ENGINEERING INVENTIONS.

A car coupling has been patented by Mr. Francis M. Rariden, of Waynetown, Ind. The drawhead is provided with a coupling hook and link adjuster, combined with a sliding horizontal shaft having a cross pin and loose notched collar, with other novel features, the coupling being effected without the necessity of the trainmen going between the cars.

A crosshead for steam engines has been patented by Mr. Frank Robb, of St. John's, Mich. It has on each side a bearing made in two parts, one being rigid on the crosshead and the other dovetailed and sliding on the rigid part, with set screws for adjusting the sliding part, being simple in construction and easily adjusted to take up wear on the ways.

An improvement in railway construction has been patented by Mr. Robert P. Faddis, of Socorro, Territory of New Mexico. The invention consists principally in a metallic tie having its ends split longitudinally, one portion being turned up to engage the rail and the other portion adapted for engagement with the stringers by means of stirrups.

A boiler has been patented by Mr. Joseph Leightham, of Reading, Pa. It is especially adapted for rolling mills and similar shops, the invention having for its object to protect the boiler over the neck of the furnace, to increase the heating surface, utilize the products of combustion most efficiently, and introduce heated water to the boiler.

A stake and socket for flat cars has been patented by Mr. Thomas J. Vaughan, of Shawano, Wis. This combined socket and stake is more especially adapted for use on cars employed in the transportation of logs, and provides for the stake being normally held upright, while in unloading it may be conveniently and expeditiously swung downward out of the way.

A switch operating attachment has been patented by Messrs. James P. Tryner and Charles E. Glessner, of Denver, Col. It consists of a bar, with means for moving it transversely to the track, the bar having shoes adapted to engage a projection from the switch tongue, whereby the driver or engineer on a car or locomotive may throw the switch tongue as desired.

An elevated framework and support for electric wires and street railways has been patented by Mr. Linus W. Brown, of New Orleans, La. It has iron cross beams or girders supported by upright iron posts, the latter resting on suitable foundations in the street, the structure to serve as a means whereby street cars may be moved by traction, without putting down surface rails, and to carry any number of electric wires.

AGRICULTURAL INVENTIONS.

A pruning implement has been patented by Mr. Francis A. Hall, of Ennis, Texas. It has a staff or pole which may be made in sections, with jaws which may be operated by sliding a handle up and down on the pole, making a simple and convenient device for pruning trees, shrubbery, etc.

A fruit gatherer has likewise been patented by the same inventor. The pole or staff is similar to that used in the pruner, and there is an attachment for receiving the fruit, consisting of a canvas tube, a metal frame, and an adjustable sleeve.

A rotary harrow has been patented by Mr. Thomas C. Cook, of Rushville, Ind. This invention covers a simple and economical construction which may be conveniently converted from a harrow into a cart, or *vice versa*, the harrow being readily moved from place to place, or used to carry a load to and from the field.

A cultivator has been patented by Mr. Samuel B. Cunningham, of Iuka, Ark. It has a regulator wheel which may be adjusted to determine the depth to which the ploweshare shall cut, and also laterally to serve as a fender, to prevent the crop being covered up by the earth thrown up, being especially designed for use in cultivating young crops.

MISCELLANEOUS INVENTIONS.

A wash stand has been patented by Messrs. Gayger D. Tolman and Lorenzo D. Roberts, of Shawano, Wis. It is a bracket stand adapted to be secured to a wall or similar support, having a folding wash bowl supporting frame and folding pitcher shelf, all adapted to fold up together.

An ironing machine has been patented by Mr. Jean L. Mazoyer, of New York City. The invention covers a novel construction and combination of parts in machines where a heated polishing cylinder moves upon the articles to be ironed while they are held in position upon a bed or table.

A sash fastener has been patented by Mr. Ezra S. Hubbard, of Belmond, Iowa. It consists of a piece of spring wire bent to form a coil and arms, and pivoted on a screw in a recess cut in the face of the sash, by which the sash may be locked when closed or held in any position to which it may be raised.

An ice cream freezer has been patented by Mr. Henson C. Condon, of Rochester, Ind. It consists of a can with a shaft having radial arms upon its opposite sides, one set of radial arms bearing a freely revolving dasher pivoted on an axis parallel with the shaft, and the other set of radial arms bearing a scraper.

