RECENTLY PATENTED INVENTIONS.

Engineering.

STEAM ACTUATED VALVE. — Ila N. Moore, Battle Creek, Mich. By this invention the piston is provided with steam ports leading to the ends of the cylinder, and a valve is fitted to slide on the piston and control the ports and the steam inlet ports, the invention covering also certain parts and details designed to form an improved valve more specially adapted for use as motive power for steam pumps. The construction is simple and durable, and no steam chest is necessary for the operation of the device.

INSULATOR FOR MARINE CONDENSERS.—Peter Decker, Norwalk, Conn. A complete non-conductor of electricity is, by this invention, interposed between the adjacent portions of the exhaust steam pipe and the copper condensing tube, to prevent the rapid oxidation of the exposed iron portions of the propeller shaft, wheel and fittings, due largely to galvanic action from exposure to salt water of the copper tube forming the condenser and the iron parts. The invention covers a novel construction and combination of parts to make effective the introduction of an insulating joint by which the pipes may be connected in various ways, as may be desired in different engines.

Railway Appliances.

CAR COUPLING.—William Bentley, Lethbridge, Canada. This invention provides for a vibratory drawbar having a draught pin on its lower side that enters a slot in the drawhead, a transverse rocking lever loosely connected to the drawbar, a sliding latch bar moved by the drawhead, and a rock shaft which may be manipulated from the side of the car and is adapted to move the latch bar from below the rocking lever, with other novel features. It is a coupling of simple construction, and adapted to automatically couple cars of varying height, while the uncoupling may be effected from the sides or roof.

CAR COUPLING.—Edward P. Eastwick, Jr., New York City. Three patents have been granted this inventor, all relating to car couplers of the vertical plane type, and being improvements on two former patented inventions of the same inventor. The drawhead is provided with a virtually integral buffing plate or pin adapted to sustain the buffing strain of the knuckle, and which, if desired, may be made of harder metal than that of the drawhead. The pin or plate is also so located that a space will intervene between its side edges and the opposed faces of the drawhead shank, whereby the buffing plate or pin may be inserted when the drawhead is cast, and the head and shank be continuously and conveniently cored. The improved construction also provides for the ready removal of worn surfaces and injured bearings, and their renewal with perfect parts readily inserted in place, there being convenient means for uniting the tail bolt with and securing it in the shank of the drawhead. The line of draught and connections with the draught rigging of the car are also so arranged that when the knuckles of opposed drawbars are coupled they will be maintained in close engagement and subjected to a minimum of friction.

Mechanical Appliances.

VISE. — David F. Tallman, Lyme, N. H. This is a simple, strong and shapely device for wood or metal workers' use, and affords means to grip and hold a piece of work inclined forwardly at any desired angle, the vise and bench being also so made that the vise may be orbitally moved to throw the plane of the jaw faces at any desired angle to the front edge of the bench top, and be detachably secured when so swung, the alteration with regard to forward inclination of the jaws being permitted at any point of orbital adjustment.

VISE.—Charles Wies, Faulkton, South Dakota. This is an improvement in that class of vises in which a cam or eccentric is employed for clamping the sliding jaw, and the construction is such that when the lever is turned to a position over and in line with the tooth bar of the jaw, the jaw will be free to be moved by the hand forward or back. After the jaw has been adjusted to proper position the lever may be turned to either the right or left to tighten and clamp the jaws upon the object held. This vise is adapted for use as a right or left hand vise, and when any of the parts become worn or are broken they can be conveniently replaced at small cost.

ORE ROASTING DISH. — William F. Oden, Butte City, Montana. This invention relates to dishes such as used in an assayer's muffle, for roasting small quantities in assaying. The dish consists of a bowl with an annular inner rim, and bridges connecting this inner rim with an outer rim of the bowl, while the cover is formed like an inverted bowl and adapted to rest on the bridges. The construction is simple, and designed to prevent loss of ore in use, at the same time giving free access of air to the contents of the dish.

SEWING MACHINE.—Jerome T. Bowyer, Winfield, West Va. This invention relates to attachments readily applicable to various makes of sewing machines which have a lower shuttle, and which make a lock stitch, whereby the stitch may be changed to chain stitch when desired. The attachments are arranged in connection with operative parts of the machine, and are adapted to be quickly thrown into or out of operative position, thereby permitting either style of stitch to be made by the machine.

