

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

PRINTING-TELEGRAPH RECEIVER.—J. D. WHITE, 50 Clanricarde Gardens, London, England. Mr. White's improvements relate to printing-telegraph receivers of the class which print the characters in successive lines across a sheet of paper, and the objects of his invention are to provide a simple mechanism by which the characters are printed successively across the sheet without either the type or the paper being moved laterally and also a means whereby at the end of each line the paper is moved up ready for the new line.

SAFETY TROLLEY-ALARM.—W. M. GRUNER and W. C. FINK, Springdale, Pa. The invention refers to safety trolley-alarms, an alarm on the car adapted to be sounded upon jumping of the trolley from the conductor-wire or breaking of the trolley-sheave through special devices or instrumentalities employing a local circuit with a special circuit-closer, the closer being adapted in its operation to simultaneously, through a special sub-trolley, complete or restore the motor-circuit from the conductor-wire down through the car to ground or through metallic return.

ACCUMULATOR PLATE OR GRID.—J. VON DER POPPENBURG, Charlottenburg, near Berlin, Germany. The present invention relates to the manufacture of accumulator plates or grids of that kind in which the active material, together with the current-conductor imbedded in it is inclosed by a frame made of some non-conductor of electricity, as described in a former patent granted this inventor. As it is impossible to effect the mechanical connection between the frame and the current-conductor solely or chiefly by the active material or paste, this connection has been effected according to the aforesaid patent by means of cross-bars of non-conducting material, which gives support to the conductor in the frame.

ELECTRIC PUMP.—O. G. DOBERT, New York, N. Y. In this instance the invention relates to electric pumps, and the more particular object is to produce a type of electric motor and connections therefor so as to render the same suitable for operating a reciprocating pump. It may be used upon new machinery, but is also particularly adapted for service in supplanting steam machinery with electric machinery without disturbing a reciprocating pump already in use.

THERMOSTATIC POLE-CHANGER.—J. P. JENSEN, 37 Havnegade, Esbjerg, Denmark. The purpose of this improvement is to cause the sunbeams or the increase of temperature to influence an electric-contact arrangement in such a way that the direction of the current in a motor is shifted by sunshine or shadow. Hereby the motor is turned, respectively, in the one or the other direction, and this alternate movement is made use of in an appropriate manner.

ELECTRIC BLOCK-SIGNAL.—W. S. JACKSON, Hoboken, N. J. This improvement relates to electric block-signaling systems especially adapted for use in connection with overhead electric railways, although essential parts of the invention may be used in connection with other kinds of systems. In the present invention Mr. Jackson aims to simplify and generally improve the system disclosed in a prior application for letters patent filed by him.

BLOCK-SIGNAL SYSTEM.—I. H. FRANCISCO, Rutland, Vt. While this inventor shows his system as applied to a double-track railway, he does not limit himself to double-track railways. Obviously by omitting certain duplicate parts the system can be used with single-track railways. With Mr. Francisco's system either the entire road or so much of it as is to be protected in the manner indicated is divided into blocks as usual.

Engineering Improvements.

EXPLOSIVE-ENGINE.—M. H. ROBERTS, Rolfe, Iowa. Mr. Roberts seeks to provide an engine adapted to operate under an explosive force of working agent of mixed air and gas or gasoline; and primarily seeks to provide an engine of this character capable of being operated under an economical use of the working agent and having its several parts co-operatively arranged to provide for a uniform and effective action.

DRAFT ATTACHMENT FOR LOCOMOTIVE BOILERS.—J. J. DE LANCEY, Binghamton, N. Y. The object in this case is to provide a draft attachment arranged for reversing the draft in the fire-box to permit of reducing the heat in the fire-box and extinguishing the fire therein in case of an emergency, such as the water falling below the safety-level or the injectors failing to work or other causes liable to produce an explosion of the boilers.

AUTOMATIC AIR-BRAKE.—C. H. NELSON, Trinidad, Col. In the present instance the invention has special reference to means for equalizing the release of air-pressure in the several brake-cylinders on the cars of a train, so that the brakes of the several cars may be applied simultaneously, also to means for equalizing the application or force of the several brakes of each car, and also to means for a quick release of air-pressure on the locomotive.

FEED-WATER HEATER.—R. B. BENHAM, Jr., Bland, New Mex. In carrying out the present invention the inventor has particularly in view arranging a coil or coils of pipes forming a feed-water heater in the front end of a locomotive-boiler a short distance from the fire-sheet, thereby allowing the hot air and

gas from the fire-box to pass around the coils before escaping out through the stack, thereby heating the water in the coils before it passes into the boiler.

ROTARY ENGINE.—E. W. BULL, Cobourg, Canada. The object of the invention is to provide a new and improved rotary engine which is simple and durable in construction, readily reversed, and arranged to utilize the motive agent to the fullest advantage. This utilization is secured by the steam entering the cylinder acting simultaneously on the two piston-heads, so as to force the steam in opposite directions.

VALVE-GEAR FOR EXPLOSIVE-ENGINES.—W. J. McVICKER, Rogers, Neb. In this patent the invention refers to improvements in gas or gasoline engines of the four-stroke cycle-compression type, the object being to provide means for operating the exhaust-valve by the explosion of gas or gasoline vapor in an auxiliary cylinder containing a movable piston, thus dispensing with gears, cams, eccentrics, etc., and to provide means by which the speed of the engine may be exclusively controlled by electricity.

ROTARY ENGINE.—M. D. KALBACH, Lebanon, Pa. The object in this case is to provide an improvement in that class of rotary engines which are operated by direct impact of a gaseous fluid, such as steam or air, the latter being worked expansively. The motive fluid is directed against radial blades of a rotary wheel, and the casing surrounding the latter is provided with a steam-passage which permits gradual expansion of fluid in passing from inlet port to exhaust. Valves govern the direction of the flow of motive-fluid, so that the engine may be reversed at will.

TRANSFER-BRIDGE.—A. H. MALLERY, New York, N. Y. An object in this improvement is the provision of a bridge so constructed and arranged that it will at all times practically maintain an even balance, and, further, to provide a simple means for securing the bridge to a boat or float whereby no torsional strain will be imparted to the bridge through the rocking motion of the float.

Hardware.

