RECENTLY PATENTED INVENTIONS.

Railway Appliances.

TRACK LIFTER.—William L. Whitfield, Ocala, Fla. In this device the lifting mechanism is supported on a truck frame, a toothed wheel fixedly held on the axle being engaged by an operating lever, and there being connections between vertically arranged rack bars and the axle. One of the rack bars is termed a jack bar, and has a removable foot or rest member, supported on the ground, the opposite rack bar, termed the lifting bar, having at its lower end clamp hooks to engage the tie. By this arrangement, on the operation of the lever, the tie track and the truck are both raised simultaneously.

Mechanical Appliances.

WRENCH.—William C. Lawrence, Casselton, North Dakota. The body bar of this wrench has a jaw formed at one end, and upon the surface of the body is firmly secured a nut through which extends an adjusting screw with which is pivotally connected the shank of a hook-shaped jaw adapted to extend over the jaw on the body, whereby the hook-shaped jaw may be dropped to stand at a right angle to the body bar. The device is more especially designed as a pipe wrench, affording a firm grip which is released by a single movement of the hand, without the aid of ordinary thumb or adjusting nuts.

SAW SWAGE.—Richard E. Dimick, Rhinelander, Wis. In a slotted swage block turns a swage die having a flattened portion within the slot, near which is a stationary anvil carried by a shaft turning in the block for effecting the angular adjustment of the anvil, which may protrude more or less from the shaft. Oppositely arranged dressing dies are also actuated simultaneously with the swage die to dress one tooth while another tooth is swaged, intermediate mechanism connecting the swage die with the dressing dies. The arrangement also admits of regulating the width to which the tooth is dressed by the dies.

DIE STOCK.—Joel G. Jackson, Minneapolis, Minn. Lugs on the upper face of this stock hold the dies, one lug being straight and having on its inner edge an overhanging flange and the other lug being inclined. A wedge has lateral and longitudinal movement between the inclined lug and the dies, a face plate overlapping the wedge, while limiting screws extend through the face plate, through slots in the wedge, and into the stock body, there being a lever for moving the wedge. The dies are firmly held and may be readily inserted or removed, and by the accurate adjusting mechanism the dies may be set to cut any desired size of thread within reasonable limits.

Agricultural.

CORN HARVESTER.—Warren E. Abbott, East Monroe, Ohio. This machine has side tables which may be raised or lowered, and the tables have guide fingers with rotary cutters to cut the corn quickly and perfectly, whether it is presented to the cutter in an upright or an inclined position, or whether the roots have been destroyed by grub worms or the corn stalks are tough or withered. The rotary knives are driven from the supporting wheels, and may be conveniently thrown out of gear with the driving mechanism, or the cutters may be thrown out of the path of any of the stalks which it may be desired to leave standing as supports for the shocks.

GRAIN SCOURING MACHINE.—Peter Provost, Menominee, Mich. This invention provides an improvement upon machines which have been made the subject of several former patents by the same inventor, the construction being simple and durable and the machine being designed to scour and polish the grain perfectly and remove all impurities. A revolving disk carrying a woven wire scouring disk discharges into a ring provided with annular interior flanges formed with slots and openings for the passage of the grain, a fixed wire disk being supported on top of the ring, to which is bolted a second ring carried by the second wire disk, while downwardly extending projections are arranged on the second ring to engage the first ring.

STRAW CARRIER.—Howard and George Ghere, Frankfort, Ind. This improvement may be attached to any form of thrashing machine, and has a level table receiving the straw from the thrasher and delivering it to the elevators. The wind is prevented from interfering with the transfer, and the body of the carrier may be made in two sections, one to be placed beneath the other or to extend a certain distance beyond its outer end. Simple means are also provided to give any desired inclination and elevation to the elevator sections of the carrier, the movable elevator sections being readily manipulated.

BAND CUTTER AND FEEDER FOR THRASHING MACHINES.—George N. Kern and James W. Fielder, Mason City, Ill. The feed boards or pans, according to this improvement, move in horizontal planes, and are alternately reciprocated, each feed board being provided with a series of adjustable fingers whereby the grain is presented to the cylinder of the thrasher in the best shape and with a movement as nearly as possible to that of hand feeding. Over the feed device and in front of the delivery end of the carrier are located knives to cut the ties of the bundles. The attachment may remain permanently attached to the thrasher and be disposed of in such manner as not to be in the way.

CHURN.—Hiram F. Quigley, Atoka, Indian Ter. This is a dasher churn, having a perforated inner cylinder for the dasher to work in, this cylinder being open at its bottom, where it has an outside encircling flange resting upon the bottom of an outer close cylinder. When the perforated cylinder is lifted out after churning it brings out the butter, which forms upon the top of the buttermilk and upon the sides of the cylinder.