MEAT CHOPPING MACHINE.—William H. Ashton, Seward, Neb. The chopping block on which the meat is placed is caused to revolve by the operating of a shaft by a crank arm, the shaft at the same time operating a frame carrying a series of knives with curved cutting edges to give a rocking motion to the knife blades over the block, the rocking motion being controlled by friction rollers. The knife blades are thus made to rock over the revolving meat on the block, coming continually in contact with new portions until every part has been acted upon and the meat is thoroughly chopped.

Miscellaneous.

FAN MOTOR. — Isidor Silverstein and Morris Savelson, New York City. This is an attachment for a rocking chair, to be actuated by the rocking of the chair and move one or more fans conveniently located to fan the occupant of the chair, the device admitting of a close folding adjustment of its parts when not in service.

COLORING SHINGLES. — Joseph D. Horton and Frank S. Lee, Chicago, Ill. This is a device for coloring flat articles, and adapted to be located over a receptacle, consisting of two cover sections connected by adjustable hinges, with brushes secured to the cover sections, the working surfaces of the brushes extending beyond the edges of the cover sections practically to an engagement, providing a simple means whereby shingles, etc., may be conveniently and expeditiously treated without waste of coloring material.

FILTER. — Jacob A. Fulton, Astoria, Oregon. Combined with a casing having an inlet and outlet is a bag of wire gauze containing the filtering material, a canvas covering being arranged around the wire gauze shell, in the lower end of which is secured a ring, while a cover and bottom are arranged on the ends of the shell and each provided with a coarse wire netting and layers of fine wire gauze. The filter is economical of construction and easily cleaned, hot water being preferably used in washing out the impurities lodged in the bag.

LETTER BOX.—William Shempp, Williamsport, Pa. Combined with the letter opening of a door and a letter-receiving bag secured over such opening, is a box or frame in which a name holder is pivoted in bearings, a spring holder being arranged to actuate the name plate and secure the holder in bearings, while the upper side of the mouth of the bag is provided with a spring whereby it is held normally closed and may be expanded for the insertion of the hand. The device forms a combined door plate and letter receiver.

EXHIBITION RACK. — Henry A. Buchholz, New York City. This is a device for supporting a number of articles for display, as hats, etc., and capable of being folded up in a small space for storage in a sample trunk or other receptacle. It is designed as an improved article of manufacture consisting of end posts or uprights provided with apertured blocks and end and side rods pivotally connecting the blocks.

SHOE LACE FASTENER.—William Wellock, Salt Lake City, Utah. This is a simple and inexpensive device for securing the ends of shoe laces, the invention consisting in the peculiar construction and arrangement of the parts of a button or clasp made all in one piece and designed to be set in the leather of the shoe after the manner of an eyelet. The edge or periphery of the head of the fastener is designed to slightly bury in the lace at the point where the wraps cross, forming a detent that holds the lace against becoming unwrapped.

NECKTIE FASTENER.—Joseph Walter, New York City. This invention provides an improved button and clasp, the clasp being adapted for spring engagement with the head of a stud, such as a collar button, means being also provided whereby such buttons and clasps to be used in conjunction with them may be employed as fastening devices for articles of apparel.

BROOM. — Philip C. Newbaker, Danville, Pa. In this brush a broad elastic metal plate or spring is interposed between the brush or broom head and the handle to give elasticity to the broom, which may have splints of wire, fiber, or other suitable material. This plate is attached to the handle through a socket, the plate spreading out to a width at the bottom equal to that of the broom head, to which it is attached by opposite side flanges, being fastened to the wooden block or head by screws.

BUCKLE.—Ernest J. Neuville, London, England. This invention relates to buckles mainly used for fastening the back straps of garments, but also applicable to other straps presenting independent ends. It is adapted to lie flat, presenting no objectionable projections, and may be readily entirely detached. No button is needed on the strap, and the buckle has no prongs to puncture or tear the strap, the fastening being effected principally by movable pivoted gripping or clamping end limbs.

TEACHER'S CHART.—Arthur L. Gillis, Mount Pleasant, Iowa. This is a chart for teaching addition, the invention being an improvement on a former patented invention of the same inventor. It has a casing with upper and lower shutters, a main section with openings and intermediate dead spaces, the latter provided with numerals, and a series of vertically adjustable strips, provided with numbers of greater value in double rows, alternated by numbers of less value, for exposure through the openings in the main section. The chart affords convenience for a wide range of drill, the teacher closing the upper shutters for primary drill.