PERMUTATION-LOCK.—I. G. FRENCH, Orange, Mass. This lock is designed especially for application to the doors of residences, the arrangement being such that it may be readily opened from the inside of the house, but can only be opened from the outside by one familiar with the combination. The invention involves an arrangement whereby the lock may be operated in the dark to set the combination.

Household Utilities.

FOLDING BED.—C. P. BROWN, Springlake, Mich. In his present invention Mr. Brown seeks to provide means whereby metallic bedsteads of plain or ornamental design may be folded easily and quickly, such improvements being of a nature which enables him to fold or unfold the parts without modifying the factory or standard design of the head or foot sections of the bed or the angle-iron bed-frame of the spring.

PAN.—F. B. TUPPER and G. M. AUSTIN, North Berwick, Maine. In this patent the improvement refers to a pan intended especially for baking purposes, the article being formed of an integral sheet of metal, the side and end walls being bent up and engaged together in a certain manner, so as to provide ease of construction with a maximum degree of strength and durability.

Machines and Mechanical Devices.

SAW-COLLAR-TRUING MACHINE.—R. O. WIGLEY, Brewton, Ala. Collars which clamp and hold the circular saw upon mandrels sometimes get out of true. Turning off these collars to a true plane again is usually done by hand, but it is unsatisfactory. This invention provides a simple machine designed as an attachment to the sawmill husk or frame by which the work of truing the collars is conveniently, rapidly and accurately effected.

GEARING.—M. E. BACON and C. H. BACON, Flushing, Mich. This invention has reference to a gearing adapted especially for the driving of bicycles and by means of which the ratio of the gearing may be quickly and easily changed by the rider without leaving the saddle, thus enabling the gear to be changed at will to suit the conditions of the road over which the bicycle is being driven.

WIRE-WINDING MACHINE.—J. G. BAUER, Ravenna, Ohio. This machine is adapted for use in winding wire on carbon plates to produce brushes for use on electric motors or dynamos, although it may be used to wind wire on other articles. One object in view is to furnish a machine by which the wire may be coiled snugly and regularly around the work, provision being made for effecting a variation in the spacing of the coils of the wire.

RING AND TRAVELER FOR SPINNING-FRAMES.—Z. E. BOOTH, New Bedford, Mass. This invention provides a ring and traveler for use in spinning-frames and in twisting-frames arranged to insure an easy, free, and fast running of the traveler in the ring without causing undue friction of the working parts and without danger of injuring the yarn or thread and at the same time producing an even twisting of the fibers, thereby insuring the formation for an even, perfectly cylindrical yarn or thread and increasing the capacity of the

machine. Mr. Booth has secured another patent on a ring and traveler for spinning frames wherein the invention insures the fast running of the traveler in the ring, at the same time increasing the capacity of the machine and causing an even twist of the fibers to produce a uniform cylindrical yarn or thread.

TUBE-EXPANDER.—C. B. CARTY, Washington, N. C. One of the leading features of this invention is the corrugation of the rollers, causing the rollers to make irregular and crossing indentations in the tube, thus facilitating the work of expanding it. The invention also relates to features of construction concerned with the other parts of the expander, which enable the action of the rollers to be rendered more thoroughly effective.

TRANSMISSION-GEAR.—W. W. ADAMS, Brockton, Mass. This apparatus comprises sets of gears having intermediate gears to transmit reversely. These gears, excepting the intermediate gear or gears, are mounted on two axes, and along one axis runs a shifting key acting with devices on the adjacent gears to render them fast or loose on their shaft. When a gear is made fast to the shaft, transmission is effected through this gear at a speed depending upon the ratio of the gear to its mate, and in direction depending upon the presence or absence of intermediate gear or equivalent means.

BED-PLATE FOR BALING PRESSES.—F. J. COAD and E. BIDDLE, Dallas, Ore. Much difficulty and expense are often encountered with many forms of baling-presses in use, due to the bearings and other elements thereof either spreading apart or getting out of alignment and which often results in the breaking out of teeth and other parts of cogs, racks, and pinions employed or causes such excessive binding as to render it very difficult to operate the press. The invention overcomes all these objections.

SANDING-MACHINE FOR MOLDS.—F. J. WILES, Stony Point, N. Y. One of the principal objects of this invention is the provision of means for overcoming numerous disadvantages found to exist in many machines for molds for brick and the like, and to provide a machine of this kind which is effective and reliable in use, and comparatively inexpensive to manufacture. This machine will be easily controlled and regulated.

MACHINE FOR PRODUCING STEREOTYPE OR ELECTROTYPE MATRICES AND PRINTING-BLOCKS.—A. KRAUS, 10 Rue Marbeuf, Paris, France, and N. COLLINS, 2 Gray's Inn Road, London, England. This invention refers to a machine for composing type and producing therefrom a stereotype-matrix or a printing-surface, according as the type-faces are in relief or are sunk. It comprises a key-controlled rotary barrel, juxtaposed type-disks, and means of adjusting the type-disks and justifying the composed line of matter; also means for producing a matrix by the successive impression of successively-composed lines.

LOOM FOR WEAVING FIGURED DOUBLE-PILE FABRICS.—J. W. SMITH, Amsterdam, N. Y. This loom is adapted for weaving figured double pile fabrics, and especially the so-called "three-shot" velvet. By a novel arrangement of the jacquard apparatus and the harness threads, comparatively wide fabrics may be operated upon with a loom taking up a limited amount of floor space. Each design is made by two jacquard cylinders of different sizes mounted upon opposite sides of the needle mechanism. The loom has a large number of advantages.

APPARATUS FOR RESIZING, DECAPPING, AND RECAPPING CARTRIDGE-SHELLS.—E. L. WETSIG, Junction City, Kan. It is well known that shells once fired are not of the same size, and that it is desirable to reform or reshape shells once used in order to adapt them for reuse in the same gun. Mr. Wetsig's apparatus comprises fixed parts adapted to be secured to a wall or other fixed support and other parts adapted to slide on or in such parts, whereby shells may be resized and also decapped and recapped by a simple manipulation of parts.

OPERATING DEVICE FOR ELEVATOR-CARS.—P. F. FOLEY, New York, N. Y. One of the principal objects of this improvement which relates more especially to mechanical devices for raising and lowering the cars of elevators, is to provide means for overcoming many disadvantages found to exist with numerous other devices hitherto devised for similar purposes and also to provide devices of this kind which are exceedingly simple and inexpensive to manufacture and comprising few elements or parts, which are not easily broken nor liable to get out of order.

