

**RECENTLY PATENTED INVENTIONS.**  
**Railway Appliances.**

**CAR FENDER.**—Oscar L. Whitney, Cambridge, Mass. The object of the invention is to improve that class of fenders consisting of a horizontally projected buffer, adapted to receive the person or obstruction run down by the car, and to provide such fender with improved mechanism whereby persons and obstructions falling under the fender may be saved from contact with the wheels or other portions of the car. The invention consists of a combination of the longitudinally slidable fender, the drop catcher supported thereon so that the catcher will be moved bodily rearward in unison with the fender in case of a collision, a supporting device for holding the catcher in an elevated position, and mechanism for releasing the catcher.

**CAR FENDERS.**—Octavius A. White, New York City. The invention relates to improvements in car fenders. The object is to produce a very inexpensive and simple apparatus of this kind, which may be conveniently applied to a car, and in which oppositely revolvable drums are employed, these being arranged so that in case a person is run down by the car he will be thrown to one side of the track and thus saved from serious injury.

**Mechanical.**

**CRUSHING MILL.**—C. M. Carhart, Plainfield, N. J. The machine, which is simple and effective, has for its leading features circular toothed discs, which are engaged by rotatable toothed roller stamps. The carriers for the roller stamps are given concerted rotary movement and the roller stamps independently rotate upon their carriers, whereby a striking action is obtained for the stamps. The impact of the stamp rollers upon the discs thoroughly crushes the material supplied to them, and the contact face of the stamps and discs are so formed as to retard the material, insuring its proper pulverization. A cushion is provided between the discs and frame of the machine, which prevents the latter from being unnecessarily jarred. The pulverized material is delivered by centrifugal action to an amalgamating surface from which the refuse passes off through a suitable conductor.

**DEVICE FOR MOVING GRAIN.**—Edwin C. Harnen, Carbonale, Pa. The object of the invention is to provide a new and improved device for moving grain from one place to another, the device being very simple and durable in construction, very effective in operation, and more especially designed for unloading grain and other loose material contained in cars. The invention consists principally of a removable drum, a pulling rope adapted to wind on said drum and connected with the scoop, shovel, or like device for moving grain, a clutch mechanism for throwing the drum into and out of gear, and a controlling rope adapted to wind on the said drum and under the control of the operator, said controlling rope controlling the clutch mechanism.

**PRESS.**—Peter Bartoletti, Monongahela City, Pa. The object of the invention is to provide a new and improved press for forcing plastic material into moulds to form articles of various shapes, the press being, however, more especially designed for rapidly making ordinary clay cylinders. The invention consists principally of an intermittently revolving table carrying moulds having movable bottoms, a box arranged over said table and provided with a reciprocating plunger for pressing the material into the moulds, and a fixed cam for moving said mould bottoms, to push the pressed article out of the mould.

**ORE SAMPLER.**—Thomas A. Topham, Aspen, Col. The object of the invention is to provide a new and improved ore sampler which is simple and durable in construction, very effective and accurate in operation, and arranged to cut out samples from a quantity of ore to accurately represent the contents of the whole. The invention consists of a wheel mounted to rotate at a high speed, and provided in its web with a chute extending from the back of the web to the front thereof and in an outward direction, to cause the ore entering the chute near the center of the wheel and at the bottom of the web to be delivered by centrifugal force to the front of the wheel.

**TROLLEY FOR KITES.**—Thomas J. Rogers, Jacksonville, Ill. The invention relates to a toy which is in the nature of a trolley, it being adapted to travel on a string attached to a flying kite, and the object of the invention is to provide the trolley with wings which when spread will serve to carry the trolley up the kite string by the pressure of the air on the wings, and furthermore to so construct the trolley that a parachute, balloon, or any equivalent small object may be carried upward by the trolley, and whereby when the trolley approaches the bowstring on the kite a trip will be operated which will permit the wings of the trolley to close and at the same time release the object carried upward by the trolley, permitting it to drop to the ground. When the wings of the trolley are closed, said trolley will slide down the string and be returned to the person flying the kite, in order that it may again be sent up, if so desired.

**APPARATUS FOR REDUCING ANTIMONY ORES.**—Edwin Kratzer, Thompson Falls, Mont. The object of the invention is to provide a new and improved apparatus to extract antimony from its ores, separate it from the gangue in a simple and economical manner by sintering the ore, fuming, oxidizing, and condensing the antimony, and collecting it as an oxide of antimony in the form of a powder in a common condenser. The apparatus consists principally of a center or draught furnace having side draught holes and a cone or equivalent body in its bottom, the cone being formed with a center draught inlet, and a series of channels leading from the inlet to the sides of the cone.