A can opener has been patented by Mr. David H. King, of New York City. This invention provides a simple construction of can opener and stove pipe cutter, affording a secure rest for the thumb of the operator, and the easy puncturing of the can or pipe for the insertion of the member having the cutting edge.

A respirator has been patented by Mr. Joseph C. Locke, of An Sable Chasm, N. Y. It consists of tapering tubular perforated shells, to conform to the shape of the user's mouth, and filled with fibrous air-filtering material, in combination with fastening devices whereby it may be easily and securely applied and readily removed, to secure protection for both the nose and mouth.

A safety device for music boxes has been patented by Mr. Gustave J. Jaccard, of New York City. It consists of a shaft to which is pivoted a pin, a coiled spring for holding the fan closed, with stops for the fan to strike, the device to be applied to the spring barrel of a music box, and to be caused to act by air pressure.

A cigar box trimming machine has been patented by Mr. Henry Leiman, of Brooklyn, N. Y. Combined with a bed having spaced cutters, is another bed having cutters projecting through its bottom, abrading rollers, and other novel features, whereby the box, when nailed together, may be placed in the machine and the edges automatically trimmed and finished.

A permutation lock has been patented by Mr. Charles Hill, of Los Angeles, Cal. This invention covers a novel construction and combination of parts in a safe lock in which all danger is obviated of turning on the full combination by any one who meddles with the knob, as the knob is wholly disconnected from the tumblers of the lock, with various other novel features.

A bake pan has been patented by Bettie H. Bicknell, of London, Tenn. This invention embraces an improved cover consisting of an inverted pan and an outer band or box united at its lower end to the inverted pan, forming an intermediate water chamber or receptacle, to avoid the necessity of boiling meats or fowls before baking, and better retaining their juices and flavors.

NEW BOOKS AND PUBLICATIONS.

AMERICAN COLLEGE MANUAL. By C. Powell Karr. New York: W. T. Comstock. Price 25 cents.

This is a pamphlet giving information about 74 of the leading colleges and universities of the United States and Canada, the courses of study, professors, requirements of admission, text books used, etc.

DESIGNS FOR SCHOOL HOUSES. Published by the Department of Public Instruction of the State of New York, Albany, N. Y.

This book contains nineteen different designs for school houses, with plans and specifications, and papers on school house grounds, ventilation, outbuildings, blackboards, school desks, etc. The designs are those accepted in a prize competition authorized by the legislature, with the view of increasing the proportion of attractive and comfortable low-priced school houses in the State, especially in the country districts. The State Superintendent of Public Instruction, A. S. Draper, under whose supervision the work is published, has endeavored to show to country school trustees, and others having such work in charge, just how to do a good thing in the way of providing neat and wholesome buildings for public school purposes.

GREAT EARTHQUAKES: THEIR HISTORY, PHENOMENA AND CAUSES. By Wirt Arland (A. S. Hooker). New York: W. Carlton Regand. 1887. Pp. xxxii, 600. Price $1.50.

This work describes, in popular form, a number of the great earthquakes of the world. The famous Peruvian earthquake at Arica, in which the United States steamer Wateree was carried ashore by the tidal wave, is first described, and then, beginning with the marine records of South America, the history is brought down to the present day and to more familiar regions. The records of 1638 in New England, those of 1811 in the Mississippi valley, and those of Great Britain all receive due attention. In this way the whole world is traversed until the recent disaster of Charleston is reached. To this a number of chapters are devoted, describing in great detail all the features of the occurrence. The last six chapters are devoted to the causes of earthquakes, protection of life, volcanic action, external influences, and earth movements in general.

STEAM BOILERS: A PRACTICAL TREATISE ON BOILER CONSTRUCTION AND EXAMINATION. For the use of practical boiler makers, boiler users, and inspectors, and embracing in plain figures all the calculations necessary in designing and classifying steam boilers. By Joshua Rose, M.E., author of "Modern Steam Engines," "The Complete Practical Machinist," "Mechanical Drawing," "The Slide Valve." Illustrated by 73 engravings. Philadelphia: Henry Carey Baird & Co., industrial publishers, booksellers, and importers, 810 Walnut Street. London: Sampson Low, Marston, Searle & Rivington, Limited, St. Dunstan's House, Fetter Lane, Fleet Street, E. C. 1888. Pp. xvi, 250. Price $2.50.