SHEPHERD'S CROOK.—Robert L. Renz and Henry Weidman, Poplar, Montana. This crook has a smoothinner surface at its crook portion, and a curved spring secured to the shank and extending forward to normally press the inner surface of the crook portion, the free end of the spring extending within an orifice of the shank, thus affording a spring latch by means of which the leg of an animal may be caught and held.

Miscellaneous.

HARNESS SUSPENDING DEVICE.—Louis Townsend, Evansville, Ind. That fire engines may more quickly respond to alarm signals it is usual, in city fire departments, to employ suspending devices by which the harness is held in such position that it may be quickly dropped upon the horses, thus effecting a great saving in the time of harnessing. This invention provides an improvement in such devices, comprising a counterbalance, a harness bar with spring-actuated bolts at its ends and intermediate trigger connections, with an operating cord, and various other novel features.

DETACHABLE TIRE.—Arthur C. Gillette, Jersey City, N. J. This is a flexible tire and guard formed from a single piece of sheet metal, with spurs on its face and fastening lacings for securing it to the felly of the wheel. It is especially adapted for use upon bicycles with pneumatic tires, to which it may be quickly strapped to enable the wheels to be ridden safely over rough ground or ice, and being readily removable. It is also a practical ice creeper for the wheel, facilitating all riding over ice and snow.

ELASTIC HORSESHOE.—Michael Hallanan, New York City. A rubber shoe which has an integral rubber pad and frog is provided by this invention, the shoe being continuous to form a complete closure of the hoof, and having a backing of leather with an interposed layer of canvas, the whole being united together and affording a firm bearing for the horse, while being sufficiently yielding to prevent jar.

HORSESHOE AND PAD.—The same inventor has patented a further improvement by which the shoe and pad are so made as to give the horse a firm bearing and relieve the foot of strain at the inside quarter, by causing the weight to come on the pad and on the shoe at the outside quarter. The pad has a yielding frog and a raised bead, outside of which is a flange on which the shoe is seated, having a reduced thickness at the inside quarter, where the surface of the pad projects beyond the shoe. The facing of the pad is of rubber secured to a layer of canvas, and this is backed by leather; but, to absolutely prevent the picking up of nails, a thin steel plate is interposed between the leather and the canvas.

FLOATING SIGNAL FOR SUNKEN VESSELS.—Johan Larsson, Ludington, Mich. This is a buoy to show the location of a sunken craft, whose name will be indicated on a flag carried by the buoy, while room is provided for a hermetically sealed case with memoranda. The buoy is supported on the vessel, in connection with a line attached thereto, arranged in such a way that should the vessel sink the line will be paid out, and the buoy will float over the sunken vessel to which its line is attached.

WINDMILL.—Edwin L. Davies and John N. White, Salt Lake City, Utah. Tubular arms connected with the wind wheel shaft carry reversely located vanes extending farther below than above the arms, the arrangement being such that on one side of the hub the vanes will be perpendicular and on the other side horizontal. A shaft connects the vanes of each arm, and a centrifugally operated governor slides on the vane shafts, whereby the vanes will be carried with their edges to the wind when it blows too hard, or the speed may be automatically limited to a certain rate.

SULKY.—Moses McCormick, Baltimore, Md. This is a trotting sulky with pneumatic tires, and with an arched axle extending centrally well above the tops of the wheels, while to each downwardly bent end of the axle are bolted two metal bars, whose lower ends form an outer and inner bearing for an individual axle for each wheel, one of the bars descending upon the outside and the other upon the inside of the wheel.

BOOKCASE.—James Stimson, Watsonville, Cal. This is a case or stand suitable to rest upon any flat surface, as a bureau, mantel, desk or table, or to stand upon brackets, and hold books of reference or volumes in frequent use. It comprises but three pieces, a base and two L-shaped clamping arms, and the number of volumes accommodated is regulated by the length of the stand. When not employed it may be compactly folded and stored away.

PIANO HAMMER.—John Ammon, New York City. The hammer head, according to this invention, is forked, and a felt made from a V-shaped blank, and doubled up at its sides, the contacting faces being fastened together, is inserted in the fork. A simple and durable hammer is thus made, not liable to get out of order, and one which will sound the string to avoid hardness and produce a very clear tone.

ROLLER SKATE.—Russell C. Leedham, Salt Lake City, Utah. The wheel of this skate is supported in a frame that is spring-cushioned on guides to be attached to the wearer's feet and legs, provision being made to prevent any backward movement of the wheels. The tire or periphery of the wheel is rubber covered, and the cushion springs absorb the shocks of a rough road, enabling rapid progress in use, and the ready ascent of moderate grades, by simply stepping forward as in walking or running.

LIFTER OR DRAINER.—William W. Olcott, Fremont, Neb. This is a simple device, consisting of two oppositely arranged wire members crossed and pivoted on a common fulcrum, so that their upper portions serve as handles and their lower portions as a clamp to hold the body portions of kettles, pots, pans, and similar articles, so that when they and their contents are hot they may be easily and safely handled and drained. The device holds the cover in place, and holds the body of the kettle, etc., in a rigid manner, so that it may be tipped as desired.