**LOG SAWING MACHINE.**—John H. Estabrooks, Hinckley, Ill. The invention is an improvement in the class of portable log sawing machines which are adapted to be attached to and partly supported by the log to be sawed, and on which the operator sits to reciprocate the saw. In brief, the invention consists of a portable sawing machine of the type specified, and of the combination with the frame, having a seat of a pendulum saw, and connecting rod and of a pivoted standing lever

and pendent lever, and having meshing toothed heads, the pendent lever having foot rests whereby the levers are made to move together in the same direction.

**MARLINESPIKE.**—Charles H. Fulson and James M. Doyle, Vidalia, La. The improved marlinspike is smooth and tapered exteriorly, and provided with a screw socket for reception of and attachment to a rope end. The marlinspike or splicing tool is provided with an internally threaded socket, and an internally threaded extension socket of greater diameter having a coupling screw on its forward end to screw into the first named socket.

**MOTOR.**—Ira J. Griffin, Sing Sing, N. Y. The object of the invention is to construct a simple and effective motor, to be used with water or any other suitable propelling agent. In brief, this fluid motor comprises a wheel provided with a rim, buckets secured to the outer surface of the rim, each bucket having a broad front face provided with a transverse cylindrical groove open at both ends, and a rear portion tapering to a sharp edge, said edge extending inwardly beyond the tangent at the inner end of the groove of the adjacent bucket, to throw the waste fluid laterally before it reaches the rim, and means for throwing jets of a fluid into the grooves of the buckets.

**TONGUE SUPPORT FOR VEHICLES.**—James F. Mitchell and Enos A. Rich, Opolis, Kan. This invention relates to a support for the tongues of vehicles, and the object of the invention is to provide such a support of simple, durable, and economic construction and of a resilient nature, the support being so applied to the tongue that it will carry the weight of the tongue in any desired position of the latter, and whereby the support at its forward or free end will have sliding connection with the tongue, enabling it to be raised to any desired height without interfering with the downward movement of the tongue, which may be pressed to the ground, and when relieved from pressure will resume its normal position. In brief, the invention consists of the combination with a running gear of a vehicle and the tongue of the same and of a support for the tongue having pivotal connection with the running gear, a yoke keeper attached to the tongue, in which the forward portion of the support has movement, and a locking device adjustable on the yoke keeper and adapted for engagement with the forward end of the support.

**BREECH-LOADING FIREARM.**—Manuel Victor Dengo, San Jose, Costa Rica. The object of the invention is to provide a new and improved breech-loading firearm, which is simple and durable in construction, easily manipulated, arranged to securely hold the breech block in position when firing, and to readily extract the shell. The invention consists principally of a breech block controlled during part of its closing movement by the hammer and the remainder by a spring, so as to seat the breech block in advance of the hammer.

**AMALGAMATOR.**—Charles P. Watterson, Farmington, Utah. The object of the invention is to provide a new and improved amalgamator for treating gold-bearing sand, stamp mill pulp, and other material to save the precious metals contained therein in an effective, quick and economical manner. The invention consists principally of a gyrating box provided with copper plates, and a longitudinal guide strip for the said plates, each strip extending from one of the boxes to within a short distance of the other end, to cause the material passing upon the plate on one side thereof to travel along the same and back on the other side.

**END GATE AND FASTENING DEVICE THEREFOR.**—William C. Herriman, Roads, Mo. The invention is especially designed as an improvement in the end gates of wagons adapted to carry grain, as well pigs and other stock, and the object of the invention is to provide an end gate which, when fastened in place, will afford a substantial brace for the end of the wagon body, to prevent injurious shaking of the body when being drawn over rough roads; to provide an end gate which may be readily and securely fastened in the closed position, and which may be readily lowered and properly secured in position for the ready unloading of grain without injuring the bottom of the body, and which may be fastened in a further lowered position to form a runway, as to a hog chute or the like. When used for hauling stock, it can be raised or lowered speedily and conveniently while the wagon is backed and while remaining against the stock chute. The invention consists in the combination with a wagon body of an improved end gate, to which are attached two chains having rings at the outer ends, rings inward from the ends, one of said rings being smaller than the other, and a third ring on the chain having the said smaller ring and means for securing the inner end of each chain.

**HINGE.**—Paul E. Cabaret, New York City. The invention relates to an improvement in hinges, and especially to that class of hinges known as "stop hinges," the object of the invention being to provide a hinge particularly adapted for hanging heavy doors, as bronze doors, and likewise especially adapted to be attached to masonry, and so provide the hinge with stops that the door cannot be opened beyond a predetermined angle, and whereby also the stops will aid materially to the strength of the hinge and materially assist the latter in supporting the door. This is a knuckle hinge, comprising attaching plates having knuckles pivotally connected together and each provided on its inner face with a lug of the same width as the knuckle and extending from the attaching plate partially over the knuckle and adapted to engage the opposite attaching plate, to limit the movement of the parts of the hinge one upon the other, the lug of one knuckle projecting between the lugs of the two adjacent knuckles, the said lugs being of a length to remain in interlocking engagement with each other at all times.