This work by the eminent engineer is devoted to the practical art of boiler construction. It is adapted for use by the actual constructor, as the cylindrical shell of a circular boiler, its strength, reduction of strength by riveted seams, and the spacing of rivets and all points connected therewith are treated. The strength of riveted joints is next considered, and next the method of calculating working pressures for boiler shells. Leaving the realm of calculation, attention is now given to experiments on the strength of riveted joints, of stayed flat surfaces, and furnace sheets. The calculations for a modern high pressure marine boiler are then given, followed by a draught of a specification for the same. Stationary and locomotive boilers are treated, the rules of the British Board of Trade and of the United States government for the inspection of steam boilers are given in detail, and the final section is devoted to useful tables. The very practical nature of the book, its classified contents, and very full index make it a work of standard value, and one which will always be in demand by the steam constructor. It is illustrated with upward of seventy cuts.

THE AMERICAN STEAM ENGINEER, THEORETICAL AND PRACTICAL. With examples of the latest and most approved American practice in the design and construction of steam engines and boilers of every description. For the use of engineers, machinists, boiler makers, and students. By Emory Edwards, M.E. Illustrated by seventy-seven engravings. Philadelphia: Henry Carey Baird & Co., industrial publishers, booksellers and importers, No. 810 Walnut Street. London: Sampson Low, Marston, Searle & Rivington, Limited, St. Dunstan's House, Fetter Lane, Fleet St. 1888. Pp. xxi, 419. Price $2.50.

Boiler construction, the theory of the steam engine, economy in combustion of fuel, are all treated of in this work. In the details of engineering practice the proportions of slide valves and ports, valve motions, slide valve setting, and the general proportions of engines and boilers are carefully considered. The United States regulations for steam boilers are given, and rules for calculating the sizes of compound engine cylinders for given horse power and logarithmic methods for finding the mean steam pressure follow. Special forms of engines are then considered, such as the Trenton steam engine, the improved Corliss engine, the Green automatic cut-off engine, and agricultural engines. Steam yachts and launches receive due attention, and in the appendix practical directions for boiler felting, counteracting foaming in boilers, polishing metals, belting, etc., are given in detail. The 77 engravings illustrate excellently the topics of the text, and a very full index completes the work.

GRASSES OF NORTH AMERICA, FOR FARMERS AND STUDENTS. By W. J. Beal, M.A., M.Sc., Ph.D. Published and copyrighted by the author. P. O. Agricultural College, Mich. 1887. Lansing. Pp. xiii, 457. Price $2.50.

In this work the subject of grasses is elaborately treated. The structure, form, and development of the family are described, and then a chapter follows which is devoted to the much discussed subject of the power of motion in plants. After some chapters on plant growth and methods of classifying, collecting, and studying grasses, the subjects of lands for grazing and grasses for cultivation are treated at considerable length. Over thirty varieties of grasses are described in detail. Early attempts to cultivate grasses, methods of testing seeds, preparation of the soil, the care of grass lands when once under cultivation, how to make hay, improvement of present grasses and the search for better ones, are the subjects next spoken of. Departing from the strict subject of the work, the pulse family, including the clover, the vetch, and other leguminosæ, are spoken of in a special chapter. Then the enemies of grasses and clovers, including animals and insects, are given a chapter, while a final chapter is de-

voted to the fungi of forage plants. Several pages are devoted to the bibliography of the subject, 175 cuts are contained in the text, while an adequate index terminates the work.

ECLECTIC PHYSICAL GEOGRAPHY. By Russell Hinman. Cincinnati and New York: Van Antwerp, Bragg & Co. Pp. vi, 382. Price $1.

The general subjects of physical geography, the earth, the atmosphere, the sea, the land, weather and climate, the various forms of life and its distribution, are well treated in this little work. It is illustrated by maps, charts, and general illustrations, amounting to 149, and presents a very attractive appearance. It is designed largely for educational purposes, but can be read with benefit by many long out of school, as giving an abstract of the present treatment of this subject. It is supplied with an index.

STUDIES IN CRITICISM. By Florence Trail. New York: Worthington Company, 747 Broadway. Pp. 328.

Our limitations do not permit us to give any idea of this work. Literature, religion, genius, morality, and art are all treated in it. It displays great merit, and one of our objects in saying so little about it is that no adequate notice can be contained in anything like the space at our disposal.

ENTOMOLOGY FOR BEGINNERS, FOR THE USE OF YOUNG FOLKS, FRUIT GROWERS, FARMERS, AND GARDENERS. By A. S. Packard, M.D., Ph.D. New York: Henry Holt & Company. 1888. Pp. xvi, 367.