CENTER-GRINDER FOR LATHES.—T. H. COULTER, Brooklyn, Ohio. In this case the invention relates to that class of lathe attachments used for regrinding small projecting cones known as "centers." These centers from certain causes become untrue and have to be reground. Mr. Coulter's improvement comprehends the general features of other grinder devices, but provides a very simple and convenient construction which is quickly applied to any lathe and is so organized as to get a high speed and an effective grinding action.

LATHE ATTACHMENT.—J. W. BRONAUGH, Jr., Manchester, Va. The attachment in this invention may be applied to any ordinary lathe and is adapted to be adjusted lengthwise and also transversely of the same. Longitudinal

adjustment is effected by the ordinary feed-screw of the lathe or by its hand-ratchet, automatically or by hand. Transverse adjustment of the attachment proper is effected by the cross feed-screw of the lathe-carriage. The principal feature of the attachment is its inclination transversely of the lathe-bed.

COIN-CONTROLLED VENDING APPARATUS.—C. W. PLATT, Windfall, Indiana. The invention provides a casing for inclosing cigars and the several operative parts. Means are adapted to fully expose the revenue stamps on the box of cigars and also to expose the cigars in the box so that the operator can see them until all are discharged. Thus the last one sold is exposed prior to purchase. Access is had to the interior to open the machine to insert fresh cigars or remove coins. Through a coin passage a customer can see the coin fall until it enters the casing. Stamps are cancelled to comply with the revenue law.

Of Interest to Farmers.

HARVESTER.—E. A. CALLING, Brady, Neb. The invention has reference to harvesters, more definitely stated an improved attachment for reapers, headers, and other harvesting machines, having for its object to lift the fallen grain and carry it into the path of the cutting apparatus. Means are used to meet the requirements of the different kind or conditions of the grain.

POTATO-PLANTER.—F. E. SHAW, Evart, Mich. The purpose in this case is to provide a machine which when supplied with seed-potatoes will automatically drop the seed at suitable distances apart, whereby to properly space the hills, in connection with which machine a marker may or may not be used, and, further, to provide means for automatically opening a furrow and covering the seed dropped into it.

SOD-CUTTER.—J. M. HARLAN, Ardmore, Pa. When this machine is moved along, the annular cutters will form the longitudinal cuts, then the transverse cutting blade will go into operation to form the transverse cuts, after which the under cuts will be made by an under-cutting blade, and thus the sod will be completely separated or released from the ground, and the series of sods will be all of the same dimensions.

CORN-SHOCKER.—T. L. CREATH, Mount Sterling, Ohio. In this patent the invention has reference to an apparatus adapted to be used in connection with a corn-harvester, the apparatus receiving the corn from the harvester and packing it into bundles ready for tying, after which operation the shock is deposited on the ground as the machine moves along the rows of corn.

KNOTTER.—J. E. FREIDINGER, Hastings, Neb. This device ties a knot which binds the gavel in a self-binding harvester. A rigid finger is provided in its outer end with a notch forming the separated side sections, one shorter than the other and sloped on its outer side at its end, and the longer section sloped at its end approximately in alignment with the sloped end of the shorter section, and a movable finger pivoted to the rigid finger and provided at its end with a hook working in the notch of the rigid finger and projecting below it in closed position of the pivoted finger.

Railways and Their Accessories.

LOCOMOTIVE-TENDER GATE.—H. O. McCLAIN, Lincoln, Neb. The object in this instance is to provide a gate arranged to hold coal or other fuel in the pit in a proper position when the pit is filled, to allow the fireman to readily remove the coal from the pit, to permit of opening the gate and swinging it into a rearmost position at the time the coal gets low in the pit, and to permit the fireman to have access to the pit for the removal of the coal in the rear of the pit.

CONVERTIBLE PASSENGER-CAR.—A. KIMBLE, Zanesville, Ohio. This car is adapted to be changed from an open or summer car to a closed or winter car, or vice versa. The object of the invention is to provide such parts as will enable the conversion to be effected with economy of material and with dispatch. In other words, to employ a minimum number of parts which may be produced at small cost and to adopt such construction as will effect the change in short time and with little labor.

BRAKE-OPERATING MECHANISM FOR RAILWAY-CARS.—J. H. BRUCE, Pittsburg, Pa. In this instance the invention relates to brake-operating devices for railway-cars; and one of the principal objects is the provision of means for overcoming many disadvantages found in other devices, and to provide devices of this kind effective in use, besides comprising few parts, not liable to get out of order, easily regulated and controlled, and which will possess the capacity for long and repeated service.

RAILWAY.—S. E. JACKMAN, New York, N. Y. In this invention the improvement refers to railways such as are used for amusement in pleasure resorts, exhibitions, and the like; and its object is to provide a new and improved switch or inclined railway, arranged to take up comparatively little space, but affording a long and interesting ride. Another railway invention of Mr. Jackman relates to switchback or inclined gravity railways, used at resorts, etc., and its object is the provision of a railway having a continuous track for

the cars to travel on and arranged to facilitate the entrance and exit of passengers and to afford them an exciting and interesting ride.

CAR-COUPLING.—S. E. JACKMAN, New York, N. Y. This case is a division of the application for former letters patent filed by Mr. Jackman. The invention relates to amusement devices, such as inclined or switch-back railways; and its object is to provide a coupler for convenient and safe coupling of the cars and arranged to prevent coupled cars from jumping forward off the track, especially when running over steep inclined portions in the track of the railway.

DEVICE FOR REPAIRING OR SPLICING RAILS.—O. D. BINNETT, New York. It frequently happens that railway-rails become broken intermediate the ends of joints thereof due to various causes—as, for example, when subjected to undue lateral strains, exerted thereon by trains passing over the same, more especially in climates subject to rapid changes in temperature. This device may be quickly applied to the broken portion of the rail for the purpose of mending or splicing it, without the necessity of detaching the rail or any portion thereof.

LINE-PIPE COUPLING.—H. B. SCHRADER, Alliance, Neb. In this patent the invention has for its object the provision of an automatic coupling of simple and inexpensive construction having no sharp curves or loops in its parts to obstruct the passage of air or steam and in which air or steam pressure is utilized to cause a strict connection between the coupling members.