**PICKER STICK CHECK FOR LOOMS.**—William E. Sartwell, Troy, Vt. This invention is a picker stick for looms, comprising two plates adapted to be secured to opposite sides of the batten or lathe, said plates each being provided with a laterally projecting and recessed lug, and with a laterally projecting stop in front of the said lug, said stop having yielding or elastic faces, a U-shaped arm having the ends of its members pivoted in the recesses of the lugs, a stop plate secured to the

horizontal or connecting portion of the arm, and springs, each provided with a coil between its ends, the said springs having one end secured to the rear portions of the said lugs and their free ends loosely engaging the members of the arms at about midway of their length.

**PUMPING POWER.**—George W. Grimes, Bluffton, Ind. This invention relates to mechanism for pumping oil and water wells, the object being to provide a simple and compact form of the construction, bringing all wearing points within the limits of easy access, and further, to provide a frame of strong and novel construction in which may be supported one or more devices of different sizes for connection with pump rods or lines, whereby a greater length of throw in said pump rods or lines may be secured than has heretofore been done. In brief, the invention consists in a well pumping power, a frame, a vertical shaft having bearings in said frame of a bevel gear on said vertical shaft, a horizontal shaft having a bearing in a boxing on the frame, a pinion on said horizontal shaft engaging with the gear on the vertical shaft, a series of cranks arranged on the vertical shaft, one above another, and pump rod plates mounted on the cranks, the connected cranks and plates of one set being arranged to move in a smaller circle than those of an adjacent crank and plate.

**MACHINE FOR MAKING CONTINUOUS INLAID LINOLEUM.**—Louis William Lowe, Linoleumville, N. Y. The object of the invention is to provide a new and improved machine for making continuous inlaid linoleum in a very simple and economical manner. In brief, the invention consists in the combination of the assembling cylinder provided at its periphery with devices for holding the material, feed mechanism arranged adjacent to the assembling cylinder to deliver pieces of material thereto and form said pieces into a continuous sheet, and a guide roller over which passes a sheet of backing, said roller being arranged adjacent to the cylinder, but in advance of the feed mechanism, to guide the backing to the continuous sheet of assembled pieces on the cylinder and bring said pieces and backing together to form a continuous, coherent sheet.

**COIN FREED LETTER POSTING OR STAMPING MACHINE.**—Detalmo Di Brazza Savorgnan, Rome, Italy. This invention relates to letter boxes or receptacles designed to be placed in any desired locality for depositing letters to be mailed, and it comprises mechanism for progressively numbering the envelopes as they are deposited and after the proper coin or coins shall have been deposited to prepay the postal fee. In this machine or depository is embodied means for indicating on the envelope the place and date of deposit, the numeral or numerals which serve in lieu of the ordinary printed and attached stamp, and also means to designate on the envelope the amount of postage deposited therefor, whether domestic or foreign. It further embodies means for making a permanent record of the number on the last letter deposited prior to the removal of the letters by an authorized agent of the government, and also means for making a permanent record of the whole amount of coin removed from the machine by an authorized agent. It further embodies means whereby a letter may be placed in the machine and operated upon after a coin shall have been placed in the proper chute, and whereby the said letter may be returned to a position to be removed by the depositor, should he be aware that a greater amount of postage is required, thereby enabling him to again deposit the letter with a sufficient amount of coin to wholly prepay the postage.

**TOBACCO GRANULATOR.**—John W. Daniel, Owensborough, Ky. This invention relates to certain improvements in granulating machines, such as are especially adapted for granulating tobacco. The invention consists in a machine for granulating tobacco, of the combination of a body having an open top and provided with an opening near the bottom of its front wall, a curved screen having a concave upper face arranged at the upper part of the body, a curved cover hinged at its rear edge to the upper part of the rear side of the body and provided with a hopper in its top and a discharge opening in its rear part, a shaft journaled transversely at the upper part of the body, the curvatures of said screen and of the cover being concentric with said shaft, whereby a circular chamber is formed at the upper part of the body, a drum secured on said shaft inside said circular chamber and provided on its periphery with projecting blades arranged to press the tobacco leaves against said curved screen and to throw the refuse through the discharge opening in the rear part of the cover, an inclined screen pivoted in the lower part of the body, with its extremity extending through the opening in the front wall thereof, said inclined screen being adapted to receive on its upper side the granulated material passing through said curved screen and having means for vibrating it, said body having its rear wall closed from the discharge opening in the cover down beyond the rear end of said inclined screen, and a dust receptacle arranged in the bottom of the body below said inclined screen.

**MANUFACTURE OF SEAMLESS TUBING.**—Hartley Howard Jack, Hollidaysburg, Pa. The invention is an improvement in the manufacture of seamless tubing, and it consists in the improved process and in the apparatus. The process includes rolling or compressing the ingots while the same are upon a revolving longitudinally movable mandrel section, whereby there is imparted to the interior of the ingot, while the exterior thereof is being compressed, broadly, a rotary motion, and specifically, a rotary spiral motion.