This work, although the title states it to be for "young folks, fruit growers," etc., is really, so far as the limits of its size permit, a full treatise on general entomology. The structure of insects, their actions, and the performance of the general functions of life are given elaborately, together with their growth and metamorphosis. Their classification follows, being preceded by a synopsis and tabular view of the orders. Insect architecture and the insects injurious and beneficial to agriculture are next spoken of. A large portion of the work, including about one hundred pages, is devoted to directions for collecting, preserving and rearing insects, their dissection, and to the cutting and mounting of sections. This represents a somewhat neglected subject, for a treatise on which a demand has long existed. The entomologist's library is systematically treated, the bibliography being divided into classes. A glossary and index close the work, which is illustrated by nearly 300 cuts.

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) E. J. B.—Powers & Weightman, of Philadelphia, are the only makers of quinine in quantity in this country, and are probably the largest manufacturers in the world.

(2) M. L. W. asks: Whether a driven well (small iron tube), with a force pump, can be used where you have to go down 40 feet for water? A. As ordinarily constructed, it could not. By digging down at the surface so as to have your pump cylinder fifteen feet from the surface, water could be pumped from it.

(3) E. H. B.—To bleach ivory handles of steel tools, protect the steel with a coat of wax or paraffin, and set the handles in a solution of chloride of lime 1 part, water 4 parts, for a day, more or less, then wash the handles with clean warm water, wipe and dry. If satisfactory, warm the metal part and wipe off the wax or paraffin. Another way is to dip the handle in a saturated solution of alum in water for from 1 to 3 hours, wash, wipe, and dry. If the handles are not very dark, the latter way is preferable. For polishing the steel points, use putty powder (oxide of tin) on a buff wheel wet with alcohol. This will not stain the handles.

(4) A. S. M. asks how to restore daguerreotypes. A. Daguerreotypes do not fade, but become stained if much exposed to air and dampness. Probably yours are stained. To clean daguerreotypes according to P. C. Duchochois, take hold of the daguerreotype with pinchers by one corner, and, keeping the plate level, cover it with a solution of potassium cyanide (one part to twenty-five of water), and if the picture be much stained, heat it moderately with an alcohol lamp for fifteen or twenty seconds, when the solution is thrown off and the plate rinsed. This done, flow the plate with clear water, heat it as before, and holding it then almost vertically, dry it; in commencing, heat it at one of the upper corners and dry the water by blowing upon it toward the opposite corner. The whole operation should be quickly done, and the plate not too strongly heated, especially when covered with cyanide, otherwise the image might be obliterated. The daguerreotypes may be dusted with a fine camel's hair brush, but not touched with the fingers nor rubbed with any hard material. They are very easily scratched. They may be copied in the camera, but every precaution should be made to have every object in front of the daguerreotype covered with black to avoid reflections. The camera box and tripod, as well as the lens tube, should be protected with a black cloth.

(5) M. H. F. asks for a formula of a hydrokinone developer:

No. 1.

Water	10 oz.
Sulphite sodium crystals chem. pure	2 oz.
Hydrokinone	1 oz.

Dissolve in the order named, using, if possible, distilled water. This solution should be kept in a yellow bottle or in a dark place. It will retain its strength for a year or more.

No. 2.

Water	10 oz.
Carbonate of potash	2 oz.
Carbonate of soda	1 oz.

The weights are based on 437 grains to the ounce. Put in the graduate two drachms of No. 1 and one and a half drachms of No. 2, then fill up to three ounces with water. If the developer works too slowly, add one drachm additional of No. 2. This will develop several plates in succession. When through, pour the developer into a separate bottle, filtering it through cotton, and preserve for use on future plates, adding a little fresh developer to it.

(6) J. R.—For oxidizing silver. Dip the clean silver article in a solution of sulphide of potassium (liver of sulphur), 2 drachms to a pint of water. Heat this solution to a temperature of 175° Fah. Immerse for a few seconds only. When the article becomes blue black. For a velvet black, dip the article, previous to oxidizing, in a solution of mercurous nitrate and water and rinse. Then dip in the sulphide solution as above. For a brown shade, oxidize in the potassium sulphide as above, then dip in a liquid composed of 10 parts blue vitriol and 5 parts salammoniac to 100 parts vinegar. After oxidation brush with a scratch brush very lightly, to brighten and variegate the surface. For other methods and further details, see "Techno-Chemical Receipt Book," which we can furnish for $2.