ADJUSTABLE HEARTH. — Joseph H. Bennett, St. Joseph, Mo. A vertically movable heat effluent box is adapted to discharge heat when elevated through a floor, and provide a hearth when its top is aligned with or is near the floor, there being mechanism for the vertical adjustment of the box, the preferred use being to distribute heat in rooms directly above a cellar or basement. The improvement is designed to serve the double purpose of a heat effluent in cold weather and afford a chimney hearth when the heat is not needed.

DISTILLING APPARATUS.—William P. Swartz, Telluride, Col. This is a simple apparatus, designed mainly for the use of druggists and chemists, for distilling water and other liquids. The boiler is preferably conical, and has a filling tube, while a stand pipe rising from the center of the boiler is surmounted by a water tank, in the center of which is a conical chamber with which the stand pipe communicates. As the vapor condenses in this conical chamber it flows off through a spout in its bottom. A flange or collar on the stand pipe protects the water tank from the heat of the boiler, and affords the means of holding up the apparatus by hand when a burner instead of a stove is employed in the distilling.

COATING FOR PILES, ETC.—Frederick E. Lampert, San Francisco, Cal. This is a compound to be applied to timber that is to be submerged, to preboring by the teredo and other worms, and to preserve the timber against water rot or decay. The compound consists of a mixture of coal tar, asphalt, oxide of copper, fish oil, oxalic acid, and salt, in certain proportions, and prepared and applied after a prescribed manner.

SCREEN.—William S. Pollitt, Walsenburg, Col. A simple and durable device, especially adapted for screening coal and delivering it to cars or other vehicles, is provided by this invention. The construction is such that the coal will pass slowly over the screens and be screened by laterally reciprocating the sieves, means being provided whereby any one of the screens or sieves may be removed and one of finer or coarser mesh be substituted.

ROPE HOLDER AND FASTENER.—Robert Osborne, Homestead, Pa. This invention provides a rope clamp consisting of a casting or stock having a rope passage through it and a pivoted cam or tongue, the lower end of which crosses the rope passage, while there is a rope guide in the form of a hook on the back of the cam or tongue, above its lower end. The plate or socket piece is designed to be fixedly secured by screws or otherwise to a post or building, the device forming a convenient means for holding and fastening awnings, clothes lines, etc.

PIANO PEDAL ATTACHMENT.—George C. A. Class, Philadelphia, Pa. This is an improvement on a former patented invention of the same inventor. The attachment is simple and durable in construction, and can be readily applied and adjusted to any desired height to accommodate persons of different stature in playing upon the instrument. The device also forms a foot rest for the performer to rest the feet upon while not using the pedals.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

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 the following week's 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.

(3130) W. R. asks: What is the cause or the stain in the inclosed print? By holding it up to the light and looking through it, you will see that it has the appearance of an oil spot. I have had considerable trouble of this kind recently, and am at a loss to know how to avoid it. Have tried to be careful with my hypo. Is it the fault of silvering or carelessness in handling and due to hypo? How can I remedy the fault? The paper is "N. P. A. Dresden," silver bath, hydrometer test about 45. A. The trouble appears to be due to insufficient fixing of the print at the spots, caused probably by the face of one print coming in close contact and sticking to the print either above or below it. Try constantly moving the prints while fixing.

(3131) J. H. J. asks: 1. When receipts are given including parts both of liquids and solids, if not specified, should the liquids be weighed or measured? For instance, in answer to question 2673, it says 1 part nitrate of ammonia and 2 parts of water. A. By weight always, unless otherwise specified. 2. Can calcium chloride ($CaCl_2$) be used over and over again in drying gases, and what is the best way to fuse it? A. Yes. Heat it in an iron pan with frequent stirring. The heat need not be pushed to fusion. It may be used in the loosely granular condition in which it is left by stirring. 3. I have tried several times the experiment of showing the composition of water by synthesis, passing H over heated CuO, but have never been able to get exactly the result of 1:8 as it should be. What is the best way of doing it in order to get the true result? A. We can give no specific instructions beyond suggesting that the operation has to be conducted with great care and that a full degree of chemical skill or manipulation is requisite to obtain quantitative results.