**DEVICE FOR AUTOMATICALLY CONTROLLING CLOSING HATCHWAY OR OTHER DOORS.**—Frederick F. Jackson, Richmond, Ind. This invention relates to a device for automatically controlling the closing of hatchway or other doors, and it has for its object to provide a system of wiring having connection with the locking mechanism for the doors, and a series of fusible links in the wiring, which will quickly melt in case of fire and allow certain releasing mechanism to operate. In brief, it consists of a device for automatically controlling hatchways or other doors, comprising door locking mechanism, a suspended weight for releasing the locking mechanism, means for holding said weight suspended, a chain or the like forming part of said holding means, a wire, having fusible links extended about

the ceiling, one end of said wire engaging a tension device for said chain, a pivoted lever forming part of the tension device, and a connection between the lever and chain or the like.

**FLUSHING APPARATUS.**—Fra P. Gilberti, Wood Haven, N. Y. The invention relates to flushing devices for closets; and the object is to provide an apparatus simple in construction, in which float valves are dispensed with, and in which the flushing water will discharge under considerable pressure. The invention consists in a flushing apparatus, of the combination with a bowl of a stand pipe comprising a cylinder or tank, a controlling valve in the stand pipe between the cylinder and bowl, an overflow pipe communicating with the stand pipe between the controlling valve and bowl, and having a connection with the upper end of the cylinder, an automatically opening check valve in said connection and an adjustable air valve communicating with said connection.

**WRENCH.**—William John Leach, Brighton, Wis. The invention relates to wrenches used for applying and removing vehicle axle nuts, and its object is to provide a new and improved wrench which is simple and durable in construction, and arranged to securely hold the nut in place after removal from the axle, to prevent the greasy nut from soiling the hands of the operator and from falling upon the ground and becoming soiled itself. The wrench is provided with an open arched jaw, the members of which have slots in their ends and an arched spring fastened at its middle to the middle of said jaw and hugging the sides thereof, its lower ends being curved upwardly and inwardly through said slots, whereby their extreme ends project within the inner faces of said jaw to engage the sides of a nut.

**BICYCLE SUPPORT.**—Walter J. Smart, South Orange, N. J. The invention relates to racks or supports for bicycles, and the object is to provide a simple device adapted to engage and support a bicycle without attaching the device to the wheel or frame by means of clamps or similar devices, which not only mar the machine, but require a considerable time to adjust. It consists of a bicycle support, comprising a single strip of metal bent to form vertical members and horizontally disposed members arched upward between their ends to engage a wheel, a base block secured at the junction of the vertical and horizontal members and a front base block secured to the ends of the horizontal members, the said front block having its upper surface inclined downward in both directions from a line between its front and rear edges.

**STEP LADDER.**—Charles H. Dyar, of Ontario, Cal. The invention relates to step ladders, and particularly that class of step ladders in which the support or brace is provided with rungs, and is adapted to form an extension of the step ladder proper by being swung on a pivot until it aligns with the step ladder. The improvement consists of a ladder comprising two pivoted sections, one of which embraces the ends of the other section, the narrow section having above and below its pivot point outwardly extending projections whose faces are adapted to simultaneously engage the sides of the wide section above and below the pivot point thereof when the sections are swung into alignment.

**SULKY.**—Clarence Eugene Brockman, Mount Sterling, Ill. The invention relates to an improvement in sulkies, and especially to an improvement in racing sulkies; and the object of the invention is to so connect the wheels with the frame of the sulky that the said wheels will offer but comparatively little resistance when turning a curve, since the wheels will be so hung that they will automatically conform to the curve to be taken. A further object of the invention is to provide braces for the wheels, which in event of the guide arms regulating the turning of the wheels should break, said braces will act to prevent the wheels taking a position dangerous to the safety of the rider. The invention consists in a sulky, of a frame, hangers pivotally mounted in the frame and arranged to journal the wheels of the sulky, and guide arms attached to the hangers, having sliding movement at their forward ends on the shafts of the sulky, whereby the wheels will accommodate themselves to the curves around which the sulky may be drawn.

**PUMP.**—Antoine Aristide Delpoyrou and Léon Joseph Roussein, Paris, France. The invention consists of certain features of improvement relating to that class of pumps in which in lieu of a piston or plunger a bellows-like compressible chamber, made of India rubber, is employed by the forcible expansion and compression of which the liquid is alternately sucked into the pump and forced to the required height. The invention includes various novel features. It comprises a pressure disk connected to the pump rod and adapted to compress the bellows chamber, the disk acting also as a piston to draw water into the casing surrounding the bellows chamber, so that water is forced alternately up by the bellows through the hollow piston rod and upward through the casing surrounding the bellows.