(7) A. C. W. asks: Whether there is or is not a theory explaining the elliptical orbits of the planets. A. You will find articles in SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 226, 267, 573, on planets, their orbits, and theory of formation. Also see "Newcomb's Popular Astronomy," which we can mail for $2.50.

(8) F. B. S. writes: I have made a small furnace for melting cast iron on the forge to blow with the bellows, and have had no trouble whatever in melting the iron. Can melt 20 lb. in 20 minutes, and it takes about 20 minutes to get the furnace hot. I have succeeded easily in making small, light castings, but cannot make a thick, chunky casting like a post maul or a dumb bell without leaving a sunk hole in the upper side. The mould fills up all right, but sinks down afterward. I use all scrap iron, and swing the furnace off by a crane, and pour directly from furnace into mould. Can you suggest a remedy? I am a long way from any foundry. A. Make what foundry men call a riser at the highest points in the flask, to carry off air quickly and allow a surplus of metal to flow up, and from which the shrinkage takes metal to fill. It is made like the gate or sprue that you pour into. For a dumb bell you should have two, about ¾ in. diameter. Possibly you do not have the cope or top part of the flask deep enough to give pressure to the metal. The mouth of the gate should be 3 or 4 inches above the top of the pattern. You will gain much valuable information from "American Foundry Practice," by West, which we can mail for $2.50.

(9) S. L. P.—You cannot anneal wire practically and satisfactorily by electricity. The cheapest way is to anneal the whole bundle in an oven or muffle at a very low red heat, so as not to burn the outside layers, as is done at the wire works. If the wire is very small, passing it through a red hot muffle or iron pipe from the reel, or the flame of a series of flat wick lamps, would accomplish your purpose. The new lead plating is called kalamein. It is the tinning process, with a mixture of lead and tin, or solder; about 2 parts lead to 1 part tin.

(10) L. R. D.—Lightning rods well grounded are a protection. Ground bone is applied directly to the soil, being sown broadcast like grass seed. 500 to 1,000 lb. per acre may be used. Sometimes it is mixed with wood ashes, 15 to 30 bushels of the latter being applied per acre.

(11) E. M. C. asks: Is there any rule or table printed by which I can calculate the size of wire for the field magnets and armature of a dynamo to properly run a lamp or set of lamps 42 volts 1·3 amperes 16 C. P. A. We refer you for general points of dynamo construction to Silvanus Thompson's Dynamo-Electric Machinery, $5. The subject of dynamo construction still has to be treated empirically, no final formula having been deduced.

(12) J. S. J. writes: I see in SCIENTIFIC AMERICAN of September 1 an article on vegetable wax. Can you state in your correspondence column what color the wax is, and the price in this country? A. Vegetable waxes resemble beeswax, but are rather lighter in color. There are many kinds. Japan wax sells for 25 cents a pound.

(13) G. L. asks (1) for a method of preparing cider, so it will remain sweet. A. Dip a stick in melted sulphur, set it on fire and hold in a half filled barrel; then agitate it and complete filling. 2. A furniture polish, suitable for hard oil finish. A. Melt beeswax and add turpentine until it possesses the consistency of honey on cooling. Apply with a rag, and plenty of rubbing.

(14) M. J. S. writes: Works on chemistry state that: It has been estimated that a liter of hydrogen or any other gas contains 10^{24} molecules. Please tell me how the above is shown or where I can find the information. A. You will find the subject treated in the appendix to Thompson & Tait's Physics. Also in the article "Atoms," by J. Clerk-Maxwell, in the Encyclopædia Britannica, 9th edition. The size is deduced from the electric relations of zinc and copper, from the thickness of soap bubble films, and from the variations from Boyle's law shown by gases.

(15) G. W. O. asks for the process of refining tin and lead, as he has to make a quantity of solder in his business. A. You probably melt your metals at too high a temperature. Keep the heat low and spread some powdered charcoal over the surface.

(16) L. S. asks: What is the most simple, economical and practical way of opaqueing the backgrounds on negatives of furniture so as give prints showing only the object on the clear paper? A. We have successfully opaqued negatives with a brush, using Gihon's specially prepared opaque, which can be had from dealers in photographic materials. It dries quickly and flows readily from a very fine camel's hair brush. To get a white background when making the photograph, cover the wall and floor with white sheets, calcimined with lime, then use a magnesium flash light to illuminate the shadows. In this way the furniture will appear clear cut as desired, and it is much easier than using opaque. Also use plates with creamy thick films and of ordinary sensitiveness.

