, G. Benson 388,946
Knife. See Planing machine knife. Table knife.
Lamp burner, Argand, P. J. Foulon 389,063
Lamp fixture, extension, E. H. Peck 389,005
Lantern, H. L. Jewell 389,083, 389,084
Last, G. H. Clark 388,830
Lathe carriages, front apron for, J. R. Back 388,808
Lathe for turning articles of an irregular contour, copying, T. Millett, Jr 388,900
Lathe spindles, anti-friction adjustable bearing for, J. Stark 388,927
Lathes, automatic setting mechanism for spoke, P. Lesh 389,157
Lathes, tool rest for hand, E. Rivett 389,012
Lathing, machine for making sheet metal, E. Hawes 388,866
Lathing, metallic, B. Scarles 388,919, 388,920
Life-boat deck seat, G. Hughes 388,875
Load indicator, vehicle, J. Howard 388,874
Lock. See Hoisting tackle lock. Nut lock. Seal lock.
Loom picker staffs, loop for, Cote & Charland 389,060
Mat. See Door or other mat.
Measuring tank, automatic, S. L. Baker 389,132
Meat cutter, T. Williams, Jr 388,940
Metal joint for hangers, etc., J. B. Wallace 389,023
Metal rods, machine for reducing, H. A. Williams 388,938
Metal tube, J. Callan 388,824
Metal tube, H. W. Hayden 388,867
Middlings purifying machine, H. J. Livergood 389,081
Mill. See Grinding mill. Sawmill.
Moulder's flask, H. H. Huntley 389,153
Money received, apparatus and till for recording and registering the amount of, A. J. Lyon 389,159
Motor. See Air motor.