COUPLING FOR AIR-BRAKE HOSE.—A. F. ALLEN and J. F. LENHOFF, Wilmington, Del. The purpose of the invention is to provide a coupling which will act automatically in coupling and uncoupling, effecting a coupling the moment two cars similarly equipped are brought together and an uncoupling the instant one car is drawn from the other, thereby obviating the necessity of and consequent danger to an attendant employed to effect air-brake couplings between cars, besides securing a great saving of time.

AIR-BRAKE ATTACHMENT.—H. F. ONG, Wendling, Ore. In this invention the purpose is to provide a means acting as an auxiliary to the ordinary brake apparatus and serving automatically to apply the brakes should the car or train of cars begin to move and also acting automatically to release the brakes upon the proper action of the engineer or other trainman upon the ordinary brake apparatus.

Vehicles and Their Accessories.

RESILIENT CORE AND TIRE.—C. MILLER, Binghamton, N. Y. In this case the invention refers to cushion-tires of that character embodying an inner core and an outer shoe or casing, and the object is to provide for interlocking the core and the casing so as to prevent turning or torsional twisting of the core within the shoe or casing, and to provide improvements in the manner of clamping the shoe or casing upon the core and connecting the two members to the rim.

STEERING DEVICE.—C. EWING, Madras, India. This invention relates to rolling stock for single-rail tramways, such as shown in former letters patent granted to Mr. Ewing. The object is to provide a device for use on power-driven traction-engines, rolling-stock, and other vehicles traveling on single-rail tramways and arranged to steer the vehicle along the single rail without a steersman and to allow of running it with safety over the road at a very high rate of speed.

DEVICE FOR REMOVING VEHICLE-TIRES.—H. ATWATER, Vacaville, Cal. One of the principal objects of this improvement is to provide a device which shall be positive in operation, one wherein the vehicle-wheel will be tightly and firmly grasped while the tire is being removed therefrom and one wherein the clenching and forcing members or jaws will not be continually slipping or bending under the strain placed thereon.

WAGON-TOP.—J. FOHLIG, New Orleans, La. This invention relates to improvements in wagon-tops and particularly to the manner of hanging and operating the curtains and apron thereof. In wagons of this type trouble and loss of time occur in adjusting curtains and they are often unevenly rolled. The object is to obviate these objections by so arranging the apron and curtains that they may be rolled or unrolled by a person standing within the wagon and so that when rolled they present a neat and smooth appearance.

PROPELLING DEVICE FOR VEHICLES.—J. P. LANGE, Passaic, N. J. The purpose of this invention is to furnish a propelling device for vehicles, which is arranged for quick and convenient attachment to an ordinary road-wagon, buggy, or like vehicle, the propelling machinery being separated and spaced from the vehicle for convenient access to the working parts.

VEHICLE-BRAKE MECHANISM.—O. MINTON, New York, N. Y. In Mr. Minton's patent the invention has reference particularly to improvements in brake mechanism for automobiles or motor-vehicles, and the object is the provision of a simple means to insure the cutting off of the steam or other motive agent upon applying the brake.

REVERSIBLY-CHANGED-SPEED DRIVING MECHANISM.—R. M. HEAD, Allegheny, Pa. The object of this inventor's improvements is to provide a mechanism whereby the motive

power delivered to a secondary wheel or shaft revolving in a fixed unchanging direction may be automatically increased or diminished by merely reversing the direction in which the prime moving shaft, axle, or wheel rotates. It is applicable to bicycles, similarly-propelled vehicles, and other forms of utilizing or converting mechanical energy.

JACK.—W. W. DWIGANS, Arkadelphia, Ark. In the present case the invention refers to improvements in jacks for raising vehicle-axles or other loads, an object being to provide a jack of simple and light yet strong construction by means of which heavy loads may be lifted with comparatively little manual exertion and also to so construct the device that it may be conveniently carried under the seat.

Miscellaneous.

GLASS-BLOWING APPARATUS.—P. T. SIEVERT, Dresden, Germany. This apparatus is more especially designed for manufacturing glass articles such as vessels of cylindrical or other shapes and hollow glass bodies subsequently to be formed into sheet or window glass, the device being arranged to insure a proper distribution of the glass material to produce articles having walls of uniform thickness.

PROCESS OF MANUFACTURING HOLLOW GLASS ARTICLES.—P. T. SIEVERT, Dresden, Germany. The invention relates principally to improvements in a process for manufacturing hollow articles, from which sheet or window glass may be made, in which process the melted mass is spread upon a table, held firmly at its outer rim, preliminarily blown into a convenient shape in the open air or in a mold, and then blown out to any size, shape, and thickness, whether for the purpose of slitting and spreading the resulting hollow body into one or more sheets or for forming vessels of cylindrical or other shapes without such opening and spreading.

FOLDING BOX.—W. E. BURTON, New York, N. Y. The object of the present invention is to provide a folding box formed of a single blank and arranged to economize in the use of the material, to allow convenient and quick setting up of the box from the flat blank and to securely lock the integral parts in the set-up position. The invention relates to folding-boxes, such as shown and described in a former patent granted to Mr. Burton.

FOLDING HAT.—R. PLATO, New York, N. Y. In this instance the invention refers to outing-hats made of canvas or like fabric material; and its object is to provide a folding hat which is simple and durable in construction, cheap to manufacture, and arranged to allow of folding into a comparatively small space without danger of impairing the stiffness of the brim of the hat. The extended hat is not liable to wrinkle up and collapse.

WORK-BOX.—R. G. McDOWELL, Anaconda, Mont. The principal object of this invention is the provision of a device by which a number of spools of sewing thread or silk may be detached or removably supported within easy reach of a seamstress while at work, thereby overcoming many annoyances and loss of time, and also enabling suitable lengths of different colored threads or silks to be drawn from the spools accordingly as required.

POCKET MATCH-SAFE.—E. J. MOORE, New York, N. Y. This contrivance is especially adapted for carrying "safety-matches." The panel upon which the matches are to be struck is protected effectually when not in use, and therefore cannot be damaged by moisture or by pocket wear, and the means for protecting such panels are simple and readily applied and can be conveniently and quickly operated. The material over which matches are drawn may be readily replaced when unduly worn.

SAFETY-GUARD FOR RAZORS.—A. A. LUX, St. Paul, Minn. In this improvement the object is to provide details of construction for an attachable guard which may be applied upon any razor-blade of ordinary form, be adjustable with regard to the cutting edge of the razor, be light, shapely, convenient to place and remove, and that will effectively protect the face from injury while the razor is used freely.