DESIGN FOR A TEA OR COFFEE POT.—Austin F. Jackson, Taunton, Mass. This design presents an original shape and rich and novel ornamentation of the bowl, as also of the mount and top, the spout and handle also showing most artistic and elaborate decoration.

SUSPENDER ATTACHMENT.—Georg L. Heuler, St. Louis, Mo. Clips, with perforated lugs in which are rings engaging a middle bar having a central opening, are secured to the trousers at the front and rear by means of eyes or spurs, the central opening of the middle bar being engaged by a hook plate attached to or connected with the suspenders. The device is designed to afford great flexibility, be readily adjustable or removable, and the parts are not liable to become accidentally detached.

CATHETER HOLDER.—William W. Lovejoy, Cochituate, Mass. This is a simple and light device adapted to hold a catheter of any kind in proper position, so that it may be worn with comfort. It comprises a collar with which a clamping arm is movably connected, while a locking device is adapted to hold the arm stationary upon the collar.

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

NEW BOOKS AND PUBLICATIONS.

THE PRINCIPLES OF FITTING FOR APPRENTICES AND STUDENTS IN TECHNICAL SCHOOLS. By A Foreman Pattern Maker. London: Whittaker & Co. New York: Macmillan & Co. Not dated. 16mo. Pp. 313, 250 illustrations. Price $1.50.

The book describes the method of liningout work, the use of templets, chipping, filing, drifting, adjustments, repairs, joints, friction, lubricants, etc. The appendix contains a remarkable collection of useful notes, rules, and tables.

ELECTRIC LIGHTING AND POWER DISTRIBUTION. By W. Perren Maycock, M.I.E.E. London: Whittaker & Co. New York: Macmillan & Co. 1892–93. 16mo. Three parts. Pp. 452, 273 illustrations, folding plates. Price 75 cents each part.

This is an excellent work. The first chapter begins by defining fundamental units, then the general laws of electricity are given and illustrated by simple mathematics. Many of the illustrations are sketchy and show the point directly. The illustrations of voltmeters, ammeters, etc., are numerous and show the principal types. As the reader proceeds, dynamos, motors, and the various systems of distribution are described. A series of valuable rules are given in the last part. The work abounds with questions and has a good index. The series will prove a valuable addition to any electrical library.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.
References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.
Scientific American Supplements referred to may be had at the office. Price 10 cents each.
Books referred to promptly supplied on receipt of price.
Minerals sent for examination should be distinctly marked or labeled.

(5366) A. Y. writes: A recent test for pressure of our village water works, a Shaffer-Budenberg gauge being used, indicated 180 pounds, for which I claim the head in feet should be not less than 425. A party employed as foreman in the construction of these works, and who thereby has acquired a quasi-reputation in our midst as an authority upon hydraulic matters, asserts that the head is only about 250 feet, that the high pressure is owing to the careful manner in which the pipes were laid, as avoiding angles or deflections. Will you kindly set at rest this country store controversy, and possibly educate this engineer? A. The hydrostatic head due to the gauge pressure is 414 pounds per square inch. If the gauge is located at some distance from the source, the friction head should also be added to the gauge pressure, which may carry the pressure up to your figure. The careful manner of avoiding curves would lessen the otherwise friction head, but could not make it less than the static head at the point of gauge connection.

(5367) A. L. asks: What kind of paste causes paper to adhere to an iron pulley? Also, if you please give answer to my last question of three or four weeks ago, viz., how many cubic feet of natural gas an hour it takes to run a five horse power engine? A. Use the best light glue that is tough in bending the pieces. When made up thick for use, add a half gill of clear extract of oak or hemlock bark or a solution of tannic acid. Mix and use at once. The pulley should be cleaned and scratched on the face with a file to make the glue take a stronger hold. Moisten the paper and put on a number of thicknesses, gluing each layer. It will require about 600 cubic feet of natural gas, according to its heating quality, per hour for five horse power.

(5368) A. C. asks some simple way to silverplate a spot on a cornet without the aid of electricity, and please state whether or not the same will put a coat on a surface covered with black lead. A. Silver plating that has been worn off by handling can only be renewed, other than by electro-plating, by rubbing the spots with moistened salts of silver, made with nitrate silver 2 parts, salt 2 parts, cream of tartar 14 parts, pulverize and mix. The black-leaded surface can be silvered by cleaning off the black lead.

(5369) W. W. S. says: 1. Up to the present time how many people have attended the World's Fair according to the tickets sold? A. To August 28, the number of paid admissions has been 9,529,332. 2. About how many people attend the World's Fair every day on an average? A. From 105,000 to 160,000; the average is probably 120,000 each. Sunday pulls down the general average. 3. If you were going to guess on