(3132) E. E. K. asks for a receipt or preparation for frosting windows so they will look as they do just after a hard freeze, something that will crystallize and not come off by washing with water. A. A very simple preparation is to place a piece of putty in a rag, wrapping it tightly therein, and to "dab" the glass therewith. After the application has dried it may be varnished. A strong solution in water of sulphate of soda or of alum is often applied. This will not be waterproof unless varnished, and the latter will interfere with the effect. Photographer's ground glass varnish will give a flat, opaque surface.

(3133) F. J. F. asks: Please give me a receipt for hardening wood pulp, what chemicals are used, and how pickled for use, before being put in a mould to be pressed in different shapes and so that it will not stick to the mould when cold. A. Various substances can be used to harden the pulp, such as glue, starch and gum arabic, tragacanth, etc. The dry pulp should be mixed with as thin mucilage as is possible to make it stick together when pressed. White clay or kaolin can be also mixed with the pulp to make it like a putty. The moulds should be slightly oiled to keep from sticking.

(3134) F. H. writes: 1. I am thinking of making a collection of birds' eggs. What is the best mode for keeping them from spoiling? Can they be kept indefinitely after this mode has been used without

any further trouble? A. The contents should be blown out just as you blow out a hen's egg. The shells will keep indefinitely. 2. What is the easiest and best way of preserving birds after they have been killed? How do persons get birds that are wanted for preservation? Does not shooting them injure the plumage a good deal? A. You will need the "Taxidermist's Manual," which gives full directions for preserving and setting up of natural history specimens. Price $2.50 mailed. It is a complete work for amateurs. 3. How do you account for worms so often seen in rain barrels after a storm? A. The worms were probably in the barrels before the storm and were only stirred up by the storm. 4. Will hair from a horse's tail change to a snake or to any other life form if placed in water? A. Horse hairs will not turn into snakes or other form of life.

(3135) M. S. S. asks: 1. Is there any way of taking the coating out of a copper tea kettle caused by boiling hard water? It is about ¼ of an inch in thickness and as hard as brick. A. If the deposit is calcium carbonate, it will dissolve with effervescence if muriatic acid, not too strong, is poured upon it. Quite a quantity may be required. If the deposit is calcium sulphate, you may very slowly dissolve it out by rain water, cold or hot. 2. How is rubber made into very thin sheets and forms, such as toy balloons, etc.? A. By slicing blocks of masticated rubber the sheets are made. They are then cut and stuck together with certain precautions, partly by natural cohesion, partly by the use of cement. For some notes as to the process we refer you to "Rubber Hand Stamps and the Manipulation of India Rubber," $1 by mail.

(3136) J. S. J. asks: Will you please explain in your query column why soda water used in cutting steel leaves so much smoother, brighter surface than oil? A. Because the soda water being more fluid than oil flows to the cutting edge of the tool and lubricates the cut. The soda as an alkali gives the water a greater affinity for the oily surface of both the tool and the steel, and causes it to flow between the point of contact of tool and metal. Its cooling power is also greater than that of oil, which can be seen by the heat carried off in vapor at the point of cutting.

(3137) C. A. G. asks how to produce a low temperature sufficient to keep meat and other perishable goods, also bottle liquids, at little expense. A. The cheapest and most practical way in this latitude to produce a low temperature, except on the large scale, is by proper use of ice.

(3138) T. P. A. asks: 1. Will the motor in "Experimental Science" work as well with a drum armature? A. Yes. 2. What size wire should I use on armature and field for 110 volt circuit, and what would be its back E. M. F. so wound? A. You should wind your armature and field magnet so that their combined resistance will be about 30 ohms. If this is a shunt machine, three-fourths of the resistance should be in the field magnet and one-fourth in the armature. If it is a series machine, the resistance of the armature and field magnet may be about equal. 3. I have made a simple motor, as described in "Experimental Science," illustrating the Gramme ring, but can only get it to run about 100 revolutions. Will more wire and stronger field increase its speed? A. Probably you can increase the speed of your experimental Gramme ring by placing more wire upon the armature. We think you do not need a stronger field. 4. In a catalogue the Edison-Lalande battery is advertised (one style) as giving 15 ampere hours with resistance of 0·025 ohm. How can I calculate the E. M. F.? A. Divide the ampere hours by the resistance, and the quotient will be the E. M. F., which in this case is 0.6 of a volt.

(3139) N. C. H. A.—Concrete wall such as you propose would make a good foundation for your barn. Use 1 part best cement and 3 parts clean sharp sand. You can figure the quantities from the above. For prices write to dealers.