RAZOR AND GUARD.—J. H. HILTON, New York, N. Y. The aim of this inventor is to provide a new and improved razor and guard arranged to permit convenient adjustment of the guard relative to the cutting edge of the blade and to allow removal of the blade when worn down too far for the guard to be effective and the substitution of a new blade for the worn-out one.

SCENIC APPARATUS.—W. A. HADDEN, New York, N. Y. In this device a series of pictures arranged in various attitudes gives the illusion of movement when consecutively and rapidly brought before the vision; an object is to provide a device in which the pictures are stationary, while the illusion of movement is given to a person while rapidly passing along the series of illustrations in a railway-car, particularly in a subway or tunnel.

TURPENTINE-POCKET.—A. G. GEIGER, Congaree Township, S. C. This may be classified as an improvement in devices adapted for attachment to the trees below the incision formed and adapted for catching the liquid. The device is fitted by form and construction to be attached to a trunk by driving it into the bark so that it stands inclined outwardly and upwardly, and thus constitutes the outer side of a pocket for the turpentine.

NON-REFILLABLE BOTTLE.—H. A. CLINTON, Newark, N. J. The purpose of the invention is to provide a simple and economic form of device adapted to be firmly secured to the neck of any ordinary bottle, which device is so constructed as to admit of liquid being freely poured out from the bottle, but which will prevent the bottle from being refilled and offered a second time as an original package.

BEATING OR WHISKING DEVICE.—W. R. CAIN and N. B. CAIN, Port Jervis, N. Y. In this patent the improvement has reference to means for rapidly rotating various objects, such as the beater-plate of an egg-beater or the brush of a chimney or bottle cleaner. It comprises a certain arrangement of a spiral and sliding agitator by means of which a rapid rotation is imparted to the beater or brush.

SAFETY HOISTING-HOOK.—J. M. WARD, Colebrook, Ohio. This invention refers to hooks for hoisting buckets and other articles. It consists of a special hook and peculiar safety-catch with novel locking-dogs, and among its advantages may be mentioned the fact that in any position of the hook the dog and engaged member will remain locked; and, also, the form of the catch, which is formed so that should the hook in use contact a beam or other structure, the curved outer edge of the catch device would ride it free from holding engagement with the beam or other structure.

ADDING REGISTER.—H. G. WHITE, Waverly, Mo. The register comprises a rotatable disk mounted between two fixed disks. The rotatable disk is provided with twenty consecutively numbered teeth which may be singly seen through a notch in the fixed disks. Another circle of figures ranging from 21 to 40 appears through an opening in the front disk. In operation the figures are added by tens and each ten is registered by moving a tooth so that only the addition of units need be mentally done. An intermediate circle of figures provides for adding by twenties.

DEVICE FOR OPENING BUCKLES.—G. F. CAREY, New York, N. Y. The purpose of the invention is to provide an attachment to the tongues of buckles whereby the latter may be quickly opened with gloved hands and in cold weather when the fingers are more or less numb, and whereby, further, the billet-strap may be released from the buckle at any time in a convenient and quick manner without touching the tongue of the buckle.

COMBINED WAIST-BRACE AND BELT-HOLDER.—CAROLINE BREMER, Davenport, Iowa. Specifically stated, the invention consists of an elongated metal plate having peculiar fastening and belt-holding means adapted to provide a bracing-support to the waist, compelling the wearer to walk in straight, erect position, and thereby giving neatness to the figure of the wearer in front and back. Means are included for holding down the waist and skirt belt in front.

DISPATCH-BOMB.—H. B. LITTLEPAGE, Washington, D. C. The bomb may be fired in a high trajectory and carry a message over an enemy's lines. It will be useful in many ways. Thus, in ordering in reserves at a certain point, it can be done almost instantaneously and the exact point given without fear of interception. The invention will be valuable when the army and navy are co-operating and useful for ships of war or commerce in communicating with the shore or life-saving stations.

GUARD AND MIRROR FOR WATER-GAGES.—R. S. MEARS, Topeka, Kan. The invention in this case is to provide a novel simple guard and mirror which will prevent injury from flying glass to a person near the water-gage if the tube is suddenly burst by pressure of steam and which also by reflection of the mirror will clearly display the contents of the intact tube for inspection to readily note the level of water in the gage and boiler.

CIGAR-BAND.—L. M. WELLS, New York, N. Y. In this instance the object is to removably secure a match to a cigar or other like articles by means of an encircling band. Any suitable match may be used in connection with Mr. Wells's invention, but he contemplates the use of "safety-matches," since in their manufacture no ingredient is employed which affects the cigar, and he therefore provides a striking-surface upon the band, upon which the match may be ignited.

DOUBLE-ACTING COMBINATION-LOCK VALVE FOR BARRELS, ETC.—W. H. BAKER, New York, N. Y. In this patent the invention has reference to double-acting combination-lock valves for use particularly upon receptacles, such as barrels, etc., the idea being not only to prevent the contents of the receptacle from being removed by unauthorized persons, but also to prevent the removal of the valve itself from the receptacle.

APPARATUS FOR LOADING VESSELS.—C. J. INGARD, Port Townsend, Wash. This invention relates to improvements in apparatus for loading lumber, timber, or other material of a heavy nature on vessels, and the object in view is the provision of a device of this character by means of which the lumber, timber, or other material may be rapidly placed on a vessel, thus resulting in great economy of loading.

NOSE-PIECE FOR EYEGLASSES.—W. F. KORNEMANN, New York, N. Y. In the present patent the invention has reference to improve-

ments in nose-pieces for eyeglasses, an object being to furnish a nose piece of simple construction that may be readily adjusted to a person's nose and that will bear lightly on various points on the nose without slipping or pinching.

RIDING-HABIT.—A. LOSCALZO, New York, N. Y. In this skirt a pocket is formed for the pommel, as heretofore; but the seams are so disposed that the pocket constitutes the sole irregularity in the skirt, and when the leg is thrown over the pommel the latter is received in the pocket and the skirt hangs gracefully and smoothly from the wearer's waist and pommel-leg. The improvement does not interfere with the perfect ease of the wearer.