**WINDMILL.**—Jacob L. Rust and Franklin M. Rust, Glendale, Ill. The invention relates to certain improvements in windmills, and has for its object to provide a mill of a simple and inexpensive construction, which shall be strong and durable and not liable to become broken or deranged, having its wind wheel provided with means for holding it normally in the wind, and adapted, when the wind becomes too high, to permit the operation of the wind wheel with safety, to be thrown out on the wind. In brief, the invention consists in a windmill, of the combination of a base piece, a shaft mounted to turn thereon and adapted to swing in a horizontal plane, a wind wheel mounted on said shaft and provided with a clutch member at one end, a clutch member connected to the shaft, a spring arranged to hold the clutch member on the wind wheel normally engaged with the clutch member on the shaft, means for moving said clutch members out of engagement and gearing connected to said shaft.

**OIL WELL PUMPING POWER.**—George W. Grimes, Bluffton, Ind. The invention relates to devices for converting motion to pump actuating rods or lines, for the purpose of pumping oil or water wells

which may be distributed over a considerable territory and in any direction from the power, and to successfully operate them in numbers. A leading object of the invention is to reduce to a minimum the friction between the eccentrics and the pump rod rings, thus adapting the device for the operation of a large number of surrounding pumps at the expenditure of comparatively small amount of engine driving power.

Electrical.

ELECTRICAL APPARATUS FOR CONTROLLING MOTION OF CRANES.—John Augustus Essberger and Alexius Wilhelm Geyer, Berlin, Germany. With the introduction of the method of actuating, raising and lowering apparatus of all kinds by electrical energy, it was felt necessary to effect a simplification not only in the general construction of the apparatus, but also in the appliances for controlling and regulating the working thereof. The present invention has reference to the latter purpose, and consists in two arrangements whereby the movement of a load by means of cranes or travelers can be easily controlled and regulated by electrical energy in a manner capable of ready supervision. With cranes having two separate motors, one for raising the load and the second for turning the crane, there are provided, more particularly in electric cranes, two starting and regulating resistances, and in addition for working the brakes there is a lever for each brake. If now rheostats without automatic reversal of the motion are provided, the engineer will, under certain circumstances, have to work six levers.

Agricultural.

GRAIN SEPARATOR.—John Wesley Woodruff, Wise, West Virginia. The invention relates to improvements in grain separators, and has for its object to provide a separator by means of which grain and the like can be thoroughly separated, cleaned and graded. The invention has also for its object to provide means whereby the several parts can be quickly and readily adjusted to suit different kinds of grain or seed. A still further object of the invention is to provide a very simple, inexpensive and effective machine. In brief, the invention consists of the combination with a vibrating screen frame, a hopper pivoted at its rear end and having an interlocking engagement at its front end with the side bars of the screen frame.

ROTARY HARROW.—James G. Ferrill, Batesville, Ark. This invention is an improvement upon the harrow for which the same inventor has already obtained a patent. This former patent consist essentially of two rotary harrows connected by a rigid coupling. The new improvement consists in the construction of the devices for coupling the harrows and the construction and attachment of the tongue or pole.

Miscellaneous.

BEDSTEAD FASTENING.—Edwin F. Tilley, New York, N. Y. The object of the invention is to provide a superior fastening of that class used in connection with bedstead side rails constructed of angle iron, the purpose being to provide a device which is reversible, whereby the horizontal member of the side rail may be placed at the upper or lower portion of the vertical member. In brief, the invention consists of a bedstead fastening, of the combination of a leg section having two lugs, and a pin held between said lugs, a side rail section having vertically aligned lugs adapted to fit within the space between the lugs on the leg section, and a hook pivotally mounted on the side rail section and adapted to align with the lugs on said section and also adapted for engagement with the pin on the leg section.

PENCIL HOLDER.—Granville Bartlett, Rushville, Indiana. This invention is an improved pencil holder adapted for wear upon the coat, vest, or similar garment. In brief, the invention consists of a pencil holder composed of a main plate having its opposite sides bent, forming jaws hinged to said plate and cooperating with the jaws thereof and means for securing the holder in position for use.

POOL TABLE RACK AND TALLY.—George F. Goss, Wallaceton, Pa. This invention is an improvement in pool tables and especially in the racks therefor, and the invention has for an object to provide certain improvements upon the device shown in a former patent issued to the same inventor. In brief, the invention consists in a pool table of a series of oscillating frames movable one in one direction and the next in the reverse direction, and provided after the first of the series with projecting arms or portions arranged to engage the preceding or next frame in advance, whereby as the frames are successively moved each will return its immediately preceding frame to its original position, and devices controlling the passage of the balls connected with and operated by said frames.

SWEETENING OILS.—Martin H. Smith, New York, N. Y. The object of the invention is to provide certain new and useful improvements in sweetening fixed and essential oils, whereby the general nature of the oil treated is not affected to any perceptible degree. The invention consists of phloroglucin or glucin, C6H3(OH)3, forming a solution with the oil. As heretofore practiced, oils were sweetened by dissolving in them by maceration, with or without the aid of heat and by the aid of acids or alcohol, the sweetening agents saccharin or dulcin, or by adding saccharin, dulcin, or sugar to an emulsion of the oils.