(17) J. S. asks for a corn plaster such as are sold in drug stores. A. Spread common adhesive plaster upon buckskin, cut into disks and punch circular holes in each. For plaster use 1 part isinglass, water 10 parts, tincture of benzoin 2 parts, apply in one or more coats, allowing it to dry between applications.

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September 25, 1888,

AND EACH BEARING THAT DATE.

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Electric storage system, W. H. McDonald 389,935
Electric wires and street railways, elevated framework and support for, L. W. Brown 390,001
Electrical conductor and insulating conduit, R. F. Silliman 389,943
Elevator, C. W. Baldwin 390,053
Elevator, C. R. Otis 390,033
Elevator safety device, C. W. Baldwin 390,052
Elevator safety device, C. R. Otis 390,032
Embossing machine, J. M. Baker 389,949
Engine. See Motor engine. Rotary engine.
Engines, cross head for steam, F. Robb 389,978
Engines, igniting apparatus for gas or oil motor, N. A. Otto 390,092
Extractor. See Cork extractor.
Fanning mill, J. C. Risser 389,977
Farm gate, J. P. Irwin 390,127
Feed water heater, coil, Pratt & Wainwright 389,900
Felt goods, device for hardening, J. & D. Pendergast 390,094
Fence, B. F. Newcomb 390,186
Fence tightener, wire, E. Warner 390,046
Fender and andiron, T. Hipwell 390,020
Fifth wheel, E. Storm 390,042
File, bill and letter, P. Meyer 390,135
File cutting machine, J. F. French 390,075
Filter, oil, L. C. Atwood 390,149
Fire alarm, C. H. Shaffer 390,192
Fire extinguisher for the stoves of railway cars, D. R. Galeher 389,924
Fireplace and damper, S. Shaw 390,040
Fire screen, F. Rudolph 390,140
Floor clamp, C. W. Boettner 389,919
Folding table, A. B. Jones 390,173
Frame. See Window frame.
Fruit box, R. E. Morey 390,135
Fruit gatherer, F. A. Hall 390,165
Fruit gatherer, W. Watson 390,106
Fuel, apparatus for burning liquid, C. Qvarnstrom 390,096
Furnace. See Hot air furnace.
Galvanometer, I. W. Chisholm 390,067
Garment stay, E. K. Warren 389,993
Garment supporter, J. H. Bennett 389,918
Gas burner, atmospheric, H. J. Bell 390,055
Gas burner, incandescent, H. J. Bell 390,056
Gas governor or pressure regulator, W. H. Bradley 390,064
Gas incandescents, manufacture of, H. J. Bell 390,057
Gate. See Car gate. Farm gate.
Gate, W. P. Elliott 390,074
Gate, D. E. Helton 390,124
Gearing, F. H. Richards 390,097
Grader, road, F. Baldwin 390,150
Grain separator, A. C. Newton 389,937
Grate, C. Sahler 390,191
Guard. See Keyhole guard. Snow guard.
Gun, automatic machine, B. Burton 390,114
Gun, magazine, J. Schulhof 390,099
Hanger. See Eaves trough hanger.
Harness trimming, D. J. Regan 390,096
Harrow and pulverizer, Spitler & Pingle 389,985
Harrow, rotary, T. C. Cook 390,004
Harrow tooth, J. Brinkerhoff 390,065
Harvester, W. Russell 390,141
Harvester platforms, carrier for, M. Dew 390,010
Harvester, self-binding, Pitkin & Steward 389,939
Hat conformator and stretcher, combined, H. Lyons 390,178
Hat sweat band, J. W. Gosling 389,962
Hay loader, G. L. McNutt 390,090
Head rest, H. H. Parkhill 389,938
Heater. See Feed water heater. Hot air and hot water heater.
Heating apparatus, C. T. Johns *et al* 390,172
Heating device, W. Vogel 390,194
Heel filing machine, A. K. Washburn 389,994
Hinge, spring, W. H. Beath 390,540
Holder. See Cuff holder. Napkin holder. Paper holder. Paper roll holder. Rein holder. Sash holder. Stovepipe and collar holder. Weatherboard holder.
Hot air and hot water heater, combined, D. S. Richardson 390,098