DUST-GUARD.—J. MALTRY, Omaha, Neb. The present application is a division of a former application of Mr. Maltry. The invention comprises the combination, with the inner open end of the oil-box, of two peculiarly-arranged collars spaced by a ring and held yieldingly against the oil-box by means of spring-pressed rods which are engaged with the axle-box in a peculiar manner.

SHIRT-WAIST AND SKIRT SUPPORTER.—ALVAH WILTSEY, New York, N. Y. The purpose in this case is to provide a device adapted for holding a shirt-waist in position at the waist-line of the wearer and likewise the waist-band to the skirt, preventing the former from riding up and the latter from dropping down. The device can be conveniently held in position and manipulated so that a belt can be connected therewith, which belt when tightened will automatically cause the clamping members to fasten upon and hold the parts introduced without damage to the parts.

LIGHT-EXCLUDING ATTACHMENT FOR CAMERA-PLATE HOLDERS.—R. A. BACON, New York, N. Y. Many artistic and valuable pictures are ruined through a ray of light striking the plate at the instant the dark slide is withdrawn from the plate-holder. The object in this invention is to overcome this difficulty by providing an attachment which will be extremely simple and economic in its construction and one which may be readily used in a camera or a plate holder in such manner as to effectively exclude every ray of light.

COLLAR-FASTENING.—J. W. ALEXANDER, New York, N. Y. This device fastens the front portion of a shirt-neckband and attaches a collar thereto. It often happens that one or both of the buttonholes at the front of a shirt-neckband become broken out or so enlarged that an ordinary collar button cannot be used. The object is to provide a fastening device that may be readily attached to a neckband having a broken buttonhole, holding the ends of the band together and also the ends of the collar.

SNATCH-BLOCK.—F. M. EBY, Cottage-grove, Ore. In this patent the invention consists in certain novel constructions and combinations of parts, and is an improvement in snatch-blocks, particularly in that class of snatch-blocks which are designed to open by displacement of one of the side plates of the block-frame.

COAT-STAY.—C. RICHMAN, New York, N. Y. The main object in this case is to provide a permanent stay for use within a coat between the cloth and linings to prevent the front portions of the coat from wrinkling when unbuttoned, as is often the result when there is no such support; and a further object is to so improve the shape and construction of the stay that it is better adapted than others of its class to fit a person's chest and shoulder.

STEAM-TRAP.—R. D. TACKABERRY, Lewiston, Me. The invention is adapted particularly to the entire removal of the water of condensation from the drying cans or cylinders used in cotton mills, bleacheries, paper-mills, etc., although its application is not confined to this particular use. Heretofore devices have failed to draw off the entire or any more than approximately one-half of the water which accumulates.

CIGAR-CASE.—W. W. PUGH, Washington, D. C. The present invention refers to an improvement in that class of cases or boxes for holding cigars or cigarettes which are adapted to be carried in the pocket and to be so manipulated that an inner slidable box or case containing the cigars may be projected when it is desired to select or remove a cigar or cigarette. The contrivance may be conveniently used for holding various other articles.

SNATCH-BLOCK.—D. E. WELSH, Cottage-grove, Ore. Mr. Welsh's invention has for an object the provision of an automatic trip whereby the hauling line or other object being hauled approaches the block to permit the log to pass the block, thus obviating the necessity of a signalman at each block and the stoppage of the engine, as is usual under the present condition for the release of an ordinary snatch-block.

HAMES AND HORSE-COLLAR.—R. J. HORCHKISS, Pepacton, N. Y. The object of the improvement is to provide a collar which will distribute the draft strain it sustains over a considerable area of the breast and shoulders of the animal, so as to enable the animal to draw a heavy load without galling the shoulders, a further object being to so combine a pair of hames with the collar that they will afford support thereto by holding the

parts of the collar in positions to receive the strains of pulling the load without imposing such strains upon the hames.

WELL-ROD EXTRACTOR.—W. W. FRENCH, Vanderbilt, Mich. In this patent the invention consists in the novel construction and arrangement of a clutch device, and the object of the inventor is the provision of a simple and practical apparatus for extracting from well-casings the working rod whenever it becomes broken or uncoupled at a point low down in the well.

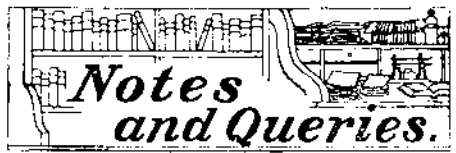
NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

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- Marine Iron Works. Chicago. Catalogue free. Inquiry No. 4813.—For makers of steam pipe couplings having two cup-shaped balls, through which the steam can pass, and which can take any position; when cold, the coupling can be turned any way, but when the steam is turned on, the coupling maintains the position it originally had. AUTOS.—Duryea Power Co., Reading, Pa. Inquiry No. 4814.—For manufacturers of fine gear wheels and pinions similar to those found in French clocks. For hoisting engines. J. S. Mundy, Newark, N. J. Inquiry No. 4815.—For makers of automatic electrical clocks for closing circuits, having 24 figures on dial. "U. S." Metal Polish. Indianapolis. Samples free. Inquiry No. 4816.—For tools, appliances and apparatus for sharpening small tools, punches, scissors, knives, etc. Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O. Inquiry No. 4817.—For makers of elevators for large office buildings. Mechanics' Tools and materials. Net price catalogue. Geo. S. Comstock, Mechanicsburg, Pa. Inquiry No. 4818.—For makers of acetylene gas machines. Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt. Inquiry No. 4819.—For the manufacturers of tools using the letter "W" in a diamond. American inventions negotiated in Europe. Felix Hamburger, Equitable Building, Berlin, Germany. Inquiry No. 4820.—For makers of novelties and new patent labor-saving devices. Let me sell your patent. I have buyers waiting. Charles A. Scott, Granite Building, Rochester, N. Y. Inquiry No. 4821.—For makers of bicycle sundries, typewriters, novelties, etc. Machinery designed and constructed. Gear cutting. The Garvin Machine Co., 149 Varick, cor. Spring Sts., N. Y. Inquiry No. 4822.—For the manufacturers of the Tee handle air pumps. Evaporation, Box 773, New York. Party who advertised as above, on March 14 last is requested to call at this office for a reply to advertisement. Inquiry No. 4823.—For printing presses on which to print lithograph plates, and machinery, etc., for the manufacture of such plates. Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 351 Broadway New York. Free on application. Inquiry No. 4824.—For manufacturers of adding machines. The largest manufacturer in the world of merry-go-rounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker, Abilene, Kan. Inquiry No. 4825.—For manufacturers of buggies, pottery, novelties, etc., for the mail order business. Empire Brass Works, 106 E. 129th Street, New York, N. Y., have exceptional facilities for manufacturing any article requiring machine shop and plating room. Inquiry No. 4826.—For the manufacturers of the Saxon rolling mill. The celebrated "Horusby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 128th Street, New York. Inquiry No. 4827.—For makers of inventions or devices for outdoor advertising purposes. Contract manufacturers of hardware specialties, machinery, stampings, dies, tools, etc. Excellent marketing connections. Edmonds-Metzel Mfg. Co., Chicago. Inquiry No. 4228.—For manufacturers of slot machines. Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago. Inquiry No. 4829.—For manufacturers of advertising novelties.