SPOOL WIRE FRAME.—Russell Fraser, of Brooklyn, N. Y. The object of the invention is to provide a frame especially adapted for holding spools of wire, the frame being so constructed that the spools, when full, or partially full, are held firmly in place, and whereby when the spools become empty they can be expeditiously and conveniently removed and full spools substituted. The invention consists in a spool frame or rack for wire, having brackets longitudinally secured to a lock plate near each side thereof, each bracket having circular openings therein, said openings being in horizontal alignment and adapted to receive spindles loosely passed therethrough, on which are mounted spools wound with wire and angular spring plates consisting of a shank member secured to said back plate at the rear of each

spool, and a longer tension member adapted to bear firmly against the wire on the spool, whereby a strong frictional engagement between said spindles and said openings is effected.

YARN DYEING MACHINE.—Jonathan William Grant, Fall River, Mass. The object of the invention is to provide a new and improved machine for dyeing random or variegated cotton or other yarn in a very simple and economical manner. In brief, the invention consists in a dyeing machine provided with a revoluble drum comprising a series of longitudinal bars, which support the yarn in hanks, bearings for the said bars provided with a cam surface, a clamping bar for each longitudinal bar and a lever connected with each clamping bar and adapted to engage the cam surface of the bearing for the corresponding longitudinal bar.

WATER GUN.—John Walter Wolff, Winston, North Carolina. The invention is an improved water gun, and the invention has for an object to provide a simple construction of gun or pistol in which, as the gun is fired, a water bulb or ball will be compressed and cause a stream of water to be ejected from the muzzle, furnishing an effective and amusing toy. It consists of a gun or pistol provided with a bulb or ball and a bulb compressor carried by the gun or pistol and operated by the act of firing.

SHOE.—Landlin Rieger, Ottoville, O. The object of the invention is to provide a new and improved shoe, which can be cheaply manufactured, is durable, retains its shape when used, and at the same time is sufficiently flexible to insure comfort. The invention consists principally of a shoe formed of a single piece of flexible material, and having its sides and quarters cramped up from the sole to unite the sides with the side edges of the vamp or tip, likewise cramped up from the front end of the sole.

AUTOMATIC CUTOFF AND FILTER.—Edward C. Fremaux, Rayne, La. This invention relates to devices for discharging rain water from a roof into a cistern or similar receptacle, the object being to provide a device whereby the initial flow of water from a roof, at the beginning of a rain storm, will be directed to the ground outside the cistern, thus preventing dirt and impurities that may have gathered on the roof during a long dry spell from entering the system, and then, after the roof shall have been thoroughly cleaned or washed, to direct the water into the cistern. With this end in view, the invention consists in a receiver attached to the lower end of a water leader, and comprising two legs or members, one of which is extended into the cistern and the other directed to the outside thereof, and having means for automatically changing the direction of the water flow.

HORSE SHOE.—Edward W. Euge, Lebanon, Mo. The object of the invention is to provide a new and improved horse shoe, arranged to permit of readily removing worn-out toe and heel calks and replacing the same by new ones, without weakening the shoe or removing it from the animal's hoof. The invention consists of a toe calk and heel calks, each having an apertured flange, key pins held on the shoe and passing through the apertures in the flanges, and keys for the pins for securely engaging the faces of the flanges and securely fastening the calks in place on the shoe.

Designs.

DESIGN FOR A HANDLE FOR SPOONS.—Austin F. Jackson, Taunton, Mass. The principal features of the front face of the design are a smooth convex panel, a terminal ball with interned scrolls. Beaded scrolls extend along down toward the swelled portion, which latter has marginal interned scrolls. A marginal bead extends along the shank portion to the swelled portion of the spoon bowl or fork head and terminates in a scroll displayed along the edge of the latter. The principal features of the back side of the handle is a concave panel, whose end is surmounted with the same terminal ball and symmetrical scrolls that appear on the face. A marginal bead extends along the edge of the wide portion of the handle to the swelled middle part, which latter has a series of interned shoots or buds. The same marginal bead which appears on the front side also appears on the back side of the shank, while a shell pattern of scrolls is placed on the broad end of the bowl of the spoon or broad head of the fork at the point where the handle joins onto it.

DESIGN FOR A SPOON.—Austin F. Jackson, Taunton, Mass. This design is mainly distinguished by a handle, the cross section of which presents a broad central corrugation and narrower corrugations at the sides. The design also includes certain novel scroll-like ornaments and beaded work.