(3140) W. B. H. asks: What difference in pressure exists in top and bottom of a five foot boiler at a pressure of 80 pounds? A. The difference in gauge pressure at top or bottom is due to the height of water in the boiler. If there is 4 feet of water in the boiler, the bottom will have nearly 2 pounds more pressure than the top.

(3141) B. G. asks how to make birch beer out of birch bark or root. A. Take birch bark ½ pound, hop ½ pound, allspice ¼ pound. Boil in a few gallons of water for a few minutes. Mix with enough water to make 10 gallons, when below 100° Fah. add one pint of yeast. Allow it to ferment.

(3142) J. D. T. asks for the most simple and convenient way of fastening platinum tips to the copper wire of a cautery electrode such as is used in surgical operations, in which a white heat is necessary. A. Silver solder would undoubtedly make the best connection, but galvanic soldering with copper or even a screw clamp will answer.

(3143) E. C. K. writes: I have a five gallon nickel plating solution which has lately been giving very inferior results. I have decided to renew the bath and would like to know if you could inform me how to recover the nickel from the solution? A. Prepare a saturated solution of sulphate of ammonium. Add with constant stirring to the bath and let it stand. After a while a granular deposit of the double nickel ammonium sulphate will appear. If the supernatant liquid is colorless, the precipitation is complete. Otherwise add more of the ammonium sulphate. When complete precipitation has been obtained, pour off the liquid, drain the precipitate and redissolve for the new bath.

(3144) F. W. asks for a recipe for making soda foam that is used in milk shake. A. Take four pounds gum arabic in lumps of best quality, pour over it four pints of boiling water, and stir from time to time until dissolved. Strain through flannel if necessary. One or two pints of simple sirup may be added to help it to keep. One or two ounces to the gallon of sirup will answer for soda with sirup. For milk shake add in same proportions to the milk. Add one-half grain of calomel as a preservative.

(3145) J. H. A.—Your question as to whether *Syzigium jambolanum* is the correct name of the plant to which you refer cannot be definitely answered until botanists tire of classifying plants each according to his own idea. The other names you give are synonyms of the above. We have not been able to find any other information in regard to the use of the plant in diabetes than that given in the SCIENTIFIC AMERICAN of October, 1888.

(3146) B. P. J. B. asks: Please give me receipt for making a white ink with which to mark on dark goods, such as umbrellas, black clothing, etc. A. Mix pure freshly precipitated barium sulphate or "flake white" with water containing enough gum water to prevent the immediate settling of the substance. Starch or magnesium carbonate may be used in a similar way. They must be reduced to impalpable powders.

(3147) W. R. B. asks how to remove ink from newspapers a couple of weeks printed, something that will not destroy print on back of the paper. A. Use javelle water or a solution of oxalic acid and tartaric acid in water. No bleaching agent affects printer's ink, but all ordinary writing inks yield to some of them.

(3148) G. E. asks: How many volts and amperes will it require to heat to cherry redness a piece of steel 12 inches long by 1¼ inches wide and one-twentieth inch thick? Of course the quality will make a difference. Please give me as close an approximate as you can. A. Taking the temperature at 1,500° Fah., a current of 565 amperes should suffice, maintained by a difference of potential of 0·07 volt; 30,000 amperes suffice to weld a pair of 1 inch copper round bars.

NEW BOOKS AND PUBLICATIONS.

TAXIDERMY AND ZOOLOGICAL COLLECTIONS. A complete handbook for the amateur taxidermist, collector, osteologist, museum builder, sportsman, and traveler. By William T. Hornaday. With chapters on collecting and preserving insects. By W. J. Holland. New York: Charles Scribner's Sons. 1891. Pp. xix, 362. Price $2.50.

In this large and handsomely printed and illustrated book it seems as if taxidermy and its allied branches of the natural historian's work have at last been adequately dealt with. The subject is treated *ab initio*; it begins with the hunting of the animals and study of fresh specimens, and extends down to the final preservation of skins and mounting the same, and treatment of the stuffed and mounted objects. The entire field is covered, egg collecting and preservation, the making of casts, osteology, or the preparation and mounting of skeletons, and insect collecting and mounting are side branches that receive full treatment. Taxidermy proper fills the second part of the work, which includes some 158 pages. The subject is here given in full detail, with many practical hints from the author's own experience. Beginning with mammals, the subject of birds and crustaceans comes next, with final chapters on grouping, and even painting museum specimens. Insect pests, the collector's great enemy, are described, and methods of killing them are given. A bibliography of books of reference and a full index close the work.