IMPORTANT TO INVENTORS OF MERITORIOUS MACHINES OR OWNERS OF PATENTS REQUIRING MANUFACTURING FACILITIES. A large and thoroughly equipped modern, up-to-date manufacturing establishment is prepared to make immediate arrangements for the manufacture on a large scale and on a fair and liberal business basis of novel special machines well protected by patents. Will consider only machines of new design having prospects of large sale. In replying give character of machine and line of trade, and enough general particulars to enable us to decide desirability of interview. All communications will be answered. Address Facilities, Box 773, New York.



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. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. 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.

(9228) R. E. W. says: In the SCIENTIFIC AMERICAN of June 13, 1903, page 444, is an article regarding the Parsons turbine as an air compressor. Can you give me formula for computing volume and pressure of air compressed by this method? I wish to build an experimental machine, but can find no data on the subject, such as inclination and number of vanes and variation of pressure with variation of speed. A. The principle on which the Parsons turbine, when used as an air compressor, acts is similar to that of the ordinary revolving disk fans, such as are commonly used to keep the air circulating in offices and restaurants. These fans act exactly as the screw-propeller of a boat does; the velocity and volume of the air current produced depending upon the size and the angle of the vanes, and the number of revolutions per minute which the fan makes. If you will imagine such a fan placed inside a pipe approximately equal to its own diameter, you can readily see that if there were no slippage between the air and the fan, the quantity of air moved per minute would equal the area of the fan times the pitch of the blades times the number of revolutions made per minute. From this you can easily determine the velocity of the air current. The pressure against which such a fan may work is proportional to the square of this maximum velocity. There is, however, always a certain percentage of slippage, so that the volume of air and its velocity, as determined above, must be multiplied by a certain coefficient. The value of this coefficient depends entirely upon the size and number of the vanes, their pitch or angle, and the speed at which they are run. Unfortunately there are no experimental data to cover the case of the Parsons turbine, and the speed, size, and angle of the vanes here will be so different from the conditions of the ordinary ventilating practice that it is almost impossible to predict what coefficients should be used. The effect of the several rows of blades on the Parsons turbine, if the different rows of blades are all set at the same angle, would be simply to reduce the slippage, and to thus make possible the use of a very much higher pitch—producing a correspondingly greater velocity or pressure of the air current—than would be otherwise admissible. We trust that this explanation will be of service to you in directing the experiments which you are about to make, and we regret that there are no more definite data that we can send you as a guide.

(9229) W. R. writes: Your answer to W. E. H. (9107), July 25, states that only the force of gravity by falling weights, or I might add, a wound-up spring or springs when uncoiling, would give him the motor or power he is in search of. He objects to the aid of steam, water, electricity, etc., but only wants a mechanical power, such as wedges, inclined planes, or levers. Surely, he must know that no power could be given out from these agents unless a power had been applied to them. For his information, I would state that instead of springs or weights for driving clocks, or carriages, or phonographs, he can erect an over-shot waterwheel (although he objects to water) to drive a clock perpetually, not by perpetual motion, which I see he has the sense to know is humbug, but by keeping the buckets full, with the rain or water from the mains. I erected one a year ago, and it has been going ever since and keeping splendid time, and will go on forever till it falls to pieces or rain stops falling.

(9230) M. L. says: How would I determine the foci of an ellipse, the diameters as 9 inches by 7 1/2 inches being given? Would like a definite rule by which I could describe the ellipse. A. To determine the foci of an ellipse, when the axes are known, draw lines at right angles to each other and lay off the semi-axes from their points of intersection. From one extremity of the shorter axis as a center, with a radius equal to half the longer axis, describe an arc cutting the longer axis in two points. These points are the two foci. An ellipse is most easily and accurately described by drawing the two axes as above, and setting a pin at the two foci and at the extremity of the minor or shorter axis. Then

tie a fine cord, which does not easily stretch, around the three pins, forming a triangle. Now remove the pin at the extremity of the minor axis, and with a pencil having a sharp point, take the thread on the point of the pencil where the pin has been removed. Now draw the curve, keeping the thread at a uniform tension. The loop of thread slips around the pins which are at the two foci, and each point of the curve obeys the definition of an ellipse, which is: "A curve each point of which has the sum of its distances from two fixed points a constant quantity." This constant quantity is the major axis.