DESIGN FOR A CULINARY UTENSIL.—Annie Leonard, Lawrence, Kansas. The design in its entirety presents a top of circular form and an inwardly and downwardly projecting circular flange, the said top having a depressed center in which appears a horizontally disposed cylindrical member, and a loop joining with such cylindrical member at the ends of the latter, the top and the flange having numerous openings. The leading feature of the design consists in the utensil having a circular top and the flange projecting inwardly and downwardly from the top at the edge.

DESIGN FOR GARMENT HANGER.—Zephiren Duchemain, Haverhill, Mass. The hanger comprises the wire skeleton top presenting the two oppositely projecting horizontal members, the sides of which have downward extensions, two of which are joined by a crosspiece having a downwardly turned upper end, the forwardly extending member, that is composed of two arms forming continuations of the extensions, the said arms being return bent the vertical skeleton shank, the two members of which are continuations of the forwardly extending member, and the hook-like termination which ranges upward and outward in front of the shank, and the members of which hook have rearward bends which are joined to the shank by downwardly and inwardly curved bends that cross at the bottom of the hanger.

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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. 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.

(6896) T. O. Z. writes: Kindly explain why the days continue to lengthen in the evening to the end of June and December, while they shorten in the morning at the same time. A. The change in the time of the rising and setting of the sun throughout the year is due to the eccentricity of the earth's orbit. The sun being in one of the foci of its elliptic orbit, the earth does not move with the same apparent or angular velocity through its semi-ellipse, which causes the angular position of the sun to vary with the position of the earth in its orbit for every day in the year. The sun being apparently slow or behind clock time from about December 24 to April 15, when sunrise and sunset are at equal times from 6 o'clock. The sun then begins to be slow, and returns again to clock time about June 15, when it again becomes fast and returns to clock time about September 1, then again slow until December 24. Thus four times in a year the solar and mean time correspond; at all other times the sun is ahead or behind the mean time, and as sunrise and sunset is recorded in the almanacs in mean or clock time, the variation of the rising and setting of the sun from 6 o'clock shows the amount of the sun's apparent eccentricity due to the elliptic orbit of the earth, a small part of the variation being also due to the inclination of the earth's axis to the elliptic.

(6897) C. B. A. says: 1. If you deem it of sufficient general interest, I would be pleased to know, through your query column, of some good preparation for applying to pasteboard or celluloid to make an artificial slate. A. Dissolve 4 ounces shellac in 1 quart alcohol; add lampblack, 6 drachms; ultramarine blue, 1 drachm; pumice stone, powdered, 3 ounces; rottenstone, powdered, 2 ounces. Have the board dry and free from grease. Sodium silicate, diluted with water, and colored with lampblack, suspended in a little of the silicate, makes an excellent slating. 2. Formula for luminous paint. A. For formulas for luminous paint see SUPPLEMENT, Nos. 229, 249, 497, 539, 922, 939, price 10 cents each.

(6898) L. B. P. says: Will you please give me through the columns of the SCIENTIFIC AMERICAN a receipt for cleaning wool carpets without removing from the floor? A. Have ready a number of dry coarse cotton or linen cloths, some coarse flannels and one or more large pieces of coarse sponge; two or more hard scrubbing or scouring brushes, some large tubs or pans, and pails, and also a plentiful supply of both hot and cold water. First take out all grease spots; this may be effected in several ways. Well rub the spot with a piece of bard soap and wash out with a brush and cold water, and well dry each spot before leaving it. Or use, instead of the soap, a mixture of fuller's earth, gall and water, well rinsing and drying each spot as before. When this has been done, the carpet may be cleaned by the first method mentioned.

TO INVENTORS.

An experience of nearly fifty years, and the preparation of more than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequalled facilities for procuring patents everywhere. A synopsis of the patent laws of the United States and 100 foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices, which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO. OFFICE SCIENTIFIC AMERICAN, 361 Broadway, New York.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted June 30, 1896, AND EACH BEARING THAT DATE. (See note at end of list about copies of these patents.)