THE ENGINEERING MAGAZINE. Published by the *Engineering Magazine* Company. World Building, New York. Monthly, 25 cents per copy, $3 per year.

There is no better proof of the general interest that is being taken at the present time by the general reader, by business men, and farmers in scientific and engineering works than the fact that new journals and periodicals are constantly being established. A knowledge of engineering, of electricity, and mechanics is now considered one of the necessary concomitants of ordinary education. The *Engineering Magazine* is the latest addition to this class of literature. It is the same size as *Scribner's* or the *Century*, and is handsomely printed and is fully illustrated. The general character of the magazine may be judged from the subjects treated of, which include war ships of the U. S. Navy, a survey in a diving suit, the development of the South, healthful air in factory buildings, iron and steel industries in America, etc. There is also a department of architecture, electricity, mining, and mechanics.

COLOR MEASUREMENT AND MIXTURE. By Captain W. De W. Abney. London: Society for Promoting Christian Knowledge. New York: E. & J. B. Young. 1891. Pp. 207. Price $1.

The well known author of this volume states that about ten years ago he began to work upon three measurements of the spectrum—the heating effect, the luminosity, and the chemical effect. The task thus set is completed, and in this attractively printed and well illustrated volume of the "Romance of Science" series we have presented in popular form the results of Captain Abney's work. The analysis of color and light by rotating disks is described, and the ingenuity shown by the writer, who was assisted by General Festing, is very evident. We commend the work to all interested in this field of physical science.

THE MAKING OF FLOWERS. By the Rev. Prof. George Henslows. (Publishers as above.) Pp. 168. Price $1.

The "Romance of Science" series receives a notable addition in the present work. The anatomy of flowers and the meaning and function of their different parts, the specialization of flowers, and the many branches of this part of botany, are admirably treated by the well known author. His contention is that flowers have been moulded into their present forms by the agency of insect visitors, that their formation is an act of evolution, and he appears himself as a pronounced evolutionist.

COAL AND WHAT WE GET FROM IT. By Raphael Meldola. (Publishers as above.) Pp. 210. Price $1.

The presentation of an account of the great industries based on coal, including the manufacture of gas, coke, and coal tar products, is the object of this work. The author in very limited compass presents a *resume* of a vast collection of topics, and is obliged of course to treat them rather superficially. Yet the subjects seem very nicely treated and to be well put. A chronological summary of some of the chapters is an exceedingly convenient and valuable feature.

The monthly *Illustrated American*. The well known weekly journal the *Illustrated American* has won for itself universal recognition as a high art publication in every sense of the word. From the literary standpoint it can be judged no less favorably than from the purely artistic one. It has been well received by the public, so well indeed that its publishers have decided to issue a low-priced monthly edition, of which we have just received the first number. At the rate of $1 per annum, or ten cents a single number, enough of the same grade of illustrations and matter of as high standard as that of the original periodical are given to at least convey a flavor of the real *Illustrated American*. The new enterprise intending to popularize the tendencies of the larger weekly deserves every encouragement. Many who take it will undoubtedly be led to patronize the larger periodical, whose present success should be increased by this venture. Meanwhile the weekly *Illustrated American* continues its course, one which can be commended as exemplifying the highest standards of illustrated journalism.

INDEX OF INVENTIONS

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June 30, 1891.

AND EACH BEARING THAT DATE.

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

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Car mover, R. W. Drinker 455,035
Car, stock, J. A. Stewart 455,130
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Cards, playing, Gaddis & Lewis 454,861
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Casket support, H. J. Breeze 455,093
Casting machine, J. S. Griffin 455,200
Center and invalid's table, combined, A. M. Currier 454,928
Chain attachment, R. A. Breul 455,032
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Chiropodist's file, C. S. Levy 454,956
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Chuck, lathe, Fulmer & Kelvie 455,145
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Clothes pounder, S. F. Hawley 455,250
Clutch, frictional feed, E. A. Walker 454,960
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Coffee pot, E. F. Newcome 454,977
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Electric motor, F. L. McGahan 455,109, 455,110
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Electric signal for steam vessels, D. D. Wass 455,138
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