(9231) H. F. says: I have had a curious experience with watches that I am at a loss to explain, and should be glad to know whether there is any reason why a watch might keep good time when carried by one person and be wholly unreliable when carried by another, under apparently the same conditions. My first watch had been in use a good many years when it came into my possession. After some time, about half of which the watch was in the repair shop, I concluded that it was worn out, and bought a new one with as good works as I could get. This watch kept accurate time for two or three days, or even a week at a time, then it became very irregular. It was as likely to be one time of day as any other. I reset it several times, and then took it back for regulation. This experience I kept repeating for six months, the jeweler meanwhile declaring that the watch kept good time so long as it remained with him, and I fancy, suspecting that I did not keep it wound. At last, however, he took the watch and gave me another, which behaved precisely the same way. It may sometimes have run two weeks accurately, but very seldom more than two or three days. As an investigating experiment, I exchanged watches with a friend who had a perfect time-keeper. My watch was carried six weeks by this person, keeping accurate time during that period. In the meantime, the watch I borrowed lost time regularly, at the rate of half an hour in three or four days. This watch during the six weeks never behaved quite as erratically as mine, but it never kept good time while I carried it. I now have my own third watch, and am never able to keep it going more than a few days without finding it one, two, or three hours behind time. It must stop and start again, for it could not lose so much in so short a time, though it is always going when I examine it. I think it starts with the movement of looking at it. Since this experience my first watch has proved a satisfactory timekeeper in other hands. I inquired of a watchmaker, who assured me that there is a great difference in people in their capacity to carry watches and have them keep good time. He attributed it to the difference in the movements of the different people. This does not seem a plausible explanation, and if true, would not be satisfactory in this case, for my movements are less active than those of the person who carried my watch. I have met two people who claim that they have never been able to carry a watch, and have given it up. I am curious to know if there is any reason why I or any one should not be able to carry a watch, the watch being in good condition and kept wound, and if there be any cause, what it is. Can you give me any advice in regard to the matter? A. We have referred your statement regarding the change in the rate of a watch when different people carry it, to a wholesale dealer in watches in this city, and his reply is to the effect that it is not proved that the carriage of the person can affect the running of a watch. The difference in the stepping of one person and another is not sufficient to change the running of a watch appreciably, certainly not to the extent which you describe. The irregularity you ascribe to the watches is, by this good authority, considered to be due to the treatment of the watch in service. This is, in his opinion, irregularity in the time of winding as the most important; laying it down at night in different positions, sometimes on its back and sometimes on its face, and sometimes hanging it up in the pocket. These things make any watch irregular, no matter how good the watch may be.

NEW BOOKS, ETC. THE PRACTICAL PHYSICS OF THE MODERN STEAM BOILER. BY F. J. ROWAN, A.M.I.C.E., M.I.E.S. Preface by R. H. THURSTON. New York: D. Van Nostrand Company. 1903. 8vo. Pp. 638. Price \$7.50. The work is admirably illustrated by 314 engravings and describes the best modern practice. The literature on the mechanics of the steam boiler, such as the strength of materials, etc., is voluminous, so the present author has endeavored to take another path, as guided by the indications of physical research, toward the goal of a fuller understanding of the action involved in steam raising and of the requirements of efficient boilers. ACETYLENE: THE PRINCIPLES OF ITS GENERATION AND USE. BY F. H. LEEDS, F.I.C., F.C.S., and W. J. ATKINSON, Butterfield, F.I.C., F.C.S. London: Charles Griffin & Co., Ltd. Philadelphia: J. B. Lippincott Company. 1903. 12mo. Pp. 276. Price \$2. The literature concerning acetylene is limited, so that a work of this kind is welcome.

The author deals with the cost and advantages of acetylene lighting, the physics and chemistry of the reaction between carbide and water, the general principle of acetylene generation, selection of a generator, and the subsequent treatment of the gas, subsidiary apparatus, mains and service pipes, combustion of acetylene, incandescent burners, compressed and dissolved acetylene, the valuation and analysis of carbide.

SPRAYING CROPS: WHY, WHEN, AND HOW. By Clarence M. Weed, D.Sc. New York: Orange Judd Company. 1903. 16mo. Pp. 136. Price 50 cents.

This little manual has been prepared for the purpose of aiding owners of spraying machines to use them to the best advantage. The practical results of the most recent investigations and experiments have been embodied in it. The development of the practice of spraying crops furnishes a striking illustration of the practical results agriculture may derive from scientific investigation and accurate experimentation. The present is the fourth revised, rewritten, and enlarged edition.

ETAT ACTUEL DU LABOURAGE ELECTRIQUE. Par Emile Guarini. Paris: Publications du Journal Le Genie Civil. 1903. Pp. 16.

In this paper, which is a reprint from Le Genie Civil, Emile Guarini, well known to the readers of this journal as a contributor, very thoroughly examines the use of electricity in agriculture and shows just what the commercial possibilities of a system of electrical plowing are, basing his conclusions upon experiments actually carried out.

DIE EISENKONSTRUKTIONEN DER INGENIEUR-HOCHBAUTEN. Ein Lehrbuch zum Gebrauche an Technischen Hochschulen und in der Praxis. Von Max Foerster. Ergänzungsband zum Handbuche der Ingenieurwissenschaften. Leipzig: Verlag von Wilhelm Engelmann. 1903. Pp. 544. Price \$12.50.

This is the second edition of a book which it was our pleasure to comment upon about a year ago. In that brief space of time the work has met with such marked success that a second edition has already become necessary. Naturally, the changes which have been made in civil engineering have not been so marked that a revision was at all necessary. The author has, therefore, confined his attention to a careful editing of certain of the sections, notably those treating of the behavior of iron structures when subjected to heat, forged iron columns, anchorages, and particularly those sections which treat of strains. The Hennebique process is now fully described, and also Mohrsch's calculation methods. The bibliography has been increased by the addition of references to articles in books which have appeared since the publication of the first edition. Additional figures are also to be found in the book. On the whole, the improvements which have been made have added to the excellence of a book, which should be of great value to the practitioner as well as to the student.

THE ART OF PATTERN MAKING. By I. McKim Chase, M.E. New York: John Wiley & Sons. 1903. 12mo. Pp. 254, 215 figures. Price \$2.50.

A good book on pattern making is always welcome, and the volume before us will prove specially valuable to those who have occasion to make patterns for such objects as screw propellers, cylinders for marine engines, etc. The book will be of special value to students in technical and manual training schools. It is a book which we can heartily commend.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending November 17, 1903, AND EACH BEARING THAT DATE

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

Table listing various inventions and their patent numbers, including Addressing machine, Advertising card, Albuminoid substances from maize, Amalgamator and concentrator, Anchor post, Animal trap, Apron, Arm rest, Atomizer, Automatic friction brake, Automatic switch, Awl, sewing, Awls, shuttle for use with sewing, Axle, Axle brace, Bag filler and holder, Bag filler machine feeder, Bag filler, reticulate, or like, A. Amson, Ball mill, tubular, M. F. Abbe, Band, spring, Kialing & Coe, Bandage, suspensory, E. R. Drake, Barrel cover, adjustable, E. Bertelsmann, Barrel head, E. E. Davenport, Bathing apparatus, L. V. Levinger, Beading strip, H. S. Hale, Bed spring, Ridgway & Dixon, Belt attachment, waist, A. T. Goldfield, Belt fastener, H. T. Jones, Bench, See Piano or organ bench, Bicycle driving mechanism, chainless, C. Stollwerk, Bicycle support, M. Henoch.