Table listing various inventions and their corresponding patent numbers, including items like Acid and making same, Aerated water fountains, Air drying apparatus, Alarm, Amalgamator, Animal trap, Antimony ores, Anvil attachment, Ball, Halsey & Little, Band cutter and feeder, Basin, etc., Battery, Bearing, roller, R. Eichsteadt, Heating out machine, E. H. Taylor, Bed, P. E. Rooney, Bedstead, E. E. Peck, Bedstead fastening, E. F. Tilley, Bee feeder, J. S. Rooker, Bicycle crank shaft and crank shaft bearing, H. E. Stahl, Bicycle lock, Bailey & Pond, Bicycle pedal clamp, G. C. Sherman, Bicycle saddle cushion, J. H. Sager, Bicycle spokes, wire, or other like articles, machinery for manufacturing C. C. Hill, Bicycle support, F. B. Steele, Billiard cue tip, F. B. Purdy, Blind, venetian, L. Gunn, Boat construction, ferry, H. See, Boat detaching and recovering apparatus, E. C. Hillyer, Boats, construction of, F. A. Merrett, Boiler and steam generator, W. H. Weibtmann, Boilers, means for suppressing concussion or hammering shocks in pumping water to, C. G. P. de Laval, Bolt heading machine, chaplet, G. J. Fanner, Book holder, W. H. J. Parkes, Book holder, S. Van Meter, Books from bookcases, device for withdrawing, G. Morton, Boot or shoe, G. W. Sleeper, Booth, folding, C. Engert, Bottle, A. D. Vreeland, Bottle, J. M. Grau, Bottle cap, A. Boisselet, Bottle finishing tool, A. P. McKee, Bottle, ink, E. Shafer, Bottle, mullage, W. T. Williams, Bottle, non-metallic, R. Kirsch, Bottle washer, Seam & Muth, Bouquet holder, W. H. McWhirter, Box, See Car sand box, Fare box, File box, Miter box, Newspaper box, Pepper and salt box, Sand box, Box lids, counterpoise spring for, E. E. Peck, Box or container for rosin, etc., J. E. J. Bonn, Boxes or cans, machine for placing covers on, C. A. Gildemeyer, Bracket, See Shade or curtain bracket, Brake, See Car brake, Wagon brake, Brake pipe, coupler, M. L. Sawyer, Brake shoe, composite, W. W. Whitcomb, Bridge safety device, draw, J. Coup, Bridges and railway crossings, safety gate for draw, W. F. Condon, Brush machine, H. M. Sbrady, Buckle, J. F. Beckle, Bung, faucet, D. Beebe (reissue), 11,552, Burglar alarm, W. J. McCollom, Burial casket, J. B. Anderson, Burner, See Gas burner, Hydrocarbon burner, Cabinet, A. D. Acers, Can, See Vase or can, Can opener, W. Carmichael, Can opener, D. Hall, Cap, S. S. Hirschberg, Cap, I. Pachner, Car ballast unloader, P. E. Boyce, Car bolster, metal, W. Case, Car brake, E. Vallat, Sr., Car, combination freight, T. S. Easterbrook, Car coupling, J. C. Donahue, Car coupling, J. E. Forsyth, Car coupling, Grady & McMillan, Car coupling, C. D. Morgan, Car coupling, Meeker & Taylor, Car coupling, R. L. Parker, Car coupling, W. F. Richards, Car coupling, J. C. Taylor, Car coupling, E. D. Whipple, Car door, C. W. Crompton, Car fender, R. B. Pullan, Car fender, H. A. Webster, Car fender, O. A. White, Car fender, O. L. Whitney, Car, freight, G. B. Davis, Car guard, G. B. Great, Hinmy & Adams, Car replacer, G. R. Dodd, Car safety device, railway, C. A. Ball, Car sand box, E. Heis, Car signal, T. A. Brown, Car track siding device, J. T. Porter, Cars, automatic speed controller for electric, H. A. Seymour, Cars, fluid pressure brake mechanism for railway, L. J. Geuett, Card, playing, J. Omwake, Cards, etc., holder for, House & Ford, Carding engine, A. Langewald, Cart, delivery, W. S. Reynolds, Cartridge, paper shell, J. Gardner, Case, See Mailing case, Shipping case, Cash recorder and refunding machine, W. A. Elm, Cash register, Cash indicator, J. A. Keyes, Casting machine, ball, P. C. McGrath, Cement, hydraulic, G. W. A. Stein, Chair, See Combination chair, Churn, J. F. Class, Churn, E. J. Toop, Cider press, G. Orte, Cigar bunching machine, Yellowley & Meyer, Clamp, See Bicycle pedal clamp, Billiard cue tip clamp, Clamp, B. G. Casler, Clamp, W. W. Hubbard, Clamp, A. F. Schulze, Clamping device, J. H. Stockham, Clevis, chain, C. A. Tower, Clock, electric programme, D. Ogden, Coal or rock drilling machine, Southwick & Walker, Cook box cover, stop, J. P. Merrin, Comb, H. M. Wilson, Combination lock, F. Salquist, Combination lock, I. Iverson, Combination lock, E. F. Price, Conveyor, G. Steurin, Copying apparatus, G. Mignien, Copying device, steam, C. L. Halsted, Cop tube core or spinnule, Lever & Grundy, Copper from ores, extracting, J. Douglas, Corset, Loomer & Howd, Coupling, See Brake pipe coupling, Car coupling, Hose coupling, Thrill coupling, Cracker machines, device for raising or lowering cutting plates of, H. M. L. Anderson, Crushing and grinding mill, Duffield & Taylor, Cultivator, S. L. Allen, Cultivator, Gross & Moore, Curtain pole, W. M. Scheffler, Cushion, spring and air, P. Forsberg, Cutter, See hand cutter, Feed cutter, Cycle seat, S. H. Pullman, Damper, automatic, H. Broeker, Dental engine, E. H. Berry, Dental handpiece, J. S. Brown, Die, J. R